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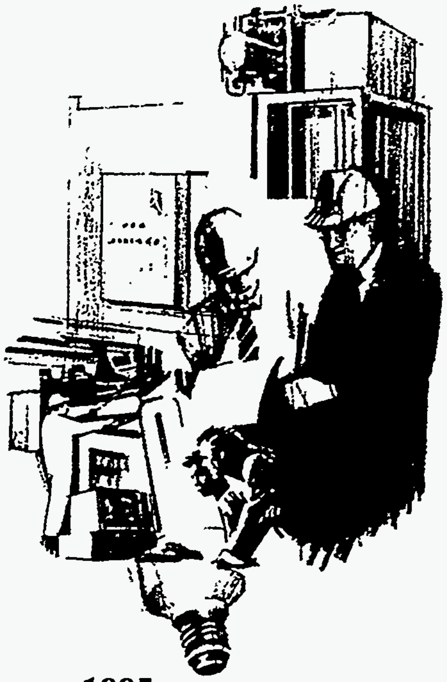
UC-350

Fort Irwin Integrated Resource Assessment

Volume 3: Sitewide Energy Project Identification for Buildings and Facilities



February 1995

Prepared for the U.S. Department of Energy
Federal Energy Management Program
under Contract DE-AC06-76RLO 1830

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Volume 3: Sitewide Energy Project Identification for Buildings and Facilities

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Abstract

The U.S. Army Forces Command (FORSCOM) has tasked the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP), supported by the Pacific Northwest Laboratory,[a] to identify, evaluate, and assist in acquiring all cost-effective energy projects at Fort Irwin. This is part of a model program that PNL is designing to support energy-use decisions in the federal sector.

This report provides the results of the fossil fuel and electric energy resource opportunity (ERO) assessments performed by PNL at the FORSCOM Fort Irwin facility located near Barstow, California. It is a companion report to Volume 1, *Executive Summary*, and Volume 2, *Baseline Detail.*

The results of the analyses of EROs are presented in 16 common energy end-use categories (e.g., boilers and furnaces, service hot water, and building lighting). A narrative description of each ERO is provided, along with a table detailing information on the installed cost, energy and dollar savings; impacts on operations and maintenance (O&M); and, when applicable, a discussion of energy supply and demand, energy security, and environmental issues. A description of the evaluation methodologies and technical and cost assumptions is also provided for each ERO. Summary tables present the cost-effectiveness of energy end-use equipment before and after the implementation of each ERO and present the results of the life-cycle cost (LCC) analysis indicating the net present value (NPV) and savings-to-investment ratio (SIR) of each ERO.

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Summary

The U.S. Army Forces Command (FORSCOM) has tasked the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP), supported by the Pacific Northwest Laboratory (PNL), to identify, evaluate, and assist in acquiring all cost-effective energy projects at Fort Irwin. This is part of a model program that PNL is designing to support energy-use decisions in the federal sector. This report describes the methodology used to identify and evaluate the energy resource opportunities (EROs) at Fort Irwin, provides a life-cycle cost (LCC) analysis for each ERO, and prioritizes the EROs based first upon whether or not they have a positive net present value (NPV) and second upon their savings to investment ratio (SIR). The SIR (the ratio of present value of the total savings to the present value of the installed cost) is used to prioritize EROs and is only applied to projects deemed cost-effective by nature of their positive NPV. EROs with negative NPVs, therefore, will not have an associated SIR measurement. Analysis results are presented in sixteen common energy end-use categories (e.g., boilers and furnaces, service hot water, and building lighting).

The Fort Irwin analysis made use of the newly developed Facility Energy Decision Screening (FEDS) software. The FEDS software is designed to identify, characterize, and assess individual energy projects. At this point in the software development, the FEDS software analyzes most major building end uses (heating, cooling, lighting, envelope insulation, and service hot water), including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads) providing specific cost, energy (and demand) charges, and life-cycle cost information, by cost-effective technology. The remaining EROs (motors, transmission and distribution, vehicles, etc.) are analyzed using manual (hand) calculation methods.

The use of two analysis methods complicates reporting of summary results. The FEDS software calculates its own baseline energy consumption based on 30-year average weather data, while the manual calculations use information developed in Volume 2, *Baseline Detail*. This results in some inconsistencies in reporting summary results between the two calculation methods. Further details on the FEDS software and the summary results are provided in Sections 1 and 3.

As illustrated in Table S.1, the present value (PV) of the installed cost of all EROs constituting the minimum LCC efficiency resource (i.e., cost-effective) at Fort Irwin is approximately $23.9 million in 1994 dollars (1994$). The PV of the energy and demand, O&M, and Replacement savings associated with This investment is approximately $87.3 million, for an overall NPV of $63.6 million.

Table S.2 provides a breakdown and summary of the cost-effective energy resource at Fort Irwin. The electric utility supplier, Southern California Edison Company (SCE), has stated that Fort Irwin can participate in their rebate program. Therefore, this analysis was completed using all applicable SCE rebates. Rebate amounts are included in the economic assumptions and results of each ERO section. If no cost-sharing with the utility can be arranged, the economic analysis can be redone at any time.

Table S.1. Total Savings, Cost, and NPV (1994$)

Total Present Value of Installed Cost	Total Present Value of All Savings	Total Net Present Value
23,908,628	87,274,447	63,625,347

Table S.2. Summary of the Cost-Effective Energy Resource at Fort Irwin (1994$)

ERO Category	Present Value of Installed Cost	Present Value of Energy and Demand Savings	Present Value of O&M Savings	Present Value of Replacement Savings	Present Value of Total Savings	Total Net Present Value
Lights (Level-2)^(a)	4,393,028	17,464,385	0	4,184,358	21,648,743	17,255,714
Vehicles	2,047,000	5,662,859	6,475,790	0	12,138,649	10,091,649
Envelope	1,400,907	11,619,936	0	-789,727	10,830,209	9,429,302
Roof (Level-2)^(a)	2,005,349	8,131,276	0	0	8,131,276	6,125,922
Fam. Hsg. HVAC	7,086,917	12,291,871	281,903	-241,994	12,331,780	5,244,863
Lighting Controls	180,827	2,512,676	719,268	0	3,231,943	3,051,116
Motors	1,362,331	4,051,014	-4,133	-504,490	3,542,390	2,180,059
HVAC	279,627	2,565,025	0	-126,243	2,438,782	2,159,155
Trans. & Dist.	2,543,519	2,242,172	-109	2,147,346	4,389,410	1,845,890
Hot Water (Level-2)^(a)	188,447	1,743,372	0	0	1,743,372	1,554924
Wall (Level-2)^(a)	907,261	1,840,887	0	0	1,840,887	933,622
Central Chillers	354,000	1,273,017	-25,831	0	1,247,186	893,186
DHW & A/C	118,124	1,001,673	-32,719	-53,507	915,446	797,322
Wells	210,500	718,156	-4,305	51,131	764,981	554,481
A/C	90	539,429	-1,550	0	537,879	537,789
Heating	235,202	700,930	0	22,215	723,146	487,944
Controls	150,400	532,652	0	-68,127	464,525	314,125
Cooling (Level-2)^(a)	165,900	274,395	0	0	274,395	108,496
Heating (Level-2)^(a)	13,016	45,366	0	0	45,366	32,352
Totals:^(b)	23,908,628	72,211,089	7,408,314	4,620,963	87,2474,447	63,625,347

Notes:

(a) Data of this level of detail are not normally available from FEDS Level-2. All values from the Level-2 software are approxiamate, and are shown only to represent the magnitude of the savings from each end use.

(b) These totals are the sum of the manual EROs and the output from the Level-2 software. They will not necessarily be the sum of the numbers above.

The operations and maintenance (O&M) savings are a reflection of the incremental cost difference between the cost of maintaining the existing equipment and that of maintaining new or retrofitted equipment. Because maintenance costs of new or retrofitted equipment are often the same as the costs to maintain the existing equipment, this incremental maintenance cost is often zero.

Accompanying Table S.2 is Table S.3, which presents a breakdown and summary of both the energy and demand savings for the first-year and full implementation of the cost-effective energy resource at Fort Irwin. The "NA's" in the table reflect that: the FEDS model does not report first year savings, it works strictly on a life cycle cost basis. Any difference between first year and full implementation results are due to replace on failure EROS, which FEDS does not consider.

For EROs analyzed by the FEDS Level 2 software (Level-2), lighting EROs represent the greatest efficiency resource, accounting for over $17.3 million of the total $63.8 million NPV and $4.4 million of the total $24.7 million installed cost. The remaining ERO categories have NPVs ranging from $6.1 million to $0.9 million, except for cooling and heating EROs, which are only marginally cost-effective with NPVs of $108,496 and $32,352 respectively.

Table S.3. Summary of the Energy and Demand Savings

ERO Category	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implement Energy Savings (MBtu)	Full Implement Demand Savings (kW-mo)	Annualized Energy and Demand Savings (1994 $)
Lights (Level-2)(a)	NA	NA	34,815	2,487	1,014,144
Fam. Hsg. HVAC	76,678	15,226	76,678	15,226	713,785
Envelope	21,862	17,099	21,862	17,099	674,766
Roof (Level-2)(a)	NA	NA	45,939	621	472,181
Vehicles	14,638	-180	14,638	-180	328,840
Hot Water (Level-2)(a)	NA	NA	40,609	20	242,457
Motors	7,814	7,343	7,814	7,343	235,241
HVAC	15,058	1,690	15,058	1,690	148,950
Lighting Controls	5,992	0	5,992	0	145,910
Trans. & Dist.	2,203	3,708	6,076	7,223	130,202
Wall (Level-2)(a)	NA	NA	10,653	123	106,898
Central Chillers	1,099	2,110	1,099	2,110	73,924
DHW & A/C	4,345	2,198	4,345	2,198	58,167
Wells	0	1,097	0	1,097	41,703
Heating	4,682	727	4,713	742	40,703
Cooling (Level-2)(a)	NA	NA	962	143	35,400
A/C	935	1,129	935	1,129	31,324
Controls	1,508	2,186	1,508	2,186	30,931
Heating (Level-2)(a)	NA	NA	-71	0	3,976
Totals:	156,813	54,331	293,623	61,256	4,529,501

Notes:
(a) The NAs in the table for Level-2 results reflect that FEDS does not consider replace-on-failure options.

For non-building EROs, vehicles represent the greatest efficiency resource, accounting for $10.1 million of the total $63.8 million NPV and over $2 million of the total $24.7 million installed cost. The remaining non-building ERO categories have NPVs ranging from $9.4 million to $314,125.

Tables S.4 and S.5 present the breakdown and summary of the total fuel balance at Fort Irwin. Table S.4 shows the energy consumption and savings predicted by the Level-2 software, for those EROs currently analyzed by Level-2. Table S.5 shows the energy consumption and savings predicted for the EROs not covered by Level-2. The existing energy consumption in Table S.4 is calculated by Level-2 based on a thirty year average weather file, while the energy data in Table S.5 is for FY90, as reported in the Volume 2, Baseline Detail companion report to this document. Total fuel use after ERO implementation was determined, where possible, by subtracting the total fuel savings from the total existing fuel use. The "NAs" in the table reflect that there are no demand charges for fossil fuels. Note that electric demand is reported as peak kWs by Level-2 but as kW-months for the manual EROs. Since peak demand is charged monthly, kW-months were used to properly track demand charges. The FEDS software does this calculation internally, reporting the difference in the demand for the peak month and the cost savings for the entire year.

Table S.4. Fuel Balance at Fort Irwin: Level-2 EROs

	Existing		Resulting		Net Conservation	
Fuel Type	Energy Use (MBtu)	Demand (kW)	Energy Use (MBtu)	Demand (kW)	Energy Use (MBtu)	Demand (kW)
Chilled Water	24,085	NA	20,118	NA	3,969	NA
District Hot Water	9,238	NA	1,558	NA	7,680	NA
Electricity	304,170	30,097	254,607	26,523	49,562	3,574
Propane	209,098	NA	138,080	NA	71,018	NA
Totals	546,591	30,097	414,363	26,523	132,229	3,574

Table S.5. Fuel Balance at Fort Irwin: Manual EROs

	Existing		Conservation		New Load		Resulting		Net Conservation	
Fuel Type	Energy Use (MBtu)	Demand (kW-mo)	Energy Use Reduction (MBtu)	Demand Reduction (kW-mo)	Increased Energy Use (MBtu)	Increased Demand (kW-mo)	Energy Use (MBtu)	Demand (kW-mo)	Energy Use Reduction (MBtu)	Demand Reduction (kW-mo)
Diesel	516,808		3,116		0		513,692		3,116	
Electricity	272,217	399,251	43,427	58,042	1,962	180	230,753	341,389	41,465	57,862
Gasoline	81,245		81,245		0		0		81,245	
Natural Gas	0		0		68,784		68,784		-68,784	
Propane	225,780		102990		0		122,790		102990	
Totals	1,096,050	399,251	230,778	58,042	70,746	180	936,018	341,389	160,032	57,862

For building EROs (analyzed by Level-2), the estimated annual electricity consumption at Fort Irwin is 89,143 MWh. Estimated electrical demand is 30,097 kW. Full implementation of all electric EROs results in a reduction of 14,525 MWh and 3,574 kW. This represents a reduction of approximately 16.3% over total electricity consumption, and 11.9% over site-wide demand. The estimated annual propane consumption at Fort Irwin is 209,098 MBtu. Full implementation of all propane EROs results in net conservation of 71,018 MBtu. This represents net conservation of 34.0% of total consumption. The end uses of chilled water and district hot water were not broken out by fuel. The estimated annual chilled water use is 2,007,034 ton-hours. Full implementation of all chilled water EROs results in a reduction of 330,720 ton-hours, or 16.5% of total consumption. The estimated annual district hot water use is 9,238 MBtu. Full implementation of all district hot water EROs results in a reduction of 7,680 MBtu, or 83.1% of total consumption.

For non-building EROs, the estimated annual electricity consumption at Fort Irwin is 79,779 MWh. Estimated electric demand is 399,251 kW-mo (sum of the peak demands for each month). Full implementation of all electric EROs results in a reduction of 12,152 MWh and 58,042 kW-mo. This represents a reduction of approximately 15.2% over total electricity consumption and 14.5% over site-wide demand. The estimated annual fossil fuel consumption (natural gas, #2 fuel oil, propane, gasoline, and diesel) at Fort Irwin is 823,833 MBtu. This total excludes any diesel and gasoline used for vehicles not addressed through EROs. Full implementation of all fossil fuel EROs results in conservation of 187,351 MBtu and a new load of 68,784 MBtu, for a net reduction of 118,567 MBtu. This represents conservation of 22.7% of total consumption, new load of 8.3%, and an overall decrease of 14.4%.

Another way to assess the energy project opportunities is to bundle the EROs by building set. A total of 98 different buildings sets were identified at Fort Irwin. Table S.6 lists the top-ten conservation projects at Fort Irwin, ranked by net savings of the combined EROs for that building set. Also included in the table are the total annual energy and demand savings, first costs of the installed ERO, and the savings to investment ratio (SIR).

Table S.6. Summary of Energy and Cost Savings Aggregated by Building Set

Building Set	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Value of Energy Savings	Value of Demand Savings	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
FH Duplex 01	3.5	11,353	2,462	$136,150	$69,627	$1,107,932	$3,702,924	$2,619,960
FH Detached 01	5.0	4.639	1,899	$63,832	$30,029	$598,269	$2,868,276	$2,246,378
Administration 09	3.3	3.709	254	$72,594	$27,017	$752,207	$2,468,683	$1,933,705
FH 3 or more 02	2.6	14,425	2,524	$178,774	$159,247	$876,083	$2,199,434	$1,631,549
Administration 03	3.4	2,425	137	$45,248	$14,462	$342,290	$1,175,987	$1,106,009
Shops 04	13.3	388	30	$7,602	$3,085	$85,401	$1,134,504	$1,062,354
FH Duplex 03	2.6	11,303	46	$69,987	$4,687	$488,746	$1,290,527	$1,010,499
Recreation 02	14.6	96	5	$1,552	$441	$68,076	$991,341	$934,389
FH 3 or more 03	2.9	4,835	54	$40,886	$5,750	$306,248	$894,407	$822,314
School/Training 02	7.7	924	81	$19,365	$8,614	$91,388	$701,634	$742,742

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Abbreviations and Acronyms

AAFES	Army/Air Force Exchange Service
A/C	air conditioning
AHU	air-handling unit
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.
BLCC	Building Life-Cycle Cost software
Btu	British thermal unit
CBECS	Commercial Building Energy Consumption Survey
CF	compact fluorescent
CFC	chlorofluorocarbon
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CNG	compressed natural gas
CVR	conservation voltage reduction
d	day
DEH	Directorate of Engineering and Housing
DEIS	Defense Energy Information System
DHW	domestic hot water
DOE	Department of Energy
DOD	Department of Defense
DOS	disk operating system
DSM	demand-side management
EE	energy efficient
EEF	energy efficient ballast
EEM	energy efficient motor
EIA	Energy Information Administration
ELC	electronic ballast
EMCS	energy management control system
EPA	Environmental Protection Agency
ERO	energy resource opportunity
ESCO	energy services contractor
EUI	end-use intensity
FEDS	Facility Energy Decision Screening software
FEMP	Federal Energy Management Program
FO2	fuel oil No. 2
FORSCOM	Forces Command
gal	gallon
h	hour
hp	horsepower
HPS	high pressure sodium
HTHW	high temperature hot water
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
IES	Illuminating Engineering Society
IRA	Integrated Resource Assessment
kBtu	thousand British thermal units
kcf	thousand cubic feet
kVA	kilovolt-amperes

KVAR	reactive demand, kilovolt-amperes
kW	kilowatt
kWh	kilowatthour
lb	pound
LCC	life-cycle cost
LED	light emitting diode
Level-1	Facility Energy Decision Screening Level 1 software
Level-2	Facility Energy Decision Screening Level 2 software
LPA	liquid pressure amplification
LPG	liquid propane gas
LPS	low pressure sodium
LST	local standard time
LTSM	Lighting Technology Screening Matrix
M	million
mo	month
MBtu	million British thermal unit
MBtuh	MBtu's per hour
MH	metal halide
MW	million watts
MWh	million watthours
NBS	National Bureau of Standards
NG	natural gas or National Guard
NIST	National Institute of Standards and Technology
NTC	National Training Center
NPV	net present value
O&M	operations and maintenance
°F	degrees Fahrenheit
PCBs	polychlorinated biphenyls
PCF	permanent compact fluorescent
PF	power factor
PNL	Pacific Northwest Laboratory
psi	pounds per square inch
PV	present value
PX	post exchange
RECS	Residential Energy Consumption Survey
REF	parabolic reflector
ROI	return on investment
RPL	real property list
rpm	revolutions per minute
SCE	Southern California Edison Company
SIR	savings to investment ratio
SHGF	solar heat gain factor
TES	thermal energy storage
T&D	transmission and distribution
VAV	variable air volume
VSD	variable speed drive
W	watt
WSEO	Washington State Energy Office
yr	year

1.0 Introduction and Identification of Energy Projects

The number of conceivable energy conservation measures, fuel-switching opportunities, and renewable energy projects at a federal site is very large. PNL uses two methods to select, evaluate, and prioritize these energy resource opportunities (EROs). These methods and the selection criteria are described in Section 1.1. Section 1.2 details the technical assumptions behind the FEDS assessment at Fort Irwin. The top-ten energy saving projects at Fort Irwin are described in Section 1.3, and pertinent information on Fort Irwin buildings is provided in Section 1.4. The balance of this report is organized as follows. Section 2 covers the technical characteristics of each ERO considered and analyzes its cost and performance. Section 3 provides the results of the LCC analysis and ERO prioritization process. Section 4 lists the references, and Appendix A provides the electricity cost calculations used in the report.

1.1 Selection of Energy Resource Opportunities

The first method PNL uses in the selection of EROs is the Facility Energy Decision Screening (FEDS) model. FEDS is a multi-level software tool designed to provide a comprehensive approach to fuel-neutral technology-independent integrated (energy) resource planning and acquisition. There are currently two levels of FEDS: Level-1 and Level-2. Level-1 is a menu-driven, DOS-based software program designed for facility energy managers as a screening tool. Level-1 assesses the likelihood of cost-effective energy projects based on high-level facility inputs and numerous assumptions. The output of Level-1 is used to assess an installation's overall energy conservation potential from the perspectives of potential energy savings, potential cost savings, and estimated investment requirement.

Level-2 is also a DOS-based software program that can be used by facility energy managers to identify, characterize, and assess individual energy projects. However, Level-2 goes to the next level of detail, providing explicit information on energy and cost savings, as well as the estimated investment requirement for specific technology retrofits. Level-2 is the appropriate analysis to follow positive Level-1 results, and typically a Level-2 input file is initiated from a Level-1 input file. Level-2 allows the user to enter installation-specific data inputs to replace the inferred default values from Level-1. These inputs form "building sets," which are groups of buildings similar in use, age, construction type, fuel use, fuel availability, or other definable characteristics. By developing building sets based on detailed facility data, Level-2 tailors the analysis to the installation and provides more accurate and detailed economic findings.

At this point in the software development, Level-1 and Level-2 analyze most major building end uses (heating, cooling, lighting, envelope insulation, and service hot water) including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads), and provide specific cost, energy (and demand changes), and life-cycle cost information, for cost-effective technologies.

The second method PNL uses addresses those EROs not specifically analyzed by the FEDS software. This analytical approach is a three-step manual-calculation process which has been developed by PNL to make ERO selection, evaluation, and prioritization a manageable process. The steps in the manual process are the following:

- **Preliminary Screening**. Select promising EROs from a master list, considering the site's mission, building stock, end-use equipment characteristics, utility characteristics, climate, energy costs, and other local conditions that affect ERO viability, and recommendations from site staff.

- **Cost and Performance Analysis**. Establish, with a reasonable degree of accuracy, the technical and economic feasibility of each ERO that passed the preliminary screening. An analysis is performed comparing the operating and economic performance of the existing equipment and the ERO. Where applicable, impacts on energy security and the environment are included in the analysis.

- **Life-Cycle Cost Analysis and Prioritization**. Perform a life-cycle cost analysis and rank EROs by net present value (NPV), so that a package with the optimal return on investment can be defined. If any utility cost-sharing or rebate programs exist, they can be included within this evaluation step.

The life-cycle cost (LCC) analysis and prioritization step used in both the Level-2 and manual methods is required by and complies with federal law (CFR 436, Part 10). All federal agencies are required to evaluate the LCC of alternative technologies when making energy investments. An LCC evaluation computes the total long-run costs of alternative actions, and identifies the action that maximizes the NPV of the energy investment. Section 3.1 details the process by which LCCs are calculated, explains how these calculations are used in the identification of projects, and introduces a method for prioritizing a list of alternative actions.

The process that was used for preliminary selection of EROs is described below. After that, a master list of screened and selected EROs is presented.

1.1.1 Manual ERO Preliminary Selection Criteria

The manual ERO selection process tests the applicability of a long list of EROs (see the master list of EROs in Table 1.1) using criteria that can be applied with relatively little "hard data." This step filters out EROs that are unlikely to be economically feasible and are unlikely to have significant, persistent energy impact at the site. The 13 screening criteria used to characterize and select possible EROs are listed below.

- **Low Incidence.** EROs that apply to end-use equipment representing a very small fraction of site energy use may be eliminated. However, such EROs may be retained in cases where the end use is concentrated rather than diffuse, or where it has been previously identified in a detailed audit, and the ERO passes the other criteria without difficulty.

- **Economic Feasibility.** A preliminary assessment of economic feasibility can often be made if the utility will commit to an incentive or cost-sharing level in advance. EROs whose costs and performance are well established and fairly uniform across applications can then be screened with respect to the utility's marginal cost of energy and/or capacity.

- **Technical Feasibility.** In some cases conditions at the site will preclude implementation of a certain ERO. Conditions that make retrofit difficult or use patterns that complicate operations or maintenance of the end-use equipment in question may result in elimination of an ERO prior to formal analysis.

- **Primarily Operations and Maintenance (O&M).** A measure that is little more than a no- or low-cost change in O&M activity will generally be rejected as inappropriate to the integrated resource acquisition program. The measures of interest to the program are capital-intensive measures that are difficult, programmatically, for the site personnel to implement on their own. Cases where there is a significant cost to develop new O&M procedures or to procure special instruments and tools may be considered.

- **Mission-Critical.** End-use equipment that serves critical mission functions may not be accessible for retrofit or replacement, or its operation may be so important to critical mission objectives that any modification in the service is not tolerable.

- **Site Preference.** The site may have particular objections to certain EROs, based on O&M or other infrastructure support requirements, or based on unfavorable past experience with similar measures. In cases where the ERO appears to be very attractive in other respects, it may be analyzed in the belief that the savings might support a reevaluation of the measure.

- **Insufficient Data.** In some cases the performance or operational characteristics of existing end-use equipment is unknown, and the cost to determine these characteristics cannot be justified. This is not a technical- or implementation-cost grounded rejection and should not deter the site energy manager and/or contractor from further analysis and, if appropriate, implementation of the ERO concerned.

- **Complexity.** In some cases the complexity of the analysis precludes the analysis of an ERO as part of a high-level, comprehensive site-assessment program.

- **Immature Technology.** Some retrofits require equipment that has not achieved sufficient market acceptance or penetration in the federal sector to be considered reliable and effective. The persistence of savings and the sensitivity of savings to O&M, and the propensity for equipment to degrade in energy performance while continuing to provide service, are factors that could disqualify a technology. Such measures will usually not be considered.

- **Other ERO-Dependent Measures.** A measure may be rejected because it depends on one or more other EROs that have been rejected or whose feasibility is too uncertain. It may also be rejected because it has already been implemented in most or all of the existing end-use opportunities.

- **EROs Handled by FEDS Level-2.** The Level-2 software is used to analyze groups of related building-level EROs. Since Level-2 takes into account interactive effects between the EROs, it is difficult to analyze (without compromising the Level-2 results) other building EROs that Level-2 does not currently consider.

- **Discussion Only.** Some retrofits are deemed not cost-effective without extensive analysis due to experience at another, similar installation, insufficient data, immature technology, etc. However, in some cases installation personnel request that the ERO be included in the analysis. In these cases the ERO may be included as "discussion only," where the ERO is discussed, but no formal energy, cost, or life-cycle analysis is included.

- **Tenant Owned.** In some cases the end use equipment under consideration is owned by a tenant organization not controlled by the installation energy program. The most frequent case for this criteria is appliances in family housing units.

1.1.2 Master List of Screened and Selected EROs

A master list of generic conservation measures, aggregated from a variety of sources, was used as an origination point in the identification of energy resource opportunities at Fort Irwin. This master list is presented in Table 1.1. For each ERO listed there is an indication of whether it passed the preliminary screening process and whether it was analyzed by Level-2 or by manual-calculation. If the ERO did not pass, a brief explanation is provided.

Table 1.1. Master List of Energy Resource Opportunities at Fort Irwin

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
FANS AND FAN MOTORS			
Align sheaves	Align sheaves and shafts; replace belt with high-efficiency belt(s).	N	This is primarily an O&M measure
Reduce hours	Install clock, EMCS switch or other control means to reduce operating hours.	N	Insufficient data
Reduce speed	Reduce fan speed by adjusting sheave diameter and reduce motor size accordingly.	N	Insufficient data
Efficient motor	Replace existing motor with high-efficiency model.	Y	
Two-speed motor	Replace existing motor with two-speed motor and controller.	N	Use alternate ERO - variable-speed drive
Variable inlet vane	Install variable inlet vanes and control to provide reduced air flow when appropriate.	N	Most fans are single zone
Variable-speed drive	Install variable frequency motor drive and control to modulate airflow; also reduce motor size if appropriate.	Y	
Variable-speed electronic-ally commutated motor	Replace existing motor with variable-speed electronically commutated permanent magnet motor and control; also reduce motor size if appropriate.	N	Use alternate ERO - variable-speed drive
CO_2 sensor	Install CO_2 sensors for ventilation control to reduce heating of outside air and average (over time) air volume moved by fans.	N	Intermittent application due to non-human critical loads in many facilities
Duct transitions	Redesign duct transitions to reduce friction loss by using turning vanes, long radius turns and gradual changes in cross-sectional area.	N	No high SP systems; insufficient data on low SP systems
Duct cross-section	Increase duct cross-section to reduce friction loss.	N	No high SP systems; insufficient data on low SP systems
Face velocity	Redesign filters, coils, etc., to reduce friction loss by operating at lower face velocities.	N	No high SP systems; insufficient data on low SP systems
Downsize motors	Replace existing motor with energy efficient motor properly sized for the load.	Y	Discussion only
PUMPS AND PUMP MOTORS			
Align shafts	Align shafts and replace coupling with high-efficiency coupling.	N	This is primarily an O&M measure
Reduce hours	Install clock, EMCS switch or other control means to reduce operating hours.	N	Most pumps operate on demand
Efficient motor	Replace motor with high-efficiency model.	Y	
Trim impeller	Replace (or trim) impeller and reduce motor size to match actual load.	Y	Discussion only
Two-speed motor	Replace existing motor with two-speed motor and controller.	N	Use alternate ERO - variable speed drive

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Variable-speed drive	Install variable frequency motor drive and control to modulate fluid flow; also reduce motor size if appropriate.	Y	
Variable-speed, electronically commutated motor	Replace existing motor with variable- speed electronically commutated permanent magnet (VS ECM) motor and control; also reduce motor size if appropriate.	N	Use alternate ERO - variable speed drive
Adjust VSD setpoint	Adjust VSD control setpoint for lower speed operation.	N	Low incidence
Pipe transitions	Redesign system with long radius elbows and other low-loss type fittings to reduce friction loss.	N	Insufficient data
Pipe size	Redesign system with increased pipe diameter to reduce friction loss.	N	Insufficient data
Fittings	Redesign filters, heat exchangers, valves, etc., to reduce friction loss by operating at lower velocity.	N	Insufficient data
Circulating pump control	Check, repair, and/or install automatic control systems to control parallel circulating pumps so that only one pump operates at a time.	N	Low incidence
REFRIGERATION (residential/barracks)			
Efficient refrigerator	Replace existing residential and barracks refrigerators with high-efficiency model meeting DOE 1993 Appliance Efficiency Standard.	Y	
LIFT STATION heating/ventilation			
Thermostat	Replace on/off control of electric resistance heater control with thermostatic control.	N	Not applicable
Ventilation heat recovery	Install air-to-air heat exchanger to preheat ventilation air by recovering sensible and latent heat from exhaust.	N	Immature technology
Methane sensor control	Provide methane sensor to operate ventilation fan only when needed to prevent excess methane concentrations.	N	Immature technology
Insulate walls	Install moisture-resistant insulation to above-grade walls and roof (consider this ERO only after thermostat and ventilation heat recovery or methane sensor).	N	Must be preceded by ventilation control ERO
RESIDENTIAL LIGHTING (interior and exterior)			
Upgrade incandescent to permanent compact fluorescent (PCF) fixture	Upgrade incandescent fixture to permanent compact fluorescent fixture.	Y	FEDS Level-2
Replace incandescent with PCF fixture	Replace incandescent fixture with new compact fluorescent fixture.	Y	FEDS Level-2
Upgrade fluorescent to T8	Upgrade fluorescent to high-efficiency T8 or similar system.	Y	FEDS Level-2

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Replace fluorescent with new fixture	Replace fluorescent fixture with new high-efficiency T8 (or comparable) fixture.	Y	FEDS Level-2
COMMERCIAL LIGHTING			
Upgrade fluorescent to T8	Upgrade fluorescent fixture to high-efficiency T8 or similar system.	Y	FEDS Level-2
Replace fluorescent with new fixture	Replace fluorescent fixture with new high-efficiency T8 (or comparable) fixture.	Y	FEDS Level-2
De-lamp	Replace, modify or move/remove fixtures to reduce lighting density to level that provides correct illumination.	Y	FEDS Level-2
Upgrade incandescent to PCF fixture	Upgrade incandescent fixture to permanent compact fluorescent fixture.	Y	FEDS Level-2
Replace incandescent with PCF fixture	Replace incandescent fixture with new compact fluorescent fixture.	Y	FEDS Level-2
Upgrade mercury to high- pressure sodium (HPS)	Replace mercury vapor lamps and ballasts with high-pressure sodium lamp and ballast (or replace entire fixture).	Y	FEDS Level-2
Upgrade incandescent exit signs	Upgrade incandescent exit signs with light emitting diode (LED) or fluorescent exit signs.	Y	FEDS Level-2
Replace incandescent exit signs	Replace incandescent exit signs with LED or fluorescent exit signs.	Y	FEDS Level-2
Occupancy sensors	Install occupancy sensors to control lights.	Y	
Time clocks or photocells	Install time clocks or photocells to control lights.	N	Occupancy Sensors preferred.
EMCS control	Install EMCS or add field panel and necessary relays to control lights via EMCS system.	N	Local control preferred
Auto-transformer lighting controller	Install controller to modulate voltage delivered to lighting circuits.	Y	Discussion only
EXTERIOR LIGHTING			
De-lamp	Remove or disconnect bulbs or ballasts to reduce lighting density to level that provides reduced but satisfactory illumination.	N	Few overlit areas, little application.
Zoned security lamp circuits	Rewire building exterior light circuits into zones so that night work lights and security lights are under separate control.	N	Few overlit areas, little application.
Motion detectors	Install motion detectors in series with security light time clock switch so that selected zones are off except when activated by motion detectors.	N	No application
Reprogram time clocks	Reprogram existing time clock to turn off or reduce light level at low traffic hours.	N	Primarily and operation and maintenance (O&M) measure

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Install time clocks	Install programmable time clock to turn off or reduce light level at low traffic hours.	N	No application
Zoned streetlamp circuits	Rewire streetlight circuits into zones and provide programmable time clock to turn off or reduce light level at low traffic hours.	N	No application
Mercury to HPS	Replace mercury vapor lamps and ballasts with high-pressure sodium lamp and ballast (or replace entire fixture).	N	Most streetlighting is already HPS
Incandescent to compact fluorescent	Replace incandescent light fixture with compact fluorescent fixture.	N	No application
Incandescent to HP sodium	Replace incandescent fixture with high-pressure sodium fixture.	N	Most streetlighting is already HPS
OCCUPANCY-BASED CONTROLS (see also FAN, HVAC)			
Occupancy sensor, restroom	Install occupancy sensor to control lights and exhaust fan in restroom.	N	Technical feasability
Occupancy sensor, other	Install occupancy sensor to control lights in hallway, lunchroom, office, conference room, or other intermittently occupied area.	N	Insufficient data
Daylight sensor	Install daylight sensor to control lights in hall, foyer, or other area that has windows and low ambient light requirement.	N	Insufficient data
Daylight sensor, security	Install daylight sensor to control security light(s) in area that has windows.	N	Low incidence
Night setback	Install time clock to schedule fan, thermostat set point, and air-conditioner operation.	Y	
CO_2 sensor control	Install CO_2 sensor to control air-handler and ventilation fans.	N	Not applicable
Countdown timer	Install countdown timer to control air-handler and ventilation fans during normally unoccupied hours.	N	Not applicable
Occupied mode via EMCS	Implement unoccupied schedules for fans and air-conditioning via EMCS; override during normally unoccupied hours.	N	Not applicable
ELECTRIC DEMAND CONTROL			
Water heater control	Install controls to shed electric water heater loads in rotating blocks during peak demand periods.	N	Low incidence
Shed A/C loads	Install controls to shed air-conditioning loads in rotating blocks during peak demand periods.	N	Insufficient data
Well pump control	Transfer lift station and well pumps to emergency generators during peak.	N	Insufficient data
Run motors at low speed	Install controls to operate existing variable speed pumps and fans at low speed during peak demand periods.	N	Insufficient data

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Peak shave generator loads	Install controls to automatically transfer existing diesel generator loads to generator power during peak demand periods.	N	Not allowed under current rate schedule
Feed grid from generators	Install controls and switches to feed existing generator output to grid; operate during high demand periods to reduce peak demand.	N	Not allowed under current rate schedule
Add water storage capacity	Install water storage tank to avoid pumping during peak periods.	Y	
<u>SERVICE HOT WATER</u>			
New Conventional Gas Water Heater (76%, 80%, 85% efficient)	Replace existing gas water heater with a new conventional gas water heater model.	Y	FEDS Level-2
High Efficiency Gas Water Heater (94% efficient)	Replace existing gas water heater with high-efficiency (well-insulated) model.	Y	FEDS Level-2
Tank insulation with R-11 wrap	Add insulating blanket to provide additional tank insulation.	Y	FEDS Level-2
Tankless heater	Replace tank type water heaters with instant/tankless unit.	N	Not cost-effective
Low-flow shower heads	Low-flow shower head restricts the volume of water passing through.	Y	FEDS Level-2
Lower hot water temperature	Reduced water temperature reduces energy lost in various hot water-consuming processes including showers, dishwashers, laundries, etc.	Y	FEDS Level-2
Insulate service hot water pipes	Typically, service hot water pipes are copper. Insulation is usually 1/2-inch glass fiber, and the temperature of the water is usually 140 °F.	Y	FEDS Level-2
Fuel switch to electric	Fuel switch from thermal distribution loop to electric water heater.	Y	FEDS Level-2
Fuel switch from electric	Install boiler to switch from electric to LPG water heating.	Y	FEDS Level-2
A/C desuperheater	Recover heat from air-conditioner by installing water-cooled desuperheater and controls.	Y	
Refrigeration desuperheater	Recover heat from refrigerators by installing water-cooled desuperheater and controls.	N	Insufficient data
Aquastat controller	Install "smart" controller to reset water heater temp. setpoint during periods of low use.	Y	
<u>TRANSMISSION & DISTRIBUTION</u>			
Phase balance	Improve phase balance of feeders and main transformers by moving loads among phases.	N	Phase balance is satisfactory
Efficient transformers	Replace transformers with high-efficiency models.	Y	
Reduce transformer size	Reduce transformer size to match load, thus reducing standby loss and reactive power consumption.	N	Insufficient data

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Conservation voltage reduction	Reduce set point on auto-tap-changing transformer to maintain minimum acceptable voltage at end of feeder.	Y	
Passive power factor correction	Install capacitor banks to provide passive power factor correction.	Y	
Switched power factor correction	Install capacitor banks, power factor transducers and automatic switches to provide active power factor correction.	N	Use alternate ERO - Passive PF correction
RESIDENTIAL HVAC			
Whole house fan	Install whole house fans to reduce or eliminate the use of window air-conditioning.	N	Insufficient data
Efficient furnace motor	Replace furnace fan motor with high-efficiency motor.	Y	
2-speed furnace motor	Replace furnace fan motor with 2-speed motor.	N	Insufficient data
Ventilation heat recovery	Install air-to-air heat exchanger to reduce infiltration and recover heat from ventilation air.	N	Insufficient data
Efficient air-conditioner	Replace air-conditioner with high-efficiency unit.	Y	
Efficient heat pump	Replace heat pump with high-efficiency unit.	Y	
Heat pump	Replace nat. gas furnace and DX A/C system with heat pump.	Y	
Fuel switch from electric	Switch from electric to NG by installing I.C. engine-driven heat pump.	Y	
RESIDENTIAL APPLIANCES			
Efficient washer	Replace clothes washer with high-efficiency (water miser) unit.	N	Tenant-owned
Efficient dryer	Replace clothes dryer with high-efficiency unit.	N	Tenant-owned
Fuel switch dryer	Replace electric clothes dryer with natural gas unit.	N	Tenant-owned
Efficient dishwasher	Replace dishwasher with high-efficiency (water miser) dishwasher.	N	Low incidence
Microwave oven	Provide microwave oven to reduce use of convection oven.	N	Insufficient data on cooking end use
FREEZE PROTECTION			
Thermostat	Provide thermostatic control (especially water storage tanks) of resistance heaters to eliminate continuous operation.	N	Not applicable
Cooling towers	Install thermostatically controlled resistance heaters to cooling tower catch basins to eliminate use of circ. pumps for freeze protection.	N	Insufficient data
Insulate	Add insulation to pipes and tanks that have thermostatically controlled resistance heaters.	N	Not applicable

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
BOILERS			
Preheat combustion air	A gas-to-air heat exchanger, or a heat pipe, used for transferring heat of exhaust gases to the primary combustion air.	N	Cost-effective for boilers >60 MBtu/hr capacity; insufficient resource
Feedwater economizer	A gas-to-water heat exchanger consisting of feedwater tubes located in the path of the exhaust stream. Economizer can also be employed to heat domestic hot water, space heating water, or process hot water.	N	Cost-effective for boilers >3 MBtu/hr capacity
Provide maintenance of economizers	Both gas side and water side deposits can reduce the effectiveness of the heat transfer surfaces. Periodic cleaning of the economizer will assist in maintaining high heat recovery efficiencies.	N	Too few boilers currently have economizers; insufficient resource.
Air atomizing burner	Proper atomization of fuel oil is critical to ensure complete combustion with minimum excess air. Air-atomizing burners use steam or air for atomization, minimizing excess air and unburnt combustibles, and improving boiler efficiency.	N	Low incidence
Low Excess Air Burners for Oil Burners	Burners provide optimal fuel spray and air flow patterns to achieve both complete combustion and a stable flame.	N	Low incidence
Boiler tune-up	An annual tune-up is simple, can be generally accomplished within a day, and basically involves adjusting fuel-air ratios at optimal levels at various load conditions.	N	Boiler EROs calculated by FEDS Level-2
Flue gas analyzer	A combination of flue gas analyzers and regular tuning can assist in maintaining optimal boiler efficiency. A typical analyzer will monitor O_2, CO_2, CO, and exhaust temperature.	N	Boiler EROs calculated by FEDS Level-2
Barometric damper	Installing an automatic damper will reduce the standby loss in a boiler or a furnace. When the burner is off, the damper closes to minimize heat loss through the stack.	N	Boiler EROs calculated by FEDS Level-2
Automatic electric damper	Installing an automatic damper will reduce the standby loss in a boiler. When the burner is off, the damper closes to minimize heat loss through the stack.	Y	FEDS Level-2
Outside/supply air temperature reset controller	Install controller to reset the steam or hot water supply temperature based on a predetermined schedule. Operating at lower temperature reduces heat (and leaking steam) losses.	N	Insufficient data
New conventional boiler	When the retrofit cost of an existing boiler is uneconomical, boiler replacement may be considered.	Y	FEDS Level-2
Pulse-condensing boiler	Pulse or condensing boilers have an instantaneous efficiency of over 90% and a seasonal efficiency that is 8% points higher than conventional units.	Y	FEDS Level-2

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Fire-tube turbulators	Turbulators improve overall combustion efficiency in fire-tube boilers. Efficiency increases due to better heat transfer and lower stack temperature.	N	Not generally cost- effective; insufficient resource
Continuous boiler blowdown system with heat recovery	Continuous boiler blowdown has the potential to reduce blowdown losses through control of blowdown rate.	N	Considered for boilers >6 MBtu/hr capacity
Fuel switch from propane to natural gas	Switch boiler fuel from propane use to natural gas.	N	Natural gas not available
Fuel switch from fuel oil to LPG	Switch boiler fuel from oil use to LPG.	N	No fuel oil used on site
<u>BOILER AUXILIARIES & CENTRAL DISTRIBUTION SYSTEMS</u>			
Periodic inspection of steam traps	Steam traps need to be inspected at least once a year. The inspection program would 1) identify the types, location and number of various steam traps, 2) maintain some spare parts and spare traps of each kind, and 3) repair and replace traps on a routine basis.	N	Insufficient data
Pipe insulation	Insulation could be applied to all hot and cold pipes which are either uninsulated, or whose insulation is deteriorated and is currently ineffective.	N	Insufficient data
Heating of fuel oil	Depending on the viscosity of fuel oil at ambient temperature, oil may need to be heated.	N	Low incidence
Insulate hot fuel-oil pipes	Lines leading the fuel oil from the heater to the burner may be insulated to (i) minimize energy loss, and (ii) ensure that the oil viscosity is maintained within acceptable limits at the burner.	N	Low incidence
Repair leaking HTHW or steam lines	Leaking HTHW or steam lines are a major source of energy loss. The leak rate in lb/h is a function of the steam (HTHW) pressure and diameter and shape of the orifice through which it leaks.	N	Small length of lines. No known leaks of any size.
Heat recovery heat exchanger	Various forms of waste heat can be recovered through appropriately sized heat exchanger systems.	N	Not applicable
Insulate condensate storage tanks	Tanks need to be insulated to prevent heat loss. Since condensate tank temperatures can be as high as 180 °F, proper insulation is critical for minimizing heat loss.	N	Small capacity, little application.
VSD feedwater pump	Install variable-speed drive to feedwater pump controlled by steam drum water level.	Y	
VSD combustion fan	Install variable-speed drives for combustion air and stack fans controlled by firing rate and static pressure at firebox.	Y	
Check valves	Repair leaking condensate return check valves.	N	Insufficient data

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
CHILLERS			
Repair check valves	Repair leaking check valves in lead-lag pumps.	N	Insufficient data
Condenser water reset	Add controls to reset condenser water temperature on outdoor temperature.	Y	
Chilled water reset	Add controls to reset chilled water temperature on chiller load.	Y	
Parallel compressors	Add smaller, efficient compressor to obtain efficient operation under light-to-moderate load.	Y	
Efficient chiller	Replace chiller with high-efficiency unit.	Y	FEDS Level-2
Fuel switch to natural gas engine driven chiller	Replace electric chiller with natural gas engine driven chiller to utilize low gas rates and eliminate demand charges.	N	A/C EROs calculated by FEDS Level-2
Thermal energy storage system	Install thermal energy storage system for peak shaving/shifting to avoid high demand charges.	Y	
PACKAGE HVAC (including split units)			
Expansion valve control	Install improved expansion valve control; Replace capillary tube if necessary.	N	Low incidence
Improve liquid return	Replace liquid return with larger line or install pump ("liquid pressure amplification").	Y	Discussion only
Parallel compressors	Add smaller, efficient compressor to obtain efficient operation under light-to-moderate load.	N	Insufficient data
Efficient new unit	Replace package or split unit with high-efficiency unit.	Y	FEDS Level-2
Precooling/reheating heat pipe for latent load	Install heat pipe to reduce coil load while maintaining latent capacity by precooling mixed air and reheating supply air.	N	Insuffient data
Reduce A/C hours	Install clock, EMCS switch or other control means to reduce operating hours and peak coincident load of air-conditioner.	N	Insufficient data
SWIMMING POOLS			
Direct fired make-up air	Install direct-fired make-up air heater in air-supported pool enclosures.	N	No application at site
Heat pump dehumidification	Install dehumidifying heat pump to reduce ventilation load of enclosed pool.	N	Insufficient data

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
ENVELOPE			
Insulate attic ceilings	Batt-type fiberglass insulation and blown-in fiberglass or cellulose are most frequently used as ceiling insulation.	Y	FEDS Level-2
Insulate walls	Insulate with rigid, non-rigid, poured-in, or blown-in insulation. For a wood frame wall or a cavity wall, remove top strip of siding or drill holes in sheathing or inside gyp-board and completely fill each stud space with blown-in insulation.	Y	FEDS Level-2
Insulate slab-on-grade perimeter	To insulate the slab, it will be necessary to dig around the building up to the depth of the frost line or the footing, whichever is shallower.	N	Not applicable
Insulate floor above crawl space	Fiberglass batt or blanket insulation is ideally suited for insulating floors above crawl spaces. Typically, the insulation is hung using a wire mesh, nails, and staples. Vapor barrier is installed against the floor surface prior to installation of the insulation.	Y	
Storm windows/doors and multi-glazed windows	Storm windows create a "dead-air" space for insulation and also reduce infiltration. Multi-glazed windows replace existing windows.	Y	Double-pane
Movable Window Insulation	Install insulated roller-shade with edge seals in all large windows.	N	Not applicable
Tinted/reflective window film or screen	Window tinting or micro-louver screens can be applied to an existing window to reduce solar heat gain.	Y	shade screens
Insulate supply and return ducts	Add fiberglass insulation to supply and return ducts.	Y	
Weatherstripping	Install weatherstripping to door and window perimeters to provide a tight seal limiting or eliminating infiltration.	Y	E
Caulking	A bead of caulk could be applied to seams in building structures where air can infiltrate.	Y	
Radiant barrier	Install radiant barrier in attic.	N	Low incidence
SPACE HEATING			
New conventional furnace (76% efficient)	Replacement is cost effective if existing furnaces are old and inefficient.	Y	FEDS Level-2
Pulse-condensing furnace (93% efficient)	Replacement is cost effective if existing furnaces are old and inefficient.	Y	FEDS Level-2
Infrared (radiant) heaters	Provide spot or space heating by overhead infrared heating system to provide comfort with lower air temperature and corresponding lower envelope conduction and infiltration loss; also reduces energy used to power fans and pumps.	Y	
Space unit heaters	Replace old space heater with a new space heater.	N	Use alternate ERO - infrared heaters

Table 1.1. (contd)

ERO Name	ERO Description	Passed Preliminary Screening (Y/N)	Comment
Electric baseboard heaters	Baseboard unit provides more uniform heating due to placement at base of exterior walls where heat loss occurs.	N	Not applicable
Install programmable thermostat with setback controls	Electronic thermostats provide the means to set back temperature when the space is unoccupied or a greater deviation from normal set point temperature can be tolerated.	Y	
Fuel switch from propane to natural gas	Switch space heating fuel use from propane to natural gas.	Y	Family housing case study
Fuel switch from fuel oil to natural gas	Switch space heating fuel use from fuel oil to natural gas.	N	No fuel oil used
TRANSPORTATION			
Conversion of fleet vehicles to compressed natural gas (CNG)	Replacement of gas and diesel Air Force and GSA (General Services Administration) fleet with CNG models to reduce fuel costs and emissions.	Y	

1.2 Assumptions

The FEDS assessment at Fort Irwin represents baseline conditions as of mid-1993. Much of this baseline information was used as input to the FEDS Level-2 model. The major assumptions underlying the FEDS assessment are described below.

a) *FEDS* - FEDS software version 2.01 released in February 1994 was used in the Fort Irwin assessment. FEDS uses the information provided by the user to internally generate descriptions of protoypes of each building type selected by the user. The default values of the parameters used to describe the prototypes are inferred from the input data; for instance, the climate zone is used in conjunction with the building type, vintage, and size to infer parameters relating to the building construction characteristics. This information is then used to infer the most likely heating equipment types for each used supplied heating fuel type. Sources for the inferences about the building characteristics are mostly derived from the following sources:

- 1986 NBECS and 1987 RECS building characteristics data
- ELCAP commercial and residential end-use load and building characteristics data
- ASHRAE standard design and construction practices.

b) *Energy costs (electricity and propane)* - Fort Irwin purchases its electricity from Southern California Edison (SCE). At the time the FEDS analysis was conducted, the particular rate structure was under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate rider. The current rate structure is due to change in 1997. Details of the rate schedule are presented in Appendix A.

c) *Propane* - Propane is supplied to Fort Irwin through a competitive contract. The cost for propane at the time of this assessment was 47.3 cents per gallon.

d) *Life-cycle cost* - The 1994 discount rate of 3.1% (NIST 1993) was used in this analysis. This rate is a reflection of the discount rate for U.S. Treasury Bonds and varies slightly from year-to-year. The relative ranking of EROs with positive NPVs (see Table 3.5) should not be affected to a large extent from this variable discount rate. For consistency in this analysis, installed costs are in 1994 dollars, and the fuel escalation rates are determined with the appropriate 1994 index by fuel type (NIST 1993).

1.3 Identification of Building Set Energy Projects

The results of the FEDS analysis at a federal facility can be used in a variety of ways to identify specific energy efficiency improvement projects. For example, an energy project could be a basewide application of an individual technology retrofit measure, such as the replacement of all motors with high-efficiency, variable-speed motors. Or, it could be an aggregation of several energy efficiency technology improvements bundled together but applied to a particular building or set of buildings with the same general characteristics, such as age and function. The advantage of bundling individual EROs is that it is possible to include some measures that by themselves would not be economical. But bundled together with other more economical EROs applied to the same building set at the same time, the economics become more attractive overall and a greater level of efficiency improvement is achieved.

In the case of Fort Irwin, the latter approach is the preferred approach. To accomplish this energy project identification, the results of the FEDS analysis (both manual and software derived) were combined into a single spreadsheet file for analysis. The steps followed in this process were:

a) Import ASCII file with raw results into spreadsheet program or other analysis tool. Although Microsoft EXCEL(r) was used in this analysis, any other standard spreadsheet program is acceptable.

b) Sort data by building category and retrofit technology to group all potential EROs by building category.

c) Calculate composite economic parameters and energy savings results to generate subtotals for each building type.

d) Rank building type by predetermined selection criteria to identify most cost-effective projects to be implemented. Any number of parameters could be used to rank the building sets, or a combination of parameters, both economic or energy savings. In the case of Fort Irwin, the combined net savings of all individual EROs applied to the building set was used as the single ranking criteria.

e) Finalize the ranked list, taking into consideration base mission-critical issues impacting the selection process, and/or preferred projects based on external factors, such as utility DSM participation.

In the selection process used at Fort Irwin, we assumed that there were no critical base mission issues or external factors to alter the initial ranking of energy projects.

Within each individual building energy project, the typical EROs usually involved lighting retrofits, envelope upgrade measures, hot water conservation measures, and HVAC system improvements. The order in which these measure are installed in a building is critical because of the interactive effects between measures such as lighting and the HVAC system load requirements. The preferred order of completing the individual tasks is first address those measures that apply to the building envelope, followed by service hot water. The lighting retrofits are completed only after considering the interactive effect of more efficient lighting (reduced internal heat gains) on the heating loads on the HVAC system to make sure that the system can meet the new heating loads. The HVAC system should be improved last, once a new building baseline operation is established and the new heating/cooling loads are known for the building in its new-energy efficient configuration.

As long as conditions at the federal facility remain relatively unchanged over time, then the existing FEDS output files can be used to identify new energy projects. However, if conditions change, or significant energy improvements are made, then it is recommended that the FEDS assessment be repeated with updated baseline information to derive new energy projects.

Building Set Energy Projects

The procedures described above for identifying energy projects were applied to the database of information generated from the FEDS analysis. The table below lists the top energy conservation projects at Fort Irwin, ranked by net savings of the combined EROs for that building set. Also included in the table are the total annual energy and demand savings, first costs of the installed ERO, and the savings-to-investment ratio (SIR).

Building Set	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Value of Energy Savings	Value of Demand Savings	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
FH Duplex 01	3.5	11,353	2,462	$136,150	$69,627	$1,107,932	$3,702,924	$2,619,960
FH Detached 01	5.0	4,639	1,899	$63,832	$30,029	$598,269	$2,868,276	$2,246,378
Administration 09	3.3	3,709	254	$72,594	$27,017	$752,207	$2,468,683	$1,933,705
FH 3 or more 02	2.6	14,425	2,524	$178,774	$159,247	$876,083	$2,199,434	$1,631,549
Administration 03	3.4	2,425	137	$45,248	$14,462	$342,290	$1,175,987	$1,106,009
Shops 04	13.3	388	30	$7,602	$3,085	$85,401	$1,134,504	$1,062,354
FH Duplex 03	2.6	11,303	46	$69,987	$4,687	$488,746	$1,290,527	$1,010,499
Recreation 02	14.6	96	5	$1,552	$441	$68,076	$991,341	$934,389
FH 3 or more 03	2.9	4,835	54	$40,886	$5,750	$306,248	$894,407	$822,314
School/Training 02	7.7	924	81	$19,365	$8,614	$91,388	$701,634	$742,742

Additional energy projects listed in order of net savings are identified below. A more detailed description of the energy projects for the top-ten projects is presented in the sections that follow.

Building Set	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Value of Energy Savings	Value of Demand Savings	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Barracks 07	5.8	1,344	23	$28,510	$2,245	$133,575	$776,329	$733,694
Storage 02	4.7	1,371	159	$25,044	$2,813	$124,683	$587,277	$693,411
Barracks 02	2.4	3,412	55	$35,154	$5,633	$389,579	$943,181	$692,926
Warehouse 07	5.2	1,015	87	$20,997	$9,183	$137,338	$713,877	$637,164
FH Duplex 02	5.7	2,814	1,243	$41,126	$22,658	$175,615	$887,265	$608,142

1. Family Housing Duplex 01

The top-ranked building set energy project at Fort Irwin focuses on 108 family housing duplexes built in the 1960s. The major retrofit measures identified include building envelope weatherization, installation of sun screens on all south facing windows, lighting retrofits, and additional insulation in the walls and ceiling. Details of the retrofit measures and the energy and economic impacts are shown in the table below. The preferred order of completing the individual tasks is shown in this and subsequent tables for the remaining building sets. In general, it is best to first address those measures that apply to the building envelope, followed by service hot water. The lighting retrofits are to be done only after considering the interactive effect of the reduced internal heat gains on the heating loads on the HVAC system.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Envelope	Caulking and weather stripping	1.1	16.2	1971	1295	$54,608	$884,771	$830,164
Envelope	Install window screens on NW side of buildings	4.5	3.8	113	204	$27,001	$131,160	$76,372
Envelope	Install window screens on SE side of buildings	8.7	2.0	405	246	$56,703	$181,386	$55,215
Envelope	Install window screens on SW side of buildings	2.4	7.3	164	303	$22,681	$193,989	$143,521
Roof	Increase roof insulation from R-11 by adding R-30 insulation	6.6	2.9	1	1	$262,367	$753,863	$491,496
Wall	Existing wall insulation is R-0 (No wall insulation.). Use blow in insulation to increase wall insulation by R-6.5	7.3	2.6	1	1	$227,405	$591,832	$364,427
Hot Water	Wrap old LPG tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures	0.5	8.4	6234	0	$17,038	$143,436	$126,398
Lights	Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	1.2	14.8	282	12	$14,710	$171,180	$203,631
Lights	Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps	4.1	4.4	61	3	$9,293	$31,585	$31,627
Lights	Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps	3.8	4.6	450	20	$71,003	$234,747	$257,258
Cooling	Replace existing electric package air conditioners with high efficiency split systems	4.9	1.1	1672	377	$345,124	$384,975	$39,851
Total			3.5	11353	2462	$1,107,932	$3,702,924	$2,619,960

2. Family Housing Detached 01

The next ranked energy project at Fort Irwin is directed at the 1960s vintage single-family detached housing. As with the similar vintage duplexes, the major cost-effective conservation measures include building envelope weatherization, installation of sun screens on all south facing windows, lighting retrofits, and adding insulation to the walls. Details of the retrofit measures and the energy and economic impacts are shown in the table below.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Envelope	Caulking and weather stripping	4.5	3.8	103	186	$24,679	$119,880	$69,803
Envelope	Install window screens on NW side of buildings	1.3	13.5	1803	1184	$59,959	$809,304	$749,345
Envelope	Install window screens on SE side of buildings	8.7	2.0	370	225	$51,804	$165,715	$50,445
Envelope	Install window screens on SE side of buildings	2.4	7.3	151	279	$20,877	$178,563	$132,108
Wall	Existing wall insulation is R-0. No wall insulation. Use blow in insulation to increase wall insulation by R-6.5	14.8	1.3	1	1	$209,504	$276,790	$67,286
Roof	Increase roof insulation from R-11 by adding R-30 insulation	2.9	6.8	1	1	$158,833	$1,072,696	$913,862
Hot Water	Wrap old LPG tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures	1.8	2.6	1730	0	$15,098	$39,816	$24,718
Lights	Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	1.5	11.7	170	8	$8,905	$75,580	$95,225
Lights	Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps	4.3	4.1	273	12	$42,984	$118,279	$131,907
Lights	Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps	5.6	3.1	37	2	$5,626	$11,654	$11,679
Total			5.0	4639	1899	$598,269	$2,868,276	$2,246,378

3. Administration 09

This building set includes a subset of the newer administration buildings added to Fort Irwin between 1984 and 1990. The energy savings potential from implementing energy projects in these buildings amounts to over 3700 MBtu per year and net savings of $1.9 million. The packages of conservation measures include lighting retrofits, hot water conservation measures, and additional ceiling insulation.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing roof insulation is R-30. Increase insulation by R-19.	13.4	1.4	1	1	$88,158	$120,120	$31,962
Hot Water	Wrap existing electric hot water heater tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures	0.3	18.1	38	4	$418	$7,564	$7,146
Lights	Replace existing 2 20 watt incandescent exit sign with LEDs exit sign	2.7	6.7	153	5	$15,968	$73,195	$90,435
Lights	Replace existing 2' x 4' 4 40 watt T12 fluorescent lamps and standard ballast with 3 32 watt T8 lamps, electronic ballast, and new reflectors	4.8	3.8	3517	244	$647,663	$2,267,804	$1,804,162
Total			3.3	3709	254	$752,207	$2,468,683	$1,933,705

4. Family Housing 3 or More 02

This particular building set covers the multi-family housing (3 units or more) built between 1983 and 1985. Full implementation of the most life-cycle cost-effective energy conservation measures indicated below would result in an estimated savings of 14,000 MBtu annually. Net savings would be $1.6 million. As with the previous family housing project, the conservation measures focus on hot water conservation, lighting retrofits, and additional ceiling insulation.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Envelope	Weatherization, caulking and weather stripping	2.4	7.2	554	364	$34,480	$248,702	$214,222
Envelope	Install window screens on NW side of buildings	4.5	3.8	79	143	$18,975	$92,170	$53,668
Envelope	Install window screens on SE side of buildings	8.7	2.0	284	173	$39,846	$127,465	$38,801
Envelope	Install window screens on SW side of buildings	2.4	7.3	115	213	$15,939	$136,322	$100,856
Hot Water	Replace older propane water heater system with 85% efficient units, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures	0.5	2.0	7917	0	$18,926	$38,194	$19,267
Lights	Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	1.4	12.5	731	32	$38,187	$356,042	$440,282
Lights	Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps	4.1	4.3	158	7	$24,123	$80,122	$80,231
Lights	Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps	4.2	4.2	1169	52	$184,318	$518,933	$584,026
Cooling	Replace existing electric package air conditioners with high efficiency split systems	2.3	1.2	3417	1540	$501,290	$601,485	$100,195
Total			2.6	14425	2524	$876,083	$2,199,434	$1,631,549

5. Administration 03

This building set includes 42 of the oldest administration buildings still in use at Fort Irwin. Built between 1944 and 1946, the energy conservation potential in these buildings is significant. The majority of energy savings are from lighting retrofits. The rest is from the hot water conservation package and additional ceiling insulation. Net savings are estimated to be $1.1 million, and annual energy savings total 2400 MBtu per year. Details of the specific conservation measures are listed in the table below.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing ceiling is a suspended ceiling with 0 insulation. Increase ceiling insulation by R-11.	5.5	3.7	1	1	$19,934	$73,396	$53,462
Hot Water	Wrap tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature.	1.1	4.3	126	0	$675	$2,893	$2,217
Lights	Replace existing 75 watt incandescent ceiling fixture with 27 watt compact fluorescent fixture	0.7	26.9	63	4	$1,735	$36,131	$45,027
Lights	Replace 2 60 watt incandescent ceiling fixture with 2 13 watt compact fluorescent fixture	1.3	14.2	31	2	$1,945	$22,622	$25,715
Lights	Replace 60 watt incandescent ceiling fixture with 13 watt compact fluorescent fixture	1.7	10.7	31	2	$2,547	$22,622	$24,584
Lights	Replace existing incandescent exit signs with LED unit	3.3	5.4	527	18	$54,987	$184,475	$243,847
Lights	Replace existing 2 x 4 40 watt T12 and standard ballast with 2 x 4 3 32 watt T8 lamps, electronic ballast and reflectors	3.7	4.9	880	58	$100,504	$437,189	$388,869
Lights	Replace existing 1 x 4 2 40 watt T12 lamps and standard ballast with 1 x 4 2 32 watt T8 lamps and electronic ballast	4.0	4.6	70	5	$10,009	$39,605	$35,536
Lights	Replace existing 2 x 4 2 40 watt T12 lamps and standard ballast with 2 x 4 2 32 watt T8 lamps and electronic ballast	4.4	4.1	226	15	$32,112	$113,918	$100,866
Lights	Replace existing 2 x 4 4 40 watt T12 lamps and energy efficient ballast with 2 x 4 3 32 watt T8 lamps, electronic ballast and reflectors	4.5	4.0	205	14	$30,151	$104,355	$91,159
Lights	Replace standard ballast in existing 1 x 4 2 34 watt T12 lamps fixtures with electronic ballast	5.6	3.2	152	10	$33,272	$81,220	$74,494
Lights	Replace existing 1 x 8 1 75 watt T12 lamp, standard ballast fixture with 1 x 8 1 60 watt, T12, energy efficient ballast, and reflector	13.1	1.4	113	8	$54,419	$57,561	$20,233
Total			3.4	2425	137	$342,290	$1,175,987	$1,106,009

6. Shops 04

The two vehicle maintenance shops built in 1952 are a significant target for an energy efficiency improvement project. The net savings resulting from implementing the measures listed below are estimated to be $1.1 million with an aggregate SIR of 13.3.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing ceiling insulation is R-5. Increase insulation by R-19	0.8	26.8	1	1	$31,037	$830,340	$799,303
Wall	Existing wall insulation is R-0. Use blow in insulation to increase by R-6.5	5.9	3.7	1	1	$20,147	$73,797	$53,650
Hot Water	Wrap existing LPG hot water heater tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature	1.6	3.0	14	0	$109	$323	$214
Lights	Replace existing 1000 watt mercury vapor pendent mounted lamps fixtures with wall mounted, 400 watt high pressure sodium fixtures	1.1	16.0	169	13	$6,612	$102,961	$98,855
Lights	Replace 60 watt incandescent lamps with 13 watt compact fluorescent lamps	1.3	14.0	8	1	$501	$5,709	$6,528
Lights	Replace 2 x 4 3 40 watt T12 fluorescent lamps with 3 32 watt T8 and electronic ballast	2.0	9.1	3	0	$349	$2,894	$2,817
Lights	Replace 100 watt incandescent ceiling lights with pendant mount, 50 watt, high pressure sodium lamps	2.0	8.9	7	1	$676	$4,888	$5,357
Lights	Replace 1 x 8, 4 75 watt, T12 fluorescent lamps with pendant mount, 135 watt, low pressure sodium lamps and fixtures.	2.6	7.1	118	9	$10,682	$73,415	$64,750
Lights	Replace 1 x 4 2 40 watt T12 fluorescent lamps, and standard ballast with 1 x 4 2 32 watt, T8 lamps with electronic ballast.	2.9	6.3	6	0	$805	$4,479	$4,251
Lights	Replace existing 250 watt mercury vapor pendent mounted lamps fixtures with pendant mounted, 90 watt low pressure sodium fixtures	3.9	4.7	26	2	$3,722	$17,811	$13,751
Lights	Replace exit signs with 2 20 watt lamps with self luminous exit signs	5.3	3.4	19	1	$3,513	$8,263	$8,381
Lights	Replace existing 1 x 8, 1 75 watt T12 fluorescent lamps and standard ballast with 1 60 watt, T12 lamps with energy efficient ballast and reflectors.	11.1	1.6	16	1	$7,248	$9,624	$4,497
Total			13.3	388	30	$85,401	$1,134,504	$1,062,354

7. Family Housing Duplex 03

The new family housing duplexes built in 1990 are also a significant target for energy efficiency improvements. For these new residential structures, the measures to be installed include the hot water conservation package, replacement of incandescent lamps with compact fluorescent, and adding additional ceiling insulation.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing ceiling insulation is R-7. Increase insulation by R-19.	15.5	1.2	1	1	$314,380	$382,884	$68,504
Hot Water	Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature.	0.4	17.5	10311	0	$18,797	$328,507	$309,710
Lights	Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	1.2	15.7	103	5	$5,378	$67,011	$78,875
Lights	Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps.	3.6	5.0	827	37	$130,459	$474,983	$521,056
Lights	Replace 1 x 4 2 40 watt T12 lamps and standard ballast with 2 32 watt lamps and electronic ballast.	6.1	2.9	40	2	$10,877	$23,708	$20,904
Lights	Replace 1 x 4 2 34 watt T12 lamps with standard ballast with electronic ballast.	7.8	2.3	21	1	$8,855	$13,434	$11,450
Total			2.6	11303	46	$488,746	$1,290,527	$1,010,499

8. Recreation 02

This particular building set is composed of the gymnasium built in 1958, the outdoor pool buildings (1969) and the bowling alley (1967). The biggest energy efficiency improvements come from the lighting retrofits and additional ceiling insulation. Significant savings are also available from the hot water conservation package. Net savings from implementation of all efficiency improvements is estimated to be $0.9 million. The composite SIR is 14.9.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing roof insulation is R-0. Suspended ceiling, Increased insulation by R-30	0.8	23.4	1	1	$38,692	$906,694	$868,002
Wall	Existing wall insulation is R-7. Use blow in insulation to increase by R-2.4	8.2	2.3	1	1	$21,108	$48,445	$27,337
Hot Water	Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature	1.3	3.6	18	0	$114	$412	$298
Lights	Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	0.7	23.7	5	0	$134	$2,360	$3,050
Lights	Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps.	2.2	8.3	40	2	$3,307	$21,449	$24,021
Lights	Replace existing 2 20 watt exit lights with LED exit signs	3.4	5.0	4	.0	$434	$1,283	$1,751
Lights	Replace existing 2 x 4 4 34 watt T12 lamps and standard ballast with 3 40 watt T12 lamps and electronic ballast	3.4	5.1	6	0	$737	$2,898	$3,043
Lights	Replace existing 2 x 4 2 34 watt T12 lamps and standard ballast with electronic ballast	5.6	3.2	11	1	$2,361	$5,565	$5,087
Lights	Replace existing 1 x 4 2 34 watt T12 lamps and standard ballast with electronic ballast	6.2	2.8	4	0	$945	$1,905	$1,714
Heating	Add electrically powered damper to boiler flue to reduce stack losses	8.0	1.4	6	0	$244	$330	$86
Total			14.6	96	5	$68,076	$991,341	$934,389

9. Family Housing 03 or More 03

This residential family housing building set consists of 59 multi-family units built in 1990. Total building area is 496,000 square feet. The greatest energy improvements are from replacement of the existing incandescent lamps with compact fluorescent (1200 MBtu annual energy savings) and an increase in ceiling insulation of R-19. Net savings resulting from full implementation of all measures in the project would be approximately $0.8 million. The SIR is 2.9.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Existing roof insulation is R-30. Increase by R-19	16.3	1.1	1	1	$139,587	$160,259	$20,672
Hot Water	Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature.	1.2	5.5	3618	0	$20,856	$115,251	$94,395
Lights	Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	1.3	13.3	432	19	$22,576	$227,440	$277,242
Lights	Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps.	3.9	4.6	691	30	$108,968	$353,613	$392,096
Lights	Replace existing 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps.	4.9	3.7	93	4	$14,261	$37,844	$37,909
Total			2.9	4835	54	$306,248	$894,407	$822,314

10. School/Training 02

This building set includes 15 individual buildings constructed between 1984 and 1990 that are used for training purposes. The total floor area for the building set is 37,000 ft^2. The recommended energy efficiency improvements include the hot water conservation package, lighting retrofits, and additional ceiling insulation. The net savings for implementing these project is estimated to be $0.7 million with a 7.7 SIR.

End Use	Retrofit Measure/Technology	Simple Payback	SIR	Annual Energy Savings (MBtu)	Annual Demand Savings (kW)	Present Value of Installed Cost Savings	Present Value of Energy and Demand Savings	Net Savings
Roof	Increase existing ceiling insulation by R-38	4.3	4.2	1	1	$26,977	$114,430	$87,453
Hot Water	Wrap existing electric hot water tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature.	0.1	25.1	39	4	$197	$4,947	$4,750
Lights	Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps	0.9	20.5	639	58	$26,337	$435,164	$512,894
Lights	Replace incandescent exit signs with LED exit signs	2.9	6.2	63	2	$6,546	$27,115	$34,183
Lights	Replace existing 2 x 4 4 40 watt T12 lamp, standard ballast fixture with 3 32 watt T8 lamps, electronic ballast, new reflectors	4.2	4.3	182	16	$31,331	$119,978	$103,462
Total			7.7	924	81	$91,388	$701,634	$742,742

1.4 Building Information

The number of buildings, building number and total floor area for each building set at Fort Irwin are listed in the following table. Additional information on each specific building can be extracted from the Fort Irwin Real Property List.

Building identification number and average age of buildings in each building set used in the FEDS Level-2 analysis

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft²)	Building Numbers
ADMIN-01	4	1949	10,961	00365, 00466, 00615, 06201
ADMIN-02	6	1987	25,651	00100, 00152, 00826, 00828, 06252, 07600
ADMIN-03	42	1945	85,723	00157, 00236, 00241, 00243, 00372, 00425, 00426, 00428, 00429, 00433, 00437, 00439, 00441, 00443, 00444, 00445, 00451 00452, 00453, 00454, 00458, 00464, 00479, 00483, 00510, 00520, 00526, 00527, 00528, 00529, 00539, 00543, 00544, 00551 00554, 00564, 00570, 00578, 00579, 00580, 00583, 00813
ADMIN-03a	1	1946	2,000	00521
ADMIN-04	1	1944	13,612	00237
ADMIN-05	16	1953	59,798	00101, 00408, 00411, 00415, 00436, 00442, 00488, 00497, 00498, 00499, 00504, 00508, 00513, 00524, 00549, 00930
ADMIN-06	2	1967	18,263	00279, 00281
ADMIN-06a	2	1966	5,152	00320, 00604
ADMIN-07	3	1985	61,704	00130, 00248, 00988
ADMIN-07a	2	1986	15,002	00983, 00985
ADMIN-08	4	1984	84,128	00255, 00256, 00257, 00258
ADMIN-09	55	1988	257,040	00011, 00136, 00154, 00156, 00158, 00182, 00230, 00239, 00316, 00383, 00385, 00402, 00500, 00502, 00503, 00505, 00506 00507, 00546, 00548, 00550, 00561, 00563, 00565, 00566, 00567, 00569, 00571, 00573, 00575, 00577, 00582, 00587, 00590 00591, 00592, 00593, 00594, 00595, 00596, 00597, 00598, 00599, 00653, 00654, 00655, 00656, 00657, 00658, 00662, 00867 00931, 00932, 00933, 00940
BARRACKS-01	1	1953	6,265	00448
BARRACKS-02	32	1953	198,952	00014, 00102, 00103, 00104, 00412, 00413, 00414, 00416, 00417, 00418, 00419, 00420, 00421, 00422, 00423, 00434, 00440 00487, 00489, 00491, 00493, 00494, 00511, 00512, 00514, 00516, 00518, 00519, 00523, 00530, 00534, 00540
BARRACKS-03	2	1965	52,208	00098, 00099
BARRACKS-04	3	1967	127,677	00226, 00273, 00275
BARRACKS-05	1	1989	4,032	00028
BARRACKS-06	6	1985	43,560	00105, 00106, 00107, 00108, 00110, 00111
BARRACKS-07	9	1987	243,239	00249, 00250, 00251, 00252, 00261, 00262, 00264, 00265,00267
CHAPEL-01	2	1948	3,444	00212, 00233
CHAPEL-02	1	1968	15,930	00315

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft²)	Building Numbers
CLINIC-01	1	1987	12,820	00171
CLINIC-02	4	1944	8,304	00235, 00242, 00245, 00478
CLUBS-01	1	1960	6,300	20018
CLUBS-02	2	1943	16,109	00021, 00202
CLUBS-03	1	1989	25,062	00037
COMMISSARIES-01	1	1988	56,500	00920
DINING HALLS-01	4	1962	6,556	00449, 00975, 11012, 12002
DINING HALLS-02	10	1987	13,520	06012, 06013, 06027, 06028, 06042, 06043, 06058, 06059, 70311, 70616
DINING HALLS-03	7	1946	19,052	00431, 00447, 00468, 00476, 00535, 00560, 00819
DINING HALLS-04	1	1967	13,379	00222
DINING HALLS-05	1	1988	3,520	00323
DINING HALLS-06	1	1984	10,860	00254
ELECTRONICS-01	5	1961	796	05005, 06202, 06220, 06230, 06250
ELECTRONICS-02	3	1984	3,728	05006, 06212, 16150
ELECTRONICS-03	1	1970	4,771	00013
EXCHANGE FACS-01	2	1987	5,660	00034, 00317
EXCHANGE FACS-02	3	1957	12,067	00404, 00430, 00909
EXCHANGE FACS-03	1	1963	18,567	00308
EXCHANGE FACS-04	1	1988	42,957	00918

Ft. Irwin FEDS Level-2 Building Set Summary

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft^2)	Building Numbers
FH-3 or more-01	36	1966	179,781	01716, 01718, 01720, 03306, 03308, 03309, 03311, 03313, 03317, 03318, 03319, 03320, 03321, 03322, 03323, 03324, 03325, 03326, 03328, 03420, 03421, 03521, 03523, 03524, 03624, 03626, 03627, 03628, 03629, 03630, 03632, 03633, 03634, 03635, 03636, 03637
FH-3 or more-02	125	1984	839,604	03680, 03681, 03682, 03683, 03684, 03685, 03687, 03689, 03690, 03691, 03692, 03693, 03694, 03695, 03699, 03700, 03701, 03702, 03704, 03705, 03712, 03713, 03715, 03716, 03718, 03720, 03721, 03722, 03723, 03724, 03725, 03726, 03727, 03728, 03730, 03731, 03732, 03733, 03737, 03738, 03742, 03743, 03744, 03745, 03746, 03747, 03748, 03750, 03752, 03800, 03801, 03802, 03803, 03804, 03805, 03806, 03807, 03809, 03811, 03812, 03813, 03814, 03815, 03816, 03818, 03820, 03821, 03822, 03823, 03824, 03825, 03826, 03827, 03828, 03829, 03831, 03832, 03833, 03834, 03835, 03837, 03839, 03840, 03841, 03842, 03843, 03844, 03845, 03846, 03848, 03850, 03851, 03852, 03853, 03854, 03855, 03856, 03857, 03858, 03860, 03861, 03862, 03863, 03864, 03865, 03866, 03867, 03868, 03869, 03870, 03871, 03872, 03880, 03881, 03882, 03883, 03884, 03885, 03886, 03890, 03891, 03893, 03895, 03897, 03898
FH-3 or more-03	59	1990	496,370	04040, 04049, 04050, 04054, 04059, 04067, 04071, 04078, 04084, 04086, 05010, 05015, 05016, 05028, 05030, 05040, 05043, 05045, 05046, 05048, 05052, 05056, 05059, 05060, 05061, 05068, 05072, 05081, 05084, 05088, 05089, 05094, 05103, 05104, 05108, 05109, 05114, 05115, 05117, 05118, 05119, 05120, 05121, 05123, 05124, 05126, 05129, 05132, 05133, 05134, 05135, 05136, 05139, 05140, 05141, 05142, 05143, 05144, 05145

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft²)	Building Numbers
FH-Detached-01	286	1961	195,800	01824, 01826, 01828, 01830, 01832, 01834, 01836, 01838, 01839, 01841, 01842, 01843, 01844, 01901, 01905, 01908, 01909, 02000, 02001, 02002, 02004, 02005, 02006, 02008, 02010, 02012, 02100, 02101, 02102, 02103, 02104, 02105, 02106, 02107, 02108, 02109, 02110, 02111, 02207, 02209, 02300, 02301, 02302, 02303, 02304, 02305, 02306, 02307, 02308, 02310, 02312, 02313, 02314, 02400, 02401, 02402, 02403, 02404, 02405, 02406, 02407, 02408, 02409, 02410, 02411, 02412, 02413, 02414, 02415, 02416, 02417, 02418, 02419, 02420, 02421, 02422, 02424, 02426, 02428, 02430, 02502, 02503, 02504, 02506, 02507, 02508, 02600, 02601, 02602, 02603, 02604, 02605, 02606, 02607, 02608, 02609, 02610, 02611, 02612, 02613, 02614, 02615, 02616, 02617, 02618, 02619, 02620, 02621, 02703, 02704, 02705, 02707, 02709, 02711, 02713, 02714, 02800, 02801, 02803, 02804, 02805, 02806, 02807, 02808, 02809, 02810, 02811, 02812, 02813, 02814, 02815, 02816, 02817, 02818, 02819, 02820, 02821, 02822, 02824, 02900, 02902, 02903, 02904, 02906, 02908, 02910
FH-Detached-02	47	1985	113,542	00001, 03901, 03902, 03903, 03904, 03905, 03906, 03907, 03908, 03909, 03910, 03911, 03912, 03913, 03914, 03915, 03916, 03917, 03918, 03919, 03920, 03921, 03922, 03923, 03924, 03925, 03926, 03930, 03931, 03932, 03933, 03934, 03935, 03936, 03937, 03938, 03939, 03940, 03941, 03942, 03943, 03944, 03945, 03946, 03948, 03950, 03951
FH-Detached-03	81	1990	208,025	03952, 03953, 03954, 03955, 03956, 03957, 03958, 03959, 03960, 03961, 03962, 03963, 03964, 03966, 03967, 03968, 03969, 03970, 03971, 03972, 03973, 03974, 03975, 03976, 03977, 03978, 03979, 03980, 03981, 03982, 03983, 03984, 03985, 03986, 03987, 03988, 03989, 03991, 03992, 03994, 03996, 03997, 03998, 03999, 04001, 04002, 04003, 04005, 04007, 04008, 04009, 04010, 04011, 04012, 04013, 04014, 04015, 04016, 04017, 04018, 04019, 04020, 04021, 04022, 04024, 04025, 04026, 04027, 04028, 04029, 04031, 04032, 04033, 04034, 04035, 04036, 04037, 04038, 04039, 05099, 05115

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Ft. Irwin FEDS Level-2 Building Set Summary

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft^2)	Building Numbers
FH-Duplex-01	108	1963	323,431	01722, 01900, 01902, 01903, 01904, 01906, 01907, 02003, 02009, 03000, 03001, 03002, 03003, 03005, 03006, 03007, 03008, 03009, 03010, 03011, 03012, 03013, 03014, 03015, 03101, 03102, 03103, 03104, 03105, 03106, 03200, 03201, 03202, 03204, 03206, 03208, 03302, 03304, 03310, 03312, 03314, 03316, 03401, 03402, 03403, 03404, 03405, 03406, 03407, 03408, 03409, 03410, 03412, 03414, 03415, 03416, 03417, 03418, 03419, 03422, 03500, 03501, 03502, 03503, 03504, 03505, 03506, 03507, 03508, 03509, 03510, 03511, 03512, 03513, 03514, 03515, 03516, 03517, 03518, 03519, 03520, 03522, 03600, 03601, 03602, 03603, 03604, 03605, 03606, 03607, 03608, 03609, 03610, 03611, 03612, 03613, 03614, 03615, 03616, 03617, 03618, 03619, 03620, 03621, 03622, 03623, 03625, 03631
FH-Duplex-02	13	1983	51,350	03697, 03703, 03707, 03709, 03711, 03714, 03717, 03735, 03739, 03740, 03741, 03749, 03751
FH-Duplex-03	117	1990	558,965	04041, 04042, 04043, 04044, 04045, 04046, 04047, 04048, 04051, 04052, 04053, 04055, 04058, 04060, 04061, 04062, 04063, 04064, 04065, 04066, 04070, 04072, 04073, 04074, 04075, 04076, 04077, 04079, 04080, 04081, 04082, 04083, 04087, 04088, 04089, 04090, 04091, 04092, 04093, 04094, 04095, 04096, 04097, 04098, 04099, 05011, 05017, 05018, 05019, 05020, 05021, 05022, 05023, 05024, 05025, 05026, 05027, 05029, 05031, 05032, 05034, 05035, 05036, 05037, 05038, 05039, 05044, 05047, 05049, 05050, 05051, 05053, 05055, 05057, 05058, 05062, 05063, 05064, 05065, 05069, 05070, 05071, 05073, 05074, 05075, 05076, 05079, 05080, 05082, 05083, 05085, 05086, 05087, 05090, 05091, 05092, 05093, 05095, 05096, 05097, 05098, 05100, 05101, 05102, 05105, 05106, 05107, 05110, 05111, 05116, 05122, 05127, 05128, 05137, 05138, 05146, 05147
GUEST HOUSES-01	6	1987	11,046	00900, 00901, 00902, 00903, 00904, 00906
GUEST HOUSES-02	10	1982	12,000	TS001, TS003, TS004, TS005, TS036, TS046, TS047, TS048, TS049, TS050
HANGER-01	1	1944	8,100	06203
HOSPITAL-01	1	1968	63,818	00166

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft²)	Building Numbers
LABS-01	1	1953	6,265	00144
LABS-02	1	1946	3,150	00228
MILITARY OTHER-01	38	1965	12,462	00334, 00355, 00622, 00624, 00627, 00640, 00643, 00647, 00670, 00834, 00836, 00852, 04605, 04820, 04920, 06205, 06300, 06550, 11006, 11008, 11013, 12006, 12008, 70501, 70504, 70604, 70606, 71020, 71102, 71103, 71610, 71710, 71720, 71850, 72115, DIOSF, MOGAS, WASTO
MILITARY OTHER-02	36	1986	15,899	00628, 00629, 00683, 00685, 00686, 00687, 00689, 00690, 00691, 00871, 00872, 00874, 00877, 00878, 00890, 01319, 07632, 07702, 07704, 07705, 07706, 07707, 07708, 70223, 70224, 70309, 70310, 70312, 70443, 70444, 70614, 70615, 70773, 70774, 70884, 70915
MILITARY OTHER-03	1	1987	5,760	06100
MILITARY OTHER-04	2	1978	1,778	00950, 00992
MILITARY OTHER-05	4	1987	11,944	06017, 06032, 06047, 06057
MWR-01	8	1967	1,638	00023, 00671, 00672, 00673, 00675, 00676, 00677, 00770
MWR-02	8	1986	21,236	00009, 00124, 00331, 00911, 00976, 01209, 01210, 03995
MWR-03	1	1987	12,660	01322
MWR-04	5	1949	15,947	00312, 00410, 00480, 00556, 01318
MWR-05	1	1965	9,271	00310
MWR-05a	1	1968	2,487	00340
MWR-06	3	1983	15,610	00910, 01300, 01313
MWR-07	1	1985	23,680	00361

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft²)	Building Numbers
PROD/PROCESS-01	50	1971	17,012	00012, 00027, 00042, 00043, 00044, 00143, 00149, 00169, 00244, 00319, 00324, 00339, 00343, 00353, 00388, 00432, 00450, 00532, 00617, 00630, 00636, 00638, 00641, 00652, 00663, 00679, 00682, 00700, 00705, 00708, 00709, 00730, 00824, 00838, 00848, 00851, 00853, 00870, 00876, 00880, 00974, 00984, 04006, 05990, 06204, 07703, 16152, 19000, 20003, 20020
PROD/PROCESS-02	3	1986	10,900	00109, 00253, 00263
RECREATION-01	3	1962	6,845	00018, 00328, 00338
RECREATION-02	3	1965	39,748	00322, 00327, 00905
RECREATION-03	1	1969	10,416	00325
RECREATION-04	1	1986	23,150	00362
SCHOOL/TRAINING-01	2	1964	2,160	11010, 12010
SCHOOL/TRAINING-02	15	1985	37,116	00184, 00217, 00284, 00285, 00286, 00588, 01201, 01203, 01204, 01205, 01206, 01207, 01208, 70445, 70775
SCHOOL/TRAINING-03	5	1958	17,610	00490, 00492, 00496, 00547, 01202
SECURITY-01	6	1981	580	00010, 00688, 00692, 07631, 07700, 20010
SECURITY-02	2	1945	8,766	00326, 00427
SECURITY-03	1	1985	7,600	00400
SHOPS-02	17	1984	60,817	00501, 00631, 00632, 00633, 00634, 00664, 00665, 00666, 00667, 00668, 00669, 00825, 00829, 00846, 00859, 07602, MOWEL,
SHOPS-03	17	1946	67,658	00356, 00367, 00384, 00568, 00581, 00600, 00605, 00608, 00612, 00616, 00623, 00626, 00642, 00646, 00842, 00941, 00945
SHOPS-04	2	1952	55,184	00614, 00840
SHOPS-05	10	1967	53,342	00357, 00620, 00621, 00639, 00650, 00830, 00832, 00847, 00850, 00857
SHOPS-06	2	1987	7,680	00837, 00855
SHOPS-07	4	1985	134,888	00680, 00681, 00873, 00879

Ft. Irwin FEDS Level-2 Building Set Summary

Bldg. Set ID	No.	Avg. Yr. Built	Area (ft^2)	Building Numbers
STORAGE-01	23	1984	40,520	00015, 07606, 07607, 07608, 07609, 07610, 07611, 07612, 07613, 07614, 07615, 07616, 07617, 07618, 07619, 07620, 07621, 07622, 07623, 07624, 07625, 07626, 07627
STORAGE-02	141	1961	185,935	00148, 01824, 01826, 01828, 01830, 01832, 01834, 01836, 01838, 01839, 01841, 01842, 01843, 01844, 02000, 02002, 02004, 02006, 02008, 02010, 02012, 02100, 02101, 02102, 02103, 02104, 02105, 02106, 02107, 02108, 02109, 02110, 02111, 02207, 02209, 02300, 02301, 02302, 02303, 02304, 02305, 02306, 02307, 02308, 02310, 02312, 02313, 02314, 02400, 02401, 02402, 02403, 02404, 02405, 02406, 02407, 02408, 02409, 02410, 02411, 02412, 02413, 02414, 02415, 02416, 02417, 02418, 02419, 02420, 02421, 02422, 02424, 02426, 02428, 02430, 02502, 02503, 02504, 02506, 02507, 02508, 02600, 02601, 02602, 02603, 02604, 02605, 02606, 02607, 02608, 02609, 02610, 02611, 02612, 02613, 02614, 02615, 02616, 02617, 02618, 02619, 02620, 02621, 02703, 02704, 02705, 02707, 02709, 02711, 02713, 02714, 02800, 02801, 02803, 02804, 02805, 02806, 02807, 02808, 02809, 02810, 02811, 02812, 02813, 02814, 02815, 02816, 02817, 02818, 02819, 02820, 02821, 02822, 02824, 02900, 02902, 02903, 02904, 02906, 02908, 02910
WAREHOUSE-01	39	1949	28,728	00022, 00139, 00354, 00386, 00609, 00625, 04101, 04102, 04103, 04104, 04105, 04106, 04107, 04108, 04109, 04201, 04202, 04203, 04204, 04205, 04206, 04207, 04208, 04209, 04301, 04302, 04303, 04304, 04305, 04306, 04307, 04308, 04309, 04310, 04401, 04402, 04403, 04404, 20005
WAREHOUSE-02	8	1964	25,561	00358, 00360, 00706, 04110, 04111, 04210, 04211, 20001
WAREHOUSE-03	3	1983	4,167	00359, 00703, 20008
WAREHOUSE-04	2	1986	20,559	07601, 07701
WAREHOUSE-05	27	1946	89,826	00024, 00234, 00318, 00333, 00342, 00344, 00352, 00364, 00435, 00456, 00460, 00462, 00470, 00472, 00474, 00485, 00486, 00531, 00537, 00545, 00558, 00562, 00584, 00585, 00586, 00814, 00818
WAREHOUSE-06	2	1956	8,665	00517, 00844
WAREHOUSE-07	2	1954	81,680	00860, 00934
WAREHOUSE-08	2	1968	13,249	00277, 00306
WAREHOUSE-09	3	1985	14,325	00552, 00827, 00861
WAREHOUSE-10	3	1987	39,375	00821, 00863, 00888
WAREHOUSE-11	1	1987	14,500	00862

2.0 Energy Resource Opportunity Evaluations

The results of the analysis of energy resource opportunities (EROs) are presented within 16 sections, organized by end-use category, by manual versus FEDS Level-2 analysis, and in some cases, by building type. Boilers and furnaces are analyzed in Section 2.1, manual HVAC options are analyzed in Section 2.2, building envelope (Level-2) in Section 2.3, building envelope (manual) in Section 2.4, service hot water (Level-2) in Section 2.5, service hot water (manual) in Section 2.6, interior lighting (Level-2) in Section 2.7, lighting controls (manual) in Section 2.8, motors in Section 2.9, air conditioning in Section 2.10, central plant chillers in Section 2.11, domestic refrigerators in Section 2.12, modular offices in Section 2.13, transmission and distribution in Section 2.14, peak shifting in Section 2.15, and base vehicles in Section 2.16. A brief narrative description of each ERO is provided and, when applicable, a discussion of energy supply and demand, energy security, and environmental issues.

At the end of each section, a summary table presents the operational performance and energy savings information. For the Level-2 EROs these tables report existing and retrofit equipment efficiencies, energy savings, and retrofit installed cost. The manual results tables are presented in three parts: existing operating parameters, energy-efficient operating parameters, and energy-efficient economic parameters. All results tables report the net present value (NPV) and the savings-to-investment ratio (SIR). The NPV is defined as the difference between the life-cycle cost of the existing technology and that of the proposed alternative. The SIR is defined as the present value (PV) of total savings divided by the PV of the installed cost. As a first-cut selection criteria, EROs with positive NPVs are selected for further consideration and reported in the Energy Efficient Economic Parameter section, while EROs with negative NPVs are discarded. For the installation of new or retrofit equipment to be economically attractive, its NPV would have to be greater than zero. The NPV of the option of doing nothing to the existing equipment is zero. The SIR is used to prioritize EROs and is only applied to projects deemed cost-effective by nature of their positive NPV.

Individual EROs were evaluated as mutually exclusive measures. This approach allows individual EROs to be ranked or rated based on parameters such as installed cost, NPV, energy savings, and changes in operations and maintenance (O&M) requirements. In addition, this evaluation approach permits direct economic comparison of competing EROs (e.g., retrofitting an old gas furnace with a new standard-efficiency or a new high-efficiency furnace). When competing EROs have positive NPVs, the ERO with the higher positive NPV will be considered further, while the ERO with the lower NPV will no longer be considered.

In the Energy Efficient Economic Parameter section of the manual tables, in cases where there are multiple positive NPV retrofit options, the highest positive NPV option may be "boxed" if presenting all of the options was considered to be of value. In other cases, only the highest positive NPV option is shown in this section. At the bottom of this section all highest positive NPV options are summed and presented as totals for the following column headings: Installed Cost (1994$), Annual Savings (MBtu), Annualized Net Energy Savings (1994$), Annualized O&M Savings (1994$), and Net Present Value (1994$). These totals represent the summation of the available resource (in energy and dollars) for the winning retrofit technologies.

In the manual EROs, replacement or retrofit of existing technologies was evaluated on a replace-immediately (RI) or a replace-on-failure (ROF) basis or both, depending on the average approximate age of the existing equipment, the remaining useful life of the existing equipment, and the life expectancy of new equipment. All EROs can be evaluated on an RI basis. EROs that affect existing equipment with remaining useful lives greater than 25 years can only be evaluated on an RI basis because the existing equipment would not be expected to fail during the 25-year analysis period (as mandated by 10 CFR Part 436, which requires all federal energy decisions to use LCC analysis methodology). If, however, the existing equipment is expected to fail during the 25-year analysis period, the EROs associated with this equipment can be evaluated on an ROF basis. In addition, existing equipment that has exceeded the average life expectancy of comparable new equipment is assumed in this analysis to have zero remaining useful life left.

The Level-2 approach to RI and ROF is a bit different; Level-2 assumes that an ROF piece of equipment will, by law (10 CFR Part 436), be replaced with the most life-cycle, cost-effective piece of equipment. This assumption rules out the need to examine the ROF option for any piece of equipment.

The maintenance cost given for new or retrofit EROs is the incremental cost difference between the cost of maintaining the existing equipment and that of maintaining new or retrofitted equipment. Because maintenance cost of new or retrofitted equipment is often the same as the cost to maintain the existing equipment, this incremental maintenance cost is often zero.

Electricity demand savings were included in this analysis for the following ERO equipment types where relevant: lighting, air conditioning, fans, pumps, motors, and transmission and distribution (T&D). Essentially, if EROs associated with these equipment types contributed to peak demand reduction (as measured in reduced peak kW load), then demand savings were included in the economic analysis.

The 1994 discount rate of 3.1% (NIST 1993) was used in this analysis. This rate is a reflection of the discount rate for U.S. Treasury Bonds and varies slightly from year to year. The relative ranking of EROs with positive NPVs (see Table 3.5) should not be affected to a large extent from this variable discount rate. For consistency in this analysis, installed costs are in 1994 dollars (1994$), and the fuel escalation rates are determined with the appropriate 1994 index by fuel type (NIST 1993).

There are a number of EROs that are post-scripted as "discussion only." In general, these are EROs that PNL was asked to analyze by the Fort Irwin energy manager, but were found to be technically flawed, grossly not cost-effective, or beyond the scope of this analysis. There are several others that are included for informational purposes. The information included in these sections is, as the name states, a discussion of the ERO only. No attempt was made to calculate the life-cycle cost-effectiveness of any of these EROs, and therefore, no results tables are included.

2.1 FEDS Boiler and Furnace EROs

2.1.1 Replace Existing HTHW Systems with (Oil, Natural Gas, or LPG) Boilers

Description

This section pertains to replacing an existing HTHW heating configuration (HTHW distribution and heat exchanger) with new conventional or high-efficiency boilers fueled by oil, natural gas, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set. Since FEDS uses a "fuel blind" approach to ERO analysis, choice of retrofit boiler fuel is based on life-cycle cost-effectiveness, which may not necessarily be the most practical or environmentally sound choice. This analysis assumes the building's existing secondary-distribution loop will be used by the retrofit boilers.

Assumptions

Technical assumptions follow:

- FEDS calculates existing heat exchanger size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.
- Retrofit boiler fuel availability, fuel consumption, efficiency, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.
- Retrofit boiler efficiencies are given by the following equations:

conventional gas boiler efficiency = $0.871-1.83\text{x}10^{-3}*(\text{Boiler Cap.})$
pulse-condensing gas boiler efficiency = $0.871-1.83\text{x}10^{-3}*(\text{Boiler Cap.})+0.08$
conventional LPG boiler efficiency = $0.871-1.83\text{x}10^{-3}*(\text{Boiler Cap.})$
pulse-condensing LPG boiler efficiency = $0.871-1.83\text{x}10^{-3}*(\text{Boiler Cap.})+0.08$
conventional oil boiler efficiency = $0.891-1.83\text{x}10^{-3}*(\text{Boiler Cap.})$

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

2.1.2 Replace Existing LPG Boilers

Description

This ERO pertains to replacing existing boilers with a new conventional or high-efficiency boilers fueled by LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

Assumptions

Technical assumptions follow:

- FEDS calculates existing boiler size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit boiler fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the input file for the building set.

- Retrofit boiler efficiencies are given by the following equations:

conventional gas boiler efficiency = $0.871-1.83^{-3}*(\text{Boiler Cap.})$
pulse-condensing gas boiler efficiency = $0.871-1.83^{-3}*(\text{Boiler Cap.})+0.08$
conventional LPG boiler efficiency = $0.871-1.83^{-3}*(\text{Boiler Cap.})$
pulse-condensing LPG boiler efficiency = $0.871-1.83^{-3}*(\text{Boiler Cap.})+0.08$
conventional oil boiler efficiency = $0.891-1.83^{-3}*(\text{Boiler Cap.})$

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

2.1.3 Retrofit Existing Boilers with Automatic Electric Vent Dampers

Description

Installing automatic electric vent dampers will reduce standby losses in a boiler and therefore improve efficiency. When the burner is off, the damper closes to minimize heat loss through the stack. This ERO is typically considered for boilers of all capacities.

Assumptions

Technical assumptions follow:

- Automatic electric vent damper installed cost and resulting boiler efficiency increase are to be determined by FEDS based on age, size, and fuel type of the existing boiler as developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- The automatic damper will improve thermal efficiency by an average of 3% over the existing case.

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

2.1.4 Retrofit Existing Boilers with Feedwater Economizers

Description

Feedwater economizers increase boiler efficiency by transferring heat from the exiting combustion gases to the feedwater, via a heat exchanger. This ERO is considered for boilers between 3-80 MBtuh.

Assumptions

Technical assumptions follow:

- Feedwater economizer size, installed cost, and resulting boiler efficiency is determined by FEDS based on age, size, and fuel type of the existing boiler as developed in the Level-2 input file for the building set.

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

2.1.5 Replace Existing LPG Furnaces

Description

This ERO pertains to replacing existing LPG furnaces with new conventional or high-efficiency furnaces fueled by LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

Assumptions

Technical assumptions follow:

- FEDS calculates existing furnace size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit furnace fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit furnace efficiencies are as follows:

  conventional gas furnace - 78.0%
  conventional oil furnace - 78.0%
  conventional electric furnace - 98.0%
  high-efficiency gas furnace - 93.0%
  high-efficiency LPG furnace - 93.0%

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

Table 2.1. Boiler and Furnace EROs

Building Set	Existing Technology	Retrofit Technology	Retro Number	Exist. Eff., COP or Lamp Wattage	Retro. Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
ADMINISTRATION-03a	Propane Conv Boiler	Add Automatic Electric Damper	1	0.82	0.85	Propane	Propane	2	0	76	229	13	153	3.0
BARRACKS-03	Propane Conv Boiler	Add Automatic Electric Damper	2	0.77	0.80	Propane	Propane	17	0	192	916	93	724	4.8
BARRACKS-04	Hot Water Fan Coil	New Conventional Individual Bldg. LPG Boiler	3	1.00	0.87	Gen. Hot Wtr	Propane	-132	0	11,149	40,539	3,613	29,390	3.6
CHAPEL-02	Propane Conv Boiler	Add Automatic Electric Damper	1	0.78	0.81	Propane	Propane	7	0	144	488	41	345	3.4
CLUBS-03	Propane Conv Boiler	Add Automatic Electric Damper	1	0.86	0.89	Propane	Propane	1	0	113	143	8	30	1.3
EXCHANGE FACILITIES-03	Propane Conv Boiler	Add Automatic Electric Damper	1	0.85	0.87	Propane	Propane	4	0	171	461	27	289	2.7
HOSPITAL	Propane Conv Boiler	Add Automatic Electric Damper	1	0.77	0.79	Propane	Propane	6	0	258	346	31	89	1.3
MWR-04	Propane Conv Boiler	Add Automatic Electric Damper	2	0.80	0.83	Propane	Propane	7	0	304	602	41	298	2.0
MWR-06	Propane Conv Boiler	Add Automatic Electric Damper	1	0.84	0.87	Propane	Propane	3	0	105	308	18	204	2.9
MWR-07	Propane Conv Boiler	Add Automatic Electric Damper	1	0.84	0.87	Propane	Propane	6	0	130	659	38	529	5.1
RECREATION-02	Propane Conv Boiler	Add Automatic Electric Damper	2	0.77	0.80	Propane	Propane	6	0	244	330	33	86	1.4
RECREATION-04	Propane Conv Boiler	Add Automatic Electric Damper	1	0.85	0.88	Propane	Propane	3	0	130	345	20	215	2.7
TOTALS:			17					-70	0	13,016	45,366	3,976	32,352	3.5

2.2 Manual HVAC EROs

There are a number of additional HVAC EROs that are not currently handled by FEDS Level-2. The options analyzed at Fort Irwin are presented in this section. The first involves replacing propane-fired unit heaters with radiant heat. The second covers replacement of standard manual thermostats with programmable models in order to implement night setback. The third ERO is a comparison of all of the various options for the family housing HVAC systems. While some of these options are analyzed by Level-2, all of the possibilities are shown to provide a common existing condition. The last two EROs discuss duct insulation and the liquid pressure amplification device.

2.2.1 Replace Conventional Heaters with LPG-Fired Infrared Heaters

Description

This ERO covers the replacement of existing unit heaters with LPG-fired radiant heat in maintenance shops, motorpools, and hangars. Currently these buildings are heated by large numbers of unit heaters which heat up the large volumes of air that these buildings enclose. Many of these buildings have large doors which are occasionally opened to bring in/take out vehicles. When this happens, much of the warm air in the building is lost, and the heating system must run continuously to reheat the space. Also, none of these buildings is particularly well insulated, so there is a significant infiltration component in the heating load in addition to that from opening the doors.

Radiant heat works by heating up objects in the space rather than the air. This removes the infiltration load from the heating equipment and greatly reduces energy consumption. In the large open areas in these buildings, the floor slab is used as thermal storage, which evens out the heating and allows the radiant heaters to run less often. Several buildings at Fort Irwin have radiant heat installed for occupant comfort and are operating satisfactorily.

Assumptions

Technical assumptions are as follows:

- This ERO applies to 4 HANGAR buildings, 29 MTRPOOL buildings, and 9 other SHOP buildings.

- The existing heating systems are based on unit heaters. Equipment size is based on heating energy use intensities (EUIs) from Volume 2 of this report. Buildings with boilers are assumed to have a hot water loop, with hydronic unit heaters in the open bay areas.

- Assumed unit heater run-hours are calculated from the EUIs and the estimated capacity and number of unit heaters in each building.

- The existing unit heaters are assumed to be 75% efficient including those served by a boiler, where the combined heating plant, distribution system and unit heater are assumed 75% efficient.

- Radiant heaters are assumed to be 90% efficient and use 30% less energy due to infiltration savings as discussed above. Fan power is reduced by 85% since there is no need to push the large volumes of air through the unit heaters. This assumes that the new radiant heaters are direct vented to the outside and that there is sufficient infiltration (through leakage or open doors) to provide for fresh air requirements in the buildings.

- According to radiant heater manufacturers, a 15% reduction in equipment size compared to forced air systems is standard practice due to differences in heating technology and delivery methods. For this analysis, standard sized unit heaters were assumed; size multiplied by number of heaters gives a total heating capacity. This number was reduced by 15% for the size of the radiant heaters. It is assumed that a combination of radiant heat components can give any required heating capacity within 1 KBtuh.

- There are no restrictions on the use of radiant heaters in these buildings. This issue will have to be studied concerning the use of flammable materials for cleaning, degreasing, etc.

- Almost identical performance can be achieved through the use of propane or natural gas. For at least one manufacturer, the only difference is the size of the burner orifice, which can easily be changed if natural gas becomes available in the future.

Cost assumptions are as follows:

- Radiant heaters cost an average $2,000/100 KBtuh installed. Actual costs will vary with the building configuration, ceiling height, etc.

- Costs for existing unit heaters are taken from Means (1992c) and are shown in the following table:

Size, KBtuh	Materials, 1992 $	Labor, 1992 $
30	390	50
60	450	50
75	490	50
100	575	60

Results

The complete quantitative results of this ERO appear in Table 2.2. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial installed cost of all cost-effective, replace-immediately implementations of this ERO is $231,990. There are two replace on failure options with a total cost of $3,212. There is no effect on the maintenance budget due to this ERO.

Energy and Cost Savings. It is estimated that all cost-effective, replace-immediately implementations of this ERO will result in an annual energy savings of 3,492 MBtu of LPG and 348,877 kWh of electricity, for an annualized cost savings of $38,185; demand savings of 727 kW-months, for an annualized cost savings of $2,321 and a NPV of $485,059.

It is estimated that all cost-effective replace on failure implementations of this ERO will result in an annual energy savings of 20 MBtu of LPG and 3,050 kWh of electricity, for an annualized cost savings of $167 and demand savings of 15 kW-months, for an annualized cost savings of $29 and an NPV of $2,885.

Operations and Maintenance. The radiant heaters will require no more maintenance than the existing unit heaters. Since there are already radiant heaters in use, it is assumed that the maintenance staff are trained in their operation and maintenance.

2.2.2 Effect Night Setback

Description

This ERO involves replacement of existing manual thermostats with programmable electronic models. The electronic thermostat will be able to automatically reset temperature setpoints for both heating and cooling during occupant selected unoccupied periods. This usually includes weeknights and all day on weekends. The thermostat should also have a (timed) manual override for those periods when the building is used off-hours. Most electronic models also have optimum start/stop capability, where the thermostat "learns" when to start and stop the HVAC system to warm-up/cool-down the space at the beginning and end of each day with a minimum of wasted energy.

PNL was asked by the installation energy manager to evaluate another type of setback thermostat that uses the space lighting to determine the setback condition. The light-sensitive thermostat has a built-in photocell which monitors whether the lights are on or off. When the lights are off, the thermostat is in setback operation. The thermostat is available with built-in preset maximum heating temperature (usually 75°F) and minimum cooling temperature (usually 70°F) and a 10 or 15°F setback/setup. This allows some occupant control without allowing excessive heating or cooling of the space. According to manufacturers literature, this technology has been used successfully in retail sales applications where the lights are always on during business hours and usually off during non-business hours.

While the light-sensitive thermostat seems like as good a choice as a fully programmable thermostat at first glance, there are several disadvantages:

- The lights must be on at all times during the occupied period. Turning on lights to operate a thermostat is wasteful and inefficient. Of course, in some buildings/spaces there is sufficient daylight so that lights may not be required.

- The lights must be off during the unoccupied period. Some lights are almost always left on in commercial buildings, usually in common areas and hallways. Unfortunately, this is also a likely place for the thermostat.

- The light-sensitive thermostat has only a limited warm-up/cool-down option, limited to allowing the HVAC system to come on a fixed number of hours after setback is initiated even if the lights are off. If the lights are left on later than usual the night before, there will be no morning warm-up/cool-down.

- The light-sensitive thermostat costs about $100 more than a high quality programmable electronic thermostat.

For these reasons, the light-sensitive thermostat was not included in the analysis. However, this type of control should be kept in mind when doing a more detailed assessment before implementation of the night setback ERO. There are undoubtedly certain areas/applications where this technology may be more practical than a programmable thermostat.

There are valid concerns regarding night setback when discussing the energy used to "warm-up" or "cool-down" a building after a setback period. It has been said that more energy is used during this time than if the building were left at a constant temperature. This is an issue mainly in buildings with large thermal mass, where large quantities of heat or cool are stored in walls or floors. Most of the buildings at Fort Irwin are relatively lightweight and therefore pick-up loads should not be an issue.

It is often difficult to program and maintain electronic thermostats in areas where occupants have access to them. It is recommended that new thermostats be purchased with locking covers to prevent tampering with the setback program. However, access should be allowed to an override button and buttons for control of space temperature (within a fixed range) during occupied periods. Previous implementations of night setback thermostats and other HVAC controls have shown that occupants must be given some amount of control over their environment for the system to be successful.

Assumptions

The technical assumptions are as follows:

- The following building types are considered for night setback: ADMIN, CHAPEL, CLINIC, COMCATN, DGR, MTRPOOL, SHOP-ELC, TRAING. Modular trailer-type ADMIN spaces are not covered here, but under another ERO section.

- Since it is almost impossible to determine the existing conditions in every building, a penetration rate was assumed to cover buildings that may already have night setback, have irregular occupancy patterns, or where the HVAC system was not compatible with night setback controls. With the exception of MTRPOOL, it was assumed that 75% of the buildings could be retrofitted with new thermostats and have night setback implemented. 25% of MTRPOOL buildings were assumed to be retrofitable. (It is assumed that many MTRPOOL facilities are not heated, or only heated to minimal operating conditions.)

- Existing energy use for heating, cooling and fans was calculated from the EUIs developed in Volume 2 of this report.

- Energy savings were calculated using DOE2.1d. A sample building was modeled using constant thermostat setpoints of 70° F for heating and 78°F for cooling, then rerun with the following setpoint schedule:

  Weekdays:
    12 am - 7 am 55°F heating, 99°F cooling
    7 am - 5 pm 70°F heating, 78°F cooling
    5 pm - 12 am 55°F heating, 99°F cooling
  Weekends:
    12 am - 12 am 55°F heating, 99°F cooling.

This resulted in a savings of 55% for heating, 28% for cooling and 70% for fans. These numbers appear reasonable given the following: at Fort Irwin most heating is at night, and weekends comprise about 28% of the week.

- HVAC electric energy use was broken down into the utility billing structure blocks using bin weather data for China Lake, CA (the closest site where such data was available). Heating was assumed during all hours when outdoor air temperature (OAT) was 61°F or less. Cooling was assumed for all hours when OAT was 76°F or higher. The total kWh was then apportioned based on the percentage of hours in each rate block.

- There are an average of two thermostats per building.

The cost assumptions are as follows:

- Each programmable thermostat costs $120 for material and $26 for installation. Material prices are from manufacturers catalogs and labor is from Means. Prices have been modified for the Los Angeles area from Means: 97.7% for materials, 128% for labor. Installed cost also includes 15% contractor overhead and profit, for a total material cost of $135 and a total labor cost of $38 per thermostat.

Results

The complete quantitative results of this ERO appear in Table 2.3. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial cost of this ERO is $39,120 for all cost-effective implementations.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in annual energy savings of 669,582 kWh and 11,641 MBtu at a value of $108,867, and electric demand savings of 272 kW-months at a value of $730. The total NPV for this ERO is $1,830,927.

2.2.3 Residential HVAC EROs

Description

Residential HVAC EROs comprise a number of options to replace the existing propane furnaces and central air conditioners in the family housing units. There are 1,637 family housing units, all with basically the same HVAC system. There are five replacement options, four are analyzed with a minimum compliance alternative and a maximum efficiency alternative. The options include air-source heat pump, ground-source heat pump, LPG furnace and central air, natural gas furnace and central air, and gas-fired heat pump (still under development but included for comparison purposes).

Although natural gas is not presently available at Fort Irwin, HVAC options are included to compare the operating cost of natural gas and propane. The natural gas rate used in the analysis is an estimate based on conversations with base personnel and representatives of possible natural gas providers.

This ERO was done manually because the Level-2 software cannot yet fully analyze EROs involving heat pumps (either air or ground source). The Level-2 software will analyze high efficiency air conditioners and furnaces, but will take interactive effects into consideration. In order to maintain equal standing among all of the HVAC options, all options were analyzed manually, using only the savings from the individual pieces of equipment.

Assumptions

The technical assumptions are as follows:

- The existing LPG furnaces have an average size of 50 KBtuh (input) and efficiency of 70.5% AFUE. The existing air conditioners have an average size of 2.5 tons and efficiency of 8.0 SEER.
- The replacement efficiencies are as follows:

Replacement Equipment	Cooling Eff.		Heating Eff.	
Min. Compliance Air Source Heat Pump	10.0	SEER	7.0	HSPF
High Eff. Air Source Heat Pump	15.4	SEER	8.3	HSPF
Avg. Eff. Ground Source Heat Pump	13.3	EER	2.8	COP
High Eff. Ground Source Heat Pump	16.0	EER	3.5	COP
Min. Compliance Furnace and A/C	10.0	SEER	78.0%	AFUE
High Eff. Furnace and A/C	15.7	SEER	92.6%	AFUE
Gas Fired Heat Pump	1.1	COP	1.3	COP

Efficiencies for the LPG and natural gas furnace and central air conditioner options are assumed to be the same; the only difference for these two options is the price of fuel.

Additional notes on ground-source heat pumps: 1) There are no efficiency standards for ground-source heat pumps, so an average efficiency unit was chosen to represent the minimum compliance case, 2) Since the ground temperature remains fairly constant, the given efficiencies are assumed to represent seasonal values (EER = SEER).

- Existing energy consumption was calculated using the EUIs developed in Volume 2 of this report: 2.91 kWh/ft^2-yr for cooling, and 26.37 kBtu/ft^2-yr for heating. Given an average house size of 1,800 ft^2, the energy consumption is 5,238 kWh for cooling and 47.5 MBtu for heating per unit.
- Retrofit energy consumption is based on the actual equipment size and estimated run hours of each replacement unit to meet the same load as the existing equipment. The replacement equipment sizes are different from the existing equipment size in almost all cases since actual equipment was chosen for the retrofit options. Equipment sizes are given in the following table:

Replacement Equipment	Cooling Cap. (KBtuh)	Heating Cap. (KBtuh)
Min. Compliance Air Source Heat Pump	28.2	27.4
High Eff. Air Source Heat Pump	29.0	29.0
Avg. Eff. Ground Source Heat Pump	30.2	20.8
High Eff. Ground Source Heat Pump	31.2	21.2
Min. Compliance Furnace and A/C	28.6	40.0
High Eff. Furnace and A/C	30.8	37.0
Gas Fired Heat Pump	36.0	53.5

- Operating hours for the existing equipment are based on the EUIs and equipment capacities as described above. Operating hours for the retrofit equipment are calculated from the existing equipment hours modified by the replacement equipment efficiencies and capacities. Operating hours for cooling and heating for each electric utility rate period are given in the following tables:

  Cooling Operating Hours:

Equipment Description	Summer			Winter	
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak
Existing Furnace and A/C	226	324	503	228	116
Min. Comp. Air Source HP	241	345	535	242	123
High Eff. Air Source HP	234	335	520	236	119
Avg. Eff. Ground Source HP	225	322	499	226	115
High Eff. Ground Source HP	218	312	483	219	111
Min. Comp. Furnace and A/C	238	340	527	239	121
High Eff. Furnace and A/C	221	316	490	222	112
Gas Fired Heat Pump	189	270	419	190	96

Heating Operating Hours:

Equipment Description	Summer			Winter	
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak
Existing Furnace and A/C	0	0	23	260	609
Min. Comp. Air Source HP	0	0	32	356	833
High Eff. Air Source HP	0	0	30	336	788
Avg. Eff. Ground Source HP	0	0	42	470	1098
High Eff. Ground Source HP	0	0	41	460	1078
Min. Comp. Furnace and A/C	0	0	22	244	571
High Eff. Furnace and A/C	0	0	23	264	617
Gas Fired Heat Pump	0	0	16	182	427

The cost assumptions are as follows:

- The replacement equipment installed costs are as follows:

Replacement Equipment	Material (1994 $)	Labor (1994 $)
Min. Compliance Air Source Heat Pump	$2,180	$559
High Eff. Air Source Heat Pump	$5,175	$559
Avg. Eff. Ground Source Heat Pump	$3,000	$559
High Eff. Ground Source Heat Pump	$3,770	$559
Min. Compliance Furnace and A/C	$1,483	$468
High Eff. Furnace and A/C	$4,725	$468
Gas Fired Heat Pump	$5,000	$750

Material costs are from manufacturer's catalogs and sales representatives. Labor costs are from Means. All costs include 15% overhead and profit. Material and labor costs for the ground source heat pump excavation and piping are included in the material cost column above.

- Operations and maintenance costs are as follows: $75/yr for all air and ground source heat pump options, $85/yr for all furnace and air conditioner options (including the existing), and $105/yr for the gas-fired heat pump option.

- The cost of natural gas (for the gas fired heat pump) is assumed to be $3.50/MBtu. While natural gas is not currently available at Fort Irwin (it is unknown if the unit can be converted to LPG), the gas fired heat pump is included for comparision purposes.

Results

The complete quantitative results of this ERO appear in Table 2.4. The table contains specific energy, cost, and economic performance data. The "boxed" row in the economic parameters section of the table marks the winning ERO (the ERO with the highest NPV).

The gas-fired heat pump was not chosen as the winning ERO (even though it has the highest NPV) since gas is not currently available at Fort Irwin. If some time elapses before implementation of the residential HVAC ERO, and gas is brought to the site for other uses, the gas-fired heat pump may deserve further study.

Budget Implications. The initial cost of this ERO is $7,086,917 for the most cost-effective implementation.

Energy and Cost Savings. It is estimated that the most cost-effective implementation of this ERO will result in *increased* annual electric energy consumption of 299,851 kWh, but an annual propane savings of 77,702 MBtu, for a total annualized energy cost savings of $479,316, and electric demand savings of 15,226 kW-months, at an annualized value of $234,468.

Operations and Maintenance. The gas-fired heat pump is the only option that would require significant additional maintenance; the oil, oil filter and spark plug must be replaced yearly at an estimated cost (materials and labor) of $105 per unit. Replacing the furnace and air conditioner with a heat pump should result in minor O&M savings of approximately $16,370 per year.

2.2.4 Duct Insulation (discussion only)

Twenty-nine buildings were identified at Fort Irwin that have extensive outside ductwork that delivers cooled air from evaporative coolers to the building interiors. These buildings are all classified as "T" buildings, indicating that they were originally constructed as temporary structures. These buildings are generally used as offices with some storage areas and are all small, averaging 2,712 square feet. There is no wall or ceiling insulation in these buildings and there is no thermostatic control for the evaporative cooling units.

Measurements were taken on the ductwork of six buildings that were representative of the ductwork on the remaining twenty-three buildings. A total of 18,472 square feet of exterior ductwork is attached to these six buildings. Cost of materials to insulate the ductwork was determined to be $1.74 per square foot. Labor charges are estimated to be $2.82 per square foot. Total installation, including materials and labor, is expected to be $4.56 per square foot of ductwork. Total cost to insulate the outside duct on the six buildings was calculated to be $84,233.

The total cooling energy consumption was calculated to be less than $2,000 per year for these six buildings. Even if a savings of 50% could be achieved, the total payback would exceed 84 years. Therefore, we do not believe this to be a cost-effective ERO.

2.2.5 Install Liquid Pressure Amplification Device (discussion only)

Liquid pressure amplification (LPA) is a mechanical means of increasing the operating efficiency of vapor-compression refrigeration and air conditioning systems. This efficiency increase results from the installation of a pump designed to increase the refrigerant pressure while reducing the work required of the compressor and thus saving energy.

Most vapor-compression refrigeration and air conditioning systems have the following components: a receiver, an expansion valve, an evaporator, a compressor, and a condenser. Typically, these components are designed and sized to meet the required load on the hottest days of the year (the design-day). This is true of the condenser which is designed to operate at condenser pressures required to achieve refrigerant condensation on the hottest days of the year. These elevated pressures, required only for those hot days, result in wasted energy during cooler weather when the system is needlessly operating at these higher pressures. One way to reduce energy consumption is to allow the condenser pressure to vary or "float" with the ambient temperature. Floating the condenser pressure allows the compressor to maintain pressures necessary for condensation on a given day instead of the higher design-day pressure conditions. While this seems like a simple solution, the drawback to lowering the condenser pressure is the formation of gas in the liquid refrigerant prior to the expansion valve. This gas, called flash-gas, reduces the system operating efficiency by displacing liquid refrigerant while doing no work itself. To reduce flash-gas formation while allowing the condenser pressure to float, the LPA pump is installed in between the condenser and the expansion valve. With the LPA pump installed in the liquid-line, flash-gas formation is minimized allowing condenser pressure to float, thus reducing compressor energy consumption.

Annual energy savings resulting from LPA are a direct function of annual weather conditions. The greater the number of hours per year the system can operate at a lowered condenser pressure, the greater the annual energy savings. Applications of LPA systems in climates having moderate average temperatures with relatively short high-temperature peaks are more attractive than applications in climates having warm, relatively constant, average temperatures. The manufacturer, Hy-Save Inc., reports estimated annual saving as high as 57%, while a number of independent case studies estimate the savings to be between 10% and 25%, depending on application. Savings discrepancies aside, cost-effective energy savings are possible with proper system selection and LPA application. To properly characterize this ERO, further in-depth study is required on an individual equipment basis. The high-level nature of this analysis precluded the collection of the detailed data required for life-cycle costing purposes.

Table 2.2. Infrared Radiant Heat EROs

Existing Heater Operating Parameters

ID	Bldg. Type/ Number	Equipment Type	Unit Eff. (%)	# of Units	Avg Size/ Capacity (Btu/hr)	Operating Hours Winter		LPG (heat) Consumption (MBtu/yr)	Electric (fan) Consumption		Number of Months Contrib. to Peak	Sum Coincident Demand (kW-mo)
						Mid Peak (Hours)	Off Peak (Hours)		Mid Peak (kWh)	Off Peak (kWh)		
1	HANGAR/06203	Unit Heaters	75%	9	25,000	282	659	212	1,781	4,172	3	19
2	HANGAR/BD007	Unit Heaters	75%	16	45,000	278	651	669	5,630	13,186	3	61
3	HANGAR/BD008	Unit Heaters	75%	12	45,000	285	668	514	4,328	10,137	3	46
4	HANGAR/BD009	Unit Heaters	75%	16	45,000	278	651	669	5,630	13,186	3	61
5	MTRPOOL/00879	Unit Heaters	75%	13	98,000	211	494	898	9,939	23,280	2	94
6	MTRPOOL/00873	Unit Heaters	75%	11	98,000	245	573	882	9,762	22,866	2	80
7	MTRPOOL/00681	Unit Heaters	75%	9	47,200	336	786	477	5,278	12,362	3	47
8	MTRPOOL/00680	Unit Heaters	75%	9	47,200	298	698	423	4,684	10,972	3	47
9	MTRPOOL/00642	Unit Heaters	75%	6	75,000	43	100	64	711	1,665	0	0
10	MTRPOOL/00626	Unit Heaters	75%	1	100,000	183	428	61	676	1,582	2	7
11	MTRPOOL/00623	Unit Heaters	75%	1	100,000	183	428	61	676	1,582	2	7
12	MTRPOOL/00621	Unit Heaters	75%	4	45,000	132	309	79	880	2,060	1	7
13	MTRPOOL/00614	Unit Heaters	75%	6	45,000	586	1,374	529	5,860	13,727	6	60
14	MTRPOOL/00620	Unit Heaters	75%	3	60,000	132	309	79	880	2,060	1	7
15	MTRPOOL/00605	Unit Heaters	75%	4	45,000	135	317	81	901	2,110	1	7
16	MTRPOOL/00850	Unit Heaters	75%	3	60,000	132	309	79	880	2,060	1	7
17	MTRPOOL/00840	Unit Heaters	75%	6	60,000	471	1,103	567	6,275	14,698	5	67
18	MTRPOOL/00608	Unit Heaters	75%	6	25,000	112	261	56	619	1,451	1	6
19	MTRPOOL/00650	Unit Heaters	75%	5	25,000	190	445	79	880	2,060	2	9
20	MTRPOOL/00612	Unit Heaters	75%	4	25,000	434	1,015	145	1,604	3,758	4	15
21	MTRPOOL/00945	Unit Heaters	75%	2	45,000	203	475	61	676	1,582	2	7
22	MTRPOOL/00830	Unit Heaters	75%	3	45,000	363	849	164	1,811	4,243	4	20
23	MTRPOOL/00847	Unit Heaters	75%	4	45,000	370	866	222	2,463	5,769	4	27
24	MTRPOOL/00639	Unit Heaters	75%	2	45,000	264	619	79	880	2,060	3	10
25	MTRPOOL/00646	Unit Heaters	75%	2	30,000	304	713	61	676	1,582	3	7
26	MTRPOOL/00832	Unit Heaters	75%	2	45,000	324	759	97	1,079	2,527	3	10
27	MTRPOOL/00893	Unit Heaters	75%	4	45,000	143	334	86	950	2,225	1	7
28	MTRPOOL/00892	Unit Heaters	75%	8	45,000	131	306	157	1,742	4,080	1	13
29	MTRPOOL/00941	Unit Heaters	75%	5	30,000	128	300	64	711	1,665	1	6
30	MTRPOOL/00825	Unit Heaters	75%	6	45,000	141	330	127	1,407	3,297	1	10
31	MTRPOOL/00694	Unit Heaters	75%	12	45,000	133	312	240	2,660	6,231	1	20
32	MTRPOOL/00837	Unit Heaters	75%	4	45,000	121	285	73	809	1,896	1	7
33	MTRPOOL/00835	Unit Heaters	75%	7	45,000	140	329	148	1,636	3,832	1	12
34	SHOP/20018	Unit Heaters	75%	1	47,200	52	121	8	1,301	3,046	1	25
35	SHOP/00367	Unit Heaters	75%	4	25,000	50	116	17	2,652	6,213	0	0
36	SHOP/00357	Unit Heaters	75%	1	30,000	23	54	2	372	870	0	0
37	SHOP/00384	Unit Heaters	75%	1	25,000	47	111	4	634	1,485	0	0
38	SHOP-AIR/BD006	Unit Heaters	75%	3	30,000	61	143	18	413	967	1	7
39	SHOP-HVY/BD005	Unit Heaters	75%	5	30,000	59	137	29	661	1,547	1	11
40	SHOP/HDSDT	Unit Heaters	75%	15	75,000	31	73	118	18,853	44,161	0	0
41	SHOP/00501	Unit Heaters	75%	1	45,000	51	121	8	1,239	2,901	1	24
42	SHOP/HDSDS	Unit Heaters	75%	15	45,000	36	85	82	13,092	30,666	0	0

Table 2.2. (contd)

Efficient Heater ERO Operating Parameters

ID	Description	Fuel Type	Unit Eff. (%)	# of Units	Total Installed Capacity (Btu/hr)	Operating Hours Winter		LPG (heat) Consumption (MBtu/yr)	Electric (fan) Consumption		Number of Months Contrib. to Peak	Sum Coincident Demand (kW-mo)
						Mid Peak (Hours)	Off Peak (Hours)		Mid Peak (kWh)	Off Peak (kWh)		
1	Radiant Heat	LPG	90%	1	191,000	193	453	124	267	626	3	3
2	Radiant Heat	LPG	90%	1	612,000	191	447	390	844	1,978	3	9
3	Radiant Heat	LPG	90%	1	459,000	196	458	300	649	1,521	3	7
4	Radiant Heat	LPG	90%	1	612,000	191	447	390	844	1,978	3	9
5	Radiant Heat	LPG	90%	1	1,083,000	145	339	524	1,491	3,492	2	14
6	Radiant Heat	LPG	90%	1	916,000	168	393	514	1,464	3,430	2	12
7	Radiant Heat	LPG	90%	1	361,000	230	540	278	792	1,854	3	7
8	Radiant Heat	LPG	90%	1	361,000	205	479	247	703	1,646	3	7
9	Radiant Heat	LPG	90%	1	383,000	29	69	37	107	250	0	0
10	Radiant Heat	LPG	90%	1	85,000	125	293	36	101	237	2	1
11	Radiant Heat	LPG	90%	1	85,000	125	293	36	101	237	2	1
12	Radiant Heat	LPG	90%	1	153,000	91	212	46	132	309	1	1
13	Radiant Heat	LPG	90%	1	230,000	402	941	309	879	2,059	6	9
14	Radiant Heat	LPG	90%	1	153,000	91	212	46	132	309	1	1
15	Radiant Heat	LPG	90%	1	153,000	93	217	47	135	316	1	1
16	Radiant Heat	LPG	90%	1	153,000	91	212	46	132	309	1	1
17	Radiant Heat	LPG	90%	1	306,000	323	757	331	941	2,205	5	10
18	Radiant Heat	LPG	90%	1	128,000	76	179	33	93	218	1	1
19	Radiant Heat	LPG	90%	1	106,000	131	306	46	132	309	2	1
20	Radiant Heat	LPG	90%	1	85,000	298	697	85	241	564	4	2
21	Radiant Heat	LPG	90%	1	77,000	138	324	36	101	237	2	1
22	Radiant Heat	LPG	90%	1	115,000	248	582	95	272	636	4	3
23	Radiant Heat	LPG	90%	1	153,000	254	594	130	369	865	4	4
24	Radiant Heat	LPG	90%	1	77,000	180	422	46	132	309	3	1
25	Radiant Heat	LPG	90%	1	51,000	209	489	36	101	237	3	1
26	Radiant Heat	LPG	90%	1	77,000	221	517	57	162	379	3	1
27	Radiant Heat	LPG	90%	1	153,000	98	229	50	142	334	1	1
28	Radiant Heat	LPG	90%	1	306,000	90	210	92	261	612	1	2
29	Radiant Heat	LPG	90%	1	128,000	88	205	37	107	250	1	1
30	Radiant Heat	LPG	90%	1	230,000	96	226	74	211	494	1	1
31	Radiant Heat	LPG	90%	1	459,000	91	214	140	399	935	1	3
32	Radiant Heat	LPG	90%	1	153,000	83	195	43	121	284	1	1
33	Radiant Heat	LPG	90%	1	268,000	96	225	86	245	575	1	2
34	Radiant Heat	LPG	90%	1	40,000	35	83	5	195	457	1	4
35	Radiant Heat	LPG	90%	1	85,000	34	80	10	398	932	0	0
36	Radiant Heat	LPG	90%	1	26,000	16	37	1	56	131	0	0
37	Radiant Heat	LPG	90%	1	21,000	33	77	2	95	223	0	0
38	Radiant Heat	LPG	90%	1	77,000	42	97	11	62	145	1	1
39	Radiant Heat	LPG	90%	1	128,000	40	94	17	99	232	1	2
40	Radiant Heat	LPG	90%	1	956,000	22	50	69	2,828	6,624	0	0
41	Radiant Heat	LPG	90%	1	38,000	36	83	5	186	435	1	4
42	Radiant Heat	LPG	90%	1	574,000	25	58	48	1,964	4,600	0	0

Table 2.2. (contd)

Efficient Heater ERO Economic Parameters

				First Year Energy and Demand Savings						Life Cycle Cost	
ID	RI or ROF	Life (Years)	Installed Cost (1994 $)	LPG Savings (MBtu)	Electric Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	RI	15	3,820	88	5,060	16	762	52	813	13,882	4.63
2	RI	15	12,240	279	15,994	52	2,407	165	2,572	32,996	3.70
3	RI	15	9,180	214	12,295	39	1,850	124	1,974	25,525	3.78
4	RI	15	12,240	279	15,994	52	2,407	165	2,572	32,996	3.70
5	RI	15	32,490	374	28,236	80	3,596	256	3,852	25,646	1.79
6	RI	15	27,480	367	27,734	68	3,532	217	3,748	30,142	2.10
7	RI	15	10,830	199	14,994	40	1,909	128	2,037	23,281	3.15
8	RI	15	10,830	176	13,307	40	1,695	128	1,823	19,582	2.81
10	RI	15	1,700	25	1,919	6	244	20	264	2,955	2.74
11	RI	15	1,700	25	1,919	6	244	20	264	2,955	2.74
12	RI	15	3,060	33	2,499	6	318	18	336	3,923	2.28
13	RI	15	4,600	221	16,650	51	2,120	163	2,283	36,498	8.93
14	RI	15	3,060	33	2,499	6	318	18	336	3,402	2.11
15	RI	15	3,060	34	2,559	6	326	18	344	4,055	2.33
16	RI	15	3,060	33	2,499	6	318	18	336	3,402	2.11
17	RI	15	6,120	236	17,827	57	2,270	181	2,451	37,429	7.12
18	RI	15	2,560	23	1,759	5	224	15	239	4,018	2.57
19	RI	15	2,120	33	2,499	8	318	25	343	5,849	3.76
20	RI	15	1,700	60	4,558	13	580	40	621	10,631	7.25
21	RI	15	1,540	25	1,919	6	244	18	262	3,572	3.32
22	RI	15	2,300	68	5,146	17	655	54	710	10,811	5.70
23	RI	15	3,060	93	6,997	23	891	72	963	14,722	5.81
24	RI	15	1,540	33	2,499	8	318	27	345	4,999	4.25
25	RI	15	1,020	25	1,919	6	244	18	262	4,245	5.16
26	RI	15	1,540	41	3,064	8	390	27	417	6,239	5.05
27	RI	15	3,060	36	2,699	6	344	18	362	3,407	2.11
28	RI	15	6,120	66	4,948	11	630	36	666	5,827	1.95
29	RI	15	2,560	27	2,019	5	257	15	272	3,984	2.56
30	RI	15	4,600	53	3,998	8	509	27	536	4,630	2.01
31	RI	15	9,180	100	7,557	17	962	54	1,017	9,037	1.98
32	RI	15	3,060	30	2,299	6	293	18	311	2,654	1.87
33	RI	15	5,360	62	4,648	10	592	32	624	4,797	1.89
34	RI	15	1,200	3	3,695	21	219	69	287	3,847	4.21
35	RI	15	1,700	7	7,535	0	446	0	446	7,624	5.48
36	RI	15	520	1	1,056	0	62	0	62	924	2.78
37	RI	15	420	2	1,801	0	107	0	107	1,828	5.35
38	ROF	15	1,206	8	1,173	6	64	11	75	1,108	1.92
39	ROF	15	2,005	12	1,877	10	103	18	121	1,778	1.89
40	RI	15	19,120	49	53,562	0	3,170	0	3,170	37,921	2.98
41	RI	15	760	3	3,519	20	208	65	274	3,926	6.17
42	RI	15	11,480	34	37,195	0	2,202	0	2,202	30,899	3.69
Totals:											
	RI:		231,990	3,492	348,877	727	38,185	2,321	40,506	485,059	3.09
	ROF:		3,212	20	3,050	15	167	29	197	2,885	1.90

Table 2.3. Night Setback EROs

Existing Thermostat Operating Parameters

	Existing Building Parameters					Annual Energy Consumption						Sum Coincident Demand		
							Summer Electric			Winter Electric		Summer		Winter
ID	Bldg. Type	Total Number of Bldgs	Pen. Rate (%)	Number of Units for ERO	ERO Sqft	LPG (MBtu/yr)	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	ADMIN	77	75%	58	313,594	14,869	56,476	82,137	141,454	117,423	145,027	432	108	65
2	CHAPEL	4	75%	3	14,531	506	2,964	4,327	7,629	6,936	96,378	23	6	3
3	CLINIC	8	75%	6	15,843	957	13,882	19,992	32,362	19,775	98,184	106	27	16
4	COMCATN	8	75%	6	42,375	1,713	12,339	17,862	29,898	21,855	101,188	95	24	14
5	DGR	14	75%	11	59,438	824	11,556	16,848	29,448	25,927	105,236	88	22	13
6	MTRPOOL	30	25%	8	85,130	6,763	25,136	36,507	62,349	49,966	114,235	193	48	29
7	SHOP-ELC	5	75%	4	9,123	42	2,085	3,028	5,173	4,149	94,765	16	4	2
8	TRAING	22	75%	17	42,665	193	21,258	30,562	48,916	27,861	98,912	163	41	24

Setback Thermostat Operating Parameters

	ERO Building Parameters				Annual Energy Consumption						Sum Coincident Demand		
						Summer Electric			Winter Electric		Summer		Winter
ID	Replacement Equipment	Percent Savings Cooling	Percent Savings Heating	Percent Savings Vent/Fans	LPG (MBtu/yr)	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Programmable T-Stat	28%	55%	70%	8,178	23,519	34,580	63,462	66,090	129,379	432	45	27
2	Programmable T-Stat	28%	55%	70%	279	1,333	1,967	3,692	4,109	5,986	23	3	2
3	Programmable T-Stat	28%	55%	70%	526	4,626	6,708	11,349	8,721	10,161	106	9	5
4	Programmable T-Stat	28%	55%	70%	942	4,656	6,806	12,088	11,294	15,048	95	9	5
5	Programmable T-Stat	28%	55%	70%	453	5,054	7,450	13,874	15,096	21,768	88	10	6
6	Programmable T-Stat	28%	55%	70%	3,719	10,176	14,938	27,172	27,514	38,309	193	19	12
7	Programmable T-Stat	28%	55%	70%	23	845	1,240	2,256	2,286	3,183	16	2	1
8	Programmable T-Stat	28%	55%	70%	106	6,776	9,795	16,247	11,351	12,156	163	13	8

Setback Thermostat Economic Parameters

			First Year Energy and Demand Savings						Life Cycle Cost	
ID	Installed Cost (1994 $)	Equip. Life (Years)	LPG Savings (MBtu)	Electric Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	20,079	15	6,691	261,537	101	54,223	271	54,494	909,248	46.28
2	1,039	15	228	13,862	5	2,163	13	2,176	35,968	35.63
3	2,077	15	431	62,681	28	6,634	76	6,711	112,544	55.18
4	2,077	15	771	56,469	24	8,034	63	8,097	136,424	66.68
5	3,808	15	371	53,851	20	5,573	54	5,627	91,366	24.99
6	2,770	15	3,043	115,998	46	24,498	123	24,622	419,976	152.64
7	1,385	15	19	9,623	4	742	10	752	10,946	8.90
8	5,885	15	87	95,560	44	6,999	119	7,118	114,454	20.45
Totals:										
	39,120		11,641	669,582	272	108,867	730	109,598	1,830,927	47.80

Table 2.4. Residential HVAC EROs

Existing HVAC Characteristics and Operating Parameters

						Energy						Demand		
					Number of Units	Summer			Winter			Summer		Winter
ID	Cooling Source	Efficiency	Heating Source	Efficiency		On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	LPG (MBtu/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1	DX Air Conditioner	8.00 SEER	LPG Furnace	0.71 % AFUE	1,637	1,390,045	1,989,202	3,086,326	1,398,034	711,000	77,702	24,556	6,139	3,683

Alternative HVAC Characteristics and Operating Parameters

						Energy						Demand		
					Number of Units	Summer			Winter			Summer		Winter
ID	Cooling Source	Efficiency	Heating Source	Efficiency		On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	LPG (MBtu/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1a	Std. Eff. Air Src HP	10.00 SEER	Std. Eff. Air Src HP	7.00 HSPF	1,637	1,112,036	1,591,362	2,671,789	3,399,120	5,911,065	0	18,465	4,616	4,616
1b	High Eff. Air Src HP	15.40 SEER	High Eff. Air Src HP	8.30 HSPF	1,637	722,101	1,033,352	1,774,262	2,649,727	4,874,875	0	12,331	3,083	3,083
1c	Std. Eff. Grnd Src HP	13.30 EER	Std. Eff. Grnd Src HP	2.80 COP	1,637	836,117	1,196,513	2,004,977	2,512,004	4,341,990	0	14,868	3,717	3,717
1d	High Eff. Grnd Src HP	16.00 EER	High Eff. Grnd Src HP	3.50 COP	1,637	695,022	994,601	1,661,995	2,035,882	3,486,956	0	12,769	3,192	3,192
1e	Std. Eff. DX A/C	10.00 SEER	Std. Eff. NG Furnace	0.78 %AFUE	1,637	1,112,036	1,591,362	2,469,060	1,118,427	568,800	70,231	18,727	4,682	4,682
1f	High Eff. DX A/C	15.70 SEER	High Eff. NG Furnace	0.93 %AFUE	1,637	708,303	1,013,606	1,572,650	712,374	362,293	59,157	12,846	3,211	3,211
1g	Std. Eff. DX A/C	10.00 SEER	Std. Eff. LPG Furnace	0.78 %AFUE	1,637	1,112,036	1,591,362	2,469,060	1,118,427	568,800	70,231	18,727	4,682	4,682
1h	High Eff. DX A/C	15.70 SEER	High Eff. LPG Furnace	0.93 %AFUE	1,637	708,303	1,013,606	1,572,650	712,374	362,293	59,157	12,846	3,211	3,211
1i	Gas Heat Pump	1.10 COP	Gas Heat Pump	1.30 COP	1,637	0	0	0	0	0	104,499	0	0	0

Alternative HVAC Economic Parameters

						First Year Energy and Demand Savings						Life Cycle Cost	
ID	RI or ROF	First Cost (1993 $)	Existing O&M ($/yr)	Retrofit O&M ($/yr)	Equip. Life (yr)	LPG (MBtu/yr)	Electric (kWh/yr)	Demand (kW-mo)	Energy ($/yr)	Demand ($/yr)	Total ($/yr)	NPV	SIR
1a	ROF	4,483,820	139,145	122,775	15	77,702	-6,110,764	6,680	94,389	75,418	169,807	1,905,966	1.53
1b	ROF	9,387,147	139,145	122,775	15	77,702	-2,479,711	15,882	243,666	156,457	400,123	1,315,629	1.17
1c	RI	5,826,672	139,145	122,775	15	77,702	-2,316,995	12,076	357,431	191,303	548,734	4,233,677	1.73
1d	RI	7,086,917	139,145	122,775	15	77,702	-299,851	15,226	479,316	234,468	713,784	5,244,863	1.74
1e	RI	3,194,085	139,145	139,145	15	7,471	1,714,921	6,287	237,839	111,977	349,816	4,351,339	2.36
1f	ROF	8,501,098	139,145	139,145	15	18,544	4,205,380	15,110	294,522	149,653	444,175	2,717,312	1.40
1g	ROF	3,194,085	139,145	139,145	15	7,471	1,714,921	6,287	103,979	71,958	175,937	3,029,752	2.17
1h	ROF	8,501,098	139,145	139,145	15	18,544	4,205,380	15,110	255,808	149,653	405,461	2,050,639	1.30
1i	RI	9,412,750	139,145	171,885	15	-26,797	8,574,606	34,378	560,867	496,949	1,057,816	6,944,238	1.74

2.3 FEDS Building Envelope EROs

Level-2 considers two building envelope retrofit options: adding or installing wall and/or ceiling insulation.

2.3.1 Insulate Ceilings

Description

Ceilings can be insulated with either blown-in or batt type fiberglass insulation. This ERO examines the options of increasing ceiling insulation in buildings which have either attic space or suspended ceilings.

Assumptions

Technical assumptions follow:

- FEDS calculates existing insulation R-value based on building type and age information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit R-values, fuel consumption, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit insulation R-values are as follows:

  Increase insulation by - R-8
  Increase insulation by - R-11
  Increase insulation by - R-19
  Increase insulation by - R-30
  Increase insulation by - R-38

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.5.

2.3.2 Insulate Exterior Walls

Description

There are two wall insulation options depending on the construction of the building. Exterior masonry walls can be insulated by affixing exterior insulation and exterior hard coat to the masonry surface. Wood frame buildings can have insulation blown into the spaces between the framing studs. The resulting wall has a high R-value and a tighter envelope.

Assumptions

Technical assumptions are as follows:

- FEDS calculates existing insulation R-value based on building type and age information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit R-values, fuel consumption, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit insulation R-values are as follows:

  Increase insulation by - R-4.3
  Increase insulation by - R-7.0
  Increase insulation by - R-10.9
  Increase insulation by - R-13

Results

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.6.

Table 2.5. FEDS Building Envelope EROs - Roof/Ceiling Insulation

Building Set	Existing Technology	Retrofit Technology	Retro Number	Exist Eff., COP or Lamp Wattage	Retro. Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
ADMINISTRATION-01	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA (a)	NA (b)	NA (b)	NA (c)	NA (c)	NA (d)	NA (d)	4,031	7,043	409	3,012	1.7
ADMINISTRATION-02	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	14,427	17,438	1,013	3,011	1.2
ADMINISTRATION-03	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-11	NA	NA	NA	NA	NA	NA	NA	19,934	73,396	4,262	53,462	3.7
ADMINISTRATION-03a	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	735	2,428	141	1,693	3.3
ADMINISTRATION-04	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	8,466	23,482	1,364	15,017	2.8
ADMINISTRATION-05	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	40,100	133,166	7,733	93,066	3.3
ADMINISTRATION-06	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	3,358	5,062	294	1,704	1.5
ADMINISTRATION-07	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	30,033	75,364	4,376	45,331	2.5
ADMINISTRATION-07a	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	9,330	39,978	2,322	30,648	4.3
ADMINISTRATION-08	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	28,208	43,336	2,516	15,128	1.5
ADMINISTRATION-09	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	88,158	120,120	6,975	31,962	1.4
BARRACKS-01	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-11	NA	NA	NA	NA	NA	NA	NA	2,439	3,366	195	926	1.4
BARRACKS-02	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	73,163	109,732	6,372	36,568	1.5
BARRACKS-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	9,600	80,133	4,653	70,523	8.3
BARRACKS-04	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	28,540	374,291	21,735	345,751	13.1
BARRACKS-07	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	54,371	154,238	8,957	99,867	2.8
CHAPEL-01	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	3,576	39,906	2,317	36,330	11.2
CHAPEL-02	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	5,858	6,514	378	656	1.1
CLINIC-01	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	2,149	2,307	134	158	1.1
CLINIC-02	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	1,114	7,677	446	6,563	6.9
CLUBS-01	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	2,317	5,486	319	3,170	2.4
CLUBS-02	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	15,681	70,012	4,066	54,331	4.5
CLUBS-03	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	31,173	139,987	8,129	108,814	4.5
COMMISSARIES	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	70,277	249,226	14,472	178,949	3.5
DINING HALLS-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	7,006	12,745	740	5,739	1.8
DINING HALLS-04	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	13,024	97,760	5,677	84,736	7.5
DINING HALLS-05	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	3,655	372,611	21,637	368,956	101.9
DINING HALLS-06	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	13,508	95,829	5,565	82,321	7.1
ELECTRONICS-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	1,755	2,706	157	952	1.5
EXCHANGE FACILITIES-01	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	4,114	36,678	2,130	32,564	8.9
EXCHANGE FACILITIES-02	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	4,438	6,592	383	2,154	1.5
EXCHANGE FACILITIES-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	6,828	23,692	1,376	16,864	3.5
EXCHANGE FACILITIES-04	Roof Insul. R-Value 8.90	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	11,058	22,822	1,325	11,764	2.1
FH-3 OR MORE-01	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	50,557	59,468	3,453	8,910	1.2
FH-3 OR MORE-03	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	139,587	160,259	9,306	20,672	1.1
FH-DETACHED-01	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	158,833	1,072,696	62,291	913,862	6.8
FH-DUPLEX-01	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	262,367	753,863	43,777	491,496	2.9
FH-DUPLEX-03	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	314,380	382,884	22,234	68,504	1.2
GUEST HOUSES-02	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	9,734	41,440	2,406	31,705	4.3
HANGER	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	6,571	125,148	7,267	118,577	19.0
LABS-02	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	2,112	10,122	588	8,009	4.8
MILITARY OTHER-01	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-11	NA	NA	NA	NA	NA	NA	NA	4,852	9,901	575	5,048	2.0
MILITARY OTHER-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	3,925	5,829	338	1,904	1.5

Table 2.5. (contd)

Building Set	Existing Technology	Retrofit Technology	Retro Number	Exist Eff., COP or Lamp Wattage	Retro Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
MILITARY OTHER-04	Roof Insul. R-Value 7.15	Attic Ceiling: Increase Insul by R-19	NA	NA	NA	NA	NA	NA	NA	1,000	1,937	113	937	1.9
MWR-02	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-11	NA	NA	NA	NA	NA	NA	NA	5,788	5,904	343	116	1.0
MWR-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	12,324	28,596	1,661	16,272	2.3
MWR-04	Roof Insul R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	5,864	61,347	3,562	55,483	10.5
MWR-05	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	9,025	47,726	2,771	38,701	5.3
MWR-05a	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	2,582	10,020	582	7,438	3 9
MWR-06	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	8,780	9,298	540	519	1.1
MWR-07	Roof Insul. R-Value 30.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	13,318	15,772	916	2,454	1.2
RECREATION-02	Roof Insul R-Value 0.00	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	38,692	906,694	52,651	868,002	23.4
RECREATION-04	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	22,535	47,558	2,762	25,023	2.1
SCHOOL/TRAINING-01	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	850	2,090	121	1,240	2.5
SCHOOL/TRAINING-02	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-38	NA	NA	NA	NA	NA	NA	NA	26,977	114,430	6,645	87,453	4.2
SCHOOL/TRAINING-03	Roof Insul. R-Value 11.00	Attic Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	5,333	57,838	3,359	52,505	10.8
SECURITY-01	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	228	5,504	320	5,275	24.1
SECURITY-03	Roof Insul R-Value 20.05	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	3,699	6,827	396	3,128	1.8
SHOPS-02	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	33,590	71,995	4,181	38,405	2.1
SHOPS-03	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	24,881	104,601	6,074	79,720	4.2
SHOPS-04	Roof Insul R-Value 5.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	31,037	830,340	48,218	799,303	26.8
SHOPS-05	Roof Insul R-Value 0.00	Suspended Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	35,771	51,297	2,979	15,526	1.4
SHOPS-06	Roof Insul. R-Value 8.69	Attic Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	2,326	3,551	206	1,225	1.5
STORAGE-02	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	56,310	71,665	4,162	15,355	1.3
WAREHOUSE-01	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	8,700	9,020	524	319	1.0
WAREHOUSE-05	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	33,033	131,440	7,633	98,407	4.0
WAREHOUSE-06	Roof Insul. R-Value 0.00	Attic Ceiling: Increase Insul. by R-19	NA	NA	NA	NA	NA	NA	NA	4,873	92,799	5,389	87,926	19.0
WAREHOUSE-07	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	30,037	158,192	9,186	128,155	5.3
WAREHOUSE-08	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	4,872	22,102	1,283	17,230	4.5
WAREHOUSE-09	Roof Insul. R-Value 20.05	Suspended Ceiling: Increase Insul. by R-8	NA	NA	NA	NA	NA	NA	NA	5,268	19,445	1,129	14,177	3.7
WAREHOUSE-12	Roof Insul. R-Value 0.00	Suspended Ceiling: Increase Insul. by R-30	NA	NA	NA	NA	NA	NA	NA	12,314	166,555	9,672	154,241	13.5
TOTALS:										2,005,349	8,131,276	472,181	6,125,922	4.1

(a) All buildings in the building set are assumed to be retrofit.

(b) See existing and retrofit technology columns for theses values.

(c) Exisitng and retrofit fuels are assumed to be all fuels used in the building

(d) There are no energy and demand savings directly attributable to insul. measures; reported savings are from the interactive effects of other energy consuming equipment in the building

Table 2.6. FEDS Building Envelope EROs - Wall Insulation

Building Set	Existing Technology	Retrofit Technology	Retro Number	Exist Eff., COP or Lamp Wattage	Retro. Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
ADMINISTRATION-02	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA (a)	NA (b)	NA (b)	NA (c)	NA (c)	NA (d)	NA (d)	18,375	26,784	1,555	8,409	1.5
ADMINISTRATION-04	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	9,235	25,952	1,507	16,717	2.8
ADMINISTRATION-06	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-4.3	NA	NA	NA	NA	NA	NA	NA	16,023	16,148	938	125	1.0
BARRACKS-02	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	108,268	115,934	6,732	7,666	1.1
BARRACKS-04	Wall Insul. R-Value 7.00	Blow-in Insul.: Increase Insul. by R-2.4	NA	NA	NA	NA	NA	NA	NA	31,169	62,676	3,640	31,507	2.0
CHAPEL-01	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	5,158	23,006	1,336	17,848	4.5
CHAPEL-02	Wall Insul. R-Value 5.32	Interior Masonary Surface: Increase Insul. by R-4.3	NA	NA	NA	NA	NA	NA	NA	9,153	14,664	852	5,511	1.6
CLINIC-02	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	25,381	30,430	1,767	5,049	1.2
CLUBS-02	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-10.9	NA	NA	NA	NA	NA	NA	NA	26,717	52,319	3,038	25,602	2.0
DINING HALLS-04	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-10.9	NA	NA	NA	NA	NA	NA	NA	13,468	80,473	4,673	67,005	6.0
ELECTRONICS-03	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-4.3	NA	NA	NA	NA	NA	NA	NA	4,364	7,341	426	2,977	1.7
EXCHANGE FACILITIES-01	Wall Insul. R-Value 8.79	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	5,007	9,369	544	4,362	1.9
EXCHANGE FACILITIES-03	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-4.3	NA	NA	NA	NA	NA	NA	NA	10,662	12,474	724	1,812	1.2
FH-DETACHED-01	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	209,504	276,790	16,073	67,286	1.3
FH-DUPLEX-01	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	227,405	591,832	34,368	364,427	2.6
HANGER	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-13	NA	NA	NA	NA	NA	NA	NA	20,331	109,631	6,366	89,300	5 4
HOSPITAL	Wall Insul. R-Value 0.00	Interior Masonary Surface: Increase Insul. by R-4.3	NA	NA	NA	NA	NA	NA	NA	42,931	54,160	3,145	11,228	1.3
MWR-05	Wall Insul. R-Value 5.32	Interior Masonary Surface: Increase Insul. by R-10.9	NA	NA	NA	NA	NA	NA	NA	11,818	67,995	3,948	56,177	5.8
RECREATION-02	Wall Insul. R-Value 7.00	Blow-in Insul.: Increase Insul. by R-2.4	NA	NA	NA	NA	NA	NA	NA	21,108	48,445	2,813	27,337	2.3
SCHOOL/TRAINING-01	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	3,099	5,395	313	2,295	1.7
SCHOOL/TRAINING-03	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	19,441	24,882	1,445	5,440	1.3
SECURITY-01	Wall Insul. R-Value 5.32	Interior Masonary Surface: Increase Insul. by R-10.9	NA	NA	NA	NA	NA	NA	NA	3,735	5,611	326	1,876	1.5
SHOPS-04	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	20,147	73,797	4,285	53,650	3.7
WAREHOUSE-06	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-6.5	NA	NA	NA	NA	NA	NA	NA	12,613	41,163	2,390	28,550	3.3
WAREHOUSE-09	Wall Insul. R-Value 8.79	Blow-in Insul.: Increase Insul. by R-2.4	NA	NA	NA	NA	NA	NA	NA	18,813	19,732	1,146	919	1.0
WAREHOUSE-12	Wall Insul. R-Value 0.00	Blow-in Insul.: Increase Insul. by R-13	NA	NA	NA	NA	NA	NA	NA	13,336	43,884	2,548	30,547	3.3
TOTALS:										907,261	1,840,887	106,898	933,622	2.0

Notes:

(a) All buildings in the building set are assumed to be retrofit.

(b) See existing and retrofit technology columns for theses values.

(c) Exisitng and retrofit fuels are assumed to be all fuels used in the building.

(d) There are no energy and demand savings directly attributable to insulation measures; reported savings are from the interactive effects of other energy consuming equipment in the building.

2.4 Manual Building Envelope EROs

Shade screens, double-pane windows, and weatherization (weather stripping/sealants of windows and doors) EROs were examined for Fort Irwin. These EROs focus on reducing the heating and cooling load on the building, thus saving both cooling energy in the summer and heating energy in the winter. The version of FEDS used in this analysis does not consider these EROs, so they were done using hand calculations.

2.4.1 Shade Screens

Description

By installing shade screens at Fort Irwin, buildings can reduce radiative heat gain through the windows. Shade screens are designed to replace existing insect screens, but instead of a metal or fabric mesh, the shade screens are made with rows of miniature louvers that block the sun when it gets above a certain angle. The higher the sun, the less light is transmitted. By reducing the amount of sunlight that enters through the windows in the summer (when the sun is the highest), cooling load can be substantially reduced. Further, the design of the shade screens is such that the solar gain in the winter will not be affected since the sun is lower in the sky. Thus, shade screens will not block out the radiative heat in the winter that would help offset the load to the facilities heating system, as is the case for reflective window films.

The shade screens may also provide additional security since they are nearly opaque from the outside, while allowing clear viewing from the inside.

Assumptions

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)

- Percentage of windows on each side of the building was best fitted to each category based on observations made during the site visits by PNL.

- All the months during the summer season (June through September) are assumed to contribute to the cooling energy consumption, based on an average temperature above 75°F. China Lake typical meteorological year (TMY) weather data was used to determine this baseline.

- Air conditioning equipment COP (coefficient of performance) for existing equipment was assumed to be 3.

- The present shading coefficient is assumed to be 1.0 (i.e., no shading), and the proposed shading coefficient is assumed to be 0.3. This is a conservative number chosen to reflect daily averages; shade screen manufacturers claim a shading coefficient of 0.15 when the sun is above 30 degrees.

- Solar insolation attributing to heat gain through the windows was calculated from solar heat gain factor (SHGF) (Btuh-ft^2) (from ASHRAE Fundamentals 1993, pp. 27.21-.22) assuming Fort Irwin is at 35 degrees latitude. Buildings are assumed to be oriented 45° from north; therefore the SHGF used are for the NE, SE, NW, and SW faces of the building.

- Solar time, used by ASHRAE Fundamentals, was converted to Pacific Time to account for on, mid, off peak energy consumption during the summer season.
- Each side of the building was analyzed separately so to find the best economic choice for shade screens.
- The shade screens will not increase the heating load in the winter.

The cost assumptions are as follows:

- The shade screens cost \$5/ft^2 installed.
- A \$0.80/ft^2 rebate is available from SCE for window tint or screen installed on the east, southeast, south, southwest and west facing glass. For this analysis, the rebate was deducted from the first cost on the applicable (southeast and southwest) sides of the buildings.

Results

Qualitative results of the ERO analysis appear in Table 2.7. The table contains specific energy, cost, and economic data. The results are broken down into commercial and family housing sub-totals. Because there are different costs and savings associated with each side of the buildings, the results are given in terms of the southeast, southwest, and northwest facing sides. There are no cost-effective implementations for the northeast facing windows.

Budget Implications. The estimated initial cost of all cost-effective implementations of this ERO are as follows:

Glass Facing Direction	Commercial	Family Housing
Southeast	\$64,346	\$235,942
Southwest	\$96,484	\$94,533
Northwest	\$51,725	\$112,364

Energy and Cost Savings. The estimated annual electrical energy savings in kWh and associated cost savings are as follows:

Glass Facing Direction	Commercial		Family Housing	
	kWh/yr	\$/yr	kWh/yr	\$/yr
Southeast	134,592	8,697	493,519	31,889
Southwest	193,108	24,639	199,699	24,141
Northwest	63,320	7,525	137,554	16,346

Demand and Cost Savings. The estimated annual electrical demand savings in kW and associated cost savings are as follows:

Glass Facing Direction	Commercial		Family Housing	
	kW-mo/yr	$/yr	kW-mo/yr	$/yr
Southeast	280	3,256	1,025	11,940
Southwest	1,291	23,281	1,265	22,810
Northwest	390	7,066	848	15,349

2.4.2 Double-Pane Windows

Description

The majority of windows at Fort Irwin are single-pane. Single-paned windows allow a significant amount of heat to transfer across the window when compared to double-paned windows. Double-paned windows have a dead air space between the glazings which acts as insulation, reducing the amount of heat transfer through the window. Therefore, by replacing the single-paned windows at Fort Irwin, there would be a decrease in energy consumption associated with cooling and heating energy.

This ERO examines the buildings throughout the main base. Buildings were excluded from the analysis based on small floor areas, use of the building, location of the building (i.e., remote areas), and/or minimal window area.

Assumptions

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)

- Percentage of windows on each side of the building was best fitted to each category based on observations made during the site visits by PNL.

- The months with an average outdoor air temperature below 65°F were assumed to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy, based on an average temperature above 75°F. China Lake TMY (typical meteorological year) weather data was used to determine this baseline.

- The conductive heat loss or gain through the window was determined by the equation:

$$Q = U*A*\Delta T*OH:$$

where: U = window thermal conductivity (Btuh-ft^2-°F)
A = area of window (ft^2)
ΔT = temperature difference across the window (°F)
OH = operating hours

- Existing single-pane windows are assumed to have an U-value of 0.98 (Btuh-ft^2 -F) and the U-value for double pane is assumed to be 0.7 (Btuh-ft^2 -F).
- The temperature difference across the window in the above equation was determined as follows:
  - ΔT for heating season was determined by taking the average outdoor temperature of each individual heating month (from TMY data) minus 65°F (assumed indoor temperature during the heating season).
  - ΔT for cooling season was determined by taking the average outdoor temperature of the cooling season minus 75°F (assumed indoor temperature during the cooling season).
- To determine the operating hours, each day (weekday or weekend) was broken into a percentage of on, mid, off, or super off hours (depending on the season) and appropriately prorated for the entire season operating hours for each rate type.
- Air conditioning equipment efficiency for existing equipment was assumed to have a COP of 3. Furnace efficiency was assumed to be 75%.

The cost assumptions are as follows:

- Double-pane windows are assumed to be \$9/ft^2 for materials and \$8/ft^2 for labor taken as an average from several sources. (Means: Building Construction Cost Data 1992a; The Richardson Rapid System, Process Plant Construction Estimating Standards, Volume 2, 1992; cost estimate from a manufacturer of efficient window)

Results

Qualitative results of the ERO analysis appear in Table 2.8. The table contains specific energy, cost, and economic data. There are no cost-effective options for this ERO.

2.4.3 Weatherization Package

Description

By sealing cracks in the building envelope with weatherstripping and caulking, a significant amount of heat to transfer through the envelope of the building can be decreased, thus decreasing the energy consumption to heat and cool the building.

This ERO examines the buildings throughout the main base. Buildings were excluded from the analysis based on small floor areas, use of the building, location of the building (i.e., remote areas), and/or minimal window area. Heat transfer (both heat gain or loss depending on the season) due to infiltration was calculated using an associated infiltration rate (cfm/ft^2) of existing buildings, compared to the heat transfer into a tightly sealed building (ASHRAE Fundamentals 1993, p. 23.16), to predict the energy savings associated with installing weatherstripping on the windows and doors.

Assumptions

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)
- Percentage of windows on each side of the building was best fitted to each category based on observations made during the base site visit by PNL.
- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy, based on an average temperature above 75°F. China Lake TMY (typical meteorological year) weather data was used to determine this baseline.
- Existing air conditioning equipment was assumed to have a COP of 3. Furnace efficiency was assumed to be 75%.
- To determine the operating hours, each day (week day or week-end) was broken into a percentage of on, mid, off, or super off hours (depending on the season) and appropriately prorated for the entire season operating hours for each rate type.
- The average temperature for each month during the heating season came from the TMY data for China Lake. The cooling season temperature was for the entire cooling season, also from China Lake TMY data. It should be noted that this was broken up into each rate schedule.
- Existing air leakage values at Fort Irwin is assumed to be both average (0.3 cfm/ft^2) and leaky (0.6 cfm/ft^2) tightness (determined by the age and type of building: i.e., anything built prior to 1980 = leaky), and proposed air leakage values are assumed to be tight commercial building of 0.1 cfm/ft^2 (from ASHRAE Fundamentals, 1993, p. 23.16)
- Heat gain calculations for sensible heat gain or loss is from ASHRAE Fundamentals, 1993, p. 25.13.

$$Q = C_p*\rho*W_{area}*I * \Delta T *OH$$

where: C_p = specific heat of air = 0.24 (Btu/lb-°F)
ρ = density of air (lb/ft^3)
W_{area} = wall area (ft^2)
I = infiltration rate (cfm/ft^2)
ΔT = temperature difference across envelope (°F)
OH = operating hours

- The temperature difference across the window in the above equation was determined as follows:
  - ΔT for heating season was determined by taking the average outdoor temperature of each individual heating month (from TMY data) minus 65°F (assumed indoor temperature during the heating season).
  - ΔT for cooling season was determined by taking the average outdoor temperature of the cooling season minus 75°F (assumed indoor temperature during the cooling season).
- It was assumed 2 doors per building with dimensions of 3' x 7'. Window dimensions were approximated from site visit. Family housing windows were considered to be 3' x 4'.

The cost assumptions are as follows:

- Caulking material = \$0.06/ft, labor = \$0.72/ft
- Weatherstripping material = \$2.20/ft, labor = \$1.92/ft
- Door Strips material = \$2.60/ft, labor = \$3.84/ft (from Means 1992a)

Results

Qualitative results of the ERO analysis appear in Table 2.9. The table contains specific energy, cost, and economic data. The results are summarized below.

Budget Implications. The estimated initial cost of weatherstripping the windows and doors in the commercial buildings is \$145,789. The estimated initial cost for family housing is \$225,617.

Energy and Cost Savings. The estimated annual energy savings for commercial buildings is 1,231,150 kWh and 3,583 MBtu (LPG), for a total annualized cost savings of \$130,687. The estimated annual demand savings is 5,113 kW-months at a cost savings of \$72,229. The estimated annual energy savings for family housing is 992,689 kWh and 2,889 MBtu (LPG), for a total annualized cost savings of \$105,374. The estimated annual demand savings, for family housing is 2,889 kW-months at a savings of \$58,239. These estimates are based on 100% implementation of the ERO for a typical operating year.

Table 2.7. Shade Screen EROs

Existing Window Operating Parameters

		Energy				Demand	
			Summer			Summer	
ID	Building Description	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
Northeast Side:							
NE-1	U Shaped Bldgs: Barracks	82,528	12,351	28,681	41,496	95	77
NE-2	U Shaped Bldgs: Other	11,784	1,764	4,095	5,925	14	11
NE-3	Concrete Block: w/ SE win only	7,630	1,142	2,652	3,837	9	7
NE-4	Concrete Block: Barracks	11,982	1,793	4,164	6,024	14	11
NE-5	Concrete Block: Misc -pre 1980	4,989	747	1,734	2,508	6	5
NE-6	Concrete Block: Misc -post 1980	4,351	651	1,512	2,188	5	4
NE-7	Metal Siding	31,727	4,748	11,026	15,953	36	30
NE-8	Masonite Siding: pre 1950	14,205	2,126	4,937	7,142	16	13
NE-9	Masonite Siding: post 1950	4,697	703	1,632	2,362	5	4
NE-10	Wood Siding	1,382	207	480	695	2	1
NE-11	ADMIN: MISC pre 1964	1,733	259	602	871	2	2
NE-12	ADMIN: MISC post 1964	3,057	458	1,063	1,537	4	3
NE-13	BRK/ADM MISC	1,662	249	578	836	2	2
NE-14	DINING: MSIC	1,857	278	646	934	2	2
NE-15	MOTORPOOL	3,117	466	1,083	1,567	4	3
NE-16	MWR	722	108	251	363	1	1
NE-17	SECURTY	148	22	51	74	0	0
NE-18	SHOP	3,053	457	1,061	1,535	4	3
NE-19	TRAINING	1,011	151	352	509	1	1
NE-20	WHS	638	95	222	321	1	1
FH-NE-1	Fam. Hsg. - 1961 Vintage	107,872	21,137	19,489	67,246	162	52
FH-NE-2	Fam. Hsg. - 1963 Vintage	118,051	23,131	21,328	73,592	177	57
FH-NE-3	Fam. Hsg. - 1964-66 Vintage	72,044	14,117	13,016	44,912	108	35
FH-NE-4	Fam. Hsg. - 1983 Vintage	110,312	21,615	19,929	68,767	166	53
FH-NE-5	Fam. Hsg. - 1984 Vintage	82,958	16,255	14,987	51,715	125	40
Southeast Side:							
SE-1	U Shaped Bldgs: Barracks	82,528	12,351	28,681	41,496	95	77
SE-2	U Shaped Bldgs: Other	11,784	1,764	4,095	5,925	14	11
SE-3	Concrete Block: w/ SE win only	7,630	1,142	2,652	3,837	9	7
SE-4	Concrete Block: Barracks	11,982	1,793	4,164	6,024	14	11
SE-5	Concrete Block: Misc -pre 1980	4,989	747	1,734	2,508	6	5
SE-6	Concrete Block: Misc -post 1980	4,351	651	1,512	2,188	5	4
SE-7	Metal Siding	31,727	4,748	11,026	15,953	36	30
SE-8	Masonite Siding: pre 1950	14,205	2,126	4,937	7,142	16	13
SE-9	Masonite Siding: post 1950	4,697	703	1,632	2,362	5	4
SE-10	Wood Siding	1,382	207	480	695	2	1
SE-11	ADMIN: MISC pre 1964	1,733	259	602	871	2	2
SE-12	ADMIN: MISC post 1964	3,057	458	1,063	1,537	4	3
SE-13	BRK/ADM MISC	1,662	249	578	836	2	2
SE-14	DINING: MSIC	1,857	278	646	934	2	2
SE-15	MOTORPOOL	3,117	466	1,083	1,567	4	3
SE-16	MWR	722	108	251	363	1	1
SE-17	SECURTY	148	22	51	74	0	0
SE-18	SHOP	3,053	457	1,061	1,535	4	3
SE-19	TRAINING	1,011	151	352	509	1	1
SE-20	WHS	638	95	222	321	1	1
FH-SE-1	Fam. Hsg. - 1961 Vintage	154,797	23,167	53,797	77,833	178	144
FH-SE-2	Fam. Hsg. - 1963 Vintage	169,435	25,357	58,884	85,193	194	158
FH-SE-3	Fam. Hsg. - 1964-66 Vintage	103,403	15,475	35,936	51,991	119	96
FH-SE-4	Fam. Hsg. - 1983 Vintage	158,326	23,695	55,024	79,607	182	147
FH-SE-5	Fam. Hsg. - 1984 Vintage	119,066	17,819	41,380	59,867	137	111

Table 2.7. (contd)

Existing Window Operating Parameters

		Energy				Demand	
			Summer			Summer	
ID	Building Description	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
Southwest Side:							
SW-1	U Shaped Bldgs: Barracks	83,348	64,260	13,215	5,873	492	35
SW-2	U Shaped Bldgs: Other	11,901	9,176	1,887	839	70	5
SW-3	Concrete Block: w/ SE win only	0	0	0	0	0	0
SW-4	Concrete Block: Barracks	16,268	12,542	2,579	1,146	96	7
SW-5	Concrete Block: Misc -pre 1980	5,038	3,884	799	355	30	2
SW-6	Concrete Block: Misc -post 1980	4,394	3,388	697	310	26	2
SW-7	Metal Siding	32,043	24,704	5,080	2,258	189	14
SW-8	Masonite Siding: pre 1950	45,633	35,182	7,235	3,216	270	19
SW-9	Masonite Siding: post 1950	18,289	14,100	2,900	1,289	108	8
SW-10	Wood Siding	5,584	4,305	885	393	33	2
SW-11	ADMIN: MISC pre 1964	6,999	5,396	1,110	493	41	3
SW-12	ADMIN: MISC post 1964	12,351	9,523	1,958	870	73	5
SW-13	BRK/ADM MISC	6,714	5,176	1,064	473	40	3
SW-14	DINING: MSIC	7,504	5,785	1,190	529	44	3
SW-15	MOTORPOOL	12,592	9,708	1,996	887	74	5
SW-16	MWR	2,919	2,250	463	206	17	1
SW-17	SECURTY	598	461	95	42	4	0
SW-18	SHOP	12,334	9,509	1,956	869	73	5
SW-19	TRAINING	4,086	3,150	648	288	24	2
SW-20	WHS	2,576	1,986	408	182	15	1
FH-SW-1	Fam. Hsg. - 1961 Vintage	63,004	48,575	9,989	4,440	372	27
FH-SW-2	Fam. Hsg. - 1963 Vintage	68,447	52,772	10,852	4,823	404	29
FH-SW-3	Fam. Hsg. - 1964-66 Vintage	41,772	32,206	6,623	2,944	247	18
FH-SW-4	Fam. Hsg. - 1983 Vintage	63,960	49,312	10,141	4,507	378	27
FH-SW-5	Fam. Hsg. - 1984 Vintage	48,100	37,084	7,626	3,390	284	20
Northwest Side:							
NW-1	U Shaped Bldgs: Barracks	24,804	18,693	3,580	2,531	143	10
NW-2	U Shaped Bldgs: Other	3,542	2,669	511	361	20	1
NW-3	Concrete Block: w/ SE win only	0	0	0	0	0	0
NW-4	Concrete Block: Barracks	8,355	6,297	1,206	852	48	3
NW-5	Concrete Block: Misc -pre 1980	3,476	2,619	502	355	20	1
NW-6	Concrete Block: Misc -post 1980	3,031	2,285	438	309	18	1
NW-7	Metal Siding	22,945	17,292	3,312	2,341	133	9
NW-8	Masonite Siding: pre 1950	8,344	6,288	1,204	851	48	3
NW-9	Masonite Siding: post 1950	3,154	2,377	455	322	18	1
NW-10	Wood Siding	963	726	139	98	6	0
NW-11	ADMIN: MISC pre 1964	1,207	910	174	123	7	0
NW-12	ADMIN: MISC post 1964	2,130	1,605	307	217	12	1
NW-13	BRK/ADM MISC	1,158	873	167	118	7	0
NW-14	DINING: MSIC	1,294	975	187	132	7	1
NW-15	MOTORPOOL	2,172	1,637	313	222	13	1
NW-16	MWR	503	379	73	51	3	0
NW-17	SECURTY	103	78	15	11	1	0
NW-18	SHOP	2,127	1,603	307	217	12	1
NW-19	TRAINING	705	531	102	72	4	0
NW-20	WHS	444	335	64	45	3	0
FH-NW-1	Fam. Hsg. - 1961 Vintage	43,159	32,527	6,229	4,403	249	17
FH-NW-2	Fam. Hsg. - 1963 Vintage	47,220	35,587	6,816	4,817	273	18
FH-NW-3	Fam. Hsg. - 1964-66 Vintage	28,818	21,718	4,159	2,940	166	11
FH-NW-4	Fam. Hsg. - 1983 Vintage	44,125	33,254	6,369	4,502	255	17
FH-NW-5	Fam. Hsg. - 1984 Vintage	33,183	25,008	4,790	3,385	192	13

Table 2.7. (contd)

Shade Screens ERO Operating Parameters

		Energy				Demand	
			Summer			Summer	
ID	Description of ERO	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
Northeast Side:							
NE-1	Shade Screens - NE side	7,441	1,458	1,344	4,639	11	4
NE-2	Shade Screens - NE side	1,063	208	192	662	2	1
NE-3	Shade Screens - NE side	0	0	0	0	0	0
NE-4	Shade Screens - NE side	3,369	660	609	2,100	5	2
NE-5	Shade Screens - NE side	1,043	204	188	650	2	1
NE-6	Shade Screens - NE side	909	178	164	567	1	0
NE-7	Shade Screens - NE side	6,884	1,349	1,244	4,291	10	3
NE-8	Shade Screens - NE side	8,978	1,759	1,622	5,597	13	4
NE-9	Shade Screens - NE side	3,750	735	677	2,338	6	2
NE-10	Shade Screens - NE side	1,156	226	209	720	2	1
NE-11	Shade Screens - NE side	1,449	284	262	903	2	1
NE-12	Shade Screens - NE side	2,556	501	462	1,594	4	1
NE-13	Shade Screens - NE side	1,390	272	251	866	2	1
NE-14	Shade Screens - NE side	1,553	304	281	968	2	1
NE-15	Shade Screens - NE side	2,606	511	471	1,625	4	1
NE-16	Shade Screens - NE side	604	118	109	377	1	0
NE-17	Shade Screens - NE side	124	24	22	77	0	0
NE-18	Shade Screens - NE side	2,553	500	461	1,591	4	1
NE-19	Shade Screens - NE side	846	166	153	527	1	0
NE-20	Shade Screens - NE side	533	104	96	332	1	0
FH-NE-1	Shade Screens - NE Side	32,362	6,341	5,847	20,174	49	16
FH-NE-2	Shade Screens - NE Side	35,415	6,939	6,398	22,078	53	17
FH-NE-3	Shade Screens - NE Side	21,613	4,235	3,905	13,474	32	10
FH-NE-4	Shade Screens - NE Side	33,093	6,484	5,979	20,630	50	16
FH-NE-5	Shade Screens - NE Side	24,887	4,877	4,496	15,515	37	12
Southeast Side:							
SE-1	Shade Screens - SE side	24,758	3,705	8,604	12,449	28	23
SE-2	Shade Screens - SE side	3,535	529	1,229	1,778	4	3
SE-3	Shade Screens - SE side	2,289	343	796	1,151	3	2
SE-4	Shade Screens - SE side	3,595	538	1,249	1,807	4	3
SE-5	Shade Screens - SE side	1,497	224	520	752	2	1
SE-6	Shade Screens - SE side	1,305	195	454	656	1	1
SE-7	Shade Screens - SE side	9,518	1,424	3,308	4,786	11	9
SE-8	Shade Screens - SE side	4,261	638	1,481	2,143	5	4
SE-9	Shade Screens - SE side	1,409	211	490	708	2	1
SE-10	Shade Screens - SE side	415	62	144	208	0	0
SE-11	Shade Screens - SE side	520	78	181	261	1	0
SE-12	Shade Screens - SE side	917	137	319	461	1	1
SE-13	Shade Screens - SE side	499	75	173	251	1	0
SE-14	Shade Screens - SE side	557	83	194	280	1	1
SE-15	Shade Screens - SE side	935	140	325	470	1	1
SE-16	Shade Screens - SE side	217	32	75	109	0	0
SE-17	Shade Screens - SE side	44	7	15	22	0	0
SE-18	Shade Screens - SE side	916	137	318	461	1	1
SE-19	Shade Screens - SE side	303	45	105	153	0	0
SE-20	Shade Screens - SE side	191	29	66	96	0	0
FH-SE-1	Shade Screens - SE Side	46,439	6,950	16,139	23,350	53	43
FH-SE-2	Shade Screens - SE Side	50,830	7,607	17,665	25,558	58	47
FH-SE-3	Shade Screens - SE Side	31,021	4,643	10,781	15,597	36	29
FH-SE-4	Shade Screens - SE Side	47,498	7,109	16,507	23,882	54	44
FH-SE-5	Shade Screens - SE Side	35,720	5,346	12,414	17,960	41	33

Table 2.7. (contd)

Shade Screens ERO Operating Parameters

		Energy				Demand	
			Summer			Summer	
ID	Description of ERO	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
Southwest Side:							
SW-1	Shade Screens - SW side	25,004	19,278	3,964	1,762	148	11
SW-2	Shade Screens - SW side	3,570	2,753	566	252	21	2
SW-3	Shade Screens - SW side	0	0	0	0	0	0
SW-4	Shade Screens - SW side	4,880	3,763	774	344	29	2
SW-5	Shade Screens - SW side	1,511	1,165	240	107	9	1
SW-6	Shade Screens - SW side	1,318	1,016	209	93	8	1
SW-7	Shade Screens - SW side	9,613	7,411	1,524	677	57	4
SW-8	Shade Screens - SW side	13,690	10,555	2,171	965	81	6
SW-9	Shade Screens - SW side	5,487	4,230	870	387	32	2
SW-10	Shade Screens - SW side	1,675	1,291	266	118	10	1
SW-11	Shade Screens - SW side	2,100	1,619	333	148	12	1
SW-12	Shade Screens - SW side	3,705	2,857	587	261	22	2
SW-13	Shade Screens - SW side	2,014	1,553	319	142	12	1
SW-14	Shade Screens - SW side	2,251	1,736	357	159	13	1
SW-15	Shade Screens - SW side	3,778	2,912	599	266	22	2
SW-16	Shade Screens - SW side	876	675	139	62	5	0
SW-17	Shade Screens - SW side	179	138	28	13	1	0
SW-18	Shade Screens - SW side	3,700	2,853	587	261	22	2
SW-19	Shade Screens - SW side	1,226	945	194	86	7	1
SW-20	Shade Screens - SW side	773	596	123	54	5	0
FH-SW-1	Shade Screens - SW Side	18,901	14,573	2,997	1,332	112	8
FH-SW-2	Shade Screens - SW Side	20,534	15,831	3,256	1,447	121	9
FH-SW-3	Shade Screens - SW Side	12,532	9,662	1,987	883	74	5
FH-SW-4	Shade Screens - SW Side	19,188	14,794	3,042	1,352	113	8
FH-SW-5	Shade Screens - SW Side	14,430	11,125	2,288	1,017	85	6
Northwest Side:							
NW-1	Shade Screens - NW Side	7,441	5,608	1,074	759	43	3
NW-2	Shade Screens - NW Side	1,063	801	153	108	6	0
NW-3	Shade Screens - NW Side	0	0	0	0	0	0
NW-4	Shade Screens - NW Side	2,507	1,889	362	256	14	1
NW-5	Shade Screens - NW Side	1,043	786	151	106	6	0
NW-6	Shade Screens - NW Side	909	685	131	93	5	0
NW-7	Shade Screens - NW Side	6,884	5,188	994	702	40	3
NW-8	Shade Screens - NW Side	2,503	1,886	361	255	14	1
NW-9	Shade Screens - NW Side	946	713	137	97	5	0
NW-10	Shade Screens - NW Side	289	218	42	29	2	0
NW-11	Shade Screens - NW Side	362	273	52	37	2	0
NW-12	Shade Screens - NW Side	639	482	92	65	4	0
NW-13	Shade Screens - NW Side	347	262	50	35	2	0
NW-14	Shade Screens - NW Side	388	293	56	40	2	0
NW-15	Shade Screens - NW Side	652	491	94	66	4	0
NW-16	Shade Screens - NW Side	151	114	22	15	1	0
NW-17	Shade Screens - NW Side	31	23	4	3	0	0
NW-18	Shade Screens - NW Side	638	481	92	65	4	0
NW-19	Shade Screens - NW Side	211	159	31	22	1	0
NW-20	Shade Screens - NW Side	133	100	19	14	1	0
FH-NW-1	Shade Screens - NW Side	12,948	9,758	1,869	1,321	75	5
FH-NW-2	Shade Screens - NW Side	14,166	10,676	2,045	1,445	82	5
FH-NW-3	Shade Screens - NW Side	8,645	6,515	1,248	882	50	3
FH-NW-4	Shade Screens - NW Side	13,237	9,976	1,911	1,350	76	5
FH-NW-5	Shade Screens - NW Side	9,955	7,502	1,437	1,016	57	4

Table 2.7. (contd)

Shade Screens ERO Economic Parameters

ID	First Cost (w/o rebate) (1994 $)	First Cost (w/ rebate) (1994 $)	Life Expectancy (Years)	First Year Energy and Demand Savings					Life Cycle Cost	
				Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
Northeast Side:										
There are no cost effective options for the Northeast side.										
Southeast Side:										
SE-1	32,879	27,619	10	57,770	120	3,733	1,398	5,130	26,894	1.97
SE-2	4,695	3,944	10	8,249	17	533	200	733	3,840	1.97
SE-3	3,040	2,554	10	5,341	11	345	129	474	2,487	1.97
SE-4	4,774	4,010	10	8,387	17	542	203	745	3,905	1.97
SE-5	1,987	1,669	10	3,492	7	226	84	310	1,626	1.97
SE-6	1,733	1,456	10	3,046	6	197	74	270	1,418	1.97
SE-7	12,640	10,618	10	22,209	46	1,435	537	1,972	10,339	1.97
SE-8	5,659	4,754	10	9,943	21	642	241	883	4,629	1.97
SE-9	1,871	1,572	10	3,288	7	212	80	292	1,531	1.97
SE-10	551	463	10	968	2	63	23	86	450	1.97
SE-11	690	580	10	1,213	3	78	29	108	565	1.97
SE-12	1,218	1,023	10	2,140	4	138	52	190	996	1.97
SE-13	662	556	10	1,163	2	75	28	103	542	1.97
SE-14	740	622	10	1,300	3	84	31	115	605	1.97
SE-15	1,242	1,043	10	2,182	5	141	53	194	1,016	1.97
SE-16	288	242	10	506	1	33	12	45	235	1.97
SE-17	59	50	10	104	0	7	3	9	48	1.97
SE-18	1,216	1,022	10	2,137	4	138	52	190	995	1.97
SE-19	403	338	10	708	1	46	17	63	330	1.97
SE-20	254	213	10	446	1	29	11	40	208	1.97
FH-SE-1	61,671	51,804	10	108,358	225	7,002	2,622	9,623	50,445	1.97
FH-SE-2	67,503	56,703	10	118,604	246	7,664	2,869	10,533	55,215	1.97
FH-SE-3	41,196	34,604	10	72,382	150	4,677	1,751	6,428	33,697	1.97
FH-SE-4	63,078	52,985	10	110,829	230	7,161	2,681	9,842	51,595	1.97
FH-SE-5	47,436	39,846	10	83,346	173	5,385	2,016	7,402	38,801	1.97
Southwest Side:										
SW-1	32,879	27,619	10	58,344	369	7,053	6,664	13,717	174,765	7.33
SW-2	4,695	3,944	10	8,331	53	1,007	952	1,959	24,955	7.33
SW-4	6,417	5,391	10	3,527	72	1,377	1,301	2,677	34,111	7.33
SW-5	1,987	1,669	10	3,076	22	426	403	829	10,564	7.33
SW-6	1,733	1,456	10	22,430	19	372	351	723	9,214	7.33
SW-7	12,640	10,618	10	31,943	142	2,712	2,562	5,274	67,187	7.33
SW-8	18,002	15,121	10	12,802	202	3,862	3,649	7,510	95,684	7.33
SW-9	7,215	6,060	10	3,909	81	1,548	1,462	3,010	38,348	7.33
SW-10	2,203	1,850	10	4,900	25	472	446	919	11,708	7.33
SW-11	2,761	2,319	10	8,646	31	592	560	1,152	14,676	7.33
SW-12	4,872	4,093	10	4,700	55	1,045	988	2,033	25,898	7.33
SW-13	2,648	2,225	10	5,253	30	568	537	1,105	14,078	7.33
SW-14	2,960	2,486	10	8,814	33	635	600	1,235	15,734	7.33
SW-15	4,967	4,172	10	2,043	56	1,066	1,007	2,072	26,403	7.33
SW-16	1,151	967	10	419	13	247	233	480	6,120	7.33
SW-17	236	198	10	8,634	3	51	48	98	1,254	7.33
SW-18	4,865	4,087	10	2,860	55	1,044	986	2,030	25,862	7.33
SW-19	1,612	1,354	10	1,803	18	346	327	672	8,568	7.33
SW-20	1,016	854	10	676	11	218	206	424	5,402	7.33
FH-SW-1	24,854	20,877	10	44,103	279	5,332	5,038	10,369	132,108	7.33
FH-SW-2	27,001	22,681	10	47,913	303	5,792	5,473	11,265	143,521	7.33
FH-SW-3	16,478	13,842	10	29,241	185	3,535	3,340	6,875	87,588	7.33
FH-SW-4	25,231	21,194	10	44,772	284	5,412	5,114	10,526	134,112	7.33
FH-SW-5	18,975	15,939	10	33,670	213	4,070	3,846	7,916	100,856	7.33

Table 2.7. (contd)

Shade Screens ERO Economic Parameters

				First Year Energy and Demand Savings					Life Cycle Cost	
ID	First Cost (w/o rebate) (1994 $)	First Cost (w/ rebate) (1994 $)	Life Expectancy (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
Northwest Side:										
NW-1	14,183	NA	10	17,363	107	2,063	1,937	4,001	40,117	3.83
NW-2	2,025	NA	10	2,479	15	295	277	571	5,728	3.83
NW-4	4,778	NA	10	5,849	36	695	653	1,348	13,513	3.83
NW-5	1,987	NA	10	2,433	15	289	271	561	5,622	3.83
NW-6	1,733	NA	10	2,122	13	252	237	489	4,903	3.83
NW-7	13,120	NA	10	16,062	99	1,909	1,792	3,701	37,110	3.83
NW-8	4,771	NA	10	5,841	36	694	652	1,346	13,495	3.83
NW-9	1,804	NA	10	2,208	14	262	246	509	5,102	3.83
NW-10	551	NA	10	674	4	80	75	155	1,558	3.83
NW-11	690	NA	10	845	5	100	94	195	1,952	3.83
NW-12	1,218	NA	10	1,491	9	177	166	344	3,445	3.83
NW-13	662	NA	10	811	5	96	90	187	1,873	3.83
NW-14	740	NA	10	906	6	108	101	209	2,093	3.83
NW-15	1,242	NA	10	1,520	9	181	170	350	3,512	3.83
NW-16	288	NA	10	352	2	42	39	81	814	3.83
NW-17	59	NA	10	72	0	9	8	17	167	3.83
NW-18	1,216	NA	10	1,489	9	177	166	343	3,440	3.83
NW-19	403	NA	10	493	3	59	55	114	1,140	3.83
NW-20	254	NA	10	311	2	37	35	72	719	3.83
FH-NW-1	24,679	NA	10	30,211	186	3,590	3,371	6,961	69,803	3.83
FH-NW-2	27,001	NA	10	33,054	204	3,928	3,688	7,616	76,372	3.83
FH-NW-3	16,478	NA	10	20,172	124	2,397	2,251	4,648	46,608	3.83
FH-NW-4	25,231	NA	10	30,887	190	3,671	3,447	7,117	71,365	3.83
FH-NW-5	18,975	NA	10	23,228	143	2,760	2,592	5,352	53,668	3.83
Sub-Totals:										
Commercial:										
Northeast:	0	NA		0	0	0	0	0	0	NA
Southeast:	76,602	64,346		134,592	280	8,697	3,256	11,953	62,658	1.97
Southwest:	114,862	96,484		193,108	1,291	24,639	23,281	47,920	610,530	7.33
Northwest:	51,725	NA		63,320	390	7,525	7,066	14,590	146,301	3.83
Family Housing:										
Northeast:	0	NA		0	0	0	0	0	0	NA
Southeast:	280,884	235,942		493,519	1,025	31,889	11,940	43,828	229,754	1.97
Southwest:	112,539	94,533		199,699	1,265	24,141	22,810	46,951	598,185	7.33
Northwest:	112,364	NA		137,554	848	16,346	15,349	31,695	317,816	3.83
TOTAL	748,976	655,394		1,221,792	5,098	113,237	83,701	196,938	1,965,245	4.00

Table 2.8. Double Pane Window EROs

Existing Window Operating Parameters

		Energy					Demand	
				Summer			Summer	
ID	Building Description	LPG (MBtu/yr)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
DPW-1	U Shaped Bldgs: Barracks	1,037	107,095	20,934	25,692	17,388	160	34
DPW-2	U Shaped Bldgs: Other	148	15,292	2,989	3,669	2,483	23	5
DPW-3	Concrete Block: w/ SE win only	33	3,459	676	830	562	5	1
DPW-4	Concrete Block: Barracks	247	25,475	4,980	6,112	4,136	38	8
DPW-5	Concrete Block: Misc -pre 1980	88	9,045	1,768	2,170	1,469	14	3
DPW-6	Concrete Block: Misc -post 1980	76	7,889	1,542	1,893	1,281	12	3
DPW-7	Metal Siding	568	58,620	11,459	14,063	9,517	88	19
DPW-8	Masonite Siding: pre 1950	502	51,821	10,130	12,432	8,414	78	17
DPW-9	Masonite Siding: post 1950	199	20,522	4,012	4,923	3,332	31	7
DPW-10	Wood Siding	61	6,265	1,225	1,503	1,017	9	2
DPW-11	ADMIN: MISC pre 1964	76	7,854	1,535	1,884	1,275	12	3
DPW-12	ADMIN: MISC post 1964	134	13,859	2,709	3,325	2,250	21	4
DPW-13	BRK/ADM MISC	73	7,534	1,473	1,807	1,223	11	2
DPW-14	DINING: MSIC	81	13,569	1,646	2,020	1,367	13	3
DPW-15	MOTORPOOL	137	14,129	2,762	3,390	2,294	21	5
DPW-16	MWR	32	3,275	640	786	532	5	1
DPW-17	SECURTY	6	671	131	161	109	1	0
DPW-18	SHOP	134	13,840	2,705	3,320	2,247	21	4
DPW-19	TRAINING	44	4,585	896	1,100	744	7	1
DPW-20	WHS	33	2,472	565	694	469	4	1
DPW-21	Fam. Hsg. - 1961 Vintage	454	101,373	38,452	47,191	15,730	74	32
DPW-22	Fam. Hsg. - 1963 Vintage	496	110,826	42,038	51,592	17,197	81	35
DPW-23	Fam. Hsg. - 1964-66 Vintage	303	67,635	25,655	31,485	10,495	49	21
DPW-24	Fam. Hsg. - 1983 Vintage	470	104,839	39,767	48,804	16,268	76	33
DPW-25	Fam. Hsg. - 1984 Vintage	349	77,881	29,541	36,255	12,085	57	24

Double Pane Window ERO Operating Parameters

		Energy					Demand	
				Summer			Summer	
ID	Description of ERO	LPG (MBtu/yr)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
DPW-1	Double-paned windows	664	76,496	14,953	18,352	12,420	46	10
DPW-2	Double-paned windows	95	10,923	2,135	2,620	1,773	7	1
DPW-3	Double-paned windows	21	2,471	483	593	401	1	0
DPW-4	Double-paned windows	158	18,197	3,557	4,365	2,954	11	2
DPW-5	Double-paned windows	56	6,461	1,263	1,550	1,049	4	1
DPW-6	Double-paned windows	49	5,635	1,102	1,352	915	3	1
DPW-7	Double-paned windows	363	41,871	8,185	10,045	6,798	25	5
DPW-8	Double-paned windows	321	37,015	7,236	8,880	6,010	22	5
DPW-9	Double-paned windows	127	14,658	2,865	3,517	2,380	9	2
DPW-10	Double-paned windows	39	4,475	875	1,074	727	3	1
DPW-11	Double-paned windows	49	5,610	1,097	1,346	911	3	1
DPW-12	Double-paned windows	86	9,899	1,935	2,375	1,607	6	1
DPW-13	Double-paned windows	47	5,381	1,052	1,291	874	3	1
DPW-14	Double-paned windows	52	9,692	1,176	1,443	976	4	1
DPW-15	Double-paned windows	88	10,092	1,973	2,421	1,639	6	1
DPW-16	Double-paned windows	20	2,339	457	561	380	1	0
DPW-17	Double-paned windows	4	479	94	115	78	0	0
DPW-18	Double-paned windows	86	9,886	1,932	2,372	1,605	6	1
DPW-19	Double-paned windows	28	3,275	640	786	532	2	0
DPW-20	Double-paned windows	21	1,766	404	495	335	1	0
DPW-21	Double-paned windows	324	72,410	27,466	33,708	11,236	53	23
DPW-22	Double-paned windows	355	79,162	30,027	36,851	12,284	58	25
DPW-23	Double-paned windows	216	48,311	18,325	22,490	7,497	35	15
DPW-24	Double-paned windows	335	74,885	28,405	34,860	11,620	54	23
DPW-25	Double-paned windows	249	55,629	21,101	25,896	8,632	40	17

Table 2.8. (contd)

Double Pane Window ERO Economic Parameters

ID	Material First Cost (1994 $)	Installation Labor Cost (1994 $)	Life Expectancy (Years)	First Year Energy and Demand Savings						Life Cycle Cost	
				Energy Savings		Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
				Electric (kWh)	LPG (MBtu)						
DPW-1	169,425	150,600	25	30,598	373	139	3,586	2,254	5,840	(219,450)	0.31
DPW-2	24,192	21,504	25	4,369	53	20	512	322	834	(31,335)	0.31
DPW-3	5,472	4,864	25	988	12	4	116	73	189	(7,088)	0.31
DPW-4	40,302	35,824	25	7,279	89	33	853	536	1,389	(52,202)	0.31
DPW-5	14,310	12,720	25	2,584	32	12	303	190	493	(18,535)	0.31
DPW-6	12,480	11,094	25	2,254	27	10	264	166	430	(16,165)	0.31
DPW-7	92,738	82,434	25	16,749	204	76	1,963	1,234	3,197	(120,120)	0.31
DPW-8	81,981	72,872	25	14,806	180	67	1,735	1,091	2,826	(106,187)	0.31
DPW-9	32,466	28,859	25	5,863	71	27	687	432	1,119	(42,052)	0.31
DPW-10	9,912	8,811	25	1,790	22	8	210	132	342	(12,838)	0.31
DPW-11	12,425	11,044	25	2,244	27	10	263	165	428	(16,094)	0.31
DPW-12	21,925	19,489	25	3,960	48	18	464	292	756	(28,399)	0.31
DPW-13	11,918	10,594	25	2,152	26	10	252	159	411	(15,437)	0.31
DPW-14	13,320	11,840	25	3,877	29	11	278	176	454	(17,342)	0.31
DPW-15	22,352	19,869	25	4,037	49	18	473	297	771	(28,952)	0.31
DPW-16	5,181	4,605	25	936	11	4	110	69	179	(6,711)	0.31
DPW-17	1,062	944	25	192	2	1	22	14	37	(1,375)	0.31
DPW-18	21,895	19,462	25	3,954	48	18	463	291	755	(28,359)	0.31
DPW-19	7,253	6,447	25	1,310	16	6	154	97	250	(9,395)	0.31
DPW-20	4,574	4,065	25	707	12	4	107	61	168	(5,741)	0.34
DPW-21	311,196	276,619	25	28,964	130	30	3,326	425	3,751	(246,610)	0.21
DPW-22	340,215	302,413	25	31,665	142	33	3,636	464	4,100	(269,606)	0.21
DPW-23	207,627	184,557	25	19,324	87	20	2,219	283	2,502	(164,535)	0.21
DPW-24	321,835	286,076	25	29,954	134	31	3,439	439	3,879	(255,041)	0.21
DPW-25	239,079	212,514	25	22,252	100	23	2,555	326	2,881	(189,460)	0.21

Table 2.9. (contd)

Weatherization ERO Economic Parameters

				First Year Energy and Demand Savings						Life Cycle Cost	
				Energy Savings							
ID	First Cost (1994 $)	Installation Cost (1994 $)	Life Expectancy (Years)	Electric (kWh)	LPG (MBtu)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
WTH-1	7,164	21,341	25	226,425	659	940	24,035	13,284	37,319	614,151	22.55
WTH-2	1,736	3,594	25	60,380	176	251	6,409	3,542	9,952	166,045	32.15
WTH-3	1,897	2,298	25	3,759	11	16	399	221	620	6,474	2.54
WTH-4	2,538	7,840	25	64,706	188	269	6,869	3,796	10,665	173,276	17.70
WTH-5	2,048	3,039	25	34,248	100	142	3,635	2,009	5,645	92,117	19.11
WTH-6	3,806	5,815	25	47,339	138	197	5,025	2,777	7,802	124,741	13.97
WTH-7	3,038	10,600	25	161,887	471	672	17,184	9,498	26,682	445,841	33.69
WTH-8	9,096	16,521	25	288,914	841	1,200	30,668	16,950	47,618	794,401	32.01
WTH-9	2,221	5,114	25	119,333	347	496	12,667	7,001	19,668	331,363	46.17
WTH-10	471	1,340	25	13,686	40	57	1,453	803	2,256	37,033	21.45
WTH-11	2,924	6,007	25	88,083	256	366	9,350	5,168	14,518	241,072	27.99
WTH-12	624	2,108	25	10,696	31	44	1,135	628	1,763	27,627	11.11
WTH-13	593	1,725	25	7,357	21	31	781	432	1,213	18,563	9.01
WTH-14	2,019	3,759	25	32,098	93	133	3,407	1,883	5,290	85,324	15.77
WTH-15	636	1,170	25	9,837	29	41	1,044	577	1,621	26,113	15.46
WTH-16	602	764	25	1,524	4	6	162	89	251	2,960	3.17
WTH-17	1,031	3,749	25	31,440	92	131	3,337	1,845	5,182	84,456	18.67
WTH-18	1,557	2,523	25	13,020	38	54	1,382	764	2,146	32,873	9.06
WTH-19	936	1,543	25	16,419	48	68	1,743	963	2,706	44,122	18.79
WTH-20	16,295	43,664	25	285,139	830	1,184	30,268	16,728	46,996	749,345	13.50
WTH-21	12,486	42,121	25	311,729	907	1,295	33,090	18,288	51,378	830,164	16.20
WTH-22	6,732	24,770	25	190,242	554	790	20,194	11,161	31,355	508,458	17.14
WTH-23	8,604	36,466	25	117,955	343	490	12,521	6,920	19,441	289,719	7.43
WTH-24	6,878	27,602	25	87,624	255	364	9,301	5,141	14,442	214,222	7.21
Totals:											
Commercial:	44,937	100,852		1,231,150	3,583	5,113	130,687	72,229	202,915	3,348,555	23.97
Fam. Hsg.:	50,994	174,623		992,689	2,889	4,123	105,374	58,239	163,613	2,591,907	12.49

Table 2.9. Weatherization EROs

Existing Building Operating Parameters

		Energy					Demand	
				Summer			Summer	
ID	Building Description	LPG (MBtu/yr)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
WTH-1	U Shaped Bldgs: Barracks	791	271,710	103,062	126,486	42,162	790	339
WTH-2	U Shaped Bldgs: Other	211	72,456	27,483	33,729	11,243	211	90
WTH-3	Concrete Block: w/ SE win only	16	5,638	2,139	2,625	875	16	7
WTH-4	Concrete Block: Barracks	282	97,060	36,816	45,183	15,061	282	121
WTH-5	Concrete Block: Misc-pre 1980	150	51,372	19,486	23,914	7,971	149	64
WTH-6	Concrete Block: Misc-post 1980	207	71,009	26,934	33,056	11,019	206	89
WTH-7	Metal Siding	565	194,264	73,686	90,433	30,144	565	242
WTH-8	Masonite Siding: pre 1950	1,009	346,697	131,506	161,394	53,798	1008	432
WTH-9	Masonite Siding: post 1950	417	143,199	54,317	66,662	22,221	416	178
WTH-10	Wood Siding	48	16,423	6,229	7,645	2,548	48	20
WTH-11	ADMIN: MISC pre 1964	308	105,699	40,093	49,205	16,402	307	132
WTH-12	ADMIN: MISC post 1964	47	16,045	6,086	7,469	2,490	47	20
WTH-13	BRK/ADM MISC	32	11,035	4,186	5,137	1,712	32	14
WTH-14	DINING: MSIC	140	48,146	18,262	22,413	7,471	140	60
WTH-15	MOTORPOOL	43	14,755	5,597	6,869	2,290	43	18
WTH-16	MWR	7	2,286	867	1,064	355	7	3
WTH-17	SHOP	137	47,160	17,888	21,954	7,318	137	59
WTH-18	TRAINING	57	19,529	7,408	9,091	3,030	57	24
WTH-19	WHS	72	24,628	9,342	11,465	3,822	72	31
WTH-20	Fam. Hsg. - 1961 Vintage	996	342,167	129,787	159,285	53,095	995	426
WTH-21	Fam. Hsg. - 1963 Vintage	1,089	374,074	141,890	174,138	58,046	1087	466
WTH-22	Fam. Hsg. - 1964-66 Vintage	664	228,290	86,593	106,273	35,424	664	285
WTH-23	Fam. Hsg. - 1983 Vintage	515	176,933	67,112	82,365	27,455	514	221
WTH-24	Fam. Hsg. - 1984 Vintage	383	131,436	49,855	61,186	20,395	382	164

Weatherization ERO Operating Parameters

		Energy					Demand	
				Summer			Summer	
ID	Description of ERO	LPG (MBtu/yr)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)
WTH-1	Weatherization	132	45,285	17,177	21,081	7,027	132	56
WTH-2	Weatherization	35	12,076	4,581	5,622	1,874	35	15
WTH-3	Weatherization	5	1,879	713	875	292	5	2
WTH-4	Weatherization	94	32,353	12,272	15,061	5,020	94	40
WTH-5	Weatherization	50	17,124	6,495	7,971	2,657	50	21
WTH-6	Weatherization	69	23,670	8,978	11,019	3,673	69	30
WTH-7	Weatherization	94	32,377	12,281	15,072	5,024	94	40
WTH-8	Weatherization	168	57,783	21,918	26,899	8,966	168	72
WTH-9	Weatherization	69	23,867	9,053	11,110	3,703	69	30
WTH-10	Weatherization	8	2,737	1,038	1,274	425	8	3
WTH-11	Weatherization	51	17,617	6,682	8,201	2,734	51	22
WTH-12	Weatherization	16	5,348	2,029	2,490	830	16	7
WTH-13	Weatherization	11	3,678	1,395	1,712	571	11	5
WTH-14	Weatherization	47	16,049	6,087	7,471	2,490	47	20
WTH-15	Weatherization	14	4,918	1,866	2,290	763	14	6
WTH-16	Weatherization	2	762	289	355	118	2	1
WTH-17	Weatherization	46	15,720	5,963	7,318	2,439	46	20
WTH-18	Weatherization	19	6,510	2,469	3,030	1,010	19	8
WTH-19	Weatherization	24	8,209	3,114	3,822	1,274	24	10
WTH-20	Weatherization	166	57,028	21,631	26,547	8,849	166	71
WTH-21	Weatherization	181	62,346	23,648	29,023	9,674	181	78
WTH-22	Weatherization	111	38,048	14,432	17,712	5,904	111	47
WTH-23	Weatherization	172	58,978	22,371	27,455	9,152	171	74
WTH-24	Weatherization	128	43,812	16,618	20,395	6,798	127	55

2.5 FEDS Service Hot Water EROs

Level-2 analyzes a wide range of possible service hot water heating options. Many of these are variations of similar EROs with different existing and retrofit fuel possibilities. Therefore, the EROs are grouped together by major option to avoid repetitive descriptions and assumptions. The Level-2 software analyzes all the possible combinations of replacements and equipment/efficiency upgrades and chooses the most life-cycle cost-effective combination of options for each building set.

2.5.1 Replace Existing (Electric, Natural Gas, Oil, or LPG) Service Hot Water Systems

Description

This ERO pertains to replacing existing (electric, natural gas, oil, or LPG) service hot water systems with new efficient or high-efficiency service hot waters fueled by electricity, natural gas, oil, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set. This ERO also evaluates adding a heat trap to the retrofit for further energy savings.

Assumptions

Technical assumptions are as follows:

- FEDS calculates existing hot water system size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit hot water system fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit service hot water efficiencies are as follows:

  electric service hot water - 98.0%
  electric service hot water - 98.0%
  oil service hot water heater - 80.0%
  natural gas service hot water heater - 76.0%
  natural gas service hot water heater - 80.0%
  natural gas service hot water heater - 85.0%
  natural gas service hot water heater - 94.0%
  LPG service hot water heater - 76.0%
  LPG service hot water heater - 80.0%
  LPG service hot water heater - 85.0%
  LPG service hot water heater - 94.0%

Results

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

2.5.2 Replace Existing HTHW Heat Exchanger Service Hot Water Systems

Description

This ERO pertains to replacing existing HTHW service hot water systems (HTHW distribution and heat exchanger) with new conventional or high-efficiency boilers fueled by oil, natural gas, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

Assumptions

Technical assumptions are as follows:

- FEDS calculates existing heat exchanger size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.
- Retrofit boiler fuel availability, fuel consumption, efficiency, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.
- Retrofit boiler efficiencies are given by the following equations:

conventional gas boiler efficiency = $0.871\text{-}1.83^{-3}*(\text{Boiler Cap.})$
pulse-condensing gas boiler efficiency = $0.871\text{-}1.83^{-3}*(\text{Boiler Cap.})+0.08$
conventional LPG boiler efficiency = $0.871\text{-}1.83^{-3}*(\text{Boiler Cap.})$
pulse-condensing LPG boiler efficiency = $0.871\text{-}1.83^{-3}*(\text{Boiler Cap.})+0.08$
conventional oil boiler efficiency = $0.891\text{-}1.83^{-3}*(\text{Boiler Cap.})$

Results

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

2.5.3 Service Hot Water System Upgrade

Description

Depending on existing equipment condition, equipment upgrade rather than replacement may be more cost-effective. This ERO evaluates the following upgrades: insulate existing hot water tank, insulate piping near water heater, decrease water heater temperature (only examined for certain building types), and install low-flow shower heads and faucet aerators where applicable. All of these possible upgrades can be combined with any of the water heater replacement options above. The Level-2 software analyzes each possible replacement and upgrade and chooses the most life-cycle cost-effective combination of options for each building set.

Assumptions

Technical assumptions are as follows:

- FEDS calculates existing hot water system size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.
- Hot water system upgrade fuel consumption, equipment size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

Results

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

Table 2.10. FEDS Service Hot Water EROs

Building Set	Existing Technology	Retrofit Technology	Retro Number (a)	Exist Eff., COP or Lamp Wattage	Retro Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
ADMINISTRATION-01	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	0 38	1	0 76	Electricity	Propane	1	0	222	808	150	586	3 6
ADMINISTRATION-01	Propane SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	1.12	0.75	0.75	Propane	Propane	19	0	99	268	95	169	2.7
ADMINISTRATION-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	6.92	0.75	0.75	Propane	Propane	126	0	675	2,893	633	2,217	4.3
ADMINISTRATION-03a	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	0.17	0 75	0.75	Propane	Propane	2	0	16	52	11	36	3 2
ADMINISTRATION-04	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.38	0.75	0 75	Propane	Propane	6	0	39	141	31	103	3 7
ADMINISTRATION-06	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0 74	0.75	0.75	Propane	Propane	10	0	65	241	53	176	3 7
ADMINISTRATION-06a	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.44	0.75	0.75	Propane	Propane	6	0	41	141	31	100	3 4
ADMINISTRATION-07a	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.21	0.75	0.75	Propane	Propane	9	0	109	196	43	87	1.8
ADMINISTRATION-08	Hot Water Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	2	1	0.9582	Gen. Hot Wtr.	Propane	79	0	1,375	48,893	2,839	47,518	35.6
ADMINISTRATION-09	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	3.53	1	1	Electricity	Electricity	38	4	418	7,564	1,219	7,146	18.1
BARRACKS-01	Propane SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	0.62	0.75	0 75	Propane	Propane	19	0	102	426	93	324	4 2
BARRACKS-02	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	32	0.8044	0.9583	Propane	Propane	2,000	0	9,749	172,520	11,704	162,771	17.7
BARRACKS-03	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	2	0.774	0.774	Propane	Propane	204	0	1,563	10,991	1,111	9,427	7.0
BARRACKS-04	Hot Water Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	1	0.9582	Gen. Hot Wtr.	Propane	127	0	2,227	35,894	3,199	33,667	16.1
BARRACKS-04	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	2	0 8491	0.8491	Propane	Propane	329	0	3,940	34,423	1,999	30,483	8 7
BARRACKS-05	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	0.8635	0.9583	Propane	Propane	41	0	482	4,236	246	3,754	8.8
BARRACKS-06	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	9	0.8485	0.8485	Propane	Propane	314	0	4,450	32,845	1,907	28,395	7.4
BARRACKS-07	Hot Water Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	9	1	0.9582	Gen. Hot Wtr.	Propane	768	0	19,960	384,533	22,330	364,573	19.3
CHAPEL-01	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.75	0.75	0.75	Propane	Propane	9	0	66	211	46	146	3.2
CHAPEL-02	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.25	0.75	0.75	Propane	Propane	18	0	106	409	90	304	3 9
CLINIC-02	Propane SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	2	0.75	0.75	Propane	Propane	28	0	223	644	141	421	2.9
CLUBS-01	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0 07	0.75	0.75	Propane	Propane	1	0	7	23	5	16	3.3
CLUBS-03	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	1	0.8628	0.8628	Propane	Propane	369	0	508	38,578	2,240	38,070	75 9
COMMISSARIES	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	1	0.8576	0.8576	Propane	Propane	197	0	231	20,605	1,197	20,374	89.3
DINING HALLS-01	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	8.16	1	1	Electricity	Electricity	44	2	676	5,037	933	4,361	7.5
DINING HALLS-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	17.5	0.75	0.75	Propane	Propane	202	0	1,439	4,645	1,017	3,206	3 2
DINING HALLS-04	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	16.36	0.75	0.75	Propane	Propane	186	0	1,328	4,283	938	2,954	3.2
DINING HALLS-06	Hot Water Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	1	0 9581	Gen. Hot Wtr.	Propane	186	0	2,305	53,399	3,101	51,093	23 2
ELECTRONICS-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.38	0.75	0.75	Propane	Propane	8	0	33	186	41	153	5 7
EXCHANGE FACILITIES-01	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.15	1	1	Electricity	Electricity	1	0	18	176	33	158	9.9
EXCHANGE FACILITIES-02	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.64	1	1	Electricity	Electricity	4	0	57	526	97	469	9 2
EXCHANGE FACILITIES-03	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	0.75	0.7628	0.7628	Propane	Propane	45	0	52	2,021	238	1,969	38.8
EXCHANGE FACILITIES-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.31	0.75	0.75	Propane	Propane	5	0	27	150	28	123	5.5
EXCHANGE FACILITIES-04	Electric Central Boiler	Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators	1	1	1	Electricity	Electricity	14	1	119	6,268	364	6,150	52.7
FH-3 OR MORE-01	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	86.4	0.75	0.75	Propane	Propane	1,874	0	13,034	43,113	9,441	30,079	3.3
FH-3 OR MORE-02	Propane SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	300	0.75	0.85	Propane	Propane	7,917	0	18,926	38,194	39,378	19,267	2 0
FH-3 OR MORE-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	141.6	0.77	0.77	Propane	Propane	3,618	0	20,856	115,251	18,568	94,395	5.5
FH-DETACHED-01	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	116.8	0.75	0.75	Propane	Propane	1,730	0	15,098	39,816	8,719	24,718	2.6
FH-DETACHED-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	81	0.77	0.77	Propane	Propane	668	0	9,477	21,272	3,427	11,795	2.2
FH-DUPLEX-01	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	172 8	0.75	0.75	Propane	Propane	6,234	0	17,038	143,436	31,409	126,398	8.4
FH-DUPLEX-02	Propane SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	20.8	0.75	0 85	Propane	Propane	1,132	0	5,654	26,040	5,702	20,386	4 6
FH-DUPLEX-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	187.2	0.77	0.77	Propane	Propane	10,311	0	18,797	328,507	52,926	309,710	17.5
GUEST HOUSES-01	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	6	1	0.76	Electricity	Propane	-9	6	1,493	8,349	1,546	6,855	5.6
GUEST HOUSES-02	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	6	1	0.76	Electricity	Propane	-5	7	279	1,704	1,757	1,425	6.1
HOSPITAL	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	0.7849	0 9577	Propane	Propane	567	0	5,716	37,700	3,181	31,984	6 6

Table 2.10. (contd)

Building Set	Existing Technology	Retrofit Technology	Retro Number (a)	Exist. Eff. COP or Lamp Wattage	Retro. Eff. COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
LABS-01	Propane SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	0.2	0.75	0.75	Propane	Propane	3	0	20	65	14	45	3 3
LABS-02	Propane SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	0.11	0.75	0.75	Propane	Propane	2	0	11	36	8	26	3 4
MILITARY OTHER-01	Electric SHW Heater	Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM)	0.18	1	0.76	Electricity	Propane	-1	0	102	355	66	253	3.5
MILITARY OTHER-03	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.08	1	1	Electricity	Electricity	0	0	12	60	11	48	5.1
MILITARY OTHER-04	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.5	0.75	0.75	Propane	Propane	3	0	46	58	13	12	1.3
MILITARY OTHER-05	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	8	0 8514	0.8514	Propane	Propane	120	0	320	12,525	727	12,205	39.2
MWR-02	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	2	1	1	Electricity	Electricity	8	1	183	1,022	224	839	5.6
MWR-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.25	0.75	0.75	Propane	Propane	7	0	106	122	33	16	1.2
MWR-04	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	2	0.8043	0.9583	Propane	Propane	98	0	788	8,412	571	7,624	10.7
MWR-04	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.12	0.75	0.75	Propane	Propane	16	0	99	361	79	262	3.7
MWR-05	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	0.7747	0.9582	Propane	Propane	121	0	503	6,500	657	5,997	12.9
MWR-05a	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.5	0.75	0.75	Propane	Propane	6	0	43	147	32	104	3.4
MWR-06	Propane Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1	0.8413	0.9582	Propane	Propane	59	0	821	6,153	357	5,332	7.5
MWR-07	Propane SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	0.38	0.75	0.75	Propane	Propane	8	0	32	76	40	44	2.4
RECREATION-02	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.25	0.75	0.75	Propane	Propane	18	0	114	412	90	298	3.6
RECREATION-04	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	1	0.8508	0.8508	Propane	Propane	76	0	562	7,941	461	7,379	14.1
SCHOOL/TRAINING-01	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.5	1	1	Electricity	Electricity	5	0	49	701	130	651	14.2
SCHOOL/TRAINING-02	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1.12	1	1	Electricity	Electricity	39	4	197	4,947	1,334	4,750	25.1
SCHOOL/TRAINING-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	3.92	0.75	0.75	Propane	Propane	55	0	358	1,258	276	900	3.5
SECURITY-02	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	1	1	0.76	Electricity	Propane	2	1	608	1,859	344	1,250	3.1
SHOPS-02	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.33	1	1	Electricity	Electricity	2	0	39	136	48	97	3.5
SHOPS-03	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	31.25	0.75	0.75	Propane	Propane	362	0	3,223	8,338	1,826	5,116	2.6
SHOPS-04	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1	0.75	0.75	Propane	Propane	14	0	109	323	71	214	3.0
SHOPS-05	Propane SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	4	0.75	0.75	Propane	Propane	40	0	281	930	204	649	3.3
WAREHOUSE-05	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	4.79	0.75	0.75	Propane	Propane	60	0	439	1,370	300	931	3.1
WAREHOUSE-06	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	1	1	1	Electricity	Electricity	5	0	86	632	117	546	7.4
WAREHOUSE-07	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.75	0.75	0.75	Propane	Propane	10	0	72	231	51	160	3.2
WAREHOUSE-08	Propane Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	1	0.7852	0.7852	Propane	Propane	7	0	11	454	38	442	40.5
WAREHOUSE-08	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0 5	0.75	0 75	Propane	Propane	6	0	43	132	29	90	3 1
WAREHOUSE-09	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	0.08	1	0.76	Electricity	Propane	0	0	32	74	20	42	2.3
WAREHOUSE-12	Propane SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	0.5	0.75	0.75	Propane	Propane	6	0	43	134	29	91	3.1
TOTALS:								40,609	26	188,447	1,743,372	242,457	1,554,924	9.3

Notes:

(a) Number of units for SHW retrofits is prorated to assumed standard sizes and therefore will not reflect the actual number of SHW heaters.

2.6 Manual Service Hot Water EROs

This section presents two service hot water EROs not analyzed by FEDS Level-2. Air conditioning desuperheaters are devices which use the waste heat from air-cooled condensers to heat domestic hot water. The water heater controller is a device which monitors hot water usage and resets the hot water temperature during periods of low use.

2.6.1 A/C Desuperheater ERO

Description

A desuperheater is a heat exchanger that transfers waste heat from an air conditioner or refrigeration system to the domestic hot water system. The air conditioner and the water heater serve opposite functions; the air conditioner takes heat from the interior and expels it outside, while the water heater uses an outside source of energy to generate hot water. Fortuitously, the rejected heat from the air conditioner is usually around 140°F, which is the typical setting for most domestic hot water systems.

The heat rejection part of the air conditioning cycle occurs in the condenser. The desuperheater is installed between the compressor and condenser to recover some of the heat before it is rejected to the atmosphere. A counterflow heat exchanger is used to transfer the heat to any process requiring heat. For example: the incoming cold water, cool water recirculated from the domestic water storage tank, building hot water circulating loop, or a process hot water system.

In addition to being able to supply the majority of the hot water needs during the cooling season, the desuperheater also helps improve overall air conditioner efficiency by about 15%. This reduces electric consumption and demand and will help prolong A/C equipment life.

The desuperheater can be installed with a number of controls options. Among those recommended are a compressor interlock, and winter freeze protection. The compressor interlock will only operate the desuperheater when the A/C system is also operating. Freeze protection can take a number of forms, from draining the system to heat tape to continuous water circulation. The most efficient system uses heat tape controlled by a simple thermostat set to come on when the temperature drops below 40-45°F. While draining the system will save the most energy, there is the added maintenance expense involved with draining, then refilling the system every year.

A total of 61 air-cooled air conditioning units in 27 buildings are considered in this ERO. This ERO is applied to A/C units with 10 or more tons of cooling capacity that were listed in the RPL or identified during site visits. There are many A/C units with less than 10 tons capacity on Fort Irwin which may be suitable for this technology, but insufficient information was available to fully analyze this ERO for those units. Also not addressed in this analysis are facilities with commercial refrigeration equipment in use, i.e., commissary, dining halls, etc. Any building using a vapor-compression type cooling system for any application has potential for waste heat recovery using a desuperheater.

Assumptions

The technical assumptions are as follows:

- Domestic hot water and air conditioning energy consumption are calculated from the DHW and cooling EUIs in Volume 2 of this report. The EUI is multiplied by the building area to get the energy consumption for each end-use in each building.

- In buildings where there were more than one A/C unit, the area (ft^2) served by each unit was prorated by A/C tonnage. While desuperheaters are usually limited to one desuperheater for each A/C unit, it is possible in some cases to connect multiple A/C units to one desuperheater. For this analysis, each A/C unit is assumed to be served by one desuperheater.

- Heat recovery by the desuperheater is assumed to be 3,000 Btu per hour, per ton of cooling capacity. Actual heat recovery rates depend on the temperature of the incoming water.

- Efficiency of existing air-cooled A/C units is assumed to be 1.5 kW/ton. After installation of the desuperheater, this efficiency will improve by 15%, to 1.275 kW/ton.

- The cooling systems were assumed to operate over an eight month period. To find the percent of the DHW load replaced by the desuperheater, the energy consumption (and operating hours) for both the DHW and A/C systems were prorated by 8/12ths.

- The equipment life of the desuperheater is 15 years. Minimal maintenance is required; the water-side tubes should be cleaned every 2-3 years.

The cost assumptions are as follows:

- From conversations with manufacturer's representatives, the following formula was derived for the cost of the desuperheater unit:

$$\text{Cost (1993 \$)} = \tfrac{1}{2}(73.322 * \text{A/C tons} + 752.38)$$

- The cost for installation was more difficult to determine. Much of the costs will depend on the individual layout of each building and A/C system. Number, type and size of any piping, fittings, valves, etc. will depend on the size and configuration of the A/C unit being retrofitted. For this analysis, a labor and associated materials cost was assumed to be equal to the cost of the desuperheater unit.

- An annual maintenance cost of $50 was added to the analysis to cover the periodic tube cleaning required.

Results

The complete quantitative results of this ERO appear in Table 2.11. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial cost of this ERO is $118,124 for all cost-effective implementations.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in energy savings of 199,341 kWh and 3,664 MBtu (LPG) at a value of $34,043, and electric demand savings of 2,198 kW-months at a value of $24,124.

Operations and Maintenance. As described above, a periodic cleaning of the water-side tubes is required to maintain efficiency and prolong unit life. The estimated additional maintenance cost of $1,900 should cover the cleaning and any other O&M issues.

2.6.2 Water Heater Controller ERO (discussion only)

A water heater controller is a device that limits water heater operation based on hot water demand. The controller has three temperature sensors: in the tank, on the supply line, and on the return (recirculating) line. With the information gathered from these sensors, a microprocessor in the controller predicts the future hot water consumption and adjusts the hot water temperature accordingly. Therefore, during periods of low hot water demand, the temperature can be "set back" to reduce energy losses through the circulating system and standby losses in the storage tank.

The benefit of using the controller versus simply reducing the temperature setpoint on the water heater is that the controller can "raise" the setpoint when it senses hot water demand, ensuring a continuous supply of hot water. Changes in the hot water temperature are actually made by the controller selectively energizing the water heater thermostat, so when the controller has selected a lower temperature than the thermostat, it cycles the thermostat on and off to maintain the lower temperature. If the controller fails, the original setpoint is maintained and an adequate supply of hot water is assured.

For example, the system might lower the temperature setpoint from 140°F to 110°F during periods of low demand. This still allows adequate hot water for most domestic uses, only little or no cold water is mixed to bring the temperature down to a usable level. If there is an unexpected demand on the system, the controller will automatically raise the water temperature to maintain an adequate hot water supply; the high temperature water can be mixed with cold water to "produce" more water at a usable temperature.

Other benefits include reduced equipment run-time and reduced scale deposits (due to lower water temperature), which should prolong equipment life and reduce maintenance requirements.

The controller can be used in any building with a circulating hot water system without demands for constant temperature process loads (e.g., dishwashing). Of particular interest at Fort Irwin are the facilities (barracks and showerhouses) used during the training rotations. Many of these buildings are occupied for only a few days every two weeks; while troops are preparing to go into the field, or returning from the field. The rest of the time they are used minimally, if at all. While it is expected that the occupants will turn off the lights and heating or cooling equipment when they go out into the field, they can hardly be expected to turn down the water heater. Energy can be saved by automatically lowering the hot water setpoint during the field training periods.

While the controller manufacturer claims 20-30% savings, more information regarding current hot water consumption, schedules, and heat losses is required to fully analyze this ERO. With load profiles developed by either water temperature metering or boiler/water heater firing times, estimates can be made both of the amount of energy lost during periods of low use and the range of temperature settings that could be used by the controller. With this information, an estimated savings could be calculated, and life-cycle cost analysis completed.

Table 2.11. Desuperheater EROs

Existing A/C & Water Heater Operating Parameters

ID	Bldg. Number	Equipment	A/C Rating (tons)	Number of Units	A/C Efficienc (kW/ton)	Bldg Area Served (sqft)	DHW EUI (KBtu/sqft-yr)	A/C EUI (kWh/sqft-yr)	Annual Energy Consumption						Sum Coincident Demand		
										Summer Electric			Winter Electric		Summer		Winter
									LPG (MBtu/yr)	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	00013	CHILLER-air cooled	35	1	1.5	4,771	0.53	1.38	2.53	1,067	1,527	2,370	1,073	546	210	105	105
2	00021	PKG UNIT	15	2	1.5	4,281	14.8	5.97	63.35	4,143	5,928	9,198	4,167	2,119	90	45	45
4	00034	PKG UNIT	5	1	1.5	3,500	0.44	0.75	1.54	426	609	945	428	218	30	15	15
5	00037	AIR CONDITIONER	7.5	2	1.5	3,418	14.8	5.97	50.58	3,308	4,733	7,344	3,327	1,692	90	45	45
6	00037	AIR CONDITIONER	5	1	1.5	1,139	14.8	5.97	16.86	1,103	1,578	2,448	1,109	564	30	15	15
7	00037	AIR CONDITIONER	5	2	1.5	2,278	14.8	5.97	33.72	2,205	3,155	4,896	2,218	1,128	60	30	30
8	00037	PKG A/C	25	1	1.5	5,696	14.8	5.97	84.30	5,513	7,889	12,240	5,544	2,820	150	75	75
9	00037	PKG A/C	10	4	1.5	9,113	14.8	5.97	134.88	8,820	12,622	19,583	8,871	4,511	240	120	120
10	00037	PKG A/C	15	1	1.5	3,418	14.8	5.97	50.58	3,308	4,733	7,344	3,327	1,692	90	45	45
11	00130	AIR CONDITIONER	20	1	1.5	24,000	1.3	0.75	31.20	2,918	4,176	6,479	2,935	1,493	120	60	60
12	00152	PKG UNIT	5	1	1.5	969	1.3	0.75	1.26	118	169	262	118	60	30	15	15
13	00166	CHILLER-air cooled	175	2	1.5	63,818	30.14	9.44	1923.47	97,663	139,759	216,842	98,224	49,954	2,100	1,050	1,050
14	00171	AIR CONDITIONER	42	1	1.5	12,820	15	4.72	192.30	9,809	14,038	21,780	9,866	5,017	252	126	126
15	00202	AIR CONDITIONER	10	1	1.5	2,696	14.8	5.97	39.90	2,609	3,733	5,793	2,624	1,334	60	30	30
16	00202	AIR CONDITIONER	18	1	1.5	4,852	14.8	5.97	71.81	4,696	6,720	10,427	4,723	2,402	108	54	54
17	00222	PKG UNIT	24	2	1.5	4,339	14.84	5.97	64.39	4,199	6,010	9,324	4,224	2,148	288	144	144
18	00222	PKG UNIT	50	2	1.5	9,040	14.84	5.97	134.15	8,749	12,520	19,425	8,799	4,475	600	300	300
19	00237	AIR CONDITIONER	7.5	2	1.5	13,612	1.3	0.75	17.70	1,655	2,368	3,675	1,665	847	90	45	45
20	00248	PKG UNIT	8	3	1.5	16,704	1.3	0.75	21.72	2,031	2,906	4,509	2,043	1,039	144	72	72
21	00254	PKG UNIT	32	1	1.5	10,860	14.84	5.97	161.16	10,510	15,041	23,336	10,571	5,376	192	96	96
22	00255	PKG UNIT	6	2	1.5	3,209	1.3	0.75	4.17	390	558	866	392	200	72	36	36
23	00255	PKG UNIT	12.8	1	1.5	3,423	1.3	0.75	4.45	416	596	924	419	213	77	38	38
24	00258	PKG UNIT	6	2	1.5	3,209	1.3	0.75	4.17	390	558	866	392	200	72	36	36
25	00258	PKG UNIT	12.8	1	1.5	3,423	1.3	0.75	4.45	416	596	924	419	213	77	38	38
26	00323	PKG UNIT	7.5	3	1.5	2,880	7.42	9	21.37	4,202	6,013	9,330	4,226	2,149	135	68	68
27	00323	PKG UNIT	5	1	1.5	640	7.42	9	4.75	934	1,336	2,073	939	478	30	15	15
28	00488	PKG A/C	20	2	1.5	6,265	1.3	0.75	8.14	762	1,090	1,691	766	390	240	120	120
29	00826	PKG UNIT	8.5	1	1.5	7,280	1.3	0.75	9.46	885	1,267	1,965	890	453	51	26	26
30	00857	Chiller-air cooled	40	1	1.5	7,200	1.01	1.28	7.27	1,494	2,138	3,317	1,503	764	240	120	120
31	00905	CHILLER-air cooled	40	1	1.5	17,423	8.97	0.75	156.29	2,118	3,031	4,703	2,131	1,084	240	120	120
32	00905	PKG UNIT	7.5	1	1.5	3,267	8.97	0.75	29.30	397	568	882	399	203	45	23	23
33	00920	AIR CONDITIONER	51	1	1.5	56,500	3.77	1.24	213.01	11,358	16,253	25,217	11,423	5,809	306	153	153
34	00983	PKG A/C	15	1	1.5	4,140	1.3	0.75	5.38	503	720	1,118	506	257	90	45	45
35	00988	CHILLER	40	1	1.5	24,000	1.3	0.75	31.20	2,918	4,176	6,479	2,935	1,493	240	120	120
36	01313	PKG UNIT	12	1	1.5	4,800	1.17	1.4	5.62	1,089	1,559	2,419	1,096	557	72	36	36
37	01322	AIR CONDITIONER	8	1	1.5	2,470	1.17	1.4	2.89	561	802	1,245	564	287	48	24	24
38	01322	AIR CONDITIONER	5	2	1.5	1,544	1.17	1.4	1.81	350	501	778	352	179	30	15	15
40	01322	PKG UNIT	5	3	1.5	1,544	1.17	1.4	1.81	350	501	778	352	179	30	15	15
43	01322	PKG UNIT	8	1	1.5	2,470	1.17	1.4	2.89	561	802	1,245	564	287	48	24	24
44	20001	AIR CONDITIONER	30	1	1.5	12,650	0.54	0.73	6.83	1,497	2,142	3,324	1,506	766	180	90	90
45	20018	AIR CONDITIONER	10	1	1.5	6,300	14.8	5.97	93.24	6,097	8,725	13,538	6,132	3,119	60	30	30

Table 2.11. (contd)

Desuperheater ERO Operating Parameters

			Annual Energy Consumption						Sum Coincident Demand		
				Summer Electric			Winter Electric		Summer		Winter
ID	Description of ERO	A/C Efficiency (kW/ton)	LPG (MBtu/yr)	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Install Desuperheater	1.275	0.07	907	1,298	2,014	912	464	179	89	89
2	Install Desuperheater	1.275	1.76	3,521	5,039	7,818	3,542	1,801	77	38	38
4	Install Desuperheater	1.275	0.04	362	518	803	364	185	26	13	13
5	Install Desuperheater	1.275	1.40	2,811	4,023	6,242	2,828	1,438	77	38	38
6	Install Desuperheater	1.275	0.47	937	1,341	2,081	943	479	26	13	13
7	Install Desuperheater	1.275	0.94	1,874	2,682	4,161	1,885	959	51	26	26
8	Install Desuperheater	1.275	2.34	4,686	6,705	10,404	4,713	2,397	128	64	64
9	Install Desuperheater	1.275	3.75	7,497	10,729	16,646	7,540	3,835	204	102	102
10	Install Desuperheater	1.275	1.40	2,811	4,023	6,242	2,828	1,438	77	38	38
11	Install Desuperheater	1.275	0.87	2,480	3,549	5,507	2,495	1,269	102	51	51
12	Install Desuperheater	1.275	0.03	100	143	222	101	51	26	13	13
13	Install Desuperheater	1.275	53.43	83,014	118,795	184,315	83,491	42,461	1785	893	893
14	Install Desuperheater	1.275	5.34	8,338	11,932	18,513	8,386	4,265	214	107	107
15	Install Desuperheater	1.275	1.11	2,218	3,173	4,924	2,230	1,134	51	26	26
16	Install Desuperheater	1.275	1.99	3,992	5,712	8,863	4,015	2,042	92	46	46
17	Install Desuperheater	1.275	1.79	3,570	5,108	7,925	3,590	1,826	245	122	122
18	Install Desuperheater	1.275	3.73	7,437	10,642	16,511	7,479	3,804	510	255	255
19	Install Desuperheater	1.275	0.49	1,407	2,013	3,123	1,415	720	77	38	38
20	Install Desuperheater	1.275	0.60	1,726	2,470	3,833	1,736	883	122	61	61
21	Install Desuperheater	1.275	4.48	8,934	12,785	19,836	8,985	4,570	163	82	82
22	Install Desuperheater	1.275	0.12	332	475	736	334	170	61	31	31
23	Install Desuperheater	1.275	0.12	354	506	785	356	181	65	33	33
24	Install Desuperheater	1.275	0.12	332	475	736	334	170	61	31	31
25	Install Desuperheater	1.275	0.12	354	506	785	356	181	65	33	33
26	Install Desuperheater	1.275	0.59	3,572	5,111	7,930	3,592	1,827	115	57	57
27	Install Desuperheater	1.275	0.13	794	1,136	1,762	798	406	26	13	13
28	Install Desuperheater	1.275	0.23	647	927	1,438	651	331	204	102	102
29	Install Desuperheater	1.275	0.26	752	1,077	1,670	757	385	43	22	22
30	Install Desuperheater	1.275	0.20	1,270	1,817	2,820	1,277	650	204	102	102
31	Install Desuperheater	1.275	7.61	1,801	2,577	3,998	1,811	921	204	102	102
32	Install Desuperheater	1.275	1.43	338	483	750	340	173	38	19	19
33	Install Desuperheater	1.275	5.92	9,654	13,815	21,435	9,709	4,938	260	130	130
34	Install Desuperheater	1.275	0.15	428	612	950	430	219	77	38	38
35	Install Desuperheater	1.275	0.87	2,480	3,549	5,507	2,495	1,269	204	102	102
36	Install Desuperheater	1.275	0.16	926	1,325	2,056	931	474	61	31	31
37	Install Desuperheater	1.275	0.08	477	682	1,058	479	244	41	20	20
38	Install Desuperheater	1.275	0.05	298	426	661	300	152	26	13	13
40	Install Desuperheater	1.275	0.05	298	426	661	300	152	26	13	13
43	Install Desuperheater	1.275	0.08	477	682	1,058	479	244	41	20	20
44	Install Desuperheater	1.275	0.19	1,272	1,821	2,825	1,280	651	153	77	77
45	Install Desuperheater	1.275	2.59	5,183	7,416	11,507	5,212	2,651	51	26	26

Table 2.11. (contd)

Desuperheater ERO Economic Parameters

		Installation	Addn'l		First Year Energy and Demand Savings						Life Cycle Cost	
ID	Equipment Cost (1994 $)	Labor Cost (1994 $)	Maint. Cost ($/yr)	Equip. Life (Years)	LPG Savings (MBtu)	Electric Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	1,659	1,659	50	15	2	988	63	82	691	773	7,635	3.30
2	926	926	50	15	62	3,833	27	606	296	902	11,980	7.47
3	926	926	50	15	62	3,833	27	606	296	902	11,980	7.47
5	926	926	50	15	49	3,060	27	484	296	780	9,877	6.33
6	559	559	50	15	16	1,020	9	161	99	260	1,990	2 78
7	743	743	50	15	33	2,040	18	322	198	520	5,933	4.99
8	1,293	1,293	50	15	82	5,101	45	806	494	1,300	17,765	7.87
9	1,843	1,843	50	15	131	8,161	72	1,289	790	2,080	29,597	9.03
10	926	926	50	15	49	3,060	27	484	296	780	9,877	6.33
11	1,109	1,109	50	15	30	2,700	36	354	395	750	8,823	4.98
13	13,208	13,208	50	15	1,870	90,366	630	16,588	6,915	23,502	365,486	14.84
14	1,916	1,916	50	15	187	9,077	75.6	1,661	830	2,491	36,469	10.52
15	743	743	50	15	39	2,414	18	381	198	579	6,950	5.68
16	1,036	1,036	50	15	70	4,345	32.4	686	356	1,042	14,074	7.79
17	2,136	2,136	50	15	63	3,886	86.4	615	948	1,563	19,850	5.65
18	4,042	4,042	50	15	130	8,095	180	1,281	1,976	3,256	43,471	6.38
19	926	926	50	15	17	1,531	27	201	296	497	5,013	3.71
20	1,256	1,256	50	15	21	1,879	43.2	247	474	721	7,902	4.15
21	1,549	1,549	50	15	157	9,725	57.6	1,539	632	2,171	32,023	11.33
22	816	816	50	15	4	361	21.6	47	237	284	1,666	2.02
23	845	845	50	15	4	385	23.04	51	253	303	1,907	2.13
24	816	816	50	15	4	361	21.6	47	237	284	1,666	2.02
25	845	845	50	15	4	385	23.04	51	253	303	1,907	2.13
26	1,201	1,201	50	15	21	3,888	40.5	384	445	828	9,912	5.13
27	559	559	50	15	5	864	9	85	99	184	683	1.61
28	1,843	1,843	50	15	8	705	72	93	790	883	8,986	3.44
29	688	688	50	15	9	819	15.3	108	168	275	1,883	2.37
30	1,843	1,843	50	15	7	1,382	72	135	790	925	9,712	3.64
31	1,843	1,843	50	15	149	1,960	72	957	790	1,748	23,881	7.48
32	651	651	50	15	28	368	13.5	180	148	328	2,890	3.22
33	2,246	2,246	50	15	207	10,509	91.8	1,872	1,008	2,879	42,194	10.39
34	926	926	50	15	5	466	27	61	296	357	2,604	2.41
35	1,843	1,843	50	15	30	2,700	72	354	790	1,145	13,496	4.66
36	816	816	50	15	5	1,008	21.6	100	237	337	2,570	2.57
37	669	669	50	15	3	519	14.4	51	158	209	801	1.60
43	669	669	50	15	3	519	14.4	51	158	209	801	1.60
44	1,476	1,476	50	15	7	1,385	54	133	593	725	7,338	3.49
45	743	743	50	15	91	5,642	18	891	198	1,089	15,732	11.59
Totals:												
	59,062	59,062	1,900		3,664	199,341	2,198	34,043	24,124	58,167	797,322	7.75

2.7 FEDS Building Interior Lighting EROs

About 26% of the electrical energy supplied to Fort Irwin is used for lighting in and around buildings. Few of the existing lamps, ballasts, and light fixtures are as efficient as currently available cost-effective lamps, ballasts, and fixtures. A number of fixture retrofit and fixture replacement EROs are therefore evaluated in this section.

2.7.1 Interior Lighting EROs

Data and Assumptions for all Lighting EROs

- FEMP Lighting Matrix. The first costs of fixture upgrades (either replacement or retrofit) that are feasible for a given type of existing fixture are determined using data from the FEMP *Lighting Technology Screening Matrix* (LTSM) computer program (Dirks et al. 1992). The per-fixture wattage and maintenance requirements for each existing and post-retrofit configuration are also determined using the LTSM database. The LTSM database has been incorporated into the Level-2 software.

- Fixture Modification versus Fixture Replacement. Fixtures can be upgraded by replacing selected parts (ballast, lamp, reflector, or lens) or by replacing the entire fixture. The best route for a given upgrade is generally determined by the relative costs in the LTSM except when site-specific (usually implementation labor or maintenance related) conditions dictate otherwise.

- Fixture Type and Quantity. The existing fixture inventory was estimated for each building type. The lighting in the majority of the buildings could not be rigorously established within the scope of this project. Estimates of the existing lighting quantity, in the form of fixtures per square foot, are defaults in the Level-2 software. Changes were made to the default values where site-specific information was available.

  This approach assumes that all of the buildings of a given type have the same fixture types, distribution, and use. Thus, the fixture types and counts are not exact but are believed to reasonably characterize existing lighting on the site and the potential for efficiency improvements with available technologies.

- Existing Ballasts. The ballasts used in all existing fluorescent fixtures are standard 60-Hz inductive ballasts.

- Light Levels. Existing light levels are adequate or more than adequate for the visual activities conducted in a space unless otherwise noted. The retrofit fixtures will provide the same lighting level, or slightly less, and are, in all cases, intended to meet or exceed minimum applicable federal standards. The lumen equivalence of replacement fixtures or retrofit packages cannot be determined exactly from the nominal fixture characteristics due to variations in fixture design and the lighting environment and task requirements. The ability of a given upgrade to provide adequate level and quality of light should be field-checked in typical applications before proceeding with a large-scale retrofit.

- Salvage Value. The salvage value for used fixtures is small at best and has been assumed to be zero. Actual salvage value will be reflected in the cost proposals of competitive energy services contractor

(ESCO) bidders. It is essential to the project's long-term success that the old fixtures be removed from the site to prevent their being re-installed for any reason and the inefficient use of electric power that would result.

- Maintenance Costs. Maintenance cost savings are expressed as annualized values. Revamping costs that might occur every 5 years in the 25-year life of an ERO are converted to a present value, and the present value is then converted to a uniform series of yearly costs. Maintenance savings are due chiefly to longer lamp lives (e.g., HPS and fluorescent lamps have a much longer life than standard incandescent) that result in lower annual lamp replacement costs. In cases where the retrofit maintenance cost is only slightly less than the existing maintenance cost, the savings are taken to be zero. This results in a slightly conservative assessment of NPV and resource potential.

- Penetration of EROs. With the exception of incandescent fixtures, all lighting EROs are assumed to have a 100% penetration rate. The reduced penetration rate for incandescent fixtures takes into account that not every fixture can be replaced for one reason or another (i.e., space limitations, aesthetics, etc.). For family housing a 70% penetration rate is assumed; for commercial buildings a 90% penetration rate is assumed.

Non-Energy Effects Common to All Lighting ERO Implementations

- Operations and Maintenance. The replacement or retrofit of incandescent fixtures results in reduced maintenance. All other fixture upgrades result in post-retrofit maintenance requirements that are identical or nearly identical to the existing maintenance requirements. All non-energy O&M costs are reported as annualized values based on all expected maintenance costs over the analysis period of 25 years.

  The operation of lighting systems generally will not be affected in any way by implementation of any of the EROs.

  An additional unmeasured benefit of the fixture replacement and retrofit EROs is that conversion to standard lighting systems over the entire site eliminates the need to have multiple types of tubes, ballasts, etc., on hand for repair or replacement. For example, it is recommended that T-8 retrofit parts and replacement fixtures be stocked in sufficient quantity to replace--but not upgrade--the existing fixtures of the types covered in this ERO as their lamps, ballasts or other hardware fail. This will eliminate the need to stock the variety of lamps and ballasts used in the older systems and will result in all fixtures eventually being upgraded with minimal administrative effort.

- Annualized O&M costs as reported in tables are dependent on the operating characteristics (hours of operation) of the lights being impacted. Therefore, the same fixture type may have a different annualized O&M cost from one table to the next, based on its hours of operation.

- Energy Security. None of the lighting EROs have significant impact on energy security.

- Environmental Impact. There are no negative environmental impacts associated with any of the lighting EROs, with the possible exception of the fluorescent fixture upgrades that will involve ballast disposal. In general, implementing lighting EROs will decrease the need for electricity that may be produced from sources that have environmental impacts. All lighting EROs are environmentally beneficial in this respect.

The disposal of PCB-bearing ballasts may have to be addressed. It is not known how many, if any, PCB-bearing ballasts exist at Fort Stewart. If virtually all fluorescent ballasts are targeted for replacement as recommended in this ERO, a beneficial side effect will be that proper disposal of ballasts can be assured as part of the implementation program.

Results

The quantitative results of the lighting ERO assessments appear in Table 2.12. This table summarizes the energy, cost, maintenance and economic results of the Level-2 lighting analysis. Factors such as low yearly usage, existing efficient products, and lack of practical retrofit or replacement options render some existing fixture types cost-effective and not subject to change. The notes following the table describe the lighting fixture codes used by Level-2, and provide a simplified description of the appropriate action required to complete each ERO group.

It is recommended that a supply of the recommended replacement lamps and ballasts be kept on hand for any fixtures not upgraded as part of these EROs as their lamps, ballasts or other hardware fail. This will eliminate the need to stock the variety of lamps and ballasts used in the older systems and will result in all fixtures eventually being upgraded with a minimal administrative effort.

LED screw-in retrofits for exit lights. The lighting analysis performed through the FEDS software for the exit lighting considers complete LED retrofits. Data for the relatively new LED screw-in retrofit technology is not currently included in the software. Separate analysis of the exit lighting using the cost and operational data for the screw-ins (but not considering the interactive effects that Level-2 takes into account) shows an NPV of $580 per typical fixture. This is $69 more than a similar complete LED exit light replacement, for a total increased NPV of $234,600 for the entire site. The screw-in option has similar labor costs, but an equipment cost of around $37 with similar energy and demand savings to the complete fixture retrofit. Because of the reduced initial cost, this technology should be considered wherever existing exit light housings are in good repair and meet existing safety codes.

Table 2.12. Interior Lighting EROs

Number of Building Sets Affected	Existing Technology	Retrofit Technology	Retro Number	Exist Eff., COP or Lamp Wattage	Retro Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
79	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	3,398	40	5	Elec.	Elec	3,550	109	370,703	1,375,556	79,877	1,775,817	3.4
2	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	24	40	0	Elec.	Elec	29	1	5,269	12,762	741	12,938	2.4
1	EX2: EXIT - INC (2x15)	EX6: EXIT - LED	11	30	5	Elec.	Elec.	8	0	1,233	3,854	224	11,656	3.1
2	FL117: FL 1X8 1F96T12ES STD1	FL123: FL 1X8 1F96T12ES EEF1	82	80	71	Elec.	Elec.	8	0	4,043	4,936	287	3,609	1.2
3	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	304	172	88	Elec	Elec.	241	16	35,642	127,465	7,402	110,417	3 5
2	FL158: FL 1X8 4F96T12HO STD2 REF	LS6: LPS 180 PEND	133	514	225	Elec.	Elec.	268	23	21,532	148,874	8,645	135,527	7.0
25	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	3,605	196	88	Elec.	Elec.	3,827	244	422,620	2,112,773	122,687	1,896,471	4.0
7	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	444	147	88	Elec.	Elec	267	20	28,081	148,850	8,645	142,167	6.4
19	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	3,213	98	62	Elec.	Elec.	1,071	65	156,310	542,566	31,506	449,110	3.3
1	FL4: FL 1X4 2F40T12 STD2	FL28: FL 1X4 2F40T12 ELC2	4	98	71	Elec.	Elec.	1	0	173	400	23	270	2.3
36	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	3,569	98	62	Elec.	Elec.	1,264	67	173,615	607,436	35,275	530,757	3.2
12	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	947	49	35	Elec.	Elec.	142	8	37,513	78,623	4,565	60,335	1.3
1	FL61: FL 1X8 4F96T12 STD2	FL130: FL 1X8 4F96T12ES ELC2 REF	6	350	210	Elec.	Elec.	12	1	1,044	6,568	381	5,614	6.3
4	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	452	350	173	Elec.	Elec.	797	63	72,976	436,169	25,328	377,405	6.2
11	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	251	175	105	Elec.	Elec.	183	10	32,534	104,425	6,063	78,379	2.5
1	FL62: FL 1X8 2F96T12 STD2	FL74: FL 1X8 2F96T12 ELC2	1,283	175	134	Elec.	Elec.	204	32	80,945	75,445	4,381	36,978	0.9
6	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	1,735	175	82	Elec.	Elec.	1,015	102	239,583	485,641	28,202	268,128	1.0
9	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	1,187	95	71	Elec.	Elec.	300	18	129,885	157,566	9,150	60,356	1.1
3	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	25	95	86	Elec.	Elec.	2	0	1,584	1,089	63	601	0.5
3	FL6: FL 2X2 2F40T12U STD2	FL54: FL 2X2 2F32T8U ELC2	207	98	58	Elec.	Elec.	57	5	12,137	32,914	1,911	27,097	2.7
2	FL79: FL 2X4 4F40T12ES STD2	FL232: FL 2X4 3F40T12 ELC3	43	158	105	Elec.	Elec.	19	1	2,645	8,202	476	8,969	2.8
14	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	7,940	158	88	Elec.	Elec.	5,107	353	930,932	3,199,556	185,795	2,571,740	3.2
2	FL80: FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	57	127	62	Elec.	Elec.	26	2	5,847	14,679	852	12,581	2.5
8	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	755	79	60	Elec.	Elec.	131	9	29,903	76,372	4,434	57,292	2 6
28	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4,744	79	60	Elec.	Elec.	762	48	187,907	395,881	22,991	321,905	2.4
2	FL94: FL 1X4 2F40T12ES EEF2	FL106: FL 1X4 2F40T12ES ELC2	390	72	60	Elec.	Elec.	39	1	15,442	14,650	851	3,588	0.9
1	HS14: HPS 100 PEND	LS3: LPS 55 PEND	23	130	82	Elec.	Elec.	12	1	4,980	7,302	424	2,605	1.5
1	HS15: HPS 150 PEND	LS4: LPS 90 PEND	28	185	135	Elec.	Elec.	21	1	6,351	12,567	730	5,116	2.0
1	HS17: HPS 250 PEND	LS5: LPS 135 PEND	23	300	173	Elec.	Elec.	30	3	5,972	18,391	1,068	11,600	3.1
14	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	3,160	100	46	Elec.	Elec.	1,252	99	129,697	664,658	38,595	616,628	5.1
5	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	1,831	100	58	Elec.	Elec.	383	17	58,468	176,650	10,259	176,914	3.0
1	IN12: INC 2-100 CEIL	HS12: HPS 50 PEND	6	200	77.6	Elec.	Elec.	7	1	676	4,888	284	5,357	7.2
1	IN15: INC 60 TABLE LAMP	FL181: CFL 13 + BLST UNIT	120	60	22.2	Elec.	Elec.	38	1	3,568	14,319	831	15,793	4.0
4	IN1: INC 40 CEIL	FL178: CFL 9 + BLST UNIT	128	40	15.7	Elec.	Elec.	38	2	3,407	20,051	1,164	21,049	4.8
2	IN1 INC 40 CEIL	FL178: CFL 9 + BLST UNIT	132	40	21.1	Elec.	Elec.	13	0	2,721	7,031	408	7,305	2.3
1	IN28: INC 150 PEND	HS11: HPS 35 PEND	16	150	53.7	Elec.	Elec	15	1	1,959	7,820	454	7,256	4.0
4	IN29: INC 200 PEND	HS12: HPS 50 PEND	252	200	77.6	Elec.	Elec.	242	21	30,856	133,144	7,732	122,807	5.3
1	IN30: INC 300 PEND	LS2: LPS 35 PEND	108	300	88.5	Elec.	Elec.	159	14	13,195	86,359	5,015	83,779	6 5
22	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	4,914	60	22.2	Elec.	Elec.	1,115	95	145,986	472,031	27,408	511,249	5.5
11	IN5 INC 60 CEIL	FL181: CFL 13 + BLST UNIT	27,905	60	30.6	Elec.	Elec.	4,089	182	644,848	1,994,180	115,801	2,216,277	2.4
16	IN6. INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	545	120	44.4	Elec.	Elec.	357	17	24,734	180,259	10,468	210,686	11.6

Table 2.12. (contd)

Number of Building Sets Affected	Existing Technology	Retrofit Technology	Retro Number	Exist. Eff., COP or Lamp Wattage	Retro. Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
2	IN6: INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	264	120	61.2	Elec.	Elec.	77	3	9,312	41,392	2,404	48,584	4.4
25	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	14,134	75	31.8	Elec.	Elec.	4,437	379	158,941	2,124,087	123,345	2,693,106	20.8
9	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	11,451	75	41.4	Elec.	Elec.	1,917	85	100,155	970,319	56,345	1,191,264	7.1
1	MH36: MH 250 HE PEND	LS4: LPS 90 PEND	257	294	135	Elec.	Elec.	462	33	36,770	234,913	13,641	236,026	6.4
1	MV5: MERC 250 PEND	LS4: LPS 90 PEND	17	294	135	Elec.	Elec.	26	2	3,722	17,811	1,034	13,751	4.8
1	MV8: MERC 1000 PEND	HS19: HPS 400 PEND	28	1075	465	Elec.	Elec.	169	13	6,612	102,961	5,979	98,855	15.6
TOTALS:			100,150					34,189	2,168	4,393,028	17,464,385	1,014,144	17,255,714	4.0

Table 2.12. (contd)

Existing Fixtures Fixture Code	Description
EXIT - INC (2x20)	Exit Sign, incandescent, 2-20 Watt lamps
EXIT - INC (2x15)	Exit Sign, incandescent, 2-15 Watt lamps
FL 1X4 1F40T12 STD1	Fluorescent, 1 ft by 4 ft , 1-40 Watt lamp, Standard Ballast
FL 1X4 2F40T12 STD2	Fluorescent, 1 ft by 4 ft, 2-40 Watt lamps, Standard Ballast
FL 1X4 2F40T12ES EEF2	Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Energy Eff. Ballast
FL 1X4 2F40T12ES STD2	Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Standard Ballast
FL 1X8 1F96T12 STD1	Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Standard Ballast
FL 1X8 1F96T12 STD2	Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Standard Ballast
FL 1X8 1F96T12ES STD1	Fluorescent, 1 ft by 8 ft, 1-60 Watt lamp, Standard Ballast
FL 1X8 2F96T12 STD2	Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast
FL 1X8 2F96T12 STD3	Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast
FL 1X8 2F96T12 STD4	Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast
FL 1X8 4F96T12 STD2	Fluorescent, 1 ft by 8 ft, 4-75 Watt lamps, Standard Ballast
FL 1X8 4F96T12HO STD2 REF	Fluorescent, 1 ft by 8 ft, 4-110 Watt lamps, Std Ballast, reflector
FL 2X2 2F40T12U STD2	Fluorescent, 2 ft by 2 ft, 2-40 (U tube) Watt lamps, Std Ballast
FL 2X4 2F40T12 STD2	Fluorescent, 2 ft by 4 ft, 2-40 Watt lamps, Standard Ballast
FL 2X4 2F40T12ES STD2	Fluorescent, 2 ft by 4 ft, 2-34 Watt lamps, Standard Ballast
FL 2X4 3F40T12 STD1,2	Fluorescent, 2 ft by 4 ft, 3-40 Watt lamps, Standard Ballast
FL 2X4 3F40T12ES STD1,2	Fluorescent, 2 ft by 4 ft, 3-34 Watt lamps, Standard Ballast
FL 2X4 4F40T12 EEF2	Fluorescent, 1 ft by 4 ft, 4-40 Watt lamps, Energy Eff. Ballast
FL 2X4 4F40T12 STD2	Fluorescent, 2 ft by 4 ft, 4-40 Watt lamps, Standard Ballast
FL 2X4 4F40T12ES STD2	Fluorescent, 2 ft by 4 ft, 4-34 Watt lamps, Standard Ballast
FL 2X4 4F40T12ES STD3	Fluorescent, 2 ft by 4 ft, 4-34 Watt lamps, Standard Ballast
HPS 100 PEND	High Pressure Sodium, Pendant Mount, 100 Watt
HPS 150 PEND	High Pressure Sodium, Pendant Mount, 150 Watt
HPS 250 PEND	High Pressure Sodium, Pendant Mount, 250 Watt
INC 100 CEIL	Incandescent, Ceiling Mount, 100 Watt
INC 2-100 CEIL	Incandescent, Ceiling Mount, 2-100 Watt
INC 60 TABLE LAMP	Incandescent, Table Lamp, 60 Watt
INC 40 CEIL	Incandescent, Ceiling Mount, 40 Watt
INC 150 PEND	Incandescent, Pendant Mount, 150 Watt
INC 200 PEND	Incandescent, Pendant Mount, 200 Watt
INC 300 PEND	Incandescent, Pendant Mount, 300 Watt
INC 60 CEIL	Incandescent, Ceiling Mount, 60 Watt
INC 2-60 CEIL	Incandescent, Ceiling Mount, 2-60 Watt
INC 75 CEIL	Incandescent, Ceiling Mount, 75 Watt
MH 250 HE PEND	Metal Halide, Pendant Mount, 250 Watt
MERC 250 PEND	Mercury, Pendant Mount, 250 Watt
MERC 1000 PEND	Mercury, Pendant Mount, 1000 Watt

Table 2.12. (contd)

Replacement Fixtures Fixture Code	Description
CFL 13 + BLST UNIT	Compact Fluorescent, Ceiling Mount, 13 Watt
CFL 2-13 + BLST UNIT	Compact Fluorescent, Ceiling Mount, 2-13 Watt
CFL 2-15 CEIL FIXT	Compact Fluorescent, Ceiling Mount, 2-15 Watt
CFL 27 INTEGRAL UNIT	Compact Fluorescent "screw-in", 27 Watt
CFL 9 + BLST UNIT	Compact Fluorescent, Ceiling Mount, 9 Watt
EXIT - LED	Exit Sign, Light Emitting Diode (LED)
EXIT - SELF LUMINOUS	Exit Sign, Self Luminous
FL 1X4 1F40T12 ELC1	Fluorescent, 1 ft by 4 ft, 1-40 Watt lamp, Electronic Ballast
FL 1X4 2F32T8 ELC2	Fluorescent, 1 ft by 4 ft, 2-T8-32 Watt lamps, Electronic Ballast
FL 1X4 2F40T12 ELC2	Fluorescent, 1 ft by 4 ft, 2-40 Watt lamps, Electronic Ballast
FL 1X4 2F40T12ES ELC2	Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Electronic Ballast
FL 1X8 1F96T12 ELC1	Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Electronic Ballast
FL 1X8 1F96T12ES EEF1	Fluorescent, 1 ft by 8 ft, 1-60 Watt lamps, Energy Eff. Ballast
FL 1X8 1F96T12ES EEF1 REF	Fluorescent, 1 ft by 8 ft, 1-60 Watt lamp, Energy Eff. Ballast, Reflector
FL 1X8 2F96T12 ELC2	Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Electronic Ballast
FL 1X8 2F96T12ES ELC2 REF	Fluorescent, 1 ft by 8 ft, 2-60 Watt lamps, Elec. Ballast, Reflector
FL 1X8 4F96T12ES ELC2 REF	Fluorescent, 1 ft by 8 ft, 4-60 Watt lamps, Elec. Ballast, Reflector
FL 2X2 2F32T8U ELC2	Fluorescent, 2 ft by 2 ft, 2-T8-32 Watt U-lamps, Elec. Ballast
FL 2X4 2F32T8 ELC2	Fluorescent, 2 ft by 4 ft, 2-T8-32 Watt lamps, Elect. Ball.,
FL 2X4 2F32T8 ELC2 REF	Fluorescent, 2 ft by 4 ft, 2-T8-32 Watt lamps, Elect. Ball., Reflector
FL 2X4 2F40T12ES ELC2	Fluorescent, 2 ft by 4 ft, 2-34 Watt lamps, Elect. Ball.,
FL 2X4 3F32T8 ELC3	Fluorescent, 2 ft by 4 ft, 3-T8-32 Watt lamps, Elect. Ball.,
FL 2X4 3F32T8 ELC3 REF	Fluorescent, 2 ft by 4 ft, 3-T8-32 Watt lamps, Elect. Ball., Reflector
FL 2X4 3F40T12 ELC3	Fluorescent, 2 ft by 4 ft, 3-40 Watt lamps, Elect. Ball.,
HPS 35 PEND	High Pressure Sodium, Pendant Mount, 35 Watt
HPS 50 PEND	High Pressure Sodium, Pendant Mount, 50 Watt
HPS 400 PEND	High Pressure Sodium, Wall Mount, 400 Watt
LPS 35 PEND	Low Pressure Sodium, Pendant Mount, 35 Watt
LPS 55 PEND	Low Pressure Sodium, Pendant Mount, 55 Watt
LPS 90 PEND	Low Pressure Sodium, Pendant Mount, 90 Watt
LPS 135 PEND	Low Pressure Sodium, Pendant Mount, 135 Watt
LPS 180 PEND	Low Pressure Sodium, Pendant Mount, 180 Watt

2.8 Lighting Control EROs

Many of the interior lighted spaces within the many buildings at Fort Irwin have the potential for reduced lighting energy consumption through the automatic control of lighting. These controls can reduce or eliminate lighting levels when there is ample daylight and/or no occupancy.

2.8.1 Occupancy Sensor Lighting Control

Description

In many work spaces (offices, stock rooms, work bays, etc.) lights are left on all day. Often lights are left on by occupants who plan on being gone only for a few minutes or want to assure others that they are "in." It is well established that a net savings will accrue any time that lights can be turned off for more than a fraction of a minute.[a] The long-term costs of reduced lamp, ballast and switch life are more than offset by the accumulated energy savings. The control of interior lighting by occupancy sensors can reduce energy consumption in many Fort Irwin buildings.

Occupancy-sensing switches are designed to detect occupant motion typical of the office environment and can be adjusted for sensitivity and turn-off delay time to ensure proper performance in almost any work area. A variety of sensor control types are available. The two general technologies used in occupancy sensors are ultrasonic and infrared. Ultrasonic sensors emit ultrasonic waves that bounce off of objects and are received by the sensor. A moving object will upset the stability of the returning waves indicating motion and occupancy. Infrared sensors read the infrared waves emitted from all objects. Waves that are "warmer" than the surroundings (human skin vs. furniture and walls) and change position are detected as occupancy. Ultrasonic technology is considered best when partitions or large furniture are present since the emitted waves will bounce around objects and return to the sensor. This same advantage can also cause the sensor to read adjoining spaces such as hallways if not properly adjusted. The infrared technology can more easily be adjusted to read specific areas but cannot deal well with partitioned areas. Sensor units also come in a variety of wall and ceiling mount styles designed to cover a variety of room sizes and shapes.

In order to assess potential occupancy control across a majority of the commercial buildings at Fort Irwin, certain assumptions were necessarily made. These assumptions deal primarily with the estimation of building spaces that might be appropriate candidates for lighting occupancy control and are detailed here.

Assumptions

The technical assumptions are as follows:

- The number of control spaces for each space type (small office, large office, conference, lunchroom, copy room, restroom, hallway, and highbay) is based on data collected during on-site building audits as well as standard knowledge of building layouts. For each building type (office, barracks, chapel, etc.) an assessment was made of the percentage of total square footage that was expected to fall into each of the space type categories. For example:

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[a] NCEL, "Turn off the lights," (energy) Tech Data Sheet 80-01 by William Pierpoint, Naval Civil Engineering Laboratory, Port Hueneme, California (Jan 1980).

Administration (ADMIN)		Motorpool (MTRPOOL)	
small office	25%	small office	2%
large office	25%	lunchroom	1%
conference	5%	restroom	0.5%
lunchroom	5%	highbay	75%
copy room	1%		
restroom	4%		

These percentages differ depending on the building type. Many building types are considered to have little or no potential control spaces (HUT, PUMP, CLUB, etc.) and are not included in the analysis. The appropriate percentage values are multiplied by the total building square footage for each corresponding building type on site. The sums of the space type square footages for each building type become the total site square footages of space types that could have lighting controls installed. These total square footage values are then divided by an estimated typical square footage for each space type to arrive at numbers of space types at Fort Irwin that could be retrofitted with lighting controls:

Site Constructed Buildings			Modular Trailer Buildings		
small office	=	1,474	MT small office	=	626
large office	=	625	MT large office	=	275
conference	=	82	MT conference	=	44
lunchroom	=	200	MT lunchroom	=	39
copy room	=	63	MT copy room	=	34
restroom	=	376	MT restroom	=	100
hallway	=	228	MT hallway	=	0
highbay	=	230	MT highbay	=	0

- The Watts per space type values are derived from data collected during site visits and other typical lighting consumption data from other studies. The typical existing fixture used in these derivations consists of 34 and 40 watt lamps with standard electromagnetic ballasts. The typical T-8 lamp and ballast system is considered to consume only approximately 67% of the standard lamp and ballast system.

Room Type	hr/yr
small office	530
large office	390
conference	582
lunchroom	582
copy room	582
restroom	582
hallway	0
highbay	390

- Annual operating hours are estimated at 2600 for all space types. The actual number will vary depending on the building and space type. However, most are office related spaces that are generally operated on an office type schedule. In addition, they are on a regular evening cleaning schedule that assures the majority of spaces have lights turned off after hours (cleaning crews are consistent about turning lights off after cleaning).

- The hours of lighting operation potentially saved by occupancy control is based on previous study results of various space types and operational characteristics of the buildings at Fort Irwin.

- Since the nature of occupancy sensor control is random among spaces controlled, no consistent demand is identifiable. Although some demand savings are certain to exist, they are ignored in this analysis.

The cost assumption is as follows:

- Cost data were derived from manufacturers' and distributors' literature and from Means. A typical unit for use in the types and sizes of spaces analyzed here is estimated to be approximately $72 installed.

Results

The quantitative results of this lighting ERO assessment appear in Table 2.13. The table contains specific energy, cost, and economic evaluation information for each lighting control area included in the ERO.

Budget Implications. The total first cost of implementing the ERO for all potential occupancy control spaces is estimated to be $123,933. This includes the equipment, materials and associated labor.

Energy Cost Savings. The electric energy savings associated with the ERO are estimated to be 1,618,813 kWh per year at a cost savings of $134,549. These estimates are based on 100% implementation of the ERO for a typical operating year.

Operations and Maintenance. Maintenance cost savings for this ERO are estimated to be $35,683 per year due to reduced lamp replacement associated with lower run hours.

2.8.2 Daylight Sensor Lighting Control

Description

Some of the work spaces (offices, stock rooms, work bays, etc.) in Fort Irwin buildings have daylighting capacity through various window and/or skylight openings. It is well established that a net savings can occur when natural daylighting is utilized to offset the use of man-made light. Daylight also is known to have positive effects on employee morale and productivity. The use of daylight by control of interior lighting can reduce energy consumption in many Fort Irwin buildings.

Daylight-sensing switches or dimmers are designed to detect the presence of daylight and either switch off or dim overhead lighting. The amount of energy saved will depend on sky conditions, orientation of the space to the sun, and the adjustment settings applied to the sensing equipment. Sensor units are primarily ceiling mounted and can be incorporated into occupancy controls.

Assumptions

Most of the assumptions applied above in the occupancy sensor analysis apply here with the following exceptions:

- The number of control spaces is considerably less than those assumed in the occupancy sensor analysis. Only a percentage of the occupancy sensor spaces were considered to have daylight potential. The assumed percentages and estimated numbers of space types are:

Site Constructed Buildings	Modular Trailer Buildings
small office = 60% =884	MT small office = 40% = 250
large office = 60% =375	MT large office = 40% = 110
conference = 25% = 21	MT conference = 25% = 11
lunchroom = 10% = 20	MT lunchroom = 10% = 4
copy room = 0% = 0	MT copy room = 0% = 0
restroom = 0% = 0	MT restroom = 0% = 0
hallway = 0% = 0	MT hallway = 0% = 0
highbay = 0.5% =115	MT highbay = 0% = 0

- The expected hours of savings due to daylight sensor control is conservatively estimated to be 50% of current hours. Standard industry estimates are approximately 75% for well-designed systems. This value was reduced to 50% because this is being applied to existing rather than daylight-designed spaces and the lighting requirements for cleaning must be included.

The cost assumption is as follows:

- Cost data were derived from manufacturers' and distributors' literature and from Means. A typical unit for use in the types and sizes of spaces analyzed here is estimated to be approximately $68 installed.

Results

The quantitative results of this lighting ERO assessment appear in Table 2.13. The table contains specific energy, cost, and economic evaluation information for each lighting control area included in the ERO.

Budget Implications. The total first cost of implementing the ERO for all potential daylight control spaces is estimated to be $56,893. This includes the equipment, materials and associated labor.

Energy Cost Savings. The electric energy savings associated with the ERO are estimated to be 136,690 kWh per year at a cost savings of $11,361. These estimates are based on 100% implementation of the ERO for a typical operating year.

Operations and Maintenance. Maintenance cost savings for this ERO are estimated to be $6,084 per year due to reduced lamp replacement associated with lower run hours.

2.8.3 Automatic Light Trimming and Dimming Systems (discussion only)

Description

Many systems are available today that are designed to control large areas of lighting by regulation of the wattage supplied to fluorescent and high-intensity discharge lighting ballasts. Several of these are combined with occupancy controls and various switching mechanisms to produce an integrated occupancy/ lighting level control mechanism. These systems can reduce lighting to a lower but acceptable level, provide further dimming to low levels when there is no occupancy, and/or reduce lighting based on the presence of daylight.

Based on our analysis of one such system in the commissary warehouse (currently 7 to 36 to 77 footcandles), a 30% total reduction in consumption (based on a mixture of trimming and estimated occupancy dimming as suggested by the control provider) will provide $2,096 in savings, including demand, but cost between $7,875 (first-year purchase) and $15,540 (7-year lease). This corresponds to a simple payback (for reference only) of 3.8 and 7.4 years, respectively.

A standard retrofit of the same warehouse where existing lamps are permanently replaced with 22.5% lower wattage lamps would result in a yearly savings of $1,502 including demand at a cost of $2,781 (first-year purchase). Similarly, a retrofit with 37.5% reduction in wattage would result in yearly savings of $2,403 at a cost of $2,430. Reference simple paybacks for these options are 1.85 and 1.01, respectively. The corresponding permanent reduction in lighting levels with these options would be 26% (5 to 27 to 57 footcandles) and 55% (3 to 16 to 35 footcandles), respectively. With IES recommendations for warehouses at 10 to 15 to 20 (depending on various factors), a majority of spaces would still meet recommended levels with either permanent reduction. In fact, most areas would still exceed these levels.

The length of unoccupied periods is difficult to identify in this space since it is an active stocking room as well as a bulk stock retailing area. Actual unoccupied periods may be rather short. It also appears that the issue of widely varying lighting levels should be addressed prior to or along with any retrofits since at least large portions of the space are potentially overlit (36 to 77 footcandles). These data indicate that for this application a simple lamp retrofit may be more cost-effective than a large voltage control system.

Table 2.13. Lighting Control EROs

Existing Lighting Operating Parameters

ID	Space Types	ERO Type	Number of Control Spaces	Watts per Space (Watts)	Operating Schedule					Energy Consumption				
					Summer			Winter		Summer			Winter	
					On Peak (Hours)	Mid Peak (Hours)	Off Peak (Hours)	Mid Peak (Hours)	Off Peak (Hours)	On-Peak (kWh)	Mid-Peak (kWh)	Off-Peak (kWh)	Mid-Peak (kWh)	Off-Peak (kWh)
OS-1	Small Office	Occ. Control	1,474	129	433	347	87	1,560	173	82,531	66,139	16,582	297,341	32,974
OS-2	Large Office	Occ. Control	625	423	433	347	87	1,560	173	114,412	91,688	22,988	412,201	45,712
OS-3	Conference	Occ. Control	82	364	433	347	87	1,560	173	12,917	10,352	2,595	46,539	5,161
OS-4	Lunchroom	Occ. Control	200	410	433	347	87	1,560	173	35,509	28,457	7,135	127,932	14,187
OS-5	Copy Room	Occ. Control	63	94	433	347	87	1,560	173	2,559	2,051	514	9,219	1,022
OS-6	Restroom	Occ. Control	376	129	433	347	87	1,560	173	21,053	16,871	4,230	75,848	8,411
OS-7	Hallway	Occ. Control	228	586	433	347	87	1,560	173	57,877	46,382	11,629	208,517	23,124
OS-8	Highbay	Occ. Control	230	1,256	433	347	87	1,560	173	125,110	100,261	25,138	450,743	49,986
OS-MT-1	MT Small Office	Occ. Control	626	221	433	347	87	1,560	173	59,917	48,017	12,039	215,867	23,939
OS-MT-2	MT Large Office	Occ. Control	275	503	433	347	87	1,560	173	59,917	48,017	12,039	215,867	23,939
OS-MT-3	MT Conference	Occ. Control	44	415	433	347	87	1,560	173	7,989	6,402	1,605	28,782	3,192
OS-MT-4	MT Lunchroom	Occ. Control	39	469	433	347	87	1,560	173	7,989	6,402	1,605	28,782	3,192
OS-MT-5	MT Copy Room	Occ. Control	34	107	433	347	87	1,560	173	1,598	1,280	321	5,756	638
OS-MT-6	MT Restroom	Occ. Control	100	147	433	347	87	1,560	173	6,391	5,122	1,284	23,026	2,554
DLC-1	Small Office	Daylight Control	884	129	433	347	87	1,560	173	49,519	39,684	9,949	178,404	19,785
DLC-2	Large Office	Daylight Control	375	423	433	347	87	1,560	173	68,647	55,013	13,793	247,320	27,427
DLC-3	Conference	Daylight Control	21	364	433	347	87	1,560	173	3,229	2,588	649	11,635	1,290
DLC-4	Lunchroom	Daylight Control	20	410	433	347	87	1,560	173	3,551	2,846	713	12,793	1,419
DLC-8	Highbay	Daylight Control	115	1,256	433	347	87	1,560	173	62,555	50,131	12,569	225,371	24,993
DLC-MT-1	MT Small Office	Daylight Control	250	221	433	347	87	1,560	173	23,967	19,207	4,816	86,347	9,576
DLC-MT-2	MT Large Office	Daylight Control	110	503	433	347	87	1,560	173	23,967	19,207	4,816	86,347	9,576
DLC-MT-3	MT Conference	Daylight Control	11	415	433	347	87	1,560	173	1,997	1,601	401	7,196	798
DLC-MT-4	MT Lunchroom	Daylight Control	4	469	433	347	87	1,560	173	799	640	161	2,878	319

Table 2.13. (contd)

Lighting Control ERO Operating Parameters

			Number of Control Spaces	Watts per Space (Watts)	Operating Schedule					Energy Consumption				
					Summer			Winter		Summer			Winter	
ID	Space Types	ERO Type			On Peak (Hours)	Mid Peak (Hours)	Off Peak (Hours)	Mid Peak (Hours)	Off Peak (Hours)	On-Peak (kWh)	Mid-Peak (kWh)	Off-Peak (kWh)	Mid-Peak (kWh)	Off-Peak (kWh)
OS-1	Small Office	Occupancy Control	1,474	190	345	276	69	1,242	138	96,688	77,485	348,345	19,427	38,631
OS-2	Large Office	Occupancy Control	625	264	368	295	74	1,326	147	60,724	48,663	218,773	12,201	24,261
OS-3	Conference	Occupancy Control	82	29	336	269	68	1,211	134	812	651	2,927	163	325
OS-4	Lunchroom	Occupancy Control	200	82	336	269	68	1,211	134	5,494	4,403	19,794	1,104	2,195
OS-5	Copy Room	Occupancy Control	63	6	336	269	68	1,211	134	128	102	460	26	51
OS-6	Restroom	Occupancy Control	376	48	336	269	68	1,211	134	6,096	4,885	21,962	1,225	2,435
OS-7	Hallway	Occupancy Control	228	134	433	347	87	1,560	173	13,229	10,602	47,661	2,658	5,285
OS-8	Highbay	Occupancy Control	230	289	368	295	74	1,326	147	24,502	19,635	88,273	4,923	9,789
OS-MT-1	MT Small Office	Occupancy Control	1,474	190	345	276	69	1,242	138	96,688	77,485	348,345	19,427	38,631
OS-MT-2	MT Large Office	Occupancy Control	625	264	368	295	74	1,326	147	60,724	48,663	218,773	12,201	24,261
OS-MT-3	MT Conference	Occupancy Control	82	29	336	269	68	1,211	134	812	651	2,927	163	325
OS-MT-4	MT Lunchroom	Occupancy Control	200	82	336	269	68	1,211	134	5,494	4,403	19,794	1,104	2,195
OS-MT-5	MT Copy Room	Occupancy Control	63	6	336	269	68	1,211	134	128	102	460	26	51
OS-MT-6	MT Restroom	Occupancy Control	376	48	336	269	68	1,211	134	6,096	4,885	21,962	1,225	2,435
DLC-1	Small Office	Daylight Control	884	190	217	174	44	780	87	36,433	29,197	131,261	7,320	14,557
DLC-2	Large Office	Daylight Control	375	264	217	174	44	780	87	21,432	17,175	77,214	4,306	8,563
DLC-3	Conference	Daylight Control	21	29	217	174	44	780	87	131	105	471	26	52
DLC-4	Lunchroom	Daylight Control	20	82	217	174	44	780	87	354	284	1,275	71	141
DLC-8	Highbay	Daylight Control	115	289	217	174	44	780	87	7,206	5,775	25,963	1,448	2,879
DLC-MT-1	MT Small Office	Daylight Control	590	190	217	174	44	780	87	24,289	19,465	87,507	4,880	9,704
DLC-MT-2	MT Large Office	Daylight Control	250	264	217	174	44	780	87	14,288	11,450	51,476	2,871	5,709
DLC-MT-3	MT Conference	Daylight Control	21	29	217	174	44	780	87	131	105	471	26	52
DLC-MT-4	MT Lunchroom	Daylight Control	20	82	217	174	44	780	87	354	284	1,275	71	141

Table 2.13. (contd)

Lighting Control ERO Economic Parameters

ID	Existing Annualized O&M Cost	Retrofit Annualized O&M Cost	Number of Control Sensors	Cost per Sensor (1994 $)	Total Sensor Cost (1994 $)	Total Sensor Rebate (1994 $)	Energy Savings (kWh)	Annualized Energy Savings (1994 $)	NPV (1994 $)	SIR
DLC-1b	6,290	2,334	884	68	60,139	15,146	78,572	6,531	135,586	4.01
OS-2b	14,533	7,105	625	72	45,000	9,671	322,379	26,795	554,005	16.68
OS-3b	1,641	90	82	72	5,904	1,771	72,686	6,041	126,608	31.63
OS-4b	4,510	609	200	72	14,400	4,320	180,231	14,980	315,071	32.26
OS-5b	325	14	63	72	4,536	438	14,598	1,213	22,149	6.40
OS-6b	2,674	676	376	72	27,072	2,694	89,811	7,465	138,582	6.68
OS-7b	7,352	1,680	228	72	16,416	4,925	268,094	22,283	469,897	41.89
OS-8b	15,892	2,588	230	72	16,560	4,968	604,115	50,212	1,082,188	94.36
DLC-MT-2b	3,044	915	250	68	17,000	5,100	58,118	4,831	107,946	10.07
OS-MT-3b	1,015	90	82	72	5,904	1,293	43,092	3,582	72,991	16.83
OS-MT-4b	1,015	609	200	72	14,400	449	14,980	1,245	14,477	2.04
OS-MT-5b	203	14	63	72	4,536	265	8,827	734	11,615	3.72
Totals:										
Occ. Sensor	49,159	13,476	2,149		154,728	30,795	1,618,813	134,549	2,807,585	22.65
Daylight Sensor	9,334	3,250	1,134		77,139	20,246	136,690	11,361	243,532	4.28

2.9 Manual Fan, Pump and Compressor Motor EROs

The motor ERO analysis at Fort Irwin considered two primary efficiency options. The first involves the replacement of a single-speed, standard-efficiency motor with a high-efficiency model. The second considers the addition of variable-speed drive (VSD) controls, where applicable.

This analysis addresses the fan, pump and air compressor motors associated with HVAC and compressed air systems, as well as drive motors for water wells and lift stations.

The replacement of currently installed standard efficiency motors with high-efficiency models was evaluated on both a replace-immediately (RI) and replace-on-failure (ROF) basis. A variable-speed drive was considered in any application where reduced pump or fan flow rate is acceptable for a significant fraction of the motor's operating time. There are two possibilities for variable-speed drives: 1) add the VSD to the existing motor, and 2) install a new energy-efficient motor (EEM) with the VSD. This makes a total of three mutually exclusive motor ERO options for the situations where VSDs were considered.

An inventory of motors was developed using the Real Property List (RPL) and from information obtained from site personnel.

2.9.1 Energy-Efficient Motors

Energy-efficient, three-phase motors are manufactured with predominantly open drip proof (ODP) or total enclosed fan cooled (TEFC) enclosures. Motors up to 200 hp can be obtained in either 1200, 1800, or 3600 rpm. They are particularly attractive in duty-cycling applications because they suffer less thermal stress than standard efficient motors due to lower losses overall. There are some applications, however, in which EEMs would not be a good alternative; namely, in situations where high starting torque is needed. This is because EEMs are optimized for low slip operation, which generally results in lower starting torque than for standard efficiency motors. For most HVAC fan and pump applications, the starting torque is not an issue. However, the starting characteristics should be kept in mind in preparing retrofit specifications for such things as the compressor motors.

Description

This ERO considers the replacement of existing single-speed motors by the best currently available energy-efficient models. The majority of motors analyzed in this study fell under the duty-cycling or air-handling applications in which EEMs are clearly a viable option.

Assumptions

The technical assumptions are as follows:

- The motor inventory was developed using the RPL and by information obtained from site personnel. In addition, several motor types that were found during site visits were added to the motor listing. Nameplate data were collected as part of the inspections and is included for these motors.
- Some equipment types with sharply different operating hours were assigned appropriate schedules.
- Existing motors were considered to be sized correctly for current operations. However, significant additional savings can probably be obtained by evaluating the size of each motor in relation to its load at

the time of replacement. It is particularly important to check for fans and pumps that are producing higher flow rates than necessary and pumps that have been throttled with valves or flow regulators.

- Existing, new standard, and new energy efficient motor efficiencies, based on data from *Motor Master* (Washington State Energy Office 1993) for hp >1 and W. W. Grainger (1991) for hp <1, are shown in the following table. Existing motors were assumed to have an average 2% efficiency loss over new standard replacements to account for age and wear.

	Efficiency		
hp	Existing	New Std.	EEM
1/4	0.48	0.50	0.78
1/2	0.53	0.55	0.78
3/4	0.58	0.60	0.80
1	0.805	0.825	0.865
1.5	0.805	0.825	0.865
2	0.805	0.825	0.866
3	0.82	0.84	0.895
5	0.835	0.855	0.902
7.5	0.855	0.875	0.917
10	0.855	0.875	0.917
15	0.865	0.885	0.93
20	0.882	0.902	0.934
25	0.89	0.91	0.941
30	0.89	0.91	0.941
40	0.897	0.917	0.945
50	0.902	0.924	0.95
60	0.905	0.925	0.952
100	0.916	0.936	0.958
125	0.918	0.938	0.96
150	0.921	0.941	0.962
200	0.925	0.945	0.962

Cost estimating data are as follows:

- Maintenance costs for standard and high-efficiency motors are the same.

- Motor costs are based on the energy-efficient ODP motor costs reported in *Motor Master* (Washington State Energy Office 1992) for hp >1, and W. W. Grainger (1991) for hp <1, as shown in the following table. The list price is shown; substantial (~25-50%) discounts should be available for volume purchases. The rebate incentives shown are from Southern California Edison (1992). The rebates cannot exceed 30% of the installed cost of the motor.

Motor Rating (hp)	High Efficiency Motor Cost	Rebate Incentive
1/4	$113	$0
1/2	$133	$15
3/4	$149	$16
1	$381	$14
1.5	$371	$18
2	$442	$20
3	$415	$35
5	$478	$40
7.5	$647	$60
10	$780	$70
15	$1,042	$90
20	$1,268	$120
25	$1,658	$135
30	$1,969	$175
40	$2,574	$200
50	$3,200	$230
60	$3,346	$270
100	$3,933	$320
125	$5,367	$450
150	$6,801	$500
200	$8,592	$550

- The cost of installation labor, based on data from *Electrical Cost Data* (Means 1992b), is given below. The labor cost is double what is reported in Means to account for removal of the existing motor.

Motor Rating (hp)	Installation Cost
≤5	$74
7.5	$81
10	$84
15	$105
20	$129
25	$136
30	$140
40	$169
50	$210
60	$242
100	$371
125	$428
150	$479
200	$582

- Motor life expectancy is 15 years.

Results

Quantitative results of the ERO analysis are presented in Tables 2.14 through 2.22. These tables contain specific energy, cost and economic data for each motor considered for replacement. The results are discussed in general terms below.

Budget Implications. The first cost of all cost-effective energy-efficient motor retrofits is $1,118,902, consisting of the replace-immediately implementations at $761,867 for the equipment costs, $380,497 for

Building Type	Equipment Cost, RI (1994 $)	Labor Cost, RI (1994 $)	Rebate Incentive (1994 $)
ADMIN	24,239	11,174	2,516
BRK/ADM	136,721	86,210	2,256
Chapel	596	296	64
Clinic	2,269	538	204
Club	1,916	1,184	48
DGR	3,113	1,554	335
Dining	3,582	1,924	329
FAM. HSG.	369,736	242,128	0
FUELDSP	298	148	32
Grocery	17,707	2,560	1,550
Hospitl	1,935	384	155
Hotel	2,825	1,850	0
Kitchen	452	296	0
LAB-MED	0	0	0
MTRPOOL	16,048	4,886	1,543
MWR	3,270	1,924	172
Other	149	74	16
PLT-BLDG	1,458	592	147
PUMP-BLG	1,967	401	178
REC	776	222	72
Securty	149	74	16
Shop	4,099	1,535	424
SHOP-ELC	1,043	518	112
SHOP-WPN	149	74	16
STOR-UH	0	0	0
Traing	544	296	47
WHS-CLD	1,322	444	100
WHS	10,596	4,865	1,076
Pump Motors	154,908	14,346	12,054
Totals	761,867	380,497	23,462

the labor costs, and a credit of $23,462 for the rebates. The table on the previous page shows the first costs for the replace immediately options. The RI options were the only ones that turned out to be cost-effective. None of the ROF options were optimal.

Energy, Demand, and Cost Savings. The electric energy savings associated with all cost-effective implementations of this ERO are estimated to be 1,756,678 kWh per year at a cost savings of $104,555 per year. Demand savings are estimated to be 7,017 kW-months per year with a cost savings of $92,073 per year. The total NPV for all cost-effective EEM motor replacements is $1,861,641. The following table details the energy and demand savings, and NPV by building type:

Building Type	Energy Savings (kWh/yr)	Energy Savings (1994 $/yr)	Demand Savings (kW-mo/yr)	Demand Savings (1994 $/yr)	Net Present Value (1994 $)
Admin	57,465	4,810	259	3,047	90,187
BRK/ADM	259,735	18,681	1,143	12,027	220,727
Chapel	1,292	120	6	81	2,320
Clinic	2,825	234	24	207	4,023
Club	7,140	465	27	244	8,022
DGR	8,619	755	42	446	14,920
Dining	9,139	806	47	497	15,215
FAM. HSG.	728,924	44,049	2,934	55,548	892,658
FUELDSP	646	60	3	41	1,160
Grocery	33,029	1,831	133	940	21,760
Hospitl	7,837	408	22	174	7,011
Hotel	11,934	686	39	341	11,259
Kitchen	2,208	125	7	57	2,111
LAB-MED	0	0	0	0	0
MTRPOOL	30,133	2,268	141	1,498	38,073
MWR	11,509	880	42	358	14,413
Other	323	30	2	21	577
PLT-BLDG	3,461	299	16	156	5,138
PUMP-BLG	2,954	184	22	237	4,221
REC	1,453	68	7	118	1,910
Securty	323	20	2	30	585
Shop	7,116	458	42	639	11,644
SHOP-ELC	2,261	142	11	211	4,061
SHOP-WPN	323	20	2	30	580
STOR-UH	0	0	0	0	0
Traing	1,679	81	8	146	2,813
WHS-CLD	5,802	109	14	342	5,452
WHS	21,163	1,324	109	1,932	36,270
Pump Motors	537,385	25,642	1,913	12,705	444,531
Totals	1,756,678	104,555	7,017	92,073	1,861,641

2.9.2 Variable Speed Drives

Variable speed drives (VSD) can be added to HVAC motor applications to reduce energy consumption without compromising system performance. Fans and pumps are sized to meet the maximum load, even though this may occur only a few hours a year. In addition, motors are generally oversized to account for uncertainties in duct, coil and register pressure losses, as well as to provide additional capacity in the event of future remodeling. The VSD varies motor speed to just meet the load, practically eliminating the energy waste that results from oversizing. In fixed-speed applications, the VSD-controlled motor is not as efficient as a correctly sized line-powered motor, but the VSD-controlled motor is often easier to implement because of uncertainty in existing and future conditions.

The VSD offers several other advantages over the line-powered single-speed motor. The VSD provides "soft-starting," ramping up to speed rather than an abrupt step-up to full power. This will decrease wear on the motor, drive train, and fan, as well as allow for instant restart in the event of momentary power interruption. Longer equipment life and lower noise levels will occur due to lower average operating speed.

Description

Single-speed motors larger than 1 hp used in air-handling units, chilled and condenser water pumps, and cooling tower fans have been considered for replacement. Because of their relatively low energy consumption and high per-hp cost, application of VSDs to motors of less than 1 hp is not considered in this analysis.

Assumptions

The technical assumptions are as follows:

- The operation schedules are the same as those for the single-speed motor ERO.
- The highest savings for VSDs in AHUs is achieved when the system is converted to variable air volume (VAV). The VSD will save approximately 71% of the existing constant volume fan motor energy, and 58% of existing inlet vane VAV motor energy (Moses et al. 1989). These are general estimates, since individual motor load profile data are required to fully analyze the savings for each VSD application.
- Chilled water pumps were considered to be directly related to the air-handling units and therefore have similar percentage savings.
- Blast heaters, condenser water pumps, and cooling tower fans with VSDs were assumed to use 50% less energy than the existing conditions.
- Power ventilators with VSDs were also assumed to have 50% savings.

Cost estimating parameters are as follows:

- VSD controller costs (installed) are shown in the following table. VSD costs were obtained from several manufacturers. These costs are approximate for a wide range of sizes and system types; actual costs may be higher or lower depending on individual circumstances.

Motor Rating, hp	VSD Cost ($)
1	1,061
2	1,188
3	1,368
5	1,368
7.5	1,600
10	2,168
15	2,769
20	3,481
25	4,420
30	4,645
40	7,150
50	6,985
60	8,690
100	12,980
125	13,240
150	13,890
200	15,180

- Additional costs for individual motor types are given in the following table:

Motor Type	Additional Cost	Description
AH and chilled water pumps	$2400/hp for AH $600/hp for pump	For motors requiring CV to VAV retrofit.
Blast heater	$200 each	Proportional thermostat.
Condenser water pump and cooling tower fans	$100 each	Proportional aquastat.

- VSD life expectancy is 15 years.

Results

Quantitative results of the ERO analysis are presented in Tables 2.23 and 2.24. These tables contain specific energy, cost and economic data for each motor considered for replacement. Summary results of the VSD ERO analysis are presented in the tables below. All motors larger than 1 hp that were considered for VSD retrofit are included. There were three options analyzed in each case: installing a new energy-efficient motor (EEM), adding a VSD to the existing motor, and installing an EEM with a VSD. Only the EEM option and the EEM and VSD proved to be cost-effective. None of the options of VSD to the existing motor was optimal.

Budget Implications. The first cost of the VSD and EEM EROs is $224,363, and the EEM motor measures cost is $30,546, for a total cost of $255,149. There will be an additional annual maintenance cost for the VSD and EEM option due to the added controls of $240. There is a $5,993 rebate incentive for the fan motor VSD and EEM option, and $1,371 for the pump motors. The following table shows the first cost for both VSD options by motor type:

Motor Type	Equipment Cost, EEM (1994 $)	Labor Cost, EEM (1994 $)	Equipment Cost, VSD & EEM (1994 $)	Labor Cost, VSD & EEM (1994 $)
Fan Motors	18,903	2,926	166,043	827
Pump Motors	7,844	873	55,965	1,528
Totals:	26,747	3,799	222,008	2,355

Energy, Demand, and Cost Savings. The electric energy savings associated with all cost-effective implementations of this ERO are estimated to be 532,724 kWh per year at a cost savings of $35,831 per year. The demand savings are estimated to be 325 kW-months per year at a cost savings of $2,780 per year. The total NPV for all cost-effective implementations is $318,423. The following table details the energy and demand savings by motor type:

Motor Type	Energy Savings (kWh/yr)	Energy Savings (1994$/yr)	Demand Savings (kW-mo/yr)	Demand Savings (1994$/yr)	Net Present Value (1994 $)
Fan Motors (EEM)	23,961	1,702	121	891	16,406
Fan Motors (VSD & EEM)	397,613	23,632	76	499	183,591
Pump Motors (EEM)	5,165	423	51	528	5,324
Pump Motor (VSD & EEM)	105,985	10,074	77	862	113,102
Totals:	532,724	35,831	325	2,780	318,423

Operations and Maintenance. Additional maintenance associated with this ERO is small but not negligible. Controls for the replacement VSDs will have a finite failure rate that is reflected in the estimated maintenance costs.

2.9.3 Downsized Energy Efficient Motor ERO (discussion only)

Description

Motors become oversized as a cumulative result of successive safety factors used in the design process. Safety factors are used to account for performance loss over time, scale build-up in pipes, duct obstructions, design uncertainties, or to allow for possible future expansion. In the initial design of a building it is routine to size the system, add 20% safety factor, then round up to the nearest standard motor size. It has been estimated that one-fifth of all motors over 5 horsepower (hp) installed in U.S. buildings are more than 250% oversized (Nadel et al. 1991). Motors are considered oversized when the majority of the operating time is spent at or below 40% of the nameplate rating.

Motor efficiency drops off sharply below about 40% of rated nameplate, as much as 2-8% less efficient than at 50% of rated load. Power factor also drops steadily with load. Thus, an oversized motor will run at low efficiency and power factor, increasing energy costs and requiring costly power factor correction or utility charges for reactive current. For this reason, it is recommended that when replacing motors (on failure of the existing motor, or when upgrading to energy efficient motors) studies be undertaken to determine the correct size for the motor system. Efficiency peaks at about 75% for EEMs and about 100% for standard efficiency motors. While it is unrealistic to size a motor for exactly 100% of the load, an attempt should be made to size the motor so the majority of the operating time is spent within 50-75% of the rated nameplate to ensure the highest performance and efficiency.

Results

Detailed analysis of this ERO was not performed due to lack of required data. In order to make decisions regarding downsizing existing motors, detailed information as to motor size, operating time, and existing load are required. This information will need to be collected on an individual motor basis. Size is found on the motor nameplate, operating time can be estimated based on the motor application (or spot metered for a few days), and the load currently on the motor can be measured using an electric power demand analyzer, such as the Dranetz Technologies Series 808.

Only those motors that operate at or less than 40% of rated nameplate should be considered, and then only a subset of those will cost-effective depending on annual operating hours and size. As stated above, improving a motor from 40-50% of rated capacity can increase efficiency by up to 8%. Even larger gains are possible for grossly oversized motors. This efficiency improvement can be added to the savings from switching from standard efficiency motors to EEMs as discussed in Section 2.9.1 above.

2.9.4 Properly Sized Pumps (discussion only)

It has been estimated that 22 billion kWh of energy are used annually in pump shaft power consumption in the national defense area. This represents roughly 4% of the U.S. total (U.S. Department of Energy February 1980). The differences in pump efficiency from one unit to the next can range from 20-40%. Determining the optimal size and characteristics of replacement pumps can result in some dramatic savings, not only for the facility, but for the nation as a whole.

Centrifugal pumps operate along a curve on a head-capacity diagram for a given shaft speed. Depending on the characteristics of the load associated with the pump, the pump will operate at one point on the curve. If the pump is not sized properly, pump operation will not be near the design point and low efficiencies will result.

Various pumps were recorded during the audit of Fort Irwin. A case study of several different pumps is provided below to illustrate the possible savings available by replacing pumps with the correctly sized unit for the particular application. To conduct a thorough analysis of the pump-associated energy savings potential at Fort Irwin would require more detailed information on a case-by-case basis.

Case Study

There are various methods available to analyze pump information and ascertain the overall operating characteristics. Pump catalogs can be consulted for the appropriate pump curve, or a software package associated with pump-related information could be used. For this analysis, a software tool called PUMP-FLO (Engineered Software, Inc. 1986-1993) was used.

PUMP-FLO is a software package that can upload various manufacturers pump catalogs on computer disk. To use the program, the design point information is input (gallons per minute and feet of head). Various catalogs are then uploaded into the program to ascertain specifics about a particular pump. PUMP-FLO will give details such as the type, size, speed, impeller size, efficiency, and net positive suction head (inlet head required above the vapor pressure) about many different pumps available for that particular application. An individual can then make an informed decision about which pump to choose. To illustrate the procedure and the possible savings, two examples are given below.

During the audit of Fort Irwin, various pumps and their characteristics were noted. One example is a chilled water pump, the details of which are as follows: 80 gpm; 60 ft of head; 9.25" impeller; 1750 rpm. This pump is about 43% efficient running at 1,750 rpm. However, a search of the PUMP-FLO database shows that a 58%-efficient pump is available with a 8.25" impeller. Thus, a 13% efficiency improvement could be gained by replacing this pump. Furthermore, in this example, the 58%-efficient pump may not be any more expensive (it could even be cheaper) than the 43%-efficient pump.

In one of the PUMP-BLDG units, 690 gpm was being pumped with 90 ft of head. PUMP-FLO shows a range of efficiencies for pumps meeting these criteria from 58-82%. This is a range of 24%. Therefore, choosing the proper pump to replace this unit would have positive economic benefits over the entire life-cycle.

Generally speaking, pump prices are independent of the efficiency within a given category. Therefore, when replacing pumps, it is recommended that various pump catalogs be consulted to determine the optimal pump curve for an application. Having various pump catalogs linked into a pump software package which allows an individual to quickly choose an optimal unit is a valuable tool. By choosing the correct pump, rather large efficiency improvements can be gained. Software such as PUMP-FLO has shown there to be as much 20-40% difference between the least and most efficient pumps that will meet the particular needs of an application.

2.9.5 Rewind Existing Motors (discussion only)

Description

Most motors fail because the bearings go out or the windings fail, usually because of insulation degradation, overheating, aging, and overvoltage conditions. When bearings or windings are the failing component, the old windings may be stripped and replaced with new wire. Generally, this is done on motors over 10 hp. However, there are various other considerations (Nadel et al. 1991). The greatest concern is that the motor is usually not as efficient after the rewind (1-5% less efficient). Often, there are other hidden problems that are not found during the rewind process. Therefore, this option was not analyzed. Properly sizing a new premium efficiency motor or switching to a premium efficiency motor with a VSD, if applicable, should be considered.

Table 2.14. Administration Building Energy Efficient Motor EROs

Existing ADMIN Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-1	ADMIN	00988	air comp	1	1.5	80.5%	523	352	1,205	0	0	12	364	245	838	0	0	6	11
MTR-100	ADMIN	00157	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-101	ADMIN	00157	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-102	ADMIN	00236	Evap clr	3	1	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-103	ADMIN	00237	Evap. clr	8	0.75	58.0%	522	332	363	0	0	6	4,028	2,562	2,805	0	0	31	15
MTR-104	ADMIN	00237	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-105	ADMIN	00241	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-106	ADMIN	00248	Evap. clr	3	2	80.5%	522	332	363	0	0	6	2,902	1,846	2,021	0	0	22	11
MTR-107	ADMIN	00256	Evap. clr	5	1	80.5%	522	332	363	0	0	6	2,419	1,538	1,684	0	0	19	9
MTR-108	ADMIN	00257	Evap. clr	5	1	80.5%	522	332	363	0	0	6	2,419	1,538	1,684	0	0	19	9
MTR-109	ADMIN	00279	Evap. clr	5	2	80.5%	522	332	363	0	0	6	4,837	3,077	3,368	0	0	37	19
MTR-110	ADMIN	00281	Evap. clr	1	2	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-111	ADMIN	00281	Evap. clr	1	5	84.5%	522	332	363	0	0	6	2,304	1,466	1,604	0	0	18	9
MTR-112	ADMIN	00320	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-113	ADMIN	00372	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-114	ADMIN	00372	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-115	ADMIN	00372	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-116	ADMIN	00408	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-117	ADMIN	00411	Evap. clr	2	1.5	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-118	ADMIN	00415	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-119	ADMIN	00425	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-120	ADMIN	00426	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-121	ADMIN	00428	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-122	ADMIN	00429	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-123	ADMIN	00433	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-124	ADMIN	00436	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-125	ADMIN	00437	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-126	ADMIN	00437	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-127	ADMIN	00439	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-128	ADMIN	00441	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-129	ADMIN	00442	Evap. clr	2	1.5	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-130	ADMIN	00443	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-131	ADMIN	00443	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-132	ADMIN	00444	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-133	ADMIN	00445	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-134	ADMIN	00451	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-135	ADMIN	00452	Evap. clr	6	0.75	58.0%	522	332	363	0	0	6	3,021	1,922	2,104	0	0	23	12
MTR-136	ADMIN	00452	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-137	ADMIN	00453	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-138	ADMIN	00454	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-139	ADMIN	00458	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-140	ADMIN	00458	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-141	ADMIN	00464	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4

Table 2.14. (contd)

Existing ADMIN Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-142	ADMIN	00464	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-143	ADMIN	00466	Evap. clr	2	1	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-144	ADMIN	00479	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-145	ADMIN	00483	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-146	ADMIN	00497	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-147	ADMIN	00498	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-148	ADMIN	00499	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-149	ADMIN	00504	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-150	ADMIN	00504	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-151	ADMIN	00508	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-152	ADMIN	00510	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-153	ADMIN	00513	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-154	ADMIN	00520	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-155	ADMIN	00521	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-156	ADMIN	00524	Evap. clr	6	0.75	58.0%	522	332	363	0	0	6	3,021	1,922	2,104	0	0	23	12
MTR-157	ADMIN	00526	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-158	ADMIN	00527	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-159	ADMIN	00528	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-160	ADMIN	00528	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-161	ADMIN	00529	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-162	ADMIN	00539	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-163	ADMIN	00543	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-164	ADMIN	00543	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-165	ADMIN	00544	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-166	ADMIN	00544	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-167	ADMIN	00549	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-168	ADMIN	00551	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-169	ADMIN	00554	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-170	ADMIN	00564	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-171	ADMIN	00570	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-172	ADMIN	00578	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-173	ADMIN	00579	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-174	ADMIN	00580	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-175	ADMIN	00583	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-176	ADMIN	00604	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-177	ADMIN	00604	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-178	ADMIN	00813	Evap. clr	2	1	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-179	ADMIN	00930	Evap. clr	3	1.5	80.5%	522	332	363	0	0	6	2,177	1,385	1,516	0	0	17	8
MTR-180	ADMIN	00930	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-181	ADMIN	00988	Evap. clr	1	0.5	53.0%	522	332	363	0	0	6	367	234	256	0	0	3	1
MTR-182	ADMIN	00988	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-183	ADMIN	00988	Evap. clr	1	0.5	53.0%	522	332	363	0	0	6	367	234	256	0	0	3	1
MTR-184	ADMIN	00988	Evap. clr	2	0.5	53.0%	522	332	363	0	0	6	735	467	512	0	0	6	3

Table 2.14. (contd)

Existing ADMIN Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-185	ADMIN	06201	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-186	ADMIN	06201	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-187	ADMIN	07600	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-38	ADMIN	00985	cond	1	0.75	58.0%	0	0	1,215	0	2,846	12	0	0	586	0	995	4	8
MTR-39	ADMIN	00985	cond	2	0.75	58.0%	0	0	1,215	0	2,846	12	0	0	1,172	0	1,990	8	15
MTR-419	ADMIN	00433	EFU	1	0.25	48.0%	523	349	1,560	0	0	12	203	136	606	0	0	2	3
MTR-420	ADMIN	00439	EFU	1	0.25	48.0%	523	349	1,560	0	0	12	203	136	606	0	0	2	3
MTR-424	ADMIN	00988	RTU	1	0.5	53.0%	522	332	363	0	0	12	367	234	256	0	0	3	6
MTR-428	ADMIN	00988	cmptr, flr units	5	3	82.0%	523	786	2,254	1,619	3,578	12	7,137	10,726	30,759	22,093	44,735	55	109
MTR-431	ADMIN	00988	RTU	6	0.5	53.0%	522	332	363	0	0	12	2,204	1,402	1,535	0	0	17	34
MTR-98	ADMIN	00101	Evap. clr	6	0.75	58.0%	522	332	363	0	0	6	3,021	1,922	2,104	0	0	23	12
MTR-99	ADMIN	00152	Evap. clr	1	5	83.5%	522	332	363	0	0	6	2,332	1,483	1,624	0	0	18	9

Table 2.14. (contd)

Energy-Efficient ADMIN Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-1	EEM	ADMIN	00988	air comp	1	1.5	86.5%	523	352	1,205	0	0	338	228	779	0	0	5.2	10.3
MTR-100	EEM	ADMIN	00157	Evap. clr	1	1	86.5%	522	332	363	0	0	450	286	313	0	0	3.4	1.7
MTR-101	EEM	ADMIN	00157	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-102	EEM	ADMIN	00236	Evap. clr	3	1	86.5%	522	332	363	0	0	1,351	859	940	0	0	10.3	5.2
MTR-103	EEM	ADMIN	00237	Evap. clr	8	0.75	80.0%	522	332	363	0	0	2,921	1,858	2,034	0	0	22.4	11.2
MTR-104	EEM	ADMIN	00237	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-105	EEM	ADMIN	00241	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-106	EEM	ADMIN	00248	Evap. clr	3	2	86.6%	522	332	363	0	0	2,698	1,716	1,879	0	0	20.7	10.3
MTR-107	EEM	ADMIN	00256	Evap. clr	5	1	86.5%	522	332	363	0	0	2,251	1,432	1,567	0	0	17.2	8.6
MTR-108	EEM	ADMIN	00257	Evap. clr	5	1	86.5%	522	332	363	0	0	2,251	1,432	1,567	0	0	17.2	8.6
MTR-109	EEM	ADMIN	00279	Evap. clr	5	2	86.6%	522	332	363	0	0	4,497	2,860	3,131	0	0	34.5	17.2
MTR-110	EEM	ADMIN	00281	Evap. clr	1	2	86.6%	522	332	363	0	0	899	572	626	0	0	6.9	3.4
MTR-111	EEM	ADMIN	00281	Evap. clr	1	5	90.2%	522	332	363	0	0	2,159	1,373	1,503	0	0	16.5	8.3
MTR-112	EEM	ADMIN	00320	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-113	EEM	ADMIN	00372	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-114	EEM	ADMIN	00372	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-115	EEM	ADMIN	00372	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-116	EEM	ADMIN	00408	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-117	EEM	ADMIN	00411	Evap. clr	2	1.5	86.5%	522	332	363	0	0	1,351	859	940	0	0	10.3	5.2
MTR-118	EEM	ADMIN	00415	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-119	EEM	ADMIN	00425	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-120	EEM	ADMIN	00426	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-121	EEM	ADMIN	00428	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-122	EEM	ADMIN	00429	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-123	EEM	ADMIN	00433	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-124	EEM	ADMIN	00436	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-125	EEM	ADMIN	00437	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-126	EEM	ADMIN	00437	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-127	EEM	ADMIN	00439	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-128	EEM	ADMIN	00441	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-129	EEM	ADMIN	00442	Evap. clr	2	1.5	86.5%	522	332	363	0	0	1,351	859	940	0	0	10.3	5.2
MTR-130	EEM	ADMIN	00443	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-131	EEM	ADMIN	00443	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-132	EEM	ADMIN	00444	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-133	EEM	ADMIN	00445	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-134	EEM	ADMIN	00451	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-135	EEM	ADMIN	00452	Evap. clr	6	0.75	80.0%	522	332	363	0	0	2,190	1,393	1,525	0	0	16.8	8.4
MTR-136	EEM	ADMIN	00452	Evap. clr	1	1	86.5%	522	332	363	0	0	450	286	313	0	0	3.4	1.7
MTR-137	EEM	ADMIN	00453	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-138	EEM	ADMIN	00454	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-139	EEM	ADMIN	00458	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-140	EEM	ADMIN	00458	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-141	EEM	ADMIN	00464	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8

Table 2.14. (contd)

Energy-Efficient ADMIN Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-142	EEM	ADMIN	00464	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-143	EEM	ADMIN	00466	Evap. clr	2	1	86.5%	522	332	363	0	0	900	573	627	0	0	6.9	3.4
MTR-144	EEM	ADMIN	00479	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-145	EEM	ADMIN	00483	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-146	EEM	ADMIN	00497	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-147	EEM	ADMIN	00498	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-148	EEM	ADMIN	00499	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-149	EEM	ADMIN	00504	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-150	EEM	ADMIN	00504	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-151	EEM	ADMIN	00508	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-152	EEM	ADMIN	00510	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-153	EEM	ADMIN	00513	Evap. clr	4	0.75	80.0%	522	332	363	0	0	1,460	929	1,017	0	0	11.2	5.6
MTR-154	EEM	ADMIN	00520	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-155	EEM	ADMIN	00521	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-156	EEM	ADMIN	00524	Evap. clr	6	0.75	80.0%	522	332	363	0	0	2,190	1,393	1,525	0	0	16.8	8.4
MTR-157	EEM	ADMIN	00526	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-158	EEM	ADMIN	00527	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-159	EEM	ADMIN	00528	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-160	EEM	ADMIN	00528	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-161	EEM	ADMIN	00529	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-162	EEM	ADMIN	00539	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-163	EEM	ADMIN	00543	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-164	EEM	ADMIN	00543	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-165	EEM	ADMIN	00544	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-166	EEM	ADMIN	00544	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-167	EEM	ADMIN	00549	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-168	EEM	ADMIN	00551	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-169	EEM	ADMIN	00554	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-170	EEM	ADMIN	00564	Evap. clr	3	0.75	80.0%	522	332	363	0	0	1,095	697	763	0	0	8.4	4.2
MTR-171	EEM	ADMIN	00570	Evap. clr	4	0.75	80.0%	522	332	363	0	0	1,460	929	1,017	0	0	11.2	5.6
MTR-172	EEM	ADMIN	00578	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-173	EEM	ADMIN	00579	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-174	EEM	ADMIN	00580	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-175	EEM	ADMIN	00583	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-176	EEM	ADMIN	00604	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-177	EEM	ADMIN	00604	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-178	EEM	ADMIN	00813	Evap. clr	2	1	86.5%	522	332	363	0	0	900	573	627	0	0	6.9	3.4
MTR-179	EEM	ADMIN	00930	Evap. clr	3	1.5	86.5%	522	332	363	0	0	2,026	1,288	1,411	0	0	15.5	7.8
MTR-180	EEM	ADMIN	00930	Evap. clr	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5.2	2.6
MTR-181	EEM	ADMIN	00988	Evap. clr	1	0.5	78.0%	522	332	363	0	0	250	159	174	0	0	1.9	1.0
MTR-182	EEM	ADMIN	00988	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-183	EEM	ADMIN	00988	Evap. clr	1	0.5	78.0%	522	332	363	0	0	250	159	174	0	0	1.9	1.0
MTR-184	EEM	ADMIN	00988	Evap. clr	2	0.5	78.0%	522	332	363	0	0	499	318	348	0	0	3.8	1.9

Table 2.14. (contd)

Energy-Efficient ADMIN Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-185	EEM	ADMIN	06201	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-186	EEM	ADMIN	06201	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-187	EEM	ADMIN	07600	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-38	EEM	ADMIN	00985	cond	1	0.75	80.0%	0	0	1,215	0	2,846	0	0	425	0	995	2.8	5.6
MTR-39	EEM	ADMIN	00985	cond	2	0.75	80.0%	0	0	1,215	0	2,846	0	0	850	0	1,990	5.6	11.2
MTR-419	EEM	ADMIN	00433	EFU	1	0.25	78.0%	523	349	1,560	0	0	125	83	373	0	0	1.0	1.9
MTR-420	EEM	ADMIN	00439	EFU	1	0.25	78.0%	523	349	1,560	0	0	125	83	373	0	0	1.0	1.9
MTR-424	EEM	ADMIN	00988	RTU	1	0.5	78.0%	522	332	363	0	0	250	159	174	0	0	1.9	3.8
MTR-428	EEM	ADMIN	00988	cmptr, flr units	5	3	89.5%	523	786	2,254	1,619	3,578	6,539	9,827	28,181	20,242	44,735	50.0	100.0
MTR-431	EEM	ADMIN	00988	RTU	6	0.5	78.0%	522	332	363	0	0	1,498	953	1,043	0	0	11.5	23.0
MTR-98	EEM	ADMIN	00101	Evap. clr	6	0.75	80.0%	522	332	363	0	0	2,190	1,393	1,525	0	0	16.8	8.4
MTR-99	EEM	ADMIN	00152	Evap. clr	1	5	90.2%	522	332	363	0	0	2,159	1,373	1,503	0	0	16.5	8.3

Table 2.14. (contd)

Energy-Efficient ADMIN Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-101	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-103	RI	EEM	1,192	592	128	0	15	2,584	13	238	160	398	4,669	3.82
MTR-104	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-105	RI	EEM	447	222	48	0	15	969	5	89	60	149	1,751	3.82
MTR-111	RI	EEM	478	74	40	0	15	340	2	26	18	44	50	1.10
MTR-112	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-113	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-114	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-115	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-116	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3 80
MTR-118	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-119	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-120	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-121	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-123	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-124	RI	EEM	447	222	48	0	15	969	5	89	60	148	1,756	3.83
MTR-125	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-127	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-128	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3.83
MTR-130	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-131	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-132	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3.83
MTR-133	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-135	RI	EEM	894	444	96	0	15	1,938	10	181	122	302	3,481	3.80
MTR-137	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-138	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-139	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-140	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-141	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-142	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-144	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-145	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-146	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-147	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-148	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3 83
MTR-149	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-150	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3.83
MTR-151	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-152	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3 80
MTR-153	RI	EEM	596	296	64	0	15	1,292	6	120	81	202	2,320	3.80
MTR-154	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-155	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-156	RI	EEM	894	444	96	0	15	1,938	10	177	120	297	3,513	3.83

Table 2.14. (contd)

Energy-Efficient ADMIN Fan Motor Economic Parameters

ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Annual Energy and Demand Savings					Life Cycle Cost	
								Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-157	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-158	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-159	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-160	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-161	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-162	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-163	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-164	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-165	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-166	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3.83
MTR-169	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-170	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-171	RI	EEM	596	296	64	0	15	1,292	6	120	81	202	2,320	3.80
MTR-172	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-173	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-174	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-175	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-176	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-177	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-181	RI	EEM	133	74	15	0	15	275	1	26	17	43	475	3.47
MTR-182	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-183	RI	EEM	133	74	15	0	15	275	1	25	17	42	499	3.60
MTR-184	RI	EEM	266	148	30	0	15	549	3	51	35	86	950	3.47
MTR-185	RI	EEM	298	148	32	0	15	646	3	61	41	102	1,154	3.79
MTR-186	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-187	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-38	RI	EEM	149	74	16	0	15	539	3	27	25	52	605	3.92
MTR-39	RI	EEM	298	148	32	0	15	1,077	6	54	50	104	1,211	3.92
MTR-419	RI	EEM	113	74	0	0	15	363	2	30	14	45	514	3.75
MTR-420	RI	EEM	113	74	0	0	15	363	2	30	14	45	514	3.75
MTR-424	RI	EEM	133	74	15	0	15	275	3	26	21	47	544	3.83
MTR-428	RI	EEM	2,075	370	175	0	15	10,017	14	491	96	586	6,930	4.05
MTR-431	RI	EEM	798	444	90	0	15	1,648	16	154	128	283	3,265	3.83
MTR-98	RI	EEM	894	444	96	0	15	1,938	10	183	123	306	3,462	3.79
MTR-99	RI	EEM	478	74	40	0	15	404	2	33	22	55	232	1.45
Totals:			24,239	11,174	2,516	0		57,465	259	4,810	3,047	7,857	90,187	3.74

Table 2.15. Barracks Building Energy Efficient Motor EROs

Existing BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-188	BRK/ADM	00014	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-189	BRK/ADM	00098	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-190	BRK/ADM	00102	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-191	BRK/ADM	00103	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-192	BRK/ADM	00104	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-193	BRK/ADM	00249	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-194	BRK/ADM	00249	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-195	BRK/ADM	00250	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-196	BRK/ADM	00250	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-197	BRK/ADM	00251	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-198	BRK/ADM	00251	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-199	BRK/ADM	00252	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-200	BRK/ADM	00252	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-201	BRK/ADM	00261	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-202	BRK/ADM	00261	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-203	BRK/ADM	00262	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-204	BRK/ADM	00262	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-205	BRK/ADM	00264	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-206	BRK/ADM	00264	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-207	BRK/ADM	00265	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-208	BRK/ADM	00265	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-209	BRK/ADM	00267	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-210	BRK/ADM	00267	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-211	BRK/ADM	00412	Evap. clr	22	0.75	58.0%	522	747	525	0	0	6	11,078	15,853	11,142	0	0	85	42
MTR-212	BRK/ADM	00413	Evap. clr	4	0.75	58.0%	522	747	525	0	0	6	2,014	2,882	2,026	0	0	15	8
MTR-213	BRK/ADM	00414	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-214	BRK/ADM	00416	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-215	BRK/ADM	00417	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-216	BRK/ADM	00418	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-217	BRK/ADM	00419	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-218	BRK/ADM	00420	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-219	BRK/ADM	00421	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-220	BRK/ADM	00422	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-221	BRK/ADM	00423	Evap. clr	4	1.5	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-222	BRK/ADM	00434	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-223	BRK/ADM	00440	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-224	BRK/ADM	00448	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-225	BRK/ADM	00487	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-226	BRK/ADM	00489	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-227	BRK/ADM	00491	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-228	BRK/ADM	00493	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-229	BRK/ADM	00494	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-230	BRK/ADM	00511	Evap. clr	5	0.75	58.0%	522	747	525	0	0	6	2,518	3,603	2,532	0	0	19	10

Table 2.15. (contd)

Existing BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-231	BRK/ADM	00512	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-232	BRK/ADM	00514	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-233	BRK/ADM	00516	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-234	BRK/ADM	00518	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-235	BRK/ADM	00519	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-236	BRK/ADM	00523	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-237	BRK/ADM	00530	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-238	BRK/ADM	00534	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-239	BRK/ADM	00540	Evap. clr	6	0.75	58.0%	522	747	525	0	0	6	3,021	4,324	3,039	0	0	23	12
MTR-487	BRK/ADM	00105	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-488	BRK/ADM	00106	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-489	BRK/ADM	00107	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-490	BRK/ADM	00108	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-491	BRK/ADM	00110	FCU	20	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	4,721	420	6,805	0	47
MTR-492	BRK/ADM	00111	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-493	BRK/ADM	00249	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-494	BRK/ADM	00249	FCU	29	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	6,845	608	9,867	0	68
MTR-495	BRK/ADM	00249	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-496	BRK/ADM	00249	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-497	BRK/ADM	00249	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-498	BRK/ADM	00249	FCU	4	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	944	84	1,361	0	9
MTR-499	BRK/ADM	00249	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-500	BRK/ADM	00250	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-501	BRK/ADM	00250	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-502	BRK/ADM	00250	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-503	BRK/ADM	00250	FCU	29	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	6,845	608	9,867	0	68
MTR-504	BRK/ADM	00250	FCU	4	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	944	84	1,361	0	9
MTR-505	BRK/ADM	00250	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-506	BRK/ADM	00250	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-507	BRK/ADM	00251	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-508	BRK/ADM	00251	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-509	BRK/ADM	00251	FCU	29	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	6,845	608	9,867	0	68
MTR-510	BRK/ADM	00251	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-511	BRK/ADM	00251	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-512	BRK/ADM	00251	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-513	BRK/ADM	00251	FCU	4	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	944	84	1,361	0	9
MTR-514	BRK/ADM	00252	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-515	BRK/ADM	00252	FCU	16	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	3,777	336	5,444	0	37
MTR-516	BRK/ADM	00252	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-517	BRK/ADM	00252	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-518	BRK/ADM	00252	FCU	29	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	6,845	608	9,867	0	68
MTR-519	BRK/ADM	00252	FCU	1	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	236	21	340	0	2
MTR-520	BRK/ADM	00252	FCU	4	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	944	84	1,361	0	9

Table 2.15. (contd)

Existing BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-56	BRK/ADM	00105	FCU	16	0.25	48.0%	522	747	525	0	0	6	1,623	2,322	1,632	0	0	25	12
MTR-57	BRK/ADM	00106	FCU	16	0.25	48.0%	522	747	525	0	0	6	1,623	2,322	1,632	0	0	25	12
MTR-58	BRK/ADM	00107	FCU	16	0.25	48.0%	522	747	525	0	0	6	1,623	2,322	1,632	0	0	25	12
MTR-59	BRK/ADM	00108	FCU	16	0.25	48.0%	522	747	525	0	0	6	1,623	2,322	1,632	0	0	25	12
MTR-60	BRK/ADM	00110	FCU	20	0.25	48.0%	522	747	525	0	0	6	2,028	2,902	2,040	0	0	31	16
MTR-61	BRK/ADM	00111	FCU	16	0.25	48.0%	522	747	525	0	0	6	1,623	2,322	1,632	0	0	25	12
MTR-62	BRK/ADM	00226	FCU	75	0.25	48.0%	522	747	525	0	0	6	7,606	10,884	7,649	0	0	117	58
MTR-63	BRK/ADM	00226	FCU	7	0.25	48.0%	522	747	525	0	0	6	710	1,016	714	0	0	11	5
MTR-64	BRK/ADM	00226	AHU	2	0.25	48.0%	522	747	525	0	0	6	203	290	204	0	0	3	2
MTR-65	BRK/ADM	00261	FCU	71	0.25	48.0%	522	747	525	0	0	6	7,200	10,304	7,241	0	0	110	55
MTR-66	BRK/ADM	00261	AHU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1
MTR-67	BRK/ADM	00262	FCU	71	0.25	48.0%	522	747	525	0	0	6	7,200	10,304	7,241	0	0	110	55
MTR-68	BRK/ADM	00262	FCU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1
MTR-69	BRK/ADM	00264	AHU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1
MTR-70	BRK/ADM	00264	FCU	71	0.25	48.0%	522	747	525	0	0	6	7,200	10,304	7,241	0	0	110	55
MTR-71	BRK/ADM	00265	FCU	71	0.25	48.0%	522	747	525	0	0	6	7,200	10,304	7,241	0	0	110	55
MTR-72	BRK/ADM	00265	AHU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1
MTR-73	BRK/ADM	00267	FCU	71	0.25	48.0%	522	747	525	0	0	6	7,200	10,304	7,241	0	0	110	55
MTR-74	BRK/ADM	00267	AHU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1
MTR-75	BRK/ADM	00273	FCU	7	0.25	48.0%	522	747	525	0	0	6	710	1,016	714	0	0	11	5
MTR-76	BRK/ADM	00273	AHU	2	0.25	48.0%	522	747	525	0	0	6	203	290	204	0	0	3	2
MTR-77	BRK/ADM	00273	FCU	75	0.25	48.0%	522	747	525	0	0	6	7,606	10,884	7,649	0	0	117	58
MTR-78	BRK/ADM	00275	FCU	75	0.25	48.0%	522	747	525	0	0	6	7,606	10,884	7,649	0	0	117	58
MTR-79	BRK/ADM	00275	FCU	7	0.25	48.0%	522	747	525	0	0	6	710	1,016	714	0	0	11	5
MTR-80	BRK/ADM	00275	AHU	2	0.25	48.0%	522	747	525	0	0	6	203	290	204	0	0	3	2

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-188	EEM	BRK/ADM	00014	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-189	EEM	BRK/ADM	00098	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-190	EEM	BRK/ADM	00102	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-191	EEM	BRK/ADM	00103	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-192	EEM	BRK/ADM	00104	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-193	EEM	BRK/ADM	00249	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-194	EEM	BRK/ADM	00249	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-195	EEM	BRK/ADM	00250	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-196	EEM	BRK/ADM	00250	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-197	EEM	BRK/ADM	00251	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-198	EEM	BRK/ADM	00251	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-199	EEM	BRK/ADM	00252	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-200	EEM	BRK/ADM	00252	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-201	EEM	BRK/ADM	00261	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-202	EEM	BRK/ADM	00261	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-203	EEM	BRK/ADM	00262	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-204	EEM	BRK/ADM	00262	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-205	EEM	BRK/ADM	00264	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-206	EEM	BRK/ADM	00264	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-207	EEM	BRK/ADM	00265	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-208	EEM	BRK/ADM	00265	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-209	EEM	BRK/ADM	00267	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-210	EEM	BRK/ADM	00267	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-211	EEM	BRK/ADM	00412	Evap. clr	22	0.75	80.0%	522	747	525	0	0	8,032	11,494	8,078	0	0	61.5	30.8
MTR-212	EEM	BRK/ADM	00413	Evap. clr	4	0.75	80.0%	522	747	525	0	0	1,460	2,090	1,469	0	0	11.2	5.6
MTR-213	EEM	BRK/ADM	00414	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-214	EEM	BRK/ADM	00416	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-215	EEM	BRK/ADM	00417	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-216	EEM	BRK/ADM	00418	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-217	EEM	BRK/ADM	00419	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-218	EEM	BRK/ADM	00420	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-219	EEM	BRK/ADM	00421	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-220	EEM	BRK/ADM	00422	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-221	EEM	BRK/ADM	00423	Evap. clr	4	1.5	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-222	EEM	BRK/ADM	00434	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-223	EEM	BRK/ADM	00440	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-224	EEM	BRK/ADM	00448	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-225	EEM	BRK/ADM	00487	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-226	EEM	BRK/ADM	00489	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-227	EEM	BRK/ADM	00491	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-228	EEM	BRK/ADM	00493	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-229	EEM	BRK/ADM	00494	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-230	EEM	BRK/ADM	00511	Evap. clr	5	0.75	80.0%	522	747	525	0	0	1,825	2,612	1,836	0	0	14.0	7.0

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-231	EEM	BRK/ADM	00512	Evap clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-232	EEM	BRK/ADM	00514	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-233	EEM	BRK/ADM	00516	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-234	EEM	BRK/ADM	00518	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-235	EEM	BRK/ADM	00519	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-236	EEM	BRK/ADM	00523	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-237	EEM	BRK/ADM	00530	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-238	EEM	BRK/ADM	00534	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-239	EEM	BRK/ADM	00540	Evap. clr	6	0.75	80.0%	522	747	525	0	0	2,190	3,135	2,203	0	0	16.8	8.4
MTR-487	EEM	BRK/ADM	00105	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-488	EEM	BRK/ADM	00106	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-489	EEM	BRK/ADM	00107	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-490	EEM	BRK/ADM	00108	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-491	EEM	BRK/ADM	00110	FCU	20	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,905	258	6,805	0	28.7
MTR-492	EEM	BRK/ADM	00111	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-493	EEM	BRK/ADM	00249	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-494	EEM	BRK/ADM	00249	FCU	29	0.25	78.0%	0	0	1,215	108	2,846	0	0	4,212	374	9,867	0	41.6
MTR-495	EEM	BRK/ADM	00249	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-496	EEM	BRK/ADM	00249	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-497	EEM	BRK/ADM	00249	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-498	EEM	BRK/ADM	00249	FCU	4	0.25	78.0%	0	0	1,215	108	2,846	0	0	581	52	1,361	0	5.7
MTR-499	EEM	BRK/ADM	00249	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-500	EEM	BRK/ADM	00250	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-501	EEM	BRK/ADM	00250	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-502	EEM	BRK/ADM	00250	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-503	EEM	BRK/ADM	00250	FCU	29	0.25	78.0%	0	0	1,215	108	2,846	0	0	4,212	374	9,867	0	41.6
MTR-504	EEM	BRK/ADM	00250	FCU	4	0.25	78.0%	0	0	1,215	108	2,846	0	0	581	52	1,361	0	5.7
MTR-505	EEM	BRK/ADM	00250	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-506	EEM	BRK/ADM	00250	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-507	EEM	BRK/ADM	00251	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-508	EEM	BRK/ADM	00251	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-509	EEM	BRK/ADM	00251	FCU	29	0.25	78.0%	0	0	1,215	108	2,846	0	0	4,212	374	9,867	0	41.6
MTR-510	EEM	BRK/ADM	00251	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-511	EEM	BRK/ADM	00251	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-512	EEM	BRK/ADM	00251	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-513	EEM	BRK/ADM	00251	FCU	4	0.25	78.0%	0	0	1,215	108	2,846	0	0	581	52	1,361	0	5.7
MTR-514	EEM	BRK/ADM	00252	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-515	EEM	BRK/ADM	00252	FCU	16	0.25	78.0%	0	0	1,215	108	2,846	0	0	2,324	207	5,444	0	23.0
MTR-516	EEM	BRK/ADM	00252	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-517	EEM	BRK/ADM	00252	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-518	EEM	BRK/ADM	00252	FCU	29	0.25	78.0%	0	0	1,215	108	2,846	0	0	4,212	374	9,867	0	41.6
MTR-519	EEM	BRK/ADM	00252	FCU	1	0.25	78.0%	0	0	1,215	108	2,846	0	0	145	13	340	0	1.4
MTR-520	EEM	BRK/ADM	00252	FCU	4	0.25	78.0%	0	0	1,215	108	2,846	0	0	581	52	1,361	0	5.7

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descripl	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-56	EEM	BRK/ADM	00105	FCU	16	0.25	78.0%	522	747	525	0	0	998	1,429	1,004	0	0	15.3	7.7
MTR-57	EEM	BRK/ADM	00106	FCU	16	0.25	78.0%	522	747	525	0	0	998	1,429	1,004	0	0	15.3	7.7
MTR-58	EEM	BRK/ADM	00107	FCU	16	0.25	78.0%	522	747	525	0	0	998	1,429	1,004	0	0	15.3	7.7
MTR-59	EEM	BRK/ADM	00108	FCU	16	0.25	78.0%	522	747	525	0	0	998	1,429	1,004	0	0	15.3	7.7
MTR-60	EEM	BRK/ADM	00110	FCU	20	0.25	78.0%	522	747	525	0	0	1,248	1,786	1,255	0	0	19.1	9.6
MTR-61	EEM	BRK/ADM	00111	FCU	16	0.25	78.0%	522	747	525	0	0	998	1,429	1,004	0	0	15.3	7.7
MTR-62	EEM	BRK/ADM	00226	FCU	75	0.25	78.0%	522	747	525	0	0	4,680	6,698	4,707	0	0	71.7	35.9
MTR-63	EEM	BRK/ADM	00226	FCU	7	0.25	78.0%	522	747	525	0	0	437	625	439	0	0	6.7	3.3
MTR-64	EEM	BRK/ADM	00226	AHU	2	0.25	78.0%	522	747	525	0	0	125	179	126	0	0	1.9	1.0
MTR-65	EEM	BRK/ADM	00261	FCU	71	0.25	78.0%	522	747	525	0	0	4,431	6,341	4,456	0	0	67.9	34.0
MTR-66	EEM	BRK/ADM	00261	AHU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5
MTR-67	EEM	BRK/ADM	00262	FCU	71	0.25	78.0%	522	747	525	0	0	4,431	6,341	4,456	0	0	67.9	34.0
MTR-68	EEM	BRK/ADM	00262	FCU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5
MTR-69	EEM	BRK/ADM	00264	AHU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5
MTR-70	EEM	BRK/ADM	00264	FCU	71	0.25	78.0%	522	747	525	0	0	4,431	6,341	4,456	0	0	67.9	34.0
MTR-71	EEM	BRK/ADM	00265	FCU	71	0.25	78.0%	522	747	525	0	0	4,431	6,341	4,456	0	0	67.9	34.0
MTR-72	EEM	BRK/ADM	00265	AHU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5
MTR-73	EEM	BRK/ADM	00267	FCU	71	0.25	78.0%	522	747	525	0	0	4,431	6,341	4,456	0	0	67.9	34.0
MTR-74	EEM	BRK/ADM	00267	AHU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5
MTR-75	EEM	BRK/ADM	00273	FCU	7	0.25	78.0%	522	747	525	0	0	437	625	439	0	0	6.7	3.3
MTR-76	EEM	BRK/ADM	00273	AHU	2	0.25	78.0%	522	747	525	0	0	125	179	126	0	0	1.9	1.0
MTR-77	EEM	BRK/ADM	00273	FCU	75	0.25	78.0%	522	747	525	0	0	4,680	6,698	4,707	0	0	71.7	35.9
MTR-78	EEM	BRK/ADM	00275	FCU	75	0.25	78.0%	522	747	525	0	0	4,680	6,698	4,707	0	0	71.7	35.9
MTR-79	EEM	BRK/ADM	00275	FCU	7	0.25	78.0%	522	747	525	0	0	437	625	439	0	0	6.7	3.3
MTR-80	EEM	BRK/ADM	00275	AHU	2	0.25	78.0%	522	747	525	0	0	125	179	126	0	0	1.9	1.0

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-188	RI	EEM	149	74	16	0	15	476	2	40	20	61	748	4.61
MTR-189	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-190	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-191	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-192	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-193	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-194	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-195	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-196	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-197	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-198	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-199	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-200	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-201	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-202	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-203	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-204	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-205	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-206	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-207	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-208	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-209	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-210	RI	EEM	149	74	16	0	15	476	2	41	21	61	747	4.61
MTR-211	RI	EEM	3,278	1,628	352	0	15	10,470	35	893	455	1,348	16,435	4.61
MTR-212	RI	EEM	596	296	64	0	15	1,904	6	160	81	241	2,995	4.62
MTR-214	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-222	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-223	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-224	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-230	RI	EEM	745	370	80	0	15	2,380	8	202	103	305	3,738	4.61
MTR-231	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-232	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-233	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-234	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-236	RI	EEM	894	444	96	0	15	2,855	10	242	123	366	4,485	4.61
MTR-237	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-238	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-239	RI	EEM	894	444	96	0	15	2,855	10	239	122	361	4,492	4.62
MTR-487	RI	EEM	1,808	1,184	0	0	15	4,984	14	250	43	293	974	1.33
MTR-488	RI	EEM	1,808	1,184	0	0	15	4,984	14	250	43	293	974	1.33
MTR-489	RI	EEM	1,808	1,184	0	0	15	4,984	14	250	43	293	974	1.33
MTR-490	RI	EEM	1,808	1,184	0	0	15	4,984	14	250	43	293	974	1.33
MTR-491	RI	EEM	2,260	1,480	0	0	15	6,230	18	313	53	366	1,217	1.33

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-492	RI	EEM	1,808	1,184	0	0	15	4,984	14	250	43	293	974	1.33
MTR-493	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-494	RI	EEM	3,277	2,146	0	0	15	9,034	26	453	77	531	1,765	1.33
MTR-495	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-496	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-497	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-498	RI	EEM	452	296	0	0	15	1,246	4	62	11	73	261	1.35
MTR-499	RI	EEM	1,808	1,184	0	0	15	4,984	14	249	43	291	1,045	1.35
MTR-500	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-501	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-502	RI	EEM	1,808	1,184	0	0	15	4,984	14	249	43	291	1,045	1.35
MTR-503	RI	EEM	3,277	2,146	0	0	15	9,034	26	451	77	528	1,895	1.35
MTR-504	RI	EEM	452	296	0	0	15	1,246	4	62	11	73	261	1.35
MTR-505	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-506	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-507	RI	EEM	1,808	1,184	0	0	15	4,984	14	249	43	291	1,045	1.35
MTR-508	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-509	RI	EEM	3,277	2,146	0	0	15	9,034	26	451	77	528	1,895	1.35
MTR-510	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-511	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-512	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-513	RI	EEM	452	296	0	0	15	1,246	4	62	11	73	261	1.35
MTR-514	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-515	RI	EEM	1,808	1,184	0	0	15	4,984	14	249	43	291	1,045	1.35
MTR-516	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-517	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-518	RI	EEM	3,277	2,146	0	0	15	9,034	26	451	77	528	1,895	1.35
MTR-519	RI	EEM	113	74	0	0	15	312	1	16	3	18	65	1.35
MTR-520	RI	EEM	452	296	0	0	15	1,246	4	62	11	73	261	1.35
MTR-56	RI	EEM	1,808	1,184	0	0	15	2,145	14	182	185	367	2,253	1.75
MTR-57	RI	EEM	1,808	1,184	0	0	15	2,145	14	182	185	367	2,253	1.75
MTR-58	RI	EEM	1,808	1,184	0	0	15	2,145	14	182	185	367	2,253	1.75
MTR-59	RI	EEM	1,808	1,184	0	0	15	2,145	14	182	185	367	2,253	1.75
MTR-60	RI	EEM	2,260	1,480	0	0	15	2,681	18	227	232	459	2,816	1.75
MTR-61	RI	EEM	1,808	1,184	0	0	15	2,145	14	182	185	367	2,253	1.75
MTR-62	RI	EEM	8,475	5,550	0	0	15	10,054	67	853	868	1,721	10,559	1.75
MTR-63	RI	EEM	791	518	0	0	15	938	6	80	81	161	958	1.73
MTR-64	RI	EEM	226	148	0	0	15	268	2	23	23	46	274	1.73
MTR-65	RI	EEM	8,023	5,254	0	0	15	9,517	64	819	834	1,654	9,190	1.69
MTR-66	RI	EEM	113	74	0	0	15	134	1	11	12	23	137	1.73
MTR-67	RI	EEM	8,023	5,254	0	0	15	9,517	64	819	834	1,654	9,190	1.69
MTR-68	RI	EEM	113	74	0	0	15	134	1	12	12	23	129	1.69
MTR-69	RI	EEM	113	74	0	0	15	134	1	12	12	23	129	1.69

Table 2.15. (contd)

Energy-Efficient BRK/ADM Fan Motor Economic Parameters

ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Annual Energy and Demand Savings					Life Cycle Cost	
								Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-70	RI	EEM	8,023	5,254	0	0	15	9,517	64	819	834	1,654	9,190	1.69
MTR-71	RI	EEM	8,023	5,254	0	0	15	9,517	64	819	834	1,654	9,190	1.69
MTR-72	RI	EEM	113	74	0	0	15	134	1	12	12	23	129	1.69
MTR-73	RI	EEM	8,023	5,254	0	0	15	9,517	64	819	834	1,654	9,190	1.69
MTR-74	RI	EEM	113	74	0	0	15	134	1	12	12	23	129	1.69
MTR-75	RI	EEM	791	518	0	0	15	938	6	81	82	163	906	1.69
MTR-76	RI	EEM	226	148	0	0	15	268	2	23	23	46	274	1.73
MTR-77	RI	EEM	8,475	5,550	0	0	15	10,054	67	857	873	1,730	10,267	1.73
MTR-78	RI	EEM	8,475	5,550	0	0	15	10,054	67	857	873	1,730	10,267	1.73
MTR-79	RI	EEM	791	518	0	0	15	938	6	80	81	161	958	1.73
MTR-80	RI	EEM	226	148	0	0	15	268	2	23	23	46	274	1.73
Totals:			136,721	86,210	2,256	0		259,735	1,143	18,681	12,027	30,708	220,727	2.00

Table 2.16. Chapel, Clinic, and Club Building Energy Efficient Motor EROs

Existing Chapel, Clinic, Club Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-240	CHAPEL	00212	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-241	CHAPEL	00212	Evap. clr	2	1.5	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-242	CHAPEL	00315	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-243	CHAPEL	00315	Evap. clr	1	2	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-2	CLINIC	00171	comp.	2	10	84.5%	523	352	1,205	0	0	12	4,617	3,108	10,638	0	0	71	141
MTR-244	CLINIC	00235	Evap. clr	3	1	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-245	CLINIC	00242	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-246	CLINIC	00245	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-247	CLINIC	00245	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-3	CLINIC	00171	comp	2	1	75.0%	523	352	1,205	0	0	12	520	350	1,199	0	0	8	16
MTR-81	CLINIC	00171	AHU	1	0.25	48.0%	522	332	363	0	0	6	101	64	71	0	0	2	1
MTR-14	CLUB	00202	heat pump	1	0.25	48.0%	522	747	1,740	108	3,113	12	101	145	338	21	372	2	3
MTR-15	CLUB	00202	heat pump	4	0.25	48.0%	522	747	1,740	108	3,113	12	406	580	1,352	84	1,489	6	12
MTR-16	CLUB	00202	heat pump	2	0.25	48.0%	522	747	1,740	108	3,113	12	203	290	676	42	744	3	6
MTR-17	CLUB	00202	heat pump	4	0.25	48.0%	522	747	1,740	108	3,113	12	406	580	1,352	84	1,489	6	12
MTR-248	CLUB	00021	Evap. clr	2	0.75	58.0%	522	747	525	0	0	6	1,007	1,441	1,013	0	0	8	4
MTR-249	CLUB	00037	Evap. clr	1	1.5	80.5%	522	747	525	0	0	6	726	1,038	730	0	0	6	3
MTR-250	CLUB	00202	Evap. clr	1	0.75	58.0%	522	747	525	0	0	6	504	721	506	0	0	4	2
MTR-251	CLUB	00202	Evap. clr	6	1	80.5%	522	747	525	0	0	6	2,902	4,154	2,919	0	0	22	11
MTR-252	CLUB	00202	Evap. clr	1	1	80.5%	522	747	525	0	0	6	484	692	487	0	0	4	2
MTR-41	CLUB	00202	heat pump	2	1.5	80.5%	522	747	1,740	0	3,113	12	726	1,038	2,419	0	4,027	11	22
MTR-42	CLUB	00202	heat pump	1	0.25	48.0%	522	747	1,740	0	3,113	12	101	145	338	0	372	2	3
MTR-82	CLUB	20018	AHU	1	0.25	48.0%	522	747	525	0	0	6	101	145	102	0	0	2	1

Table 2.16. (contd)

Energy-Efficient Chapel, Clinic, & Club Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-240	EEM	CHAPEL	00212	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-241	EEM	CHAPEL	00212	Evap. clr	2	1.5	86.5%	522	332	363	0	0	1,351	859	940	0	0	10.3	5.2
MTR-242	EEM	CHAPEL	00315	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-243	EEM	CHAPEL	00315	Evap. clr	1	2	86.6%	522	332	363	0	0	899	572	626	0	0	6.9	3.4
MTR-2	EEM	CLINIC	00171	comp	2	10	91.7%	523	352	1,205	0	0	4,255	2,864	9,803	0	0	65.1	130.2
MTR-244	EEM	CLINIC	00235	Evap. clr	3	1	86.5%	522	332	363	0	0	1,351	859	940	0	0	10.3	5.2
MTR-245	EEM	CLINIC	00242	Evap. clr	2	0.75	80.0%	522	332	363	0	0	730	464	508	0	0	5.6	2.8
MTR-246	EEM	CLINIC	00245	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-247	EEM	CLINIC	00245	Evap. clr	1	0.75	80.0%	522	332	363	0	0	365	232	254	0	0	2.8	1.4
MTR-3	EEM	CLINIC	00171	comp	2	1	86.5%	523	352	1,205	0	0	451	304	1,039	0	0	6.9	13.8
MTR-81	EEM	CLINIC	00171	AHU	1	0.25	78.0%	522	332	363	0	0	62	40	43	0	0	1.0	0.5
MTR-14	EEM	CLUB	00202	heat pump	1	0.25	78.0%	522	747	1,740	108	3,113	62	89	208	13	372	1.0	1.9
MTR-15	EEM	CLUB	00202	heat pump	4	0.25	78.0%	522	747	1,740	108	3,113	250	357	832	52	1,489	3.8	7.7
MTR-16	EEM	CLUB	00202	heat pump	2	0.25	78.0%	522	747	1,740	108	3,113	125	179	416	26	744	1.9	3.8
MTR-17	EEM	CLUB	00202	heat pump	4	0.25	78.0%	522	747	1,740	108	3,113	250	357	832	52	1,489	3.8	7.7
MTR-248	EEM	CLUB	00021	Evap. clr	2	0.75	80.0%	522	747	525	0	0	730	1,045	734	0	0	5.6	2.8
MTR-249	EEM	CLUB	00037	Evap. clr	1	1.5	86.5%	522	747	525	0	0	675	966	679	0	0	5.2	2.6
MTR-250	EEM	CLUB	00202	Evap. clr	1	0.75	80.0%	522	747	525	0	0	365	522	367	0	0	2.8	1.4
MTR-251	EEM	CLUB	00202	Evap. clr	6	1	86.5%	522	747	525	0	0	2,701	3,865	2,717	0	0	20.7	10.3
MTR-252	EEM	CLUB	00202	Evap. clr	1	1	86.5%	522	747	525	0	0	450	644	453	0	0	3.4	1.7
MTR-41	EEM	CLUB	00202	heat pump	2	1.5	86.5%	522	747	1,740	0	3,113	675	966	2,251	0	4,027	10.3	20.7
MTR-42	EEM	CLUB	00202	heat pump	1	0.25	78.0%	522	747	1,740	0	3,113	62	89	208	0	372	1.0	1.9
MTR-82	EEM	CLUB	20018	AHU	1	0.25	78.0%	522	747	525	0	0	62	89	63	0	0	1.0	0.5

Table 2.16. (contd)

Energy-Efficient Chapel, Clinic, Club Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-240	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-242	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-2	RI	EEM	1,560	168	140	0	15	1,442	17	107	115	222	1,593	2.00
MTR-245	RI	EEM	298	148	32	0	15	646	3	59	40	99	1,171	3.83
MTR-246	RI	EEM	149	74	16	0	15	323	2	30	20	49	585	3.83
MTR-247	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-81	RI	EEM	113	74	0	0	15	91	1	9	12	20	93	1.50
MTR-14	RI	EEM	113	74	0	0	15	466	2	28	14	42	470	3.51
MTR-15	RI	EEM	452	296	0	0	15	1,862	7	111	57	168	1,881	3.51
MTR-16	RI	EEM	226	148	0	0	15	931	4	56	29	84	940	3.51
MTR-17	RI	EEM	452	296	0	0	15	1,862	7	111	57	168	1,881	3.51
MTR-248	RI	EEM	298	148	32	0	15	952	3	80	41	121	1,496	4.61
MTR-250	RI	EEM	149	74	16	0	15	476	2	40	20	60	749	4.62
MTR-42	RI	EEM	113	74	0	0	15	457	2	28	14	42	465	3.49
MTR-82	RI	EEM	113	74	0	0	15	134	1	11	12	23	141	1.75
Totals:	Chapel		596	296	64	0		1,292	6	120	81	202	2,320	3.8
	Clinic		2,269	538	204	0		2,825	24	234	207	441	4,023	2.5
	Club		1,916	1,184	48	0		7,140	27	465	244	709	8,022	3.6

Table 2.17. DGR, Dining, Family Housing, and Fuel Building Energy Efficient Motor EROs

Existing DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-97	DGR	01315	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-253	DGR	00308	Evap. clr	4	1.5	80.5%	522	332	363	0	0	6	2,902	1,846	2,021	0	0	22	11
MTR-254	DGR	00308	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-255	DGR	00404	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-256	DGR	00404	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-257	DGR	00430	Evap. clr	6	0.75	58.0%	522	332	363	0	0	6	3,021	1,922	2,104	0	0	23	12
MTR-258	DGR	00909	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-259	DGR	00909	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-4	DGR	00308	air comp	1	1	80.5%	523	352	1,205	0	0	12	242	163	558	0	0	4	7
MTR-439	DGR	00308	AHU	3	0.75	58.0%	523	349	1,560	0	0	12	1,514	1,010	4,515	0	0	12	23
MTR-440	DGR	00308	AHU	2	0.75	58.0%	523	349	1,560	0	0	12	1,009	673	3,010	0	0	8	15
MTR-441	DGR	00308	AHU	1	0.5	53.0%	523	349	1,560	0	0	12	368	246	1,098	0	0	3	6
MTR-260	DINING	00254	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-261	DINING	00254	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-262	DINING	00431	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-263	DINING	00431	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-264	DINING	00447	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-265	DINING	00447	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-266	DINING	00449	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-267	DINING	00449	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-268	DINING	00468	Evap. clr	6	0.75	58.0%	522	332	363	0	0	6	3,021	1,922	2,104	0	0	23	12
MTR-269	DINING	00535	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-270	DINING	00560	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-442	DINING	00254	AHU	6	0.5	53.0%	523	349	1,560	0	0	12	2,208	1,474	6,587	0	0	17	34
MTR-445	DINING	00254	AHU	1	0.5	53.0%	523	349	1,560	0	0	12	368	246	1,098	0	0	3	6
MTR-446	DINING	00254	AHU	1	0.75	58.0%	523	349	1,560	0	0	12	505	337	1,505	0	0	4	8
MTR-83	DINING	00222	AHU	2	0.25	48.0%	522	332	363	0	0	6	203	129	141	0	0	3	2
MTR-84	DINING	00222	FCU	2	0.25	48.0%	522	332	363	0	0	6	203	129	141	0	0	3	2
MTR-85	DINING	00254	FCU	1	0.25	48.0%	522	332	363	0	0	6	101	64	71	0	0	2	1
MTR-526	Fam Hsg	na	Furn Fan	1636	0.25	48.0%	0	0	1,215	108	2,846	6	0	0	386,160	34,325	904,536	0	3814
MTR-527	Fam Hsg	na	Cond	1636	0.25	48.0%	522	747	525	0	0	6	165,906	237,417	166,859	0	0	2543	1271
MTR-271	FUELDSP	00836	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-272	FUELDSP	00950	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2

Table 2.17. (contd)

Energy-Efficient DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-97	EEM		01315	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-253	EEM	DGR	00308	Evap. clr	4	1.5	0.865	522	332	363	0	0	2,701	1,718	1,881	0	0	21	10
MTR-254	EEM	DGR	00308	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-255	EEM	DGR	00404	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-256	EEM	DGR	00404	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-257	EEM	DGR	00430	Evap. clr	6	0.75	0.800	522	332	363	0	0	2,190	1,393	1,525	0	0	17	8
MTR-258	EEM	DGR	00909	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-259	EEM	DGR	00909	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-4	EEM	DGR	00308	air comp	1	1	0.865	523	352	1,205	0	0	226	152	520	0	0	3	7
MTR-439	EEM	DGR	00308	AHU	3	0.75	0.800	523	349	1,560	0	0	1,097	732	3,273	0	0	8	17
MTR-440	EEM	DGR	00308	AHU	2	0.75	0.800	523	349	1,560	0	0	732	488	2,182	0	0	6	11
MTR-441	EEM	DGR	00308	AHU	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	2	4
MTR-260	EEM	DINING	00254	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-261	EEM	DINING	00254	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-262	EEM	DINING	00431	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-263	EEM	DINING	00431	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-264	EEM	DINING	00447	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-265	EEM	DINING	00447	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-266	EEM	DINING	00449	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-267	EEM	DINING	00449	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-268	EEM	DINING	00468	Evap. clr	6	0.75	0.800	522	332	363	0	0	2,190	1,393	1,525	0	0	17	8
MTR-269	EEM	DINING	00535	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-270	EEM	DINING	00560	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-442	EEM	DINING	00254	AHU	6	0.5	0.780	523	349	1,560	0	0	1,501	1,001	4,476	0	0	11	23
MTR-445	EEM	DINING	00254	AHU	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	2	4
MTR-446	EEM	DINING	00254	AHU	1	0.75	0.800	523	349	1,560	0	0	366	244	1,091	0	0	3	6
MTR-83	EEM	DINING	00222	AHU	2	0.25	0.780	522	332	363	0	0	125	79	87	0	0	2	1
MTR-84	EEM	DINING	00222	FCU	2	0.25	0.780	522	332	363	0	0	125	79	87	0	0	2	1
MTR-85	EEM	DINING	00254	FCU	1	0.25	0.780	522	332	363	0	0	62	40	43	0	0	1	0
MTR-526	EEM	Fam Hsg	na	Furn Fan	1636	0.25	0.780	0	0	1,215	108	2,846	0	0	237,637	21,123	556,637	0	2347
MTR-527	EEM	Fam Hsg	na	Cond	1636	0.25	0.780	522	747	525	0	0	102,096	146,103	102,683	0	0	1565	782
MTR-271	EEM	FUELDSP	00836	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-272	EEM	FUELDSP	00950	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1

Table 2.17. (contd)

Energy-Efficient DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-97	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-254	RI	EEM	298	148	32	0	15	646	3	59	40	100	1,167	3.82
MTR-255	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-256	RI	EEM	149	74	16	0	15	323	2	30	20	50	584	3.82
MTR-257	RI	EEM	894	444	96	0	15	1,938	10	181	122	302	3,481	3.80
MTR-258	RI	EEM	149	74	16	0	15	323	2	29	20	48	591	3.86
MTR-259	RI	EEM	298	148	32	0	15	646	3	59	40	98	1,175	3.84
MTR-439	RI	EEM	447	222	48	0	15	1,935	10	160	75	235	3,177	6.12
MTR-440	RI	EEM	298	148	32	0	15	1,290	6	102	48	150	2,120	6.12
MTR-441	RI	EEM	133	74	15	0	15	549	3	46	21	67	885	5.61
MTR-260	RI	EEM	149	74	16	0	15	323	2	30	20	50	582	3.81
MTR-261	RI	EEM	149	74	16	0	15	323	2	30	20	50	582	3.81
MTR-262	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-265	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-267	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-268	RI	EEM	894	444	96	0	15	1,938	10	181	122	302	3,481	3.80
MTR-270	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-442	RI	EEM	798	444	90	0	15	3,291	16	273	128	401	5,308	5.61
MTR-445	RI	EEM	133	74	15	0	15	549	3	46	21	67	885	5.61
MTR-446	RI	EEM	149	74	16	0	15	645	3	53	25	78	1,059	6.12
MTR-83	RI	EEM	226	148	0	0	15	182	2	17	24	41	161	1.43
MTR-84	RI	EEM	226	148	0	0	15	182	2	17	24	41	161	1.43
MTR-85	RI	EEM	113	74	0	0	15	91	1	9	12	20	97	1.52
MTR-526	RI	EEM	184,868	121,064	0	0	15	509,624	1,467	25,448	36,603	62,051	662,338	3.16
MTR-527	RI	EEM	184,868	121,064	0	0	15	219,301	1,467	18,601	18,945	37,546	230,320	1.75
MTR-271	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-272	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
Totals:	DGR		3,113	1,554	335	0		8,619	42	755	446	1,202	14,920	4.44
	DINING		3,582	1,924	329	0		9,139	47	806	497	1,303	15,215	3.94
	Fam. Hsg.		369,736	242,128	0	0		728,924	2,934	44,049	55,548	99,597	892,658	2.46
	FUEL-DSP		298	148	32	0		646	3	60	41	101	1,160	3.80

Table 2.18. Grocery, Hospital, Hotel, Kitchen, and Laboratory Building Energy Efficient Motor EROs

Existing GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-18	GROCERY	00920	A/C	1	7.5	85.5%	522	747	1740	108	3,113	12	1,708	2,444	5,693	353	10,186	26	52
MTR-19	GROCERY	00920	A/C	2	7.5	85.5%	522	747	1740	108	3,113	12	3,416	4,888	11,386	707	20,371	52	105
MTR-20	GROCERY	00920	A/C	1	7.5	85.5%	522	747	1740	108	3,113	12	1,708	2,444	5,693	353	10,186	26	52
MTR-21	GROCERY	00920	refrig	17	5	83.5%	522	747	1740	108	3,113	12	19,820	28,364	66,068	4,101	118,201	304	608
MTR-273	GROCERY	00920	Evap. clr	3	3	82.0%	522	332	363	0	0	6	4,274	2,718	2,976	0	0	33	16
MTR-274	GROCERY	00920	Evap. clr	3	3	82.0%	522	332	363	0	0	6	4,274	2,718	2,976	0	0	33	16
MTR-43	GROCERY	00920		2	7.5	85.5%	522	747	1,740	108	3,113	6	3,416	4,888	11,386	707	20,371	52	79
MTR-447	GROCERY	00920	clg twr	2	7.5	85.5%	523	349	1,560	0	0	12	6,845	4,568	20,417	0	0	52	105
MTR-448	GROCERY	00920	AHU	1	1.5	80.5%	523	349	1,560	0	0	12	727	485	2,168	0	0	6	11
MTR-449	GROCERY	00920	main store	1	20	88.2%	523	349	1,560	0	0	12	8,847	5,904	26,389	0	0	68	135
MTR-450	GROCERY	00920	clg twr	1	7.5	85.5%	523	349	1,560	0	0	12	3,422	2,284	10,208	0	0	26	52
MTR-22	HOSPITL	00166	comp	1	3	80.5%	522	747	1,740	1,267	3,113	12	726	1,038	2,419	1,761	4,327	11	22
MTR-275	HOSPITL	00166	Evap. clr	1	1	80.5%	522	747	525	1,159	267	6	484	692	487	1,074	247	4	2
MTR-5	HOSPITL	00166	air comp	2	1.5	80.5%	523	786	2,254	1,619	3,578	12	727	1,093	3,133	2,251	4,974	11	22
MTR-6	HOSPITL	00166	air comp	2	7.5	82.0%	523	786	2,254	1,619	3,578	12	3,569	5,363	15,379	11,047	24,413	55	109
MTR-7	HOSPITL	00166	air comp	1	1.5	80.5%	523	786	2,254	1,619	3,578	12	364	546	1,567	1,125	2,487	6	11
MTR-86	HOSPITL	00166	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-87	HOSPITL	00166	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-23	HOTEL	00900	heatpump	4	0.25	48.0%	522	747	1,740	1,267	3,113	12	406	580	1,352	985	2,419	6	12
MTR-24	HOTEL	00901	heatpump	4	0.25	48.0%	522	747	1,740	1,267	3,113	12	406	580	1,352	985	2,419	6	12
MTR-25	HOTEL	00902	heatpump	4	0.25	48.0%	522	747	1,740	1,267	3,113	12	406	580	1,352	985	2,419	6	12
MTR-26	HOTEL	00903	heatpump	4	0.25	48.0%	522	747	1,740	1,267	3,113	12	406	580	1,352	985	2,419	6	12
MTR-27	HOTEL	00904	heatpump	3	0.25	48.0%	522	747	1,740	1,267	3,113	12	304	435	1,014	738	1,814	5	9
MTR-28	HOTEL	00906	heatpump	4	0.25	48.0%	522	747	1,740	1,267	3,113	12	406	580	1,352	985	2,419	6	12
MTR-88	HOTEL	00900	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-89	HOTEL	00901	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-90	HOTEL	00902	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-91	HOTEL	00903	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-92	HOTEL	00904	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-93	HOTEL	00906	AHU	1	0.25	48.0%	522	747	525	1,159	267	6	101	145	102	225	52	2	1
MTR-276	KITCHEN	00819	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-277	LAB-MED	00144	Evap. clr	2	1.5	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-278	LAB-MED	00144	Evap. clr	4	1.5	80.5%	522	332	363	0	0	6	2,902	1,846	2,021	0	0	22	11
MTR-279	LAB-MED	00228	Evap. clr	3	1.5	80.5%	522	332	363	0	0	6	2,177	1,385	1,516	0	0	17	8

Table 2.18. (contd)

Energy-Efficient GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-18	EEM	GROCERY	00920	A/C	1	7.5	0.917	522	747	1,740	108	3,113	1,592	2,279	5,308	329	9,497	24	49
MTR-19	EEM	GROCERY	00920	A/C	2	7.5	0.917	522	747	1,740	108	3,113	3,185	4,558	10,616	659	18,994	49	98
MTR-20	EEM	GROCERY	00920	A/C	1	7.5	0.917	522	747	1,740	108	3,113	1,592	2,279	5,308	329	9,497	24	49
MTR-21	EEM	GROCERY	00920	refrig	17	5	0.902	522	747	1,740	108	3,113	18,348	26,257	61,160	3,796	109,421	281	562
MTR-273	EEM	GROCERY	00920	Evap. clr	3	3	0.895	522	332	363	0	0	3,916	2,491	2,727	0	0	30	15
MTR-274	EEM	GROCERY	00920	Evap. clr	3	3	0.895	522	332	363	0	0	3,916	2,491	2,727	0	0	30	15
MTR-43	EEM	GROCERY	00920		2	7.5	0.917	522	747	1,740	108	3,113	3,185	4,558	10,616	659	18,994	49	73
MTR-447	EEM	GROCERY	00920	clg twr	2	7.5	0.917	523	349	1,560	0	0	6,382	4,259	19,036	0	0	49	98
MTR-448	EEM	GROCERY	00920	AHU	1	1.5	0.865	523	349	1,560	0	0	677	451	2,018	0	0	5	10
MTR-449	EEM	GROCERY	00920	main store	1	20	0.934	523	349	1,560	0	0	8,355	5,575	24,920	0	0	64	128
MTR-450	EEM	GROCERY	00920	clg twr	1	7.5	0.917	523	349	1,560	0	0	3,191	2,129	9,518	0	0	24	49
MTR-22	EEM	HOSPITL	00166	comp	1	3	0.895	522	747	1,740	1,267	3,113	653	934	2,175	1,584	3,892	10	20
MTR-275	EEM	HOSPITL	00166	Evap. clr	1	1	0.865	522	747	525	1,159	267	450	644	453	1,000	230	3	2
MTR-5	EEM	HOSPITL	00166	air comp	2	1.5	0.865	523	786	2,254	1,619	3,578	677	1,017	2,916	2,094	4,629	10	21
MTR-6	EEM	HOSPITL	00166	air comp	2	7.5	0.917	523	786	2,254	1,619	3,578	3,191	4,796	13,753	9,878	21,831	49	98
MTR-7	EEM	HOSPITL	00166	air comp	1	1.5	0.865	523	786	2,254	1,619	3,578	338	508	1,458	1,047	2,314	5	10
MTR-86	EEM	HOSPITL	00166	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-87	EEM	HOSPITL	00166	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-23	EEM	HOTEL	00900	heatpump	4	0.25	0.780	522	747	1,740	1,267	3,113	250	357	832	606	1,489	4	8
MTR-24	EEM	HOTEL	00901	heatpump	4	0.25	0.780	522	747	1,740	1,267	3,113	250	357	832	606	1,489	4	8
MTR-25	EEM	HOTEL	00902	heatpump	4	0.25	0.780	522	747	1,740	1,267	3,113	250	357	832	606	1,489	4	8
MTR-26	EEM	HOTEL	00903	heatpump	4	0.25	0.780	522	747	1,740	1,267	3,113	250	357	832	606	1,489	4	8
MTR-27	EEM	HOTEL	00904	heatpump	3	0.25	0.780	522	747	1,740	1,267	3,113	187	268	624	454	1,116	3	6
MTR-28	EEM	HOTEL	00906	heatpump	4	0.25	0.780	522	747	1,740	1,267	3,113	250	357	832	606	1,489	4	8
MTR-88	EEM	HOTEL	00900	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-89	EEM	HOTEL	00901	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-90	EEM	HOTEL	00902	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-91	EEM	HOTEL	00903	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-92	EEM	HOTEL	00904	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-93	EEM	HOTEL	00906	AHU	1	0.25	0.780	522	747	525	1,159	267	62	89	63	139	32	1	0
MTR-276	EEM	KITCHEN	00819	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-277	EEM	LAB-MED	00144	Evap. clr	2	1.5	0.865	522	332	363	0	0	1,351	859	940	0	0	10	5
MTR-278	EEM	LAB-MED	00144	Evap. clr	4	1.5	0.865	522	332	363	0	0	2,701	1,718	1,881	0	0	21	10
MTR-279	EEM	LAB-MED	00228	Evap. clr	3	1.5	0.865	522	332	363	0	0	2,026	1,288	1,411	0	0	16	8

Table 2.18. (contd)

Energy-Efficient GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-18	RI	EEM	647	81	60	0	15	1,378	5	69	35	104	877	2.31
MTR-19	RI	EEM	1,294	162	120	0	15	2,756	11	138	71	209	1,755	2.31
MTR-20	RI	EEM	647	81	60	0	15	1,378	5	69	35	104	877	2.31
MTR-21	RI	EEM	8,126	1,258	680	0	15	17,571	68	898	460	1,358	11,354	2.30
MTR-273	RI	EEM	1,245	222	105	0	15	835	4	71	48	119	69	1.05
MTR-274	RI	EEM	1,245	222	105	0	15	835	4	69	47	116	93	1.07
MTR-43	RI	EEM	1,294	162	120	0	15	2,756	9	138	66	205	1,678	2.26
MTR-447	RI	EEM	1,294	162	120	0	15	2,152	11	151	71	221	1,970	2.47
MTR-449	RI	EEM	1,268	129	120	0	15	2,290	11	152	72	224	2,101	2.65
MTR-450	RI	EEM	647	81	60	0	15	1,076	5	75	35	111	985	2.47
MTR-22	RI	EEM	415	74	35	0	15	1,033	3	53	24	77	693	2.53
MTR-6	RI	EEM	1,294	162	120	0	15	6,323	17	324	126	450	5,907	5.42
MTR-86	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-87	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-23	RI	EEM	452	296	0	0	15	2,208	7	125	57	182	2,111	3.82
MTR-24	RI	EEM	452	296	0	0	15	2,208	7	125	57	182	2,111	3.82
MTR-25	RI	EEM	452	296	0	0	15	2,208	7	125	57	182	2,111	3.82
MTR-26	RI	EEM	452	296	0	0	15	2,208	7	125	57	182	2,111	3.82
MTR-27	RI	EEM	339	222	0	0	15	1,656	5	93	43	136	1,583	3.82
MTR-88	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-89	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-90	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-91	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-92	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-93	RI	EEM	113	74	0	0	15	241	1	16	12	27	205	2.10
MTR-28	RI	EEM	452	296	0	0	15	2,208	7	125	57	182	2,111	3.82
Totals:	GROCERY		17,707	2,560	1,550	0		33,029	133	1,831	940	2,771	21,760	2.16
	HOSPITL		1,935	384	155	0		7,837	22	408	174	582	7,011	4.24
	HOTEL		2,825	1,850	0	0		11,934	39	686	341	1,027	11,259	3.41
	KITCHEN		452	296	0	0		2,208	7	125	57	182	2,111	3.82
	LAB-MED		There are no cost effective LAB-MAB EEM motor EROs.											

Table 2.19. Motorpool, MWR, Other, and Plant Building Energy Efficient Motor EROs

Existing MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-280	MTRPOOL	00600	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-281	MTRPOOL	00600	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-282	MTRPOOL	00600	Evap. clr	1	3	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-283	MTRPOOL	00600	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-284	MTRPOOL	00605	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-285	MTRPOOL	00605	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-286	MTRPOOL	00605	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-287	MTRPOOL	00605	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-288	MTRPOOL	00608	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-289	MTRPOOL	00608	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-29	MTRPOOL	00857	chiller	2	20	88.2%	522	332	525	108	3,113	6	8,830	5,616	8,881	1,827	52,660	135	68
MTR-290	MTRPOOL	00612	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-291	MTRPOOL	00612	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-292	MTRPOOL	00614	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-293	MTRPOOL	00620	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-294	MTRPOOL	00621	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-295	MTRPOOL	00621	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-296	MTRPOOL	00623	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-297	MTRPOOL	00626	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-298	MTRPOOL	00639	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-299	MTRPOOL	00642	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-300	MTRPOOL	00646	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-301	MTRPOOL	00646	Evap. clr	2	0.5	53.0%	522	332	363	0	0	6	735	467	512	0	0	6	3
MTR-302	MTRPOOL	00650	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-303	MTRPOOL	00680	Evap. clr	5	1	80.5%	522	332	363	0	0	6	2,419	1,538	1,684	0	0	19	9
MTR-304	MTRPOOL	00680	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-305	MTRPOOL	00681	Evap. clr	4	1	80.5%	522	332	363	0	0	6	1,935	1,231	1,347	0	0	15	7
MTR-306	MTRPOOL	00681	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-307	MTRPOOL	00830	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-308	MTRPOOL	00832	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-309	MTRPOOL	00832	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-310	MTRPOOL	00837	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-311	MTRPOOL	00840	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-312	MTRPOOL	00840	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-313	MTRPOOL	00840	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-314	MTRPOOL	00847	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-315	MTRPOOL	00847	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-316	MTRPOOL	00850	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-317	MTRPOOL	00850	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-318	MTRPOOL	00873	Evap. clr	10	1.5	80.5%	522	332	363	0	0	6	7,256	4,615	5,052	0	0	56	28
MTR-319	MTRPOOL	00879	Evap. clr	10	1.5	80.5%	522	332	363	0	0	6	7,256	4,615	5,052	0	0	56	28
MTR-320	MTRPOOL	00941	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-44	MTRPOOL	00857	chiller	4	7.5	85.5%	522	332	525	108	3,113	6	6,832	4,345	6,871	1,413	40,742	105	157

Table 2.19. (contd)

Existing MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-456	MTRPOOL	00857	AHU	1	20	88.2%	523	786	2,254	0	0	12	8,847	13,296	38,129	0	0	68	135
MTR-521	MTRPOOL	00681	FCU	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-8	MTRPOOL	00646	drip proof	1	2	73.5%	523	352	1,205	0	0	12	531	357	1,223	0	0	8	16
MTR-9	MTRPOOL	00873	130 psig	1	15	85.0%	523	352	1,205	0	0	12	3,443	2,317	7,932	0	0	53	105
MTR-94	MTRPOOL	00680	FCU	1	0.25	48.0%	522	332	363	0	0	6	101	64	71	0	0	2	1
MTR-95	MTRPOOL	00857	AHU	1	0.25	48.0%	522	332	363	0	0	6	101	64	71	0	0	2	1
MTR-30	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1215	0	2,846	6	0	0	236	0	553	0	2
MTR-31	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-32	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-321	MWR	00312	Evap. clr	2	1	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-322	MWR	00312	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-323	MWR	00340	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-324	MWR	00410	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-325	MWR	00480	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-326	MWR	00556	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-327	MWR	00910	Evap. clr	1	2	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-328	MWR	01322	Evap. clr	2	1	80.5%	522	332	363	0	0	6	967	615	674	0	0	7	4
MTR-329	MWR	01322	Evap. clr	1	0.25	48.0%	522	332	363	0	0	6	203	129	141	0	0	2	1
MTR-33	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-330	MWR	01322	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-331	MWR	01322	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-332	MWR	01322	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-333	MWR	01322	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-457	MWR	01313	fan motors	2	0.25	48.0%	523	786	2,254	0	0	12	406	611	1,752	0	0	3	6
MTR-46	MWR	01322	A/C heat unit	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-460	MWR	01313	outdr fan	1	0.25	48.0%	523	786	2,254	0	0	12	203	305	876	0	0	2	3
MTR-461	MWR	01322	RTU 1	1	0.25	48.0%	523	786	2,254	0	0	12	203	305	876	0	0	2	3
MTR-462	MWR	01322	RTU 2	1	0.25	48.0%	523	786	2,254	0	0	12	203	305	876	0	0	2	3
MTR-464	MWR	01322	A/C heat	1	0.25	48.0%	523	786	2,254	0	0	12	203	305	876	0	0	2	3
MTR-466	MWR	01322	RTU 3	1	0.25	48.0%	523	786	2,254	0	0	12	203	305	876	0	0	2	3
MTR-469	MWR	01322	RTU 2	1	0.5	53.0%	523	786	2,254	0	0	12	368	553	1,506	0	0	3	6
MTR-47	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-474	MWR	01322	AHU	3	0.5	53.0%	523	786	2,254	0	0	12	1,104	1,659	4,759	0	0	8	17
MTR-48	MWR	01322	A/C heat	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	0	2
MTR-334	OTHER	00992	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-335	PLT-BLDG	00253	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-336	PLT-BLDG	00253	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-337	PLT-BLDG	00253	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-338	PLT-BLDG	00263	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-339	PLT-BLDG	00263	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-475	PLT-BLDG	00253	basic	2	0.75	58.0%	523	349	1,560	0	0	12	1,009	673	3,010	0	0	8	15
MTR-476	PLT-BLDG	00263	boiler	1	3	82.0%	523	349	1,560	0	0	6	1,427	953	4,258	0	0	0	16

Table 2.19. (contd)

Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-280	EEM	MTRPOOL	00600	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-281	EEM	MTRPOOL	00600	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-282	EEM	MTRPOOL	00600	Evap. clr	1	3	0.895	522	332	363	0	0	1,305	830	909	0	0	10	5
MTR-283	EEM	MTRPOOL	00600	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-284	EEM	MTRPOOL	00605	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-285	EEM	MTRPOOL	00605	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-286	EEM	MTRPOOL	00605	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-287	EEM	MTRPOOL	00605	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-288	EEM	MTRPOOL	00608	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-289	EEM	MTRPOOL	00608	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-29	EEM	MTRPOOL	00857	chiller	2	20	0.934	522	332	525	108	3,113	8,339	5,303	8,387	1,725	49,728	128	64
MTR-290	EEM	MTRPOOL	00612	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-291	EEM	MTRPOOL	00612	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-292	EEM	MTRPOOL	00614	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-293	EEM	MTRPOOL	00620	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-294	EEM	MTRPOOL	00621	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-295	EEM	MTRPOOL	00621	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-296	EEM	MTRPOOL	00623	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-297	EEM	MTRPOOL	00626	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-298	EEM	MTRPOOL	00639	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-299	EEM	MTRPOOL	00642	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-300	EEM	MTRPOOL	00646	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-301	EEM	MTRPOOL	00646	Evap. clr	2	0.5	0.780	522	332	363	0	0	499	318	348	0	0	4	2
MTR-302	EEM	MTRPOOL	00650	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-303	EEM	MTRPOOL	00680	Evap. clr	5	1	0.865	522	332	363	0	0	2,251	1,432	1,567	0	0	17	9
MTR-304	EEM	MTRPOOL	00680	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-305	EEM	MTRPOOL	00681	Evap. clr	4	1	0.865	522	332	363	0	0	1,801	1,145	1,254	0	0	14	7
MTR-306	EEM	MTRPOOL	00681	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-307	EEM	MTRPOOL	00830	Evap. clr	3	0.75	0.800	522	332	363	0	0	1,095	697	763	0	0	8	4
MTR-308	EEM	MTRPOOL	00832	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-309	EEM	MTRPOOL	00832	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-310	EEM	MTRPOOL	00837	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-311	EEM	MTRPOOL	00840	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-312	EEM	MTRPOOL	00840	Evap. clr	3	0.75	0.800	522	332	363	0	0	1,095	697	763	0	0	8	4
MTR-313	EEM	MTRPOOL	00840	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-314	EEM	MTRPOOL	00847	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-315	EEM	MTRPOOL	00847	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-316	EEM	MTRPOOL	00850	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-317	EEM	MTRPOOL	00850	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-318	EEM	MTRPOOL	00873	Evap. clr	10	1.5	0.865	522	332	363	0	0	6,753	4,295	4,702	0	0	52	26
MTR-319	EEM	MTRPOOL	00879	Evap. clr	10	1.5	0.865	522	332	363	0	0	6,753	4,295	4,702	0	0	52	26
MTR-320	EEM	MTRPOOL	00941	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-44	EEM	MTRPOOL	00857	chiller	4	7.5	0.917	522	332	525	108	3,113	6,370	4,051	6,406	1,318	37,987	98	146

Table 2.19. (contd)

Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-456	EEM	MTRPOOL	00857	AHU	1	20	0.934	523	786	2,254	0	0	8,355	12,556	36,006	0	0	64	128
MTR-521	EEM	MTRPOOL	00681	FCU	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-8	EEM	MTRPOOL	00646	drip proof	1	2	0.866	523	352	1,205	0	0	451	303	1,038	0	0	7	14
MTR-9	EEM	MTRPOOL	00873	130 psig	1	15	0.930	523	352	1,205	0	0	3,146	2,118	7,249	0	0	48	96
MTR-94	EEM	MTRPOOL	00680	FCU	1	0.25	0.780	522	332	363	0	0	62	40	43	0	0	1	0
MTR-95	EEM	MTRPOOL	00857	AHU	1	0.25	0.780	522	332	363	0	0	62	40	43	0	0	1	0
MTR-30	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-31	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-32	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-321	EEM	MWR	00312	Evap. clr	2	1	0.865	522	332	363	0	0	900	573	627	0	0	7	3
MTR-322	EEM	MWR	00312	Evap. clr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
MTR-323	EEM	MWR	00340	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-324	EEM	MWR	00410	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-325	EEM	MWR	00480	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-326	EEM	MWR	00556	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-327	EEM	MWR	00910	Evap. clr	1	2	0.866	522	332	363	0	0	899	572	626	0	0	7	3
MTR-328	EEM	MWR	01322	Evap. clr	2	1	0.865	522	332	363	0	0	900	573	627	0	0	7	3
MTR-329	EEM	MWR	01322	Evap. clr	1	0.25	0.780	522	332	363	0	0	125	79	87	0	0	1	0
MTR-33	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-330	EEM	MWR	01322	Evap. clr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
MTR-331	EEM	MWR	01322	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-332	EEM	MWR	01322	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-333	EEM	MWR	01322	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-457	EEM	MWR	01313	fan motors	2	0.25	0.780	523	786	2,254	0	0	250	376	1,078	0	0	2	4
MTR-46	EEM	MWR	01322	A/C heat unit	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-460	EEM	MWR	01313	outdr fan	1	0.25	0.780	523	786	2,254	0	0	125	188	539	0	0	1	2
MTR-461	EEM	MWR	01322	RTU 1	1	0.25	0.780	523	786	2,254	0	0	125	188	539	0	0	1	2
MTR-462	EEM	MWR	01322	RTU 2	1	0.25	0.780	523	786	2,254	0	0	125	188	539	0	0	1	2
MTR-464	EEM	MWR	01322	A/C heat	1	0.25	0.780	523	786	2,254	0	0	125	188	539	0	0	1	2
MTR-466	EEM	MWR	01322	RTU 3	1	0.25	0.780	523	786	2,254	0	0	125	188	539	0	0	1	2
MTR-469	EEM	MWR	01322	RTU 2	1	0.5	0.780	523	786	2,254	0	0	250	376	1,078	0	0	2	4
MTR-47	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-474	EEM	MWR	01322	AHU	3	0.5	0.780	523	786	2,254	0	0	750	1,128	3,234	0	0	6	11
MTR-48	EEM	MWR	01322	A/C heat	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	0	1
MTR-334	EEM	OTHER	00992	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-335	EEM	PLT-BLDG	00253	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-336	EEM	PLT-BLDG	00253	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-337	EEM	PLT-BLDG	00253	Evap. clr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
MTR-338	EEM	PLT-BLDG	00263	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-339	EEM	PLT-BLDG	00263	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-475	EEM	PLT-BLDG	00253	basic	2	0.75	0.800	523	349	1,560	0	0	732	488	2,182	0	0	6	11
MTR-476	EEM	PLT-BLDG	00263	boiler	1	3	0.895	523	349	1,560	0	0	1,308	873	3,901	0	0	0	15

Table 2.19. (contd)

Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-280	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-282	RI	EEM	415	74	35	0	15	340	2	29	20	49	206	1.45
MTR-283	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-284	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-285	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-286	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-287	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-288	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-289	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-29	RI	EEM	2,536	258	240	0	15	4,332	11	194	116	310	1,831	1.72
MTR-290	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-291	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-292	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-293	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-294	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-295	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-296	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-297	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-298	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-299	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-300	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-301	RI	EEM	266	148	30	0	15	549	3	51	35	86	950	3.47
MTR-302	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-304	RI	EEM	298	148	32	0	15	646	3	59	40	100	1,167	3.82
MTR-306	RI	EEM	298	148	32	0	15	646	3	59	40	100	1,167	3.82
MTR-307	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-308	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-309	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-310	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-311	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-312	RI	EEM	447	222	48	0	15	969	5	90	61	151	1,740	3.80
MTR-313	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-314	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-315	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-316	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-317	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-320	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
MTR-44	RI	EEM	2,588	324	240	0	15	4,070	18	192	133	325	1,900	1.71
MTR-456	RI	EEM	1,268	129	120	0	15	3,356	11	211	72	282	3,103	3.43
MTR-521	RI	EEM	113	74	0	0	15	303	1	15	3	18	65	1.35
MTR-8	RI	EEM	442	74	20	0	15	319	4	26	28	54	235	1.47
MTR-9	RI	EEM	1,042	105	90	0	15	1,178	14	89	96	185	1,730	2.64
MTR-94	RI	EEM	113	74	0	0	15	91	1	8	11	20	101	1.54

Table 2.19. (contd)

Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-95	RI	EEM	113	74	0	0	15	91	1	9	12	20	93	1.50
MTR-30	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-31	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-32	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-323	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-324	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-325	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-326	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-329	RI	EEM	113	74	0	0	15	182	1	17	12	29	240	2.29
MTR-33	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-331	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-332	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-333	RI	EEM	149	74	16	0	15	323	2	30	20	50	580	3.80
MTR-457	RI	EEM	226	148	0	0	15	1,065	4	84	29	112	1,426	4.81
MTR-46	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-460	RI	EEM	113	74	0	0	15	532	2	42	14	56	713	4.81
MTR-461	RI	EEM	113	74	0	0	15	532	2	42	14	56	713	4.81
MTR-462	RI	EEM	113	74	0	0	15	532	2	42	14	56	713	4.81
MTR-464	RI	EEM	113	74	0	0	15	532	2	42	14	56	713	4.81
MTR-466	RI	EEM	113	74	0	0	15	532	2	42	14	56	713	4.81
MTR-469	RI	EEM	133	74	15	0	15	804	3	63	21	84	1,183	7.16
MTR-47	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-474	RI	EEM	399	222	45	0	15	2,411	8	189	64	253	3,550	7.16
MTR-48	RI	EEM	113	74	0	0	15	303	1	15	3	18	56	1.30
MTR-334	RI	EEM	149	74	16	0	15	323	2	30	21	51	577	3.79
MTR-335	RI	EEM	149	74	16	0	15	323	2	30	20	50	582	3.81
MTR-336	RI	EEM	149	74	16	0	15	323	2	30	20	50	582	3.81
MTR-338	RI	EEM	149	74	16	0	15	323	2	31	21	51	575	3.78
MTR-339	RI	EEM	298	148	32	0	15	646	3	61	41	103	1,151	3.78
MTR-475	RI	EEM	298	148	32	0	15	1,290	6	106	50	156	2,118	6.12
MTR-476	RI	EEM	415	74	35	0	15	556	1	41	4	44	130	1.29
Totals:	MOTORPOOL		16,048	4,886	1,543	0		30,133	141	2,268	1,498	3,766	38,073	2.96
	MWR		3,270	1,924	172	0		11,509	42	880	358	1,238	14,413	3.87
	OTHER		149	74	16	0		323	2	30	21	51	577	3.79
	PLT-BLDG		1,458	592	147	0		3,461	16	299	156	455	5,138	3.70

Table 2.20. Pump, Recreation, Security, Shop, Storage, Training, and Cold Warehouse Building Energy Efficient Motor EROs

Existing PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-10	PUMP	00044	drip proof	1	2	80.5%	523	352	1,205	0	0	12	485	326	1,117	0	0	7	15
MTR-11	PUMP	00652	set pt 40 psi	1	15	85.0%	523	352	1,205	0	0	12	3,443	2,317	7,932	0	0	53	105
MTR-340	PUMP	00044	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-341	PUMP	00700	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-342	PUMP	00838	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-477	PUMP	00324	AHU	1	5	83.5%	523	349	1,560	0	0	12	2,336	1,559	6,969	0	0	18	36
MTR-343	REC	00322	Evap. clr	10	1	80.5%	522	332	363	0	0	6	4,837	3,077	3,368	0	0	37	19
MTR-344	REC	00338	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-345	REC	00905	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-36	REC	00905	heatpmp	4	1	80.5%	522	332	1,740	108	3,113	12	967	615	3,225	200	5,770	15	30
MTR-481	REC	00905	cond	1	5	83.5%	523	349	1,560	0	0	12	2,336	1,559	6,969	0	0	18	36
MTR-346	SECURTY	00326	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-347	SECURTY	00326	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-348	SECURTY	00326	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-349	SECURTY	00427	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-12	SHOP	00367	115 psi	1	20	88.2%	523	352	1,205	0	0	12	4,424	2,977	10,192	0	0	68	135
MTR-350	SHOP	00356	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-351	SHOP	00357	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-352	SHOP	00357	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-353	SHOP	00357	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-354	SHOP	00367	Evap. clr	5	0.75	58.0%	522	332	363	0	0	6	2,518	1,601	1,753	0	0	19	10
MTR-355	SHOP	00367	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-356	SHOP	00384	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-357	SHOP	00384	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-358	SHOP	00842	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-359	SHOP	00842	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-360	SHOP-ELC	00581	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-361	SHOP-ELC	00581	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-362	SHOP-ELC	00616	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-363	SHOP-WPN	07602	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-364	STOR-UH	00148	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-365	TRAING	00490	Evap. clr	4	1	80.5%	522	332	363	0	0	6	1,935	1,231	1,347	0	0	15	7
MTR-366	TRAING	00492	Evap. clr	4	1	80.5%	522	332	363	0	0	6	1,935	1,231	1,347	0	0	15	7
MTR-367	TRAING	00496	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-368	TRAING	00496	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-369	TRAING	00547	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-482	TRAING	01202	indr fan	1	0.5	53.0%	523	349	1,560	0	0	12	368	246	1,098	0	0	3	6
MTR-483	TRAING	01202	outdr fan	1	0.333	48.0%	523	349	1,560	0	0	12	271	181	807	0	0	2	4
MTR-37	WHS-CLD	00862	heat pmp	1	0.25	48.0%	522	332	1,740	108	3,113	12	101	64	338	21	605	2	3
MTR-485	WHS-CLD	00862	air curtain	2	0.5	53.0%	523	786	2,254	1,619	3,578	12	736	1,106	3,173	2,279	5,036	6	11
MTR-486	WHS-CLD	00862	7000 cfm	2	3	82.0%	523	349	1,560	0	0	12	2,855	1,905	8,515	0	0	22	44
MTR-49	WHS-CLD	00862	heat pmp	1	0.25	48.0%	0	0	1,215	0	2,846	6	0	0	236	0	553	2	2

Table 2.20. (contd)

Energy-Efficient PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-10	EEM	PUMP	00044	drip proof	1	2	0.866	523	352	1,205	0	0	451	303	1,038	0	0	7	14
MTR-11	EEM	PUMP	00652	set pt 40 psi	1	15	0.930	523	352	1,205	0	0	3,146	2,118	7,249	0	0	48	96
MTR-340	EEM	PUMP	00044	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-341	EEM	PUMP	00700	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-342	EEM	PUMP	00838	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-477	EEM	PUMP	00324	AHU	1	5	0.902	523	349	1,560	0	0	2,163	1,443	6,451	0	0	17	33
MTR-343	EEM	REC	00322	Evap. clr	10	1	0.865	522	332	363	0	0	4,502	2,863	3,135	0	0	34	17
MTR-344	EEM	REC	00338	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-345	EEM	REC	00905	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-36	EEM	REC	00905	heatpmp	4	1	0.865	522	332	1,740	108	3,113	900	573	3,001	186	5,369	14	28
MTR-481	EEM	REC	00905	cond	1	5	0.902	523	349	1,560	0	0	2,163	1,443	6,451	0	0	17	33
MTR-346	EEM	SECURTY	00326	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-347	EEM	SECURTY	00326	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-348	EEM	SECURTY	00326	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-349	EEM	SECURTY	00427	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-12	EEM	SHOP	00367	115 psi	1	20	0.934	523	352	1,205	0	0	4,177	2,811	9,625	0	0	64	128
MTR-350	EEM	SHOP	00356	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-351	EEM	SHOP	00357	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-352	EEM	SHOP	00357	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-353	EEM	SHOP	00357	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-354	EEM	SHOP	00367	Evap. clr	5	0.75	0.800	522	332	363	0	0	1,825	1,161	1,271	0	0	14	7
MTR-355	EEM	SHOP	00367	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-356	EEM	SHOP	00384	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-357	EEM	SHOP	00384	Evap. clr	4	0.75	0.800	522	332	363	0	0	1,460	929	1,017	0	0	11	6
MTR-358	EEM	SHOP	00842	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-359	EEM	SHOP	00842	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-360	EEM	SHOP-ELC	00581	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-361	EEM	SHOP-ELC	00581	Evap. clr	4	0.75	0.800	522	332	363	0	0	1,460	929	1,017	0	0	11	6
MTR-362	EEM	SHOP-ELC	00616	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-363	EEM	SHOP-WPN	07602	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-364	EEM	STOR-UH	00148	Evap. clr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
MTR-365	EEM	TRAING	00490	Evap. clr	4	1	0.865	522	332	363	0	0	1,801	1,145	1,254	0	0	14	7
MTR-366	EEM	TRAING	00492	Evap. clr	4	1	0.865	522	332	363	0	0	1,801	1,145	1,254	0	0	14	7
MTR-367	EEM	TRAING	00496	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-368	EEM	TRAING	00496	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-369	EEM	TRAING	00547	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-482	EEM	TRAING	01202	indr fan	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	2	4
MTR-483	EEM	TRAING	01202	outdr fan	1	0.333	0.780	523	349	1,560	0	0	167	111	497	0	0	1	3
MTR-37	EEM	WHS-CLD	00862	heat pmp	1	0.25	0.780	522	332	1,740	108	3,113	62	40	208	13	372	1	2
MTR-485	EEM	WHS-CLD	00862	air curtain	2	0.5	0.780	523	786	2,254	1,619	3,578	500	752	2,156	1,548	3,422	4	8
MTR-486	EEM	WHS-CLD	00862	7000 cfm	2	3	0.895	523	349	1,560	0	0	2,616	1,745	7,802	0	0	20	40
MTR-49	EEM	WHS-CLD	00862	heat pmp	1	0.25	0.780	0	0	1,215	0	2,846	0	0	145	0	340	1	1

Table 2.20. (contd)

Energy-Efficient PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-11	RI	EEM	1,042	105	90	0	15	1,178	14	96	89	185	1,730	2.64
MTR-340	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-342	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-477	RI	EEM	478	74	40	0	15	807	4	27	58	85	750	2.47
MTR-344	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-481	RI	EEM	478	74	40	0	15	807	4	27	58	85	750	2.47
MTR-347	RI	EEM	149	74	16	0	15	323	2	20	30	49	585	3.83
MTR-12	RI	EEM	1,268	129	120	0	15	979	11	72	67	138	623	1.49
MTR-350	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-351	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-352	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-353	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-354	RI	EEM	745	370	80	0	15	1,615	8	102	151	252	2,900	3.80
MTR-355	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-356	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-357	RI	EEM	596	296	64	0	15	1,292	6	81	120	202	2,320	3.80
MTR-358	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-359	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-360	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-361	RI	EEM	596	296	64	0	15	1,292	6	81	120	202	2,320	3.80
MTR-362	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-363	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-367	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-368	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-482	RI	EEM	133	74	15	0	15	549	3	21	46	67	885	5.61
MTR-483	RI	EEM	113	74	0	0	15	484	2	19	40	59	768	5.11
MTR-37	RI	EEM	113	74	0	0	15	434	2	14	26	40	437	3.34
MTR-485	RI	EEM	266	148	30	0	15	3,952	5	43	219	262	3,981	11.37
MTR-486	RI	EEM	830	148	70	0	15	1,112	5	38	81	120	794	1.87
MTR-49	RI	EEM	113	74	0	0	15	303	1	13	15	29	240	2.28
Totals:	PUMP		1,967	401	178	0		2,954	22	184	237	421	4,221	2.93
	REC		776	222	72	0		1,453	7	68	118	185	1,910	3.06
	SECURTY		149	74	16	0		323	2	20	30	49	585	3.83
	SHOP		4,099	1,535	424	0		7,116	42	458	639	1,096	11,644	3.24
	SHOP-ELC		1,043	518	112	0		2,261	11	142	211	353	4,061	3.80
	SHOP-WPN		149	74	16	0		323	2	20	30	50	580	3.80
	STOR-UH		There are no cost effective STOR-UH EEM EROs.											
	TRAING		544	296	47	0		1,679	8	81	146	227	2,813	4.55
	WHS-CLD		1,322	444	100	0		5,802	14	109	342	451	5,452	4.27

Table 2.21. Warehouse Building Energy Efficient Motor EROs

Existing WHS Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-13	WHS	00552	wall mnt	2	0.5	53.0%	523	352	1,205	0	0	12	368	248	848	0	0	6	11
MTR-370	WHS	00024	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-371	WHS	00234	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-372	WHS	00277	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-373	WHS	00306	Evap. clr	2	1.5	80.5%	522	332	363	0	0	6	1,451	923	1,010	0	0	11	6
MTR-374	WHS	00318	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-375	WHS	00318	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-376	WHS	00318	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-377	WHS	00318	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-378	WHS	00333	Evap. clr	1	1	80.5%	522	332	363	0	0	6	484	308	337	0	0	4	2
MTR-379	WHS	00333	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-380	WHS	00333	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-381	WHS	00342	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-382	WHS	00342	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-383	WHS	00344	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-384	WHS	00352	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-385	WHS	00360	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-386	WHS	00364	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-387	WHS	00364	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-388	WHS	00364	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-389	WHS	00435	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-390	WHS	00456	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-391	WHS	00460	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-392	WHS	00462	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-393	WHS	00462	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-394	WHS	00470	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-395	WHS	00470	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-396	WHS	00470	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-397	WHS	00472	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-398	WHS	00474	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-399	WHS	00486	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-400	WHS	00486	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-401	WHS	00517	Evap. clr	4	0.75	58.0%	522	332	363	0	0	6	2,014	1,281	1,402	0	0	15	8
MTR-402	WHS	00531	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-403	WHS	00531	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-404	WHS	00537	Evap. clr	1	1.5	80.5%	522	332	363	0	0	6	726	462	505	0	0	6	3
MTR-405	WHS	00545	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-406	WHS	00558	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-407	WHS	00584	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-408	WHS	00585	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-409	WHS	00818	Evap. clr	1	20	88.2%	522	332	363	0	0	6	8,830	5,616	6,148	0	0	68	34
MTR-410	WHS	00827	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-411	WHS	00827	Evap. clr	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6

Table 2.21. (contd)

.Existing WHS Fan Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-412	WHS	00827	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-413	WHS	00844	Evap. clr	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-414	WHS	00860	Evap. clr	1	0 75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-415	WHS	00860	Evap. clr	2	0.75	58.0%	522	332	363	0	0	6	1,007	641	701	0	0	8	4
MTR-416	WHS	00860	EVAP	1	0.75	58.0%	522	332	363	0	0	6	504	320	351	0	0	4	2
MTR-417	WHS	00934	EVAP	3	0.75	58.0%	522	332	363	0	0	6	1,511	961	1,052	0	0	12	6
MTR-484	WHS	00474	EFU	2	0.5	53.0%	523	349	1,560	0	0	12	736	491	2,196	0	0	6	11
MTR-96	WHS	20001	AHU	4	0 25	48.0%	522	332	363	0	0	6	406	258	282	0	0	6	3

Table 2.21. (contd)

Energy-Efficient WHS Fan Motor Operating Parameters

Equipment Location and Description								Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-13	EEM	WHS	00552	wall mnt	2	0.5	0.780	523	352	1,205	0	0	250	168	576	0	0	4	8
MTR-370	EEM	WHS	00024	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-371	EEM	WHS	00234	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-372	EEM	WHS	00277	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-373	EEM	WHS	00306	Evap. clr	2	1.5	0.865	522	332	363	0	0	1,351	859	940	0	0	10	5
MTR-374	EEM	WHS	00318	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-375	EEM	WHS	00318	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-376	EEM	WHS	00318	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-377	EEM	WHS	00318	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-378	EEM	WHS	00333	Evap. clr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
MTR-379	EEM	WHS	00333	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-380	EEM	WHS	00333	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-381	EEM	WHS	00342	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-382	EEM	WHS	00342	Evap. clr	4	0.75	0.800	522	332	363	0	0	1,460	929	1,017	0	0	11	6
MTR-383	EEM	WHS	00344	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-384	EEM	WHS	00352	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-385	EEM	WHS	00360	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-386	EEM	WHS	00364	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-387	EEM	WHS	00364	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-388	EEM	WHS	00364	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-389	EEM	WHS	00435	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-390	EEM	WHS	00456	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-391	EEM	WHS	00460	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-392	EEM	WHS	00462	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-393	EEM	WHS	00462	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-394	EEM	WHS	00470	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-395	EEM	WHS	00470	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-396	EEM	WHS	00470	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-397	EEM	WHS	00472	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-398	EEM	WHS	00474	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-399	EEM	WHS	00486	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-400	EEM	WHS	00486	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-401	EEM	WHS	00517	Evap. clr	4	0.75	0.800	522	332	363	0	0	1,460	929	1,017	0	0	11	6
MTR-402	EEM	WHS	00531	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-403	EEM	WHS	00531	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-404	EEM	WHS	00537	Evap. clr	1	1.5	0.865	522	332	363	0	0	675	429	470	0	0	5	3
MTR-405	EEM	WHS	00545	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-406	EEM	WHS	00558	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-407	EEM	WHS	00584	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-408	EEM	WHS	00585	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-409	EEM	WHS	00818	Evap. clr	1	20	0.934	522	332	363	0	0	8,339	5,303	5,806	0	0	64	32
MTR-410	EEM	WHS	00827	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-411	EEM	WHS	00827	Evap. clr	3	0.75	0.800	522	332	363	0	0	1,095	697	763	0	0	8	4

Table 2.21. (contd)

Energy-Efficient WHS Fan Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-412	EEM	WHS	00827	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-413	EEM	WHS	00844	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-414	EEM	WHS	00860	Evap. clr	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-415	EEM	WHS	00860	Evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
MTR-416	EEM	WHS	00860	EVAP	1	0.75	0.800	522	332	363	0	0	365	232	254	0	0	3	1
MTR-417	EEM	WHS	00934	EVAP	3	0.75	0.800	522	332	363	0	0	1,095	697	763	0	0	8	4
MTR-484	EEM	WHS	00474	EFU	2	0.5	0.780	523	349	1,560	0	0	500	334	1,492	0	0	4	8
MTR-96	EEM	WHS	20001	AHU	4	0.25	0.780	522	332	363	0	0	250	159	174	0	0	4	2

Table 2.21. (contd)

Energy-Efficient WHS Fan Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-13	RI	EEM	266	148	30	0	15	469	5	43	40	83	887	3.31
MTR-370	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-371	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-374	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-375	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-376	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-377	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-379	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-380	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-381	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-382	RI	EEM	596	296	64	0	15	1,292	6	81	120	202	2,320	3.80
MTR-383	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-384	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-385	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-386	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-387	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-388	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-392	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-393	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-394	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-396	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-399	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-400	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-401	RI	EEM	596	296	64	0	15	1,292	6	81	120	202	2,320	3.80
MTR-402	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-403	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-405	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-406	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-407	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-408	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-409	RI	EEM	1,268	129	120	0	15	1,147	6	58	86	144	729	1.57
MTR-410	RI	EEM	149	74	16	0	15	323	2	20	30	50	584	3.82
MTR-411	RI	EEM	447	222	48	0	15	969	5	60	89	149	1,751	3.82
MTR-412	RI	EEM	149	74	16	0	15	323	2	20	30	50	584	3.82
MTR-413	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-414	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-415	RI	EEM	298	148	32	0	15	646	3	41	60	101	1,160	3.80
MTR-416	RI	EEM	149	74	16	0	15	323	2	20	30	50	580	3.80
MTR-417	RI	EEM	447	222	48	0	15	969	5	59	87	146	1,768	3.85
MTR-484	RI	EEM	266	148	30	0	15	1,097	5	43	91	134	1,769	5.61
MTR-96	RI	EEM	452	296	0	0	15	364	4	47	34	81	354	1.47
Totals:	WHS		10,596	4,865	1,076	0		21,163	109	1,324	1,932	3,257	36,270	3.52

Table 2.22. Pump Energy Efficient Motor EROs

Existing Pump Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
PMTR-18	BRK/ADM	00110	DHW	1	0.33	0.480	0	0	1,215	108	2,846	12	0	0	312	28	730	2	4
PMTR-19	BRK/ADM	00099	DHW	1	0.33	0.480	0	0	1,215	108	2,846	12	0	0	315	28	737	2	4
PMTR-20	BRK/ADM	00273	heat/cool	1	1.5	0.805	0	0	1,215	108	2,846	12	0	0	844	75	1,978	6	11
PMTR-21	BRK/ADM	00273	hot water	1	1	0.805	0	0	1,215	108	2,846	12	0	0	563	50	1,319	4	7
PMTR-22	BRK/ADM	00494	hot water	1	1.5	0.805	0	0	1,215	108	2,846	12	0	0	844	75	1,978	6	11
PMTR-23	BRK/ADM	00273	hot water	1	1.5	0.805	0	0	1,215	108	2,846	12	0	0	844	75	1,978	6	11
PMTR-24	BRK/ADM	00273	sump	1	0.5	0.530	100	100	100	100	100	6	70	70	70	70	70	2	2
PMTR-25	BRK/ADM	00273	sump	1	0.5	0.530	100	100	100	100	100	6	70	70	70	70	70	2	2
PMTR-26	CLINIC	00171	induction	2	15	0.865	522	332	363	0	0	12	13,506	8,590	9,404	0	0	103	207
PMTR-27	CLINIC	00171	induction	2	15	0.865	522	332	363	0	0	12	13,506	8,590	9,404	0	0	103	207
PMTR-28	DGR	00430	evap. clr	2	0.75	0.580	522	332	363	0	0	6	1,007	641	701	0	0	8	4
PMTR-29	DGR	00308	circ pump	1	5	0.840	522	332	363	0	0	12	2,318	1,474	1,614	0	0	18	36
PMTR-30	DGR	00430	temp control	1	0.5	0.530	522	332	363	0	0	12	367	234	256	0	0	3	6
PMTR-32	DINING	00254	circ. pump	1	0.5	0.530	522	332	363	0	0	12	184	117	128	0	0	3	6
PMTR-33	DINING	00254	circ. pump	1	1.5	0.805	522	332	363	0	0	12	363	231	253	0	0	6	11
PMTR-34	GROCERY	00920	circ. pump	2	5	0.835	522	332	363	0	0	12	4,664	2,966	3,247	0	0	36	71
PMTR-35	GROCERY	00920	clg tower	1	0.5	0.530	522	332	363	0	0	6	367	234	256	0	0	3	1
PMTR-37	GROCERY	00920	desuperhtrs	1	0.5	0.530	522	332	363	0	0	6	367	234	256	0	0	3	1
PMTR-38	HOSPITL	00166	condensate	2	1.5	0.805	523	786	2,254	1,619	3,578	12	1,454	2,185	6,266	4,501	9,947	11	22
PMTR-39	HOSPITL	00166	feed water	2	3	0.820	523	786	2,254	1,619	3,578	12	2,855	4,290	12,304	8,837	19,531	22	44
PMTR-40	HOSPITL	00166	hot water	2	3	0.820	523	786	2,254	1,619	3,578	12	2,855	4,290	12,304	8,837	19,531	22	44
PMTR-41	HOSPITL	00166	vacuum pump	1	3	0.820	523	786	2,254	1,619	3,578	12	1,427	2,145	6,152	4,419	9,765	11	22
PMTR-42	HOSPITL	00166	vacuum pump	2	5	0.796	523	786	2,254	1,619	3,578	12	4,901	7,366	21,124	15,173	33,533	37	75
PMTR-43	HOSPITL	00166	vacuum pump	1	7.5	0.795	523	786	2,254	1,619	3,578	12	3,681	5,532	15,863	11,394	25,181	28	56
PMTR-44	HOSPITL	00166	vacuum pump	2	7.5	0.795	523	786	2,254	1,619	3,578	12	7,361	11,063	31,726	22,788	50,362	56	113
PMTR-58	PLT-BLDG	00109	circ. pump	1	0.5	0.530	522	332	363	0	0	6	184	117	128	0	0	3	1
PMTR-65	PLT-BLDG	00253	DHW	2	5	0.835	523	786	2,254	0	0	12	4,673	7,022	20,138	0	0	36	71
PMTR-66	PLT-BLDG	00253	DHW	1	10	0.820	523	786	2,254	0	0	12	4,758	7,151	20,506	0	0	36	73
PMTR-67	PLT-BLDG	00253	DHW ODP	1	10	0.855	523	786	2,254	0	0	12	4,563	6,858	19,666	0	0	35	70
PMTR-68	PLT-BLDG	00109	hot water	1	2	0.795	522	332	363	0	0	12	490	312	341	0	0	8	15
PMTR-69	PLT-BLDG	00263	hot water	2	5	0.835	523	786	2,254	0	0	12	4,673	7,022	20,138	0	0	36	71
PMTR-70	POOL-OT	00328	circ. pump	1	0.25	0.480	523	786	2,254	1,619	3,578	12	203	305	876	629	1,390	2	3
PMTR-71	POOL-OT	00328	circ. pump	1	0.5	0.530	523	786	2,254	1,619	3,578	12	368	553	1,586	1,139	2,518	3	6
PMTR-72	POOL-OT	00328	circ. pump	1	0.25	0.480	523	786	2,254	1,619	3,578	12	203	305	876	629	1,390	2	3
PMTR-73	POOL-OT	00328	circ. pump	1	0.25	0.480	523	786	2,254	1,619	3,578	12	203	305	876	629	1,390	2	3
PMTR-100	PUMP	00700	Sewage Ponds	1	40	0.897	523	786	2,254	1,619	3,578	12	17,398	26,147	74,983	53,858	119,027	133	266
PMTR-101	PUMP	00700	Sewage Ponds	1	40	0.897	523	786	2,254	1,619	3,578	12	17,398	26,147	74,983	53,858	119,027	133	266
PMTR-102	PUMP	00700	Sewage Ponds	1	40	0.897	523	786	2,254	1,619	3,578	12	17,398	26,147	74,983	53,858	119,027	133	266
PMTR-103	PUMP	00700	Sewage Ponds	1	40	0.897	523	786	2,254	1,619	3,578	12	17,398	26,147	74,983	53,858	119,027	133	266
PMTR-104	PUMP	00700	Sewage Plant	2	25	0.890	240	356	1,032	736	1,636	12	10,058	14,920	43,251	30,846	68,565	168	335
PMTR-105	PUMP	00652	Well	1	3	0.800	186	276	800	570	1,268	12	520	772	2,237	1,596	3,547	11	22
PMTR-106	PUMP	00636	Bicycle Well 1	1	60	0.865	186	276	800	570	1,268	12	9,625	14,277	41,386	29,516	65,608	207	414
PMTR-107	PUMP	00636	Bicycle Well 2	1	60	0.865	21	31	90	64	143	12	1,087	1,612	4,673	3,332	7,407	207	414
PMTR-108	PUMP	00652	Well I-3	1	60	0.865	109	162	469	334	743	12	5,641	8,368	24,258	17,300	38,455	207	414

Table 2.22. (contd)

Existing Pump Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
PMTR-109	PUMP	00636	Well I-6	1	60	0.865	205	304	882	629	1,398	12	10,609	15,737	45,618	32,534	72,317	207	414
PMTR-110	PUMP	05996	Langford Well 1	1	125	0.904	212	314	910	649	1,443	12	21,842	32,398	93,919	66,981	148,887	413	825
PMTR-111	PUMP	05997	Bicycle Well 5	1	125	0.904	146	217	630	449	998	12	15,102	22,401	64,937	46,311	102,942	413	825
PMTR-112	PUMP	00319	Langford Well 2	1	100	0.904	192	285	826	589	1,309	12	15,844	23,502	68,130	48,589	108,005	330	660
PMTR-113	PUMP	00319	Bicycle Well 4	1	100	0.904	196	290	841	600	1,333	12	16,141	23,943	69,408	49,500	110,030	330	660
PMTR-114	PUMP	00663	Well #I-7	1	200	0.904	182	269	780	557	1,237	12	29,956	44,434	128,809	91,864	204,197	660	1320
PMTR-115	PUMP	00043	Well #I-5	1	75	0.904	182	269	781	557	1,238	12	11,241	16,674	48,335	34,472	76,624	248	495
PMTR-116	PUMP	00043	Langford Well 3	1	75	0.904	69	102	296	211	469	12	4,256	6,313	18,299	13,051	29,009	248	495
PMTR-74	PUMP	00042	RO plant	2	3	0.820	180	267	774	552	1,227	12	983	1,457	4,225	3,013	6,698	22	44
PMTR-75	PUMP	00044	RO plant	1	3	0.820	180	267	774	552	1,227	12	491	729	2,112	1,507	3,349	11	22
PMTR-76	PUMP	00324	HW circ.	1	1.5	0.795	192	284.8	825.6	588.8	1,309	12	270	401	1,162	829	1,842	6	11
PMTR-77	PUMP	00324	HW circ.	1	15	0.865	523	349	1,560	0	0	6	6,766	4,515	20,181	0	0	0	78
PMTR-78	PUMP	05590	Booster #1	1	200	0.904	66	98	285	203	452	12	10,942	16,231	47,052	33,557	74,591	660	1320
PMTR-79	PUMP	05590	Booster #2	1	200	0.904	52	78	225	161	357	12	8,645	12,823	37,174	26,511	58,930	660	1320
PMTR-80	PUMP	05590	Booster #3	1	200	0.904	93	138	399	284	632	12	15,300	22,694	65,788	46,919	104,292	660	1320
PMTR-81	PUMP	00044	feedwater	1	15	0.839	192	285	826	589	1,309	12	2,561	3,798	11,011	7,853	17,456	53	107
PMTR-82	PUMP	00324	from boiler	1	0.5	0.530	523	349	1,560	0	0	6	368	246	1,098	0	0	0	4
PMTR-83	PUMP	18005	Boosters	1	150	0.904	156	231	669	477	1,061	12	19,258	28,566	82,810	59,058	131,277	495	990
PMTR-84	PUMP	18005	Boosters	1	150	0.904	183	272	788	562	1,249	12	22,675	33,634	97,501	69,535	154,565	495	990
PMTR-85	PUMP	18005	Boosters	1	150	0.904	90	134	389	277	616	12	11,192	16,602	48,128	34,324	76,295	495	990
PMTR-86	PUMP	00324	main	1	20	0.840	192	285	826	589	1,309	12	3,410	5,059	14,664	10,458	23,247	71	142
PMTR-87	PUMP	00324	pump	1	2	0.805	192	285	826	589	1,309	12	356	528	1,530	1,091	2,426	7	15
PMTR-88	PUMP	00044	pump	2	7.5	0.845	523	786	2,254	1,619	3,578	12	6,926	10,409	29,849	21,440	47,382	53	106
PMTR-89	PUMP	00044	pump	2	7.5	0.855	523	786	2,254	1,619	3,578	12	6,845	10,287	29,500	21,189	46,828	52	105
PMTR-90	PUMP	00044	RO Plant	1	15	0.865	240	356	1,032	736	1,636	12	3,105	4,605	13,350	9,521	21,164	52	103
PMTR-91	PUMP	00042	RO Plant	1	15	0.865	240	356	1,032	736	1,636	12	3,105	4,605	13,350	9,521	21,164	52	103
PMTR-92	PUMP	00044	RO Plant	1	75	0.904	180	267	774	552	1,227	12	11,140	16,525	47,904	34,164	75,941	248	495
PMTR-93	PUMP	00044	RO Plant	1	75	0.904	523	786	2,254	1,619	3,578	12	32,369	48,647	139,504	100,202	221,448	248	495
PMTR-94	PUMP	00044	RO Plant	1	75	0.904	523	786	2,254	1,619	3,578	12	32,369	48,647	139,504	100,202	221,448	248	495
PMTR-95	PUMP	00324	recirc	1	1.5	0.805	192	285	826	589	1,309	12	267	396	1,148	818	1,819	6	11
PMTR-96	PUMP	00324	recirc	1	2	0.805	192	285	826	589	1,309	12	356	528	1,530	1,091	2,426	7	15
PMTR-97	PUMP	00324	recirc	1	2	0.805	192	285	826	589	1,309	12	356	528	1,530	1,091	2,426	7	15
PMTR-98	PUMP	00324	recirc	1	2	0.805	192	285	826	589	1,309	12	356	528	1,530	1,091	2,426	7	15
PMTR-99	PUMP	00324	recirc	1	15	0.865	192	285	826	589	1,309	12	2,484	3,684	10,680	7,617	16,931	52	103
PMTR-117	REC	00905	condensor	1	0.75	0.580	523	349	1,560	0	0	12	505	337	1,505	0	0	4	8
PMTR-118	REC	00322	recirc	1	0.5	0.530	523	349	1,560	0	0	12	368	246	1,098	0	0	3	6
PMTR-119	REC	00362	recirc DHW	1	0.5	0.530	523	349	1,560	0	0	12	368	246	1,098	0	0	3	6
PMTR-120	WHS-CLD	00862	circ. pump	6	10	0.855	523	786	2,254	1,619	3,578	12	27,380	41,148	117,999	84,756	187,311	209	419
PMTR-121	WHS-CLD	00862	circ. pump	3	10	0.855	523	786	2,254	1,619	3,578	12	13,690	20,574	58,999	42,378	93,656	105	209
PMTR-122	WHS-CLD	00862	circ. pump	2	0.5	0.530	182	269	780	557	1,237	12	255	379	1,099	783	1,741	6	11

Table 2.22. (contd)

Energy-Efficient Pump Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
PMTR-18	EEM	BRK/ADM	00110	DHW	1	0.33	0.780	0	0	1,215	108	2,846	0	0	192	17	449	1	3
PMTR-19	EEM	BRK/ADM	00099	DHW	1	0.33	0.780	0	0	1,215	108	2,846	0	0	194	17	454	1	3
PMTR-20	EEM	BRK/ADM	00273	heat/cool	1	1.5	0.865	0	0	1,215	108	2,846	0	0	786	70	1,841	5	10
PMTR-21	EEM	BRK/ADM	00273	hot water	1	1	0.865	0	0	1,215	108	2,846	0	0	524	47	1,227	3	7
PMTR-22	EEM	BRK/ADM	00494	hot water	1	1.5	0.865	0	0	1,215	108	2,846	0	0	786	70	1,841	5	10
PMTR-23	EEM	BRK/ADM	00273	hot water	1	1.5	0.865	0	0	1,215	108	2,846	0	0	786	70	1,841	5	10
PMTR-24	EEM	BRK/ADM	00273	sump	1	0.5	0.780	100	100	100	100	100	48	48	48	48	48	1	1
PMTR-25	EEM	BRK/ADM	00273	sump	1	0.5	0.780	100	100	100	100	100	48	48	48	48	48	1	1
PMTR-26	EEM	CLINIC	00171	induction	2	15	0.930	522	332	363	0	0	12,562	7,989	8,747	0	0	96	193
PMTR-27	EEM	CLINIC	00171	induction	2	15	0.930	522	332	363	0	0	12,562	7,989	8,747	0	0	96	193
PMTR-28	EEM	DGR	00430	evap. clr	2	0.75	0.800	522	332	363	0	0	730	464	508	0	0	6	3
PMTR-29	EEM	DGR	00308	circ pump	1	5	0.902	522	332	363	0	0	2,159	1,373	1,503	0	0	17	33
PMTR-30	EEM	DGR	00430	temp control	1	0.5	0.780	522	332	363	0	0	250	159	174	0	0	2	4
PMTR-32	EEM	DINING	00254	circ. pump	1	0.5	0.780	522	332	363	0	0	125	79	87	0	0	2	4
PMTR-33	EEM	DINING	00254	circ. pump	1	1.5	0.865	522	332	363	0	0	338	215	235	0	0	5	10
PMTR-34	EEM	GROCERY	00920	circ. pump	2	5	0.902	522	332	363	0	0	4,317	2,746	3,006	0	0	33	66
PMTR-35	EEM	GROCERY	00920	clg tower	1	0.5	0.780	522	332	363	0	0	250	159	174	0	0	2	1
PMTR-37	EEM	GROCERY	00920	desuperhtrs	1	0.5	0.780	522	332	363	0	0	250	159	174	0	0	2	1
PMTR-38	EEM	HOSPITL	00166	condensate	2	1.5	0.865	523	786	2,254	1,619	3,578	1,353	2,034	5,832	4,189	9,257	10	21
PMTR-39	EEM	HOSPITL	00166	feed water	2	3	0.895	523	786	2,254	1,619	3,578	2,616	3,931	11,273	8,097	17,894	20	40
PMTR-40	EEM	HOSPITL	00166	hot water	2	3	0.895	523	786	2,254	1,619	3,578	2,616	3,931	11,273	8,097	17,894	20	40
PMTR-41	EEM	HOSPITL	00166	vacuum pump	1	3	0.895	523	786	2,254	1,619	3,578	1,308	1,965	5,636	4,048	8,947	10	20
PMTR-42	EEM	HOSPITL	00166	vacuum pump	2	5	0.902	523	786	2,254	1,619	3,578	4,325	6,501	18,642	13,390	29,592	33	66
PMTR-43	EEM	HOSPITL	00166	vacuum pump	1	7.5	0.917	523	786	2,254	1,619	3,578	3,191	4,796	13,753	9,878	21,831	24	49
PMTR-44	EEM	HOSPITL	00166	vacuum pump	2	7.5	0.917	523	786	2,254	1,619	3,578	6,382	9,591	27,505	19,756	43,662	49	98
PMTR-58	EEM	PLT-BLDG	00109	circ. pump	1	0.5	0.780	522	332	363	0	0	125	79	87	0	0	2	1
PMTR-65	EEM	PLT-BLDG	00253	DHW	2	5	0.902	523	786	2,254	0	0	4,325	6,501	18,642	0	0	33	66
PMTR-66	EEM	PLT-BLDG	00253	DHW	1	10	0.917	523	786	2,254	0	0	4,255	6,394	18,337	0	0	33	65
PMTR-67	EEM	PLT-BLDG	00253	DHW ODP	1	10	0.917	523	786	2,254	0	0	4,255	6,394	18,337	0	0	33	65
PMTR-68	EEM	PLT-BLDG	00109	hot water	1	2	0.866	522	332	363	0	0	450	286	313	0	0	7	14
PMTR-69	EEM	PLT-BLDG	00263	hot water	2	5	0.902	523	786	2,254	0	0	4,325	6,501	18,642	0	0	33	66
PMTR-70	EEM	POOL-OT	00328	circ. pump	1	0.25	0.780	523	786	2,254	1,619	3,578	125	188	539	387	856	1	2
PMTR-71	EEM	POOL-OT	00328	circ. pump	1	0.5	0.780	523	786	2,254	1,619	3,578	250	376	1,078	774	1,711	2	4
PMTR-72	EEM	POOL-OT	00328	circ. pump	1	0.25	0.780	523	786	2,254	1,619	3,578	125	188	539	387	856	1	2
PMTR-73	EEM	POOL-OT	00328	circ. pump	1	0.25	0.780	523	786	2,254	1,619	3,578	125	188	539	387	856	1	2
PMTR-100	EEM	PUMP	00700	Sewage Ponds	1	40	0.945	523	786	2,254	1,619	3,578	16,515	24,819	71,174	51,123	112,982	126	253
PMTR-101	EEM	PUMP	00700	Sewage Ponds	1	40	0.945	523	786	2,254	1,619	3,578	16,515	24,819	71,174	51,123	112,982	126	253
PMTR-102	EEM	PUMP	00700	Sewage Ponds	1	40	0.945	523	786	2,254	1,619	3,578	16,515	24,819	71,174	51,123	112,982	126	253
PMTR-103	EEM	PUMP	00700	Sewage Ponds	1	40	0.945	523	786	2,254	1,619	3,578	16,515	24,819	71,174	51,123	112,982	126	253
PMTR-104	EEM	PUMP	00700	Sewage Plant	2	25	0.941	240	356	1,032	736	1,636	9,513	14,111	40,907	29,174	64,849	159	317
PMTR-105	EEM	PUMP	00652	Well	1	3	0.895	186	276	800	570	1,268	465	690	2,000	1,426	3,170	10	20
PMTR-106	EEM	PUMP	00636	Bicycle Well 1	1	60	0.950	186	276	800	570	1,268	8,764	12,999	37,683	26,875	59,738	188	377
PMTR-107	EEM	PUMP	00636	Bicycle Well 2	1	60	0.950	21	31	90	64	143	989	1,468	4,255	3,034	6,745	188	377
PMTR-108	EEM	PUMP	00652	Well I-3	1	60	0.950	109	162	469	334	743	5,137	7,619	22,087	15,752	35,014	188	377

Table 2.22. (contd)

Energy-Efficient Pump Motor Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg. Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
PMTR-109	EEM	PUMP	00636	Well I-6	1	60	0.950	205	304	882	629	1,398	9,660	14,329	41,537	29,623	65,847	188	377
PMTR-110	EEM	PUMP	05996	Langford Well 1	1	125	0.960	212	314	910	649	1,443	20,567	30,508	88,440	63,074	140,201	389	777
PMTR-111	EEM	PUMP	05997	Bicycle Well 5	1	125	0.960	146	217	630	449	998	14,221	21,094	61,149	43,610	96,937	389	777
PMTR-112	EEM	PUMP	00319	Langford Well 2	1	100	0.958	192	285	826	589	1,309	14,951	22,178	64,290	45,850	101,917	311	623
PMTR-113	EEM	PUMP	00319	Bicycle Well 4	1	100	0.958	196	290	841	600	1,333	15,231	22,593	65,495	46,710	103,828	311	623
PMTR-114	EEM	PUMP	00663	Well #I-7	1	200	0.962	182	269	780	557	1,237	28,149	41,755	121,043	86,325	191,886	620	1241
PMTR-115	EEM	PUMP	00043	Well #I-5	1	75	0.954	182	269	781	557	1,238	10,652	15,800	45,802	32,665	72,608	235	469
PMTR-116	EEM	PUMP	00043	Langford Well 3	1	75	0.954	69	102	296	211	469	4,033	5,982	17,340	12,367	27,489	235	469
PMTR-74	EEM	PUMP	00042	RO plant	2	3	0.895	180	267	774	552	1,227	900	1,335	3,871	2,761	6,136	20	40
PMTR-75	EEM	PUMP	00044	RO plant	1	3	0.895	180	267	774	552	1,227	450	668	1,935	1,380	3,068	10	20
PMTR-76	EEM	PUMP	00324	HW circ.	1	1.5	0.865	192	285	826	589	1,309	248	368	1,068	762	1,693	5	10
PMTR-77	EEM	PUMP	00324	HW circ.	1	15	0.930	523	349	1,560	0	0	6,293	4,199	18,770	0	0	0	72
PMTR-78	EEM	PUMP	05590	Booster #1	1	200	0.962	66	98	285	203	452	10,283	15,253	44,216	31,534	70,094	620	1241
PMTR-79	EEM	PUMP	05590	Booster #2	1	200	0.962	52	78	225	161	357	8,124	12,050	34,932	24,913	55,377	620	1241
PMTR-80	EEM	PUMP	05590	Booster #3	1	200	0.962	93	138	399	284	632	14,377	21,326	61,822	44,090	98,004	620	1241
PMTR-81	EEM	PUMP	00044	feedwater	1	15	0.930	192	285	826	589	1,309	2,310	3,427	9,934	7,085	15,748	48	96
PMTR-82	EEM	PUMP	00324	from boiler	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	0	3
PMTR-83	EEM	PUMP	18005	Boosters	1	150	0.962	156	231	669	477	1,061	18,097	26,844	77,817	55,498	123,362	465	931
PMTR-84	EEM	PUMP	18005	Boosters	1	150	0.962	183	272	788	562	1,249	21,308	31,606	91,622	65,343	145,246	465	931
PMTR-85	EEM	PUMP	18005	Boosters	1	150	0.962	90	134	389	277	616	10,518	15,601	45,226	32,254	71,695	465	931
PMTR-86	EEM	PUMP	00324	main	1	20	0.934	192	285	826	589	1,309	3,067	4,549	13,188	9,406	20,907	64	128
PMTR-87	EEM	PUMP	00324	pump	1	2	0.866	192	285	826	589	1,309	331	491	1,422	1,014	2,255	7	14
PMTR-88	EEM	PUMP	00044	pump	2	7.5	0.917	523	786	2,254	1,619	3,578	6,382	9,591	27,505	19,756	43,662	49	98
PMTR-89	EEM	PUMP	00044	pump	2	7.5	0.917	523	786	2,254	1,619	3,578	6,382	9,591	27,505	19,756	43,662	49	98
PMTR-90	EEM	PUMP	00044	RO Plant	1	15	0.930	240	356	1,032	736	1,636	2,888	4,283	12,417	8,856	19,685	48	96
PMTR-91	EEM	PUMP	00042	RO Plant	1	15	0.930	240	356	1,032	736	1,636	2,888	4,283	12,417	8,856	19,685	48	96
PMTR-92	EEM	PUMP	00044	RO Plant	1	75	0.954	180	267	774	552	1,227	10,557	15,659	45,393	32,374	71,961	235	469
PMTR-93	EEM	PUMP	00044	RO Plant	1	75	0.954	523	786	2,254	1,619	3,578	30,673	46,097	132,192	94,951	209,842	235	469
PMTR-94	EEM	PUMP	00044	RO Plant	1	75	0.954	523	786	2,254	1,619	3,578	30,673	46,097	132,192	94,951	209,842	235	469
PMTR-95	EEM	PUMP	00324	recirc	1	1.5	0.865	192	285	826	589	1,309	248	368	1,068	762	1,693	5	10
PMTR-96	EEM	PUMP	00324	recirc	1	2	0.866	192	285	826	589	1,309	331	491	1,422	1,014	2,255	7	14
PMTR-97	EEM	PUMP	00324	recirc	1	2	0.866	192	285	826	589	1,309	331	491	1,422	1,014	2,255	7	14
PMTR-98	EEM	PUMP	00324	recirc	1	2	0.866	192	285	826	589	1,309	331	491	1,422	1,014	2,255	7	14
PMTR-99	EEM	PUMP	00324	recirc	1	15	0.930	192	285	826	589	1,309	2,310	3,427	9,934	7,085	15,748	48	96
PMTR-117	EEM	REC	00905	condensor	1	0.75	0.800	523	349	1,560	0	0	366	244	1,091	0	0	3	6
PMTR-118	EEM	REC	00322	recirc	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	2	4
PMTR-119	EEM	REC	00362	recirc DHW	1	0.5	0.780	523	349	1,560	0	0	250	167	746	0	0	2	4
PMTR-120	EEM	WHS-CLD	00862	circ. pump	6	10	0.917	523	786	2,254	1,619	3,578	25,528	38,366	110,021	79,026	174,647	195	390
PMTR-121	EEM	WHS-CLD	00862	circ. pump	3	10	0.917	523	786	2,254	1,619	3,578	12,764	19,183	55,010	39,513	87,323	98	195
PMTR-122	EEM	WHS-CLD	00862	circ. pump	2	0.5	0.780	182	269	780	557	1,237	174	257	746	532	1,183	4	8

Table 2.22. (contd)

Energy-Efficient Pump Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
PMTR-18	RI	EEM	113	74	0	0	15	411	2	21	19	39	425	3.27
PMTR-19	RI	EEM	113	74	0	0	15	415	2	21	19	40	432	3.31
PMTR-24	RI	EEM	133	74	15	0	15	113	1	8	22	30	251	2.31
PMTR-25	RI	EEM	133	74	15	0	15	113	1	8	14	22	107	1.56
PMTR-26	RI	EEM	2,084	210	180	0	15	2,202	22	176	146	323	2,645	2.25
PMTR-27	RI	EEM	2,084	210	180	0	15	2,202	22	176	146	323	2,645	2.25
PMTR-28	RI	EEM	298	148	32	0	15	646	3	60	41	101	1,160	3.80
PMTR-29	RI	EEM	478	74	40	0	15	372	4	29	24	54	219	1.43
PMTR-30	RI	EEM	133	74	15	0	15	275	3	26	21	47	544	3.83
PMTR-32	RI	EEM	133	74	15	0	15	137	3	13	21	34	323	2.68
PMTR-34	RI	EEM	956	148	80	0	15	808	8	65	54	119	639	1.62
PMTR-35	RI	EEM	133	74	15	0	15	275	1	26	17	43	475	3.47
PMTR-37	RI	EEM	133	74	15	0	15	275	1	26	17	43	475	3 47
PMTR-38	RI	EEM	742	148	36	0	15	1,689	2	78	15	94	434	1.51
PMTR-39	RI	EEM	830	148	70	0	15	4,007	5	196	38	234	2,772	4.05
PMTR-40	RI	EEM	830	148	70	0	15	4,007	5	196	38	234	2,772	4.05
PMTR-41	RI	EEM	415	74	35	0	15	2,003	3	98	19	117	1,386	4.05
PMTR-42	RI	EEM	956	148	80	0	15	9,648	13	500	97	598	8,882	9.67
PMTR-43	RI	EEM	647	81	60	0	15	8,202	11	433	84	517	7,988	12.96
PMTR-44	RI	EEM	1,294	162	120	0	15	16,404	22	866	169	1,035	15,977	12.96
PMTR-56	RI	EEM	2,536	258	240	0	15	1,551	15	126	170	296	1,582	1.62
PMTR-58	RI	EEM	133	74	15	0	15	137	1	13	17	30	254	2.32
PMTR-65	RI	EEM	956	148	80	0	15	2,364	8	159	54	213	2,257	3.20
PMTR-66	RI	EEM	780	84	70	0	15	3,429	12	247	84	332	4,597	6.79
PMTR-67	RI	EEM	780	84	70	0	15	2,102	7	139	47	186	2,090	3.63
PMTR-69	RI	EEM	956	148	80	0	15	2,364	8	159	54	213	2,257	3.20
PMTR-70	RI	EEM	113	74	0	0	15	1,309	2	73	14	87	1,251	7.69
PMTR-71	RI	EEM	133	74	15	0	15	1,976	3	110	21	131	1,991	11.37
PMTR-72	RI	EEM	113	74	0	0	15	1,309	2	73	14	87	1,251	7.69
PMTR-73	RI	EEM	113	74	0	0	15	1,309	2	73	14	87	1,251	7.69
PMTR-100	RI	EEM	2,574	169	200	0	15	14,802	20	642	125	767	9,679	4.81
PMTR-101	RI	EEM	2,574	169	200	0	15	14,802	20	642	125	767	9,679	4.81
PMTR-102	RI	EEM	2,574	169	200	0	15	14,802	20	642	125	767	9,679	4.81
PMTR-103	RI	EEM	2,574	169	200	0	15	14,802	20	642	125	767	9,679	4.81
PMTR-104	RI	EEM	3,316	272	270	0	15	9,086	27	403	172	574	5,308	2.60
PMTR-105	RI	EEM	415	74	35	0	15	921	4	47	26	73	623	2.37
PMTR-106	RI	EEM	3,346	242	270	0	15	14,353	56	721	396	1,117	14,628	5.41
PMTR-107	RI	EEM	3,346	242	270	0	15	1,620	56	81	396	478	3,619	2.09
PMTR-108	RI	EEM	3,346	242	270	0	15	8,412	56	422	396	819	9,492	3.86
PMTR-109	RI	EEM	3,346	242	270	0	15	15,820	56	794	396	1,191	15,897	5.79
PMTR-110	RI	EEM	5,367	428	450	0	15	21,235	72	969	468	1,438	17,228	4.22
PMTR-111	RI	EEM	5,367	428	450	0	15	14,682	72	670	468	1,139	12,077	3.26
PMTR-112	RI	EEM	3,933	371	320	0	15	14,885	56	672	358	1,030	12,170	4.05
PMTR-113	RI	EEM	3,933	371	320	0	15	15,164	56	685	358	1,043	12,387	4.11

Table 2.22. (contd)

Energy-Efficient Pump Motor Economic Parameters

								Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
PMTR-114	RI	EEM	8,592	582	550	0	15	30,101	119	1,388	782	2,170	25,521	3.96
PMTR-115	RI	EEM	3,346	242	270	0	15	9,819	39	432	244	676	7,036	3.12
PMTR-116	RI	EEM	3,346	242	270	0	15	3,717	39	164	244	407	2,410	1.73
PMTR-74	RI	EEM	830	148	70	0	15	1,372	5	67	38	105	551	1.61
PMTR-75	RI	EEM	415	74	35	0	15	686	3	34	19	53	276	1.61
PMTR-77	RI	EEM	1,042	105	90	0	15	2,199	5	156	14	170	1,464	2.39
PMTR-78	RI	EEM	8,592	582	550	0	15	10,996	119	436	673	1,109	9,759	2.13
PMTR-79	RI	EEM	8,592	582	550	0	15	8,687	119	401	782	1,183	8,516	1.99
PMTR-80	RI	EEM	8,592	582	550	0	15	15,374	119	709	782	1,491	13,826	2.60
PMTR-81	RI	EEM	1,042	105	90	0	15	4,176	16	212	113	325	4,141	4.92
PMTR-82	RI	EEM	133	74	15	0	15	549	1	46	4	50	586	4.05
PMTR-83	RI	EEM	6,801	479	500	0	15	19,352	90	892	587	1,479	15,910	3.35
PMTR-84	RI	EEM	6,801	479	500	0	15	22,785	90	1,051	587	1,637	18,636	3.75
PMTR-85	RI	EEM	6,801	479	500	0	15	11,247	90	519	587	1,105	9,474	2.40
PMTR-86	RI	EEM	1,268	129	120	0	15	5,720	21	292	156	448	5,949	5.66
PMTR-88	RI	EEM	1,294	162	120	0	15	9,108	12	442	86	529	7,257	6.43
PMTR-89	RI	EEM	1,294	162	120	0	15	7,752	11	363	71	434	5,634	5.22
PMTR-90	RI	EEM	1,042	105	90	0	15	3,617	11	172	73	245	2,762	3.61
PMTR-91	RI	EEM	1,042	105	90	0	15	3,617	11	172	73	245	2,762	3.61
PMTR-92	RI	EEM	3,346	242	270	0	15	9,731	39	428	244	672	6,970	3.10
PMTR-93	RI	EEM	3,346	242	270	0	15	28,416	39	1,250	244	1,494	21,124	7.37
PMTR-94	RI	EEM	3,346	242	270	0	15	28,416	39	1,250	244	1,494	21,124	7.37
PMTR-99	RI	EEM	1,042	105	90	0	15	2,893	11	137	73	211	2,171	3.05
PMTR-117	RI	EEM	149	74	16	0	15	645	3	53	25	78	1,059	6.12
PMTR-118	RI	EEM	133	74	15	0	15	549	3	46	21	67	885	5.61
PMTR-119	RI	EEM	133	74	15	0	15	549	3	46	21	67	885	5.61
PMTR-120	RI	EEM	4,680	504	420	0	15	31,006	42	1,454	283	1,737	23,238	5.88
PMTR-121	RI	EEM	2,340	252	210	0	15	15,503	21	727	142	868	11,619	5.88
PMTR-122	RI	EEM	266	148	30	0	15	1,365	5	76	43	119	1,508	4.93
Totals:	Pumps		154,908	14,346	12,054	0		537,385	1,913	25,642	12,705	38,347	444,531	3.83

Table 2.23. Building VSD EROs

Existing Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
MTR-418a	ADMIN	00281	AHU	1	1.5	80.5%	522	332	363	0	0	12	726	462	505	0	0	6	11
MTR-422a	ADMIN	989	RTU	2	3	82.0%	522	332	363	0	0	12	2,849	1,812	1,984	0	0	22	44
MTR-423a	ADMIN	00988	AHU	2	7.5	85.5%	522	332	363	0	0	12	6,832	4,345	4,757	0	0	52	105
MTR-426a	ADMIN	00988	RTU	2	3	82.0%	522	332	363	0	0	12	2,849	1,812	1,984	0	0	22	44
MTR-427a	ADMIN	00988	RTU	1	1.5	80.5%	522	332	363	0	0	12	726	462	505	0	0	6	11
MTR-430a	ADMIN	00988	RTU	2	3	82.0%	522	332	363	0	0	12	2,849	1,812	1,984	0	0	22	44
MTR-51a	ADMIN	00243	FCU	1	1	80.5%	522	332	363	0	0	6	242	154	168	0	0	4	2
MTR-52a	ADMIN	00828	FCU	1	1	80.5%	522	332	363	0	0	6	242	154	168	0	0	4	2
MTR-55a	ADMIN	00988	AHU	3	5	83.5%	522	332	363	0	0	6	6,995	4,449	4,871	0	0	54	27
MTR-433a	BRK/ADM	00273	AHU	2	3	82.0%	522	747	525	0	0	12	2,849	4,078	2,866	0	0	22	44
MTR-435a	BRK/ADM	00275	AHU	2	3	82.0%	522	747	525	0	0	12	2,849	4,078	2,866	0	0	22	44
MTR-40a	CLINIC	00171	cond.	6	1.5	80.5%	0	0	1,215	0	2,846	12	0	0	5,067	0	11,868	33	67
MTR-436a	CLINIC	00171	return	1	7.5	85.5%	523	349	1,560	0	0	12	3,422	2,284	10,208	0	0	26	52
MTR-437a	CLINIC	00171	AHU	1	15	83.6%	523	349	1,560	0	0	12	7,000	4,671	20,881	0	0	54	107
MTR-438a	CLINIC	00171	evap	1	25	89.0%	523	349	1,560	0	0	12	10,959	7,313	32,690	0	0	84	168
MTR-522a	DGR	00308	6650 cfm	1	3	82.0%	523	349	1,560	0	0	12	1,427	953	4,258	0	0	11	22
MTR-523a	DGR	00308	6650 cfm	1	3	82.0%	523	349	1,560	0	0	12	1,427	953	4,258	0	0	11	22
MTR-524a	DGR	00308		1	5	83.5%	523	349	1,560	0	0	12	2,336	1,559	6,969	0	0	18	36
MTR-525a	DGR	00308		1	1.5	80.5%	523	349	1,560	0	0	12	727	485	2,168	0	0	6	11
MTR-443a	DINING	00254	AHU	6	2	80.5%	523	349	1,560	0	0	12	5,816	3,881	17,348	0	0	44	89
MTR-444a	DINING	00254	AHU	4	3	82.0%	523	349	1,560	0	0	12	5,710	3,810	17,031	0	0	44	87
MTR-451a	HOSPITL	00166	AHU-2	1	15	86.5%	523	786	2,254	1,619	3,578	12	6,766	10,168	29,159	20,944	46,286	52	103
MTR-452a	HOSPITL	00166	AHU-1	1	10	85.5%	523	786	2,254	1,619	3,578	12	4,563	6,858	19,666	14,126	31,219	35	70
MTR-453a	HOSPITL	00166	AHU-4	1	7.5	82.0%	523	786	2,254	1,619	3,578	12	3,569	5,363	15,379	11,047	24,413	27	55
MTR-454a	HOSPITL	00166	AHU-3	1	20	88.2%	523	786	2,254	1,619	3,578	12	8,847	13,296	38,129	27,387	60,526	68	135
MTR-455a	HOSPITL	00166	AHU	2	2	80.5%	523	786	2,254	1,619	3,578	12	1,939	2,914	8,355	6,001	13,263	15	30
MTR-458a	MWR	01313	indr fan	1	1.5	80.5%	523	786	2,254	0	0	12	727	1,093	3,133	0	0	6	11
MTR-459a	MWR	01313	indr fan	1	1	80.5%	523	786	2,254	0	0	12	485	728	2,089	0	0	4	7
MTR-45a	MWR	01322	A/C	1	1.5	80.5%	0	0	1,215	0	2,846	6	0	0	844	0	1,978	6	3
MTR-463a	MWR	01322	A/C heat	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-465a	MWR	01322	A/C supply	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-467a	MWR	01322	RTU 1	1	3	82.0%	523	786	2,254	0	0	12	1,427	2,145	6,152	0	0	11	22
MTR-468a	MWR	01322	RTU 3	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-470a	MWR	01322	A/C heat	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-471a	MWR	01322	RTU 1	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-472a	MWR	01322	RTU 2	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-473a	MWR	01322	RTU 3	1	2	80.5%	523	786	2,254	0	0	12	969	1,457	4,178	0	0	7	15
MTR-34a	REC	00905		1	30	89.0%	522	332	1,740	108	3,113	12	6,563	4,174	21,877	1,358	39,140	101	201
MTR-35a	REC	00905		1	35	89.0%	522	332	1,740	108	3,113	12	7,657	4,870	25,523	1,584	45,663	117	235
MTR-478a	REC	00905	A/C AHU	1	3	82.0%	523	349	1,560	0	0	6	1,427	953	4,258	0	0	11	5
MTR-479a	REC	00905	A/C AHU	1	3	82.0%	523	349	1,560	0	0	6	1,427	953	4,258	0	0	11	5
MTR-480a	REC	00905	A/C AHU	1	3	82.0%	523	349	1,560	0	0	6	1,427	953	4,258	0	0	11	5
MTR-50a	WHS-CLD	00862	60.6 tons	2	5	83.5%	0	0	1,215	0	2,846	6	0	0	5,427	0	12,713	36	18

Table 2.23. (contd)

Energy-Efficient Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
EEM only:																			
MTR-418a	EEM	ADMIN	00281	AHU	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5	10
MTR-422a	EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	2,611	1,660	1,818	0	0	20	40
MTR-423a	EEM	ADMIN	00988	AHU	2	7.5	91.7%	522	332	363	0	0	6,370	4,051	4,435	0	0	49	98
MTR-426a	EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	2,611	1,660	1,818	0	0	20	40
MTR-427a	EEM	ADMIN	00988	RTU	1	1.5	86.5%	522	332	363	0	0	675	429	470	0	0	5	10
MTR-430a	EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	2,611	1,660	1,818	0	0	20	40
MTR-51a	EEM	ADMIN	00243	FCU	1	1	86.5%	522	332	363	0	0	225	143	157	0	0	3	2
MTR-52a	EEM	ADMIN	00828	FCU	1	1	86.5%	522	332	363	0	0	225	143	157	0	0	3	2
MTR-55a	EEM	ADMIN	00988	AHU	3	5	90.2%	522	332	363	0	0	6,476	4,119	4,509	0	0	50	25
MTR-433a	EEM	BRK/ADM	00273	AHU	2	3	89.5%	522	747	525	0	0	2,611	3,736	2,626	0	0	20	40
MTR-435a	EEM	BRK/ADM	00275	AHU	2	3	89.5%	522	747	525	0	0	2,611	3,736	2,626	0	0	20	40
MTR-40a	EEM	CLINIC	00171	cond.	6	1.5	86.5%	0	0	1,215	0	2,846	0	0	4,715	0	11,045	31	62
MTR-436a	EEM	CLINIC	00171	return	1	7.5	91.7%	523	349	1,560	0	0	3,191	2,129	9,518	0	0	24	49
MTR-437a	EEM	CLINIC	00171	AHU	1	15	93.0%	523	349	1,560	0	0	6,293	4,199	18,770	0	0	48	96
MTR-438a	EEM	CLINIC	00171	evap	1	25	94.1%	523	349	1,560	0	0	10,366	6,917	30,918	0	0	79	159
MTR-522a	EEM	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	1,308	873	3,901	0	0	10	20
MTR-523a	EEM	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	1,308	873	3,901	0	0	10	20
MTR-524a	EEM	DGR	00308		1	5	90.2%	523	349	1,560	0	0	2,163	1,443	6,451	0	0	17	33
MTR-525a	EEM	DGR	00308		1	1.5	86.5%	523	349	1,560	0	0	677	451	2,018	0	0	5	10
MTR-443a	EEM	DINING	00254	AHU	6	2	86.6%	523	349	1,560	0	0	5,406	3,608	16,126	0	0	41	83
MTR-444a	EEM	DINING	00254	AHU	4	3	89.5%	523	349	1,560	0	0	5,231	3,491	15,603	0	0	40	80
MTR-451a	EEM	HOSPITL	00166	AHU-2	1	15	93.0%	523	786	2,254	1,619	3,578	6,293	9,457	27,121	19,480	43,051	48	96
MTR-452a	EEM	HOSPITL	00166	AHU-1	1	10	91.7%	523	786	2,254	1,619	3,578	4,255	6,394	18,337	13,171	29,108	33	65
MTR-453a	EEM	HOSPITL	00166	AHU-4	1	7.5	91.7%	523	786	2,254	1,619	3,578	3,191	4,796	13,753	9,878	21,831	24	49
MTR-454a	EEM	HOSPITL	00166	AHU-3	1	20	93.4%	523	786	2,254	1,619	3,578	8,355	12,556	36,006	25,862	57,156	64	128
MTR-455a	EEM	HOSPITL	00166	AHU	2	2	86.6%	523	786	2,254	1,619	3,578	1,802	2,708	7,767	5,579	12,329	14	28
MTR-458a	EEM	MWR	01313	indr fan	1	1.5	86.5%	523	786	2,254	0	0	677	1,017	2,916	0	0	5	10
MTR-459a	EEM	MWR	01313	indr fan	1	1	86.5%	523	786	2,254	0	0	451	678	1,944	0	0	3	7
MTR-45a	EEM	MWR	01322	A/C	1	1.5	86.5%	0	0	1,215	0	2,846	0	0	786	0	1,841	5	3
MTR-463a	EEM	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-465a	EEM	MWR	01322	A/C supply	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-467a	EEM	MWR	01322	RTU 1	1	3	89.5%	523	786	2,254	0	0	1,308	1,965	5,636	0	0	10	20
MTR-468a	EEM	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-470a	EEM	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-471a	EEM	MWR	01322	RTU 1	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-472a	EEM	MWR	01322	RTU 2	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-473a	EEM	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	901	1,354	3,883	0	0	7	14
MTR-34a	EEM	REC	00905		1	30	94.1%	522	332	1,740	108	3,113	6,207	3,948	20,691	1,284	37,019	95	190
MTR-35a	EEM	REC	00905		1	35	94.1%	522	332	1,740	108	3,113	7,242	4,606	24,140	1,498	43,188	111	222
MTR-478a	EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,308	873	3,901	0	0	10	5
MTR-479a	EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,308	873	3,901	0	0	10	5
MTR-480a	EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,308	873	3,901	0	0	10	5
MTR-50a	EEM	WHS-CLD	00862	60.6 tons	2	5	90.2%	0	0	1,215	0	2,846	0	0	5,024	0	11,769	33	17

Table 2.23. (contd)

Energy-Efficient Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
VSD to existing motor:																			
MTR-418b	VSD only	ADMIN	00281	AHU	1	1.5	86.5%	522	332	363	0	0	210	134	147	0	0	6	11
MTR-422b	VSD only	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	826	526	575	0	0	22	44
MTR-423b	VSD only	ADMIN	00988	AHU	2	7.5	91.7%	522	332	363	0	0	1,981	1,260	1,379	0	0	52	105
MTR-426b	VSD only	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	826	526	575	0	0	22	44
MTR-427b	VSD only	ADMIN	00988	RTU	1	1.5	86.5%	522	332	363	0	0	210	134	147	0	0	6	11
MTR-430b	VSD only	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	826	526	575	0	0	22	44
MTR-51b	VSD only	ADMIN	00243	FCU	1	1	86.5%	522	332	363	0	0	70	45	49	0	0	4	2
MTR-52b	VSD only	ADMIN	00828	FCU	1	1	86.5%	522	332	363	0	0	70	45	49	0	0	4	2
MTR-55b	VSD only	ADMIN	00988	AHU	3	5	90.2%	522	332	363	0	0	2,029	1,290	1,413	0	0	54	27
MTR-433b	VSD only	BRK/ADM	00273	AHU	2	3	89.5%	522	747	525	0	0	826	1,182	831	0	0	22	44
MTR-435b	VSD only	BRK/ADM	00275	AHU	2	3	89.5%	522	747	525	0	0	826	1,182	831	0	0	22	44
MTR-40b	VSD only	CLINIC	00171	cond.	6	1.5	86.5%	0	0	1,215	0	2,846	0	0	2,533	0	5,934	33	67
MTR-436b	VSD only	CLINIC	00171	return	1	7.5	91.7%	523	349	1,560	0	0	993	662	2,960	0	0	26	52
MTR-437b	VSD only	CLINIC	00171	AHU	1	15	93.0%	523	349	1,560	0	0	2,030	1,355	6,055	0	0	54	107
MTR-438b	VSD only	CLINIC	00171	evap	1	25	94.1%	523	349	1,560	0	0	3,178	2,121	9,480	0	0	84	168
MTR-522b	VSD only	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	714	476	2,129	0	0	11	22
MTR-523b	VSD only	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	714	476	2,129	0	0	11	22
MTR-524b	VSD only	DGR	00308		1	5	90.2%	523	349	1,560	0	0	1,168	780	3,484	0	0	18	36
MTR-525b	VSD only	DGR	00308		1	1.5	86.5%	523	349	1,560	0	0	364	243	1,084	0	0	6	11
MTR-443b	VSD only	DINING	00254	AHU	6	2	86.6%	523	349	1,560	0	0	1,687	1,126	5,031	0	0	44	89
MTR-444b	VSD only	DINING	00254	AHU	4	3	89.5%	523	349	1,560	0	0	1,656	1,105	4,939	0	0	44	87
MTR-451b	VSD only	HOSPITL	00166	AHU-2	1	15	93.0%	523	786	2,254	1,619	3,578	1,962	2,949	8,456	6,074	13,423	52	103
MTR-452b	VSD only	HOSPITL	00166	AHU-1	1	10	91.7%	523	786	2,254	1,619	3,578	1,323	1,989	5,703	4,097	9,053	35	70
MTR-453b	VSD only	HOSPITL	00166	AHU-4	1	7.5	91.7%	523	786	2,254	1,619	3,578	1,035	1,555	4,460	3,204	7,080	27	55
MTR-454b	VSD only	HOSPITL	00166	AHU-3	1	20	93.4%	523	786	2,254	1,619	3,578	2,566	3,856	11,057	7,942	17,552	68	135
MTR-455b	VSD only	HOSPITL	00166	AHU	2	2	86.6%	523	786	2,254	1,619	3,578	562	845	2,423	1,740	3,846	15	30
MTR-458b	VSD only	MWR	01313	indr fan	1	1.5	86.5%	523	786	2,254	0	0	211	317	909	0	0	6	11
MTR-459b	VSD only	MWR	01313	indr fan	1	1	86.5%	523	786	2,254	0	0	141	211	606	0	0	4	7
MTR-45b	VSD only	MWR	01322	A/C	1	1.5	86.5%	0	0	1,215	0	2,846	0	0	422	0	989	6	3
MTR-463b	VSD only	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-465b	VSD only	MWR	01322	A/C supply	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-467b	VSD only	MWR	01322	RTU 1	1	3	89.5%	523	786	2,254	0	0	414	622	1,784	0	0	11	22
MTR-468b	VSD only	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-470b	VSD only	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-471b	VSD only	MWR	01322	RTU 1	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-472b	VSD only	MWR	01322	RTU 2	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-473b	VSD only	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	281	422	1,212	0	0	7	15
MTR-34b	VSD only	REC	00905		1	30	94.1%	522	332	1,740	108	3,113	3,282	2,087	10,939	679	19,570	101	201
MTR-35b	VSD only	REC	00905		1	35	94.1%	522	332	1,740	108	3,113	3,828	2,435	12,762	792	22,832	117	235
MTR-478b	VSD only	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	414	276	1,235	0	0	11	5
MTR-479b	VSD only	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	414	276	1,235	0	0	11	5
MTR-480b	VSD only	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	414	276	1,235	0	0	11	5
MTR-50b	VSD only	WHS-CLD	00862	60.6 tons	2	5	90.2%	0	0	1,215	0	2,846	0	0	2,714	0	6,357	36	18

Table 2.23. (contd)

Energy-Efficient Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
Add VSD and EEM:																			
MTR-418c	VSD & EEM	ADMIN	00281	AHU	1	1.5	86.5%	522	332	363	0	0	457	196	125	136	0	5	10
MTR-422c	VSD & EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	1,766	757	482	527	0	20	40
MTR-423c	VSD & EEM	ADMIN	00988	AHU	2	7.5	91.7%	522	332	363	0	0	4,308	1,847	1,175	1,286	0	49	98
MTR-426c	VSD & EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	1,766	757	482	527	0	20	40
MTR-427c	VSD & EEM	ADMIN	00988	RTU	1	1.5	86.5%	522	332	363	0	0	457	196	125	136	0	5	10
MTR-430c	VSD & EEM	ADMIN	00988	RTU	2	3	89.5%	522	332	363	0	0	1,766	757	482	527	0	20	40
MTR-51c	VSD & EEM	ADMIN	00243	FCU	1	1	86.5%	522	332	363	0	0	152	65	42	45	0	3	2
MTR-52c	VSD & EEM	ADMIN	00828	FCU	1	1	86.5%	522	332	363	0	0	152	65	42	45	0	3	2
MTR-55c	VSD & EEM	ADMIN	00988	AHU	3	5	90.2%	522	332	363	0	0	4,380	1,878	1,194	1,308	0	50	25
MTR-433c	VSD & EEM	BRK/ADM	00273	AHU	2	3	89.5%	522	747	525	0	0	2,602	757	1,083	761	0	20	40
MTR-435c	VSD & EEM	BRK/ADM	00275	AHU	2	3	89.5%	522	747	525	0	0	2,602	757	1,083	761	0	20	40
MTR-40c	VSD & EEM	CLINIC	00171	cond.	6	1.5	86.5%	0	0	1,215	0	2,846	7,880	0	0	2,358	0	31	62
MTR-436c	VSD & EEM	CLINIC	00171	return	1	7.5	91.7%	523	349	1,560	0	0	4,303	925	618	2,760	0	24	49
MTR-437c	VSD & EEM	CLINIC	00171	AHU	1	15	93.0%	523	349	1,560	0	0	8,486	1,825	1,218	5,443	0	48	96
MTR-438c	VSD & EEM	CLINIC	00171	evap	1	25	94.1%	523	349	1,560	0	0	13,978	3,006	2,006	8,966	0	79	159
MTR-522c	VSD & EEM	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	3,041	654	436	1,950	0	10	20
MTR-523c	VSD & EEM	DGR	00308	6650 cfm	1	3	89.5%	523	349	1,560	0	0	3,041	654	436	1,950	0	10	20
MTR-524c	VSD & EEM	DGR	00308		1	5	90.2%	523	349	1,560	0	0	5,028	1,081	722	3,225	0	17	33
MTR-525c	VSD & EEM	DGR	00308		1	1.5	86.5%	523	349	1,560	0	0	1,573	338	226	1,009	0	5	10
MTR-443c	VSD & EEM	DINING	00254	AHU	6	2	86.6%	523	349	1,560	0	0	7,291	1,568	1,046	4,677	0	41	83
MTR-444c	VSD & EEM	DINING	00254	AHU	4	3	89.5%	523	349	1,560	0	0	7,054	1,517	1,012	4,525	0	40	80
MTR-451c	VSD & EEM	HOSPITL	00166	AHU-2	1	15	93.0%	523	786	2,254	1,619	3,578	30,567	1,825	2,743	7,865	5,649	48	96
MTR-452c	VSD & EEM	HOSPITL	00166	AHU-1	1	10	91.7%	523	786	2,254	1,619	3,578	20,667	1,234	1,854	5,318	3,820	33	65
MTR-453c	VSD & EEM	HOSPITL	00166	AHU-4	1	7.5	91.7%	523	786	2,254	1,619	3,578	15,500	925	1,391	3,988	2,865	24	49
MTR-454c	VSD & EEM	HOSPITL	00166	AHU-3	1	20	93.4%	523	786	2,254	1,619	3,578	40,581	2,423	3,641	10,442	7,500	64	128
MTR-455c	VSD & EEM	HOSPITL	00166	AHU	2	2	86.6%	523	786	2,254	1,619	3,578	8,754	523	785	2,252	1,618	14	28
MTR-458c	VSD & EEM	MWR	01313	indr fan	1	1.5	86.5%	523	786	2,254	0	0	1,337	196	295	846	0	5	10
MTR-459c	VSD & EEM	MWR	01313	indr fan	1	1	86.5%	523	786	2,254	0	0	891	131	197	564	0	3	7
MTR-45c	VSD & EEM	MWR	01322	A/C	1	1.5	86.5%	0	0	1,215	0	2,846	1,313	0	0	393	0	5	3
MTR-463c	VSD & EEM	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-465c	VSD & EEM	MWR	01322	A/C supply	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-467c	VSD & EEM	MWR	01322	RTU 1	1	3	89.5%	523	786	2,254	0	0	2,584	379	570	1,635	0	10	20
MTR-468c	VSD & EEM	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-470c	VSD & EEM	MWR	01322	A/C heat	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-471c	VSD & EEM	MWR	01322	RTU 1	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-472c	VSD & EEM	MWR	01322	RTU 2	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-473c	VSD & EEM	MWR	01322	RTU 3	1	2	86.6%	523	786	2,254	0	0	1,780	261	393	1,126	0	7	14
MTR-34c	VSD & EEM	REC	00905		1	30	94.1%	522	332	1,740	108	3,113	34,575	3,104	1,974	10,346	642	95	190
MTR-35c	VSD & EEM	REC	00905		1	35	94.1%	522	332	1,740	108	3,113	40,337	3,621	2,303	12,070	749	111	222
MTR-478c	VSD & EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,764	379	253	1,131	0	10	5
MTR-479c	VSD & EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,764	379	253	1,131	0	10	5
MTR-480c	VSD & EEM	REC	00905	A/C AHU	1	3	89.5%	523	349	1,560	0	0	1,764	379	253	1,131	0	10	5
MTR-50c	VSD & EEM	WHS-CLD	00862	60.6 tons	2	5	90.2%	0	0	1,215	0	2,846	8,397	0	0	2,512	0	33	17

Table 2.23. (contd)

Energy-Efficient Motor & VSD Economic Parameters

			EEM Economic Parameters				VSD Economic Parameters					Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	VSD Price (1994 $)	Additional Cost (1994 $)	Additional O&M (1994 $)	Rebate Incentive (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MTR-422a	RI	EEM	830	148	70	0	NA	NA	NA	NA	15	557	5	46	38	84	186	1.20
MTR-423a	RI	EEM	1,294	162	120	0	NA	NA	NA	NA	15	1,077	11	85	71	156	842	1.63
MTR-426a	RI	EEM	830	148	70	0	NA	NA	NA	NA	15	557	5	46	38	84	186	1.20
MTR-430a	RI	EEM	830	148	70	0	NA	NA	NA	NA	15	557	5	46	38	84	186	1.20
MTR-55a	RI	EEM	1,434	222	120	0	NA	NA	NA	NA	15	1,212	6	101	68	170	686	1.45
MTR-433a	RI	EEM	830	148	70	0	NA	NA	NA	NA	15	821	5	61	38	99	443	1.49
MTR-435a	RI	EEM	830	148	70	0	NA	NA	NA	NA	15	821	5	61	38	99	443	1.49
MTR-436a	RI	EEM	647	81	60	0	NA	NA	NA	NA	15	1,076	5	75	35	111	985	2.47
MTR-437a	RI	EEM	1,042	105	90	0	NA	NA	NA	NA	15	3,290	16	251	118	368	4,888	5.62
MTR-438a	RI	EEM	1,658	136	135	0	NA	NA	NA	NA	15	2,762	14	183	86	269	2,333	2.41
MTR-522a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	556	3	39	18	58	394	1.87
MTR-523a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	556	3	39	18	57	392	1.86
MTR-524a	RI	EEM	478	74	40	0	NA	NA	NA	NA	15	807	4	55	26	81	735	2.44
MTR-444a	RI	EEM	1,660	296	140	0	NA	NA	NA	NA	15	2,225	11	163	76	239	1,588	1.87
MTR-463a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-465a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-467a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	815	3	56	19	75	664	2.46
MTR-468a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-470a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-471a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-472a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-473a	RI	EEM	442	74	20	0	NA	NA	NA	NA	15	465	2	31	10	41	15	1.03
MTR-478a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	556	1	41	16	56	335	1.74
MTR-479a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	556	1	41	16	56	335	1.74
MTR-480a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	556	1	41	16	56	335	1.74
MTR-50a	RI	EEM	956	148	80	0	NA	NA	NA	NA	15	1,347	4	58	44	102	344	1.34
MTR-451c	RI	VSD & EEM	1,042	105	90	0	2,769	36,000	10	1,085	15	82,756	11	4,859	73	4,932	28,576	1.74
MTR-452c	RI	VSD & EEM	780	84	70	0	2,168	24,000	10	734	15	55,766	7	3,273	47	3,320	18,999	1.72
MTR-453c	RI	VSD & EEM	647	81	60	0	1,600	18,000	10	550	15	44,271	9	2,597	63	2,660	17,118	1.87
MTR-454c	RI	VSD & EEM	1,268	129	120	0	3,481	48,000	10	1,441	15	107,604	11	6,319	72	6,391	35,397	1.69
MTR-455c	RI	VSD & EEM	884	148	40	0	2,376	9,600	20	311	15	23,718	3	1,390	21	1,411	5,955	1.47
MTR-34c	RI	VSD & EEM	1,969	140	175	0	4,645	100	10	864	15	38,537	16	2,397	103	2,500	35,113	7.04
MTR-35c	RI	VSD & EEM	1,969	140	175	0	4,645	100	10	1,008	15	44,960	19	2,796	120	2,917	42,432	8.48
Totals:		EEM	18,903	2,926	1,485	0	NA	NA	NA	NA		23,961	121	1,702	891	2,592	16,406	1.81
		VSD & EEM	8,559	827	730	0	21,684	135,800	80	5,993		397,613	76	23,632	499	24,131	183,591	2.15

Table 2.24. Pump Variable Speed Drive EROs

Existing Pump Motor Operating Parameters

	Equipment Location and Description						Operating Schedule						Energy Consumption					Energy Demand	
ID	Bldg Type	Fac. No.	Type	No. of Units	HP	Existing Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	No. of Months On Peak	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
PMTR-8a	ADMIN	00281	hot wtr	1	1	0.805	522	332	363	0	0	12	484	308	337	0	11	4	7
PMTR-9a	ADMIN	00281	hot wtr	1	1	0.805	522	332	363	0	0	12	484	308	337	0	11	4	7
PMTR-7a	ADMIN	00985	hi eff	2	5	0.835	522	332	363	0	0	6	4,664	2,966	3,247	0	54	36	18
PMTR-3a	ADMIN	00988	chilled wtr	1	5	0.790	522	332	363	0	0	6	2,465	1,568	1,716	0	28	19	9
PMTR-2a	ADMIN	00988	chilled wtr	1	3	0.749	522	332	363	0	0	6	1,560	992	1,086	0	18	12	6
PMTR-1a	ADMIN	00988	imp	1	1	0.805	522	332	363	0	0	6	484	308	337	0	6	4	2
PMTR-4a	ADMIN	00988	cooling twr	1	3	0.749	522	332	363	0	0	6	1,560	992	1,086	0	18	12	6
PMTR-5a	ADMIN	00988	cooling twr	1	10	0.855	522	332	363	0	0	6	4,555	2,897	3,171	0	52	35	17
PMTR-6a	ADMIN	00988	cooling twr	1	20	0.855	522	332	363	0	0	6	9,109	5,793	6,343	0	105	70	35
PMTR-11a	BRK/ADM	00099	chilled wtr	1	2	0.805	522	747	525	0	0	6	484	692	487	0	11	7	4
PMTR-14a	BRK/ADM	00099	chilled wtr	1	2	0.805	522	747	525	0	0	6	484	692	487	0	11	7	4
PMTR-10a	BRK/ADM	00110	chilled wtr	1	1	0.805	522	747	525	0	0	6	242	346	243	0	6	4	2
PMTR-16a	BRK/ADM	00273	cooling twr	2	15	0.865	522	747	525	0	0	6	6,753	9,664	6,792	0	155	103	52
PMTR-17a	BRK/ADM	00273	cooling twr	2	15	0.865	522	747	525	0	0	6	6,753	9,664	6,792	0	155	103	52
PMTR-15a	BRK/ADM	00273	cooling twr	1	15	0.865	522	747	525	0	0	6	3,376	4,832	3,396	0	78	52	26
PMTR-12a	BRK/ADM	00273	chilled wtr	1	7.5	0.855	522	747	525	0	0	6	1,708	2,444	1,718	0	39	26	13
PMTR-13a	BRK/ADM	00273	chilled wtr	1	7.5	0.850	522	747	525	0	0	6	1,718	2,459	1,728	0	39	26	13
PMTR-31a	DINING	00254	chilled wtr	2	7.5	0.855	522	332	363	0	0	12	3,416	2,173	2,378	0	157	52	105
PMTR-36a	GROCERY	00920	cooling twr	2	1	0.805	522	332	363	0	0	6	967	615	674	0	11	7	4
PMTR-47a	MTRPOOL	00857	chiller wtr	1	2	0.820	522	332	363	0	0	6	475	302	331	0	11	7	4
PMTR-45a	MTRPOOL	00873	chiller wtr	3	1.5	0.805	522	332	363	0	0	6	1,088	692	758	0	25	17	8
PMTR-46a	MTRPOOL	00873	chiller wtr	4	1.5	0.805	522	332	363	0	0	6	1,451	923	1,010	0	33	22	11
PMTR-61a	PLT-BLDG	00109	cooling twr	2	5	0.835	522	332	363	0	0	6	2,332	1,483	1,624	0	54	36	18
PMTR-51a	PLT-BLDG	00109	chilled wtr	1	3	0.820	522	332	363	0	0	6	712	453	496	0	16	11	5
PMTR-56a	PLT-BLDG	00253	chiller	2	20	0.865	522	332	363	0	0	6	9,004	5,727	6,269	0	207	138	69
PMTR-57a	PLT-BLDG	00253	chiller, centri.	2	7.5	0.855	522	332	363	0	0	6	3,416	2,173	2,378	0	79	52	26
PMTR-54a	PLT-BLDG	00253	chiller	2	7.5	0.855	522	332	363	0	0	6	3,416	2,173	2,378	0	79	52	26
PMTR-55a	PLT-BLDG	00253	chiller	2	20	0.865	522	332	363	0	0	6	9,004	5,727	6,269	0	207	138	69
PMTR-59a	PLT-BLDG	00253	cooling twr	2	15	0.865	522	332	363	0	0	6	6,753	4,295	4,702	0	155	103	52
PMTR-50a	PLT-BLDG	00263	975 gal/min	1	7.5	0.855	522	332	363	0	0	6	1,708	1,086	1,189	0	39	26	13
PMTR-52a	PLT-BLDG	00263	chilled wtr	1	7.5	0.820	522	332	363	0	0	6	1,781	1,133	1,240	0	41	27	14
PMTR-48a	PLT-BLDG	00263	imp	2	7.5	0.855	522	332	363	0	0	6	3,416	2,173	2,378	0	79	52	26
PMTR-49a	PLT-BLDG	00263	690 gal/min	1	3	0.820	522	332	363	0	0	6	712	453	496	0	16	11	5
PMTR-53a	PLT-BLDG	00263	chilled water	1	25	0.855	522	332	363	0	0	6	5,693	3,621	3,964	0	131	87	44
PMTR-62a	PLT-BLDG	00263	CWP	1	2	0.805	522	332	363	0	0	6	484	308	337	0	11	7	4
PMTR-60a	PLT-BLDG	00263	cooling twr	1	25	0.855	522	332	363	0	0	6	5,693	3,621	3,964	0	131	87	44
PMTR-64a	PLT-BLDG	00263	CWP heat	1	5	0.835	522	332	363	0	0	6	1,166	742	812	0	27	18	9
PMTR-63a	PLT-BLDG	00263	CWP heat	1	5	0.835	522	332	363	0	0	6	1,166	742	812	0	27	18	9

Table 2.24. (contd)

Energy-Efficient Pump Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
EEM only:																			
PMTR-8a	EEM	ADMIN	00281	hot wtr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	7
PMTR-9a	EEM	ADMIN	00281	hot wtr	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	7
PMTR-7a	EEM	ADMIN	00985	hi eff	2	5	0.902	522	332	363	0	0	4,317	2,746	3,006	0	0	33	17
PMTR-3a	EEM	ADMIN	00988	chilled wtr	1	5	0.902	522	332	363	0	0	2,159	1,373	1,503	0	0	17	8
PMTR-2a	EEM	ADMIN	00988	chilled wtr	1	3	0.895	522	332	363	0	0	1,305	830	909	0	0	10	5
PMTR-1a	EEM	ADMIN	00988	imp	1	1	0.865	522	332	363	0	0	450	286	313	0	0	3	2
PMTR-4a	EEM	ADMIN	00988	cooling twr	1	3	0.895	522	332	363	0	0	1,305	830	909	0	0	10	5
PMTR-5a	EEM	ADMIN	00988	cooling twr	1	10	0.917	522	332	363	0	0	4,247	2,701	2,957	0	0	33	16
PMTR-6a	EEM	ADMIN	00988	cooling twr	1	20	0.934	522	332	363	0	0	8,339	5,303	5,806	0	0	64	32
PMTR-11a	EEM	BRK/ADM	00099	chilled wtr	1	2	0.866	522	747	525	0	0	450	643	452	0	0	7	3
PMTR-14a	EEM	BRK/ADM	00099	chilled wtr	1	2	0.866	522	747	525	0	0	450	643	452	0	0	7	3
PMTR-10a	EEM	BRK/ADM	00110	chilled wtr	1	1	0.865	522	747	525	0	0	225	322	226	0	0	3	2
PMTR-16a	EEM	BRK/ADM	00273	cooling twr	2	15	0.930	522	747	525	0	0	6,281	8,988	6,317	0	0	96	48
PMTR-17a	EEM	BRK/ADM	00273	cooling twr	2	15	0.930	522	747	525	0	0	6,281	8,988	6,317	0	0	96	48
PMTR-15a	EEM	BRK/ADM	00273	cooling twr	1	15	0.930	522	747	525	0	0	3,140	4,494	3,158	0	0	48	24
PMTR-12a	EEM	BRK/ADM	00273	chilled wtr	1	7.5	0.917	522	747	525	0	0	1,592	2,279	1,602	0	0	24	12
PMTR-13a	EEM	BRK/ADM	00273	chilled wtr	1	7.5	0.917	522	747	525	0	0	1,592	2,279	1,602	0	0	24	12
PMTR-31a	EEM	DINING	00254	chilled wtr	2	7.5	0.917	522	332	363	0	0	3,185	2,026	2,218	0	0	49	98
PMTR-36a	EEM	GROCERY	00920	cooling twr	2	1	0.865	522	332	363	0	0	900	573	627	0	0	7	3
PMTR-47a	EEM	MTRPOOL	00857	chiller wtr	1	2	0.866	522	332	363	0	0	450	286	313	0	0	7	3
PMTR-45a	EEM	MTRPOOL	00873	chiller wtr	3	1.5	0.865	522	332	363	0	0	1,013	644	705	0	0	16	8
PMTR-46a	EEM	MTRPOOL	00873	chiller wtr	4	1.5	0.865	522	332	363	0	0	1,351	859	940	0	0	21	10
PMTR-61a	EEM	PLT-BLDG	00109	cooling twr	2	5	0.902	522	332	363	0	0	2,159	1,373	1,503	0	0	33	17
PMTR-51a	EEM	PLT-BLDG	00109	chilled wtr	1	3	0.895	522	332	363	0	0	653	415	454	0	0	10	5
PMTR-56a	EEM	PLT-BLDG	00253	chiller	2	20	0.934	522	332	363	0	0	8,339	5,303	5,806	0	0	128	64
PMTR-57a	EEM	PLT-BLDG	00253	chiller, centri.	2	7.5	0.917	522	332	363	0	0	3,185	2,026	2,218	0	0	49	24
PMTR-54a	EEM	PLT-BLDG	00253	chiller	2	7.5	0.917	522	332	363	0	0	3,185	2,026	2,218	0	0	49	24
PMTR-55a	EEM	PLT-BLDG	00253	chiller	2	20	0.934	522	332	363	0	0	8,339	5,303	5,806	0	0	128	64
PMTR-59a	EEM	PLT-BLDG	00253	cooling twr	2	15	0.930	522	332	363	0	0	6,281	3,995	4,373	0	0	96	48
PMTR-50a	EEM	PLT-BLDG	00263	975 gal/min	1	7.5	0.917	522	332	363	0	0	1,592	1,013	1,109	0	0	24	12
PMTR-52a	EEM	PLT-BLDG	00263	chilled wtr	1	7.5	0.917	522	332	363	0	0	1,592	1,013	1,109	0	0	24	12
PMTR-48a	EEM	PLT-BLDG	00263	imp	2	7.5	0.917	522	332	363	0	0	3,185	2,026	2,218	0	0	49	24
PMTR-49a	EEM	PLT-BLDG	00263	690 gal/min	1	3	0.895	522	332	363	0	0	653	415	454	0	0	10	5
PMTR-53a	EEM	PLT-BLDG	00263	chilled water	1	25	0.941	522	332	363	0	0	5,173	3,290	3,602	0	0	79	40
PMTR-62a	EEM	PLT-BLDG	00263	CWP	1	2	0.866	522	332	363	0	0	450	286	313	0	0	7	3
PMTR-60a	EEM	PLT-BLDG	00263	cooling twr	1	25	0.941	522	332	363	0	0	5,173	3,290	3,602	0	0	79	40
PMTR-64a	EEM	PLT-BLDG	00263	CWP heat	1	5	0.902	522	332	363	0	0	1,079	686	752	0	0	17	8
PMTR-63a	EEM	PLT-BLDG	00263	CWP heat	1	5	0.902	522	332	363	0	0	1,079	686	752	0	0	17	8

Table 2.24. (contd)

Energy-Efficient Pump Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
VSD to existing motor:																			
PMTR-8b	VSD only	ADMIN	00281	hot wtr	1	1	0.805	522	332	363	0	0	140	89	98	0	0	4	7
PMTR-9b	VSD only	ADMIN	00281	hot wtr	1	1	0.805	522	332	363	0	0	140	89	98	0	0	4	7
PMTR-7b	VSD only	ADMIN	00985	hi eff	2	5	0.835	522	332	363	0	0	1,352	860	942	0	0	36	18
PMTR-3b	VSD only	ADMIN	00988	chilled wtr	1	5	0.790	522	332	363	0	0	715	455	498	0	0	19	9
PMTR-2b	VSD only	ADMIN	00988	chilled wtr	1	3	0.749	522	332	363	0	0	452	288	315	0	0	12	6
PMTR-1b	VSD only	ADMIN	00988	imp	1	1	0.805	522	332	363	0	0	140	89	98	0	0	4	2
PMTR-4b	VSD only	ADMIN	00988	cooling twr	1	3	0.749	522	332	363	0	0	452	288	315	0	0	12	6
PMTR-5b	VSD only	ADMIN	00988	cooling twr	1	10	0.855	522	332	363	0	0	1,321	840	920	0	0	35	17
PMTR-6b	VSD only	ADMIN	00988	cooling twr	1	20	0.855	522	332	363	0	0	2,642	1,680	1,839	0	0	70	35
PMTR-11b	VSD only	BRK/ADM	00099	chilled wtr	1	2	0.805	522	747	525	0	0	140	201	141	0	0	7	4
PMTR-14b	VSD only	BRK/ADM	00099	chilled wtr	1	2	0.805	522	747	525	0	0	140	201	141	0	0	7	4
PMTR-10b	VSD only	BRK/ADM	00110	chilled wtr	1	1	0.805	522	747	525	0	0	70	100	71	0	0	4	2
PMTR-16b	VSD only	BRK/ADM	00273	cooling twr	2	15	0.865	522	747	525	0	0	1,958	2,802	1,970	0	0	103	52
PMTR-17b	VSD only	BRK/ADM	00273	cooling twr	2	15	0.865	522	747	525	0	0	1,958	2,802	1,970	0	0	103	52
PMTR-15b	VSD only	BRK/ADM	00273	cooling twr	1	15	0.865	522	747	525	0	0	979	1,401	985	0	0	52	26
PMTR-12b	VSD only	BRK/ADM	00273	chilled wtr	1	7.5	0.855	522	747	525	0	0	495	709	498	0	0	26	13
PMTR-13b	VSD only	BRK/ADM	00273	chilled wtr	1	7.5	0.850	522	747	525	0	0	498	713	501	0	0	26	13
PMTR-31b	VSD only	DINING	00254	chilled wtr	2	7.5	0.855	522	332	363	0	0	991	630	690	0	0	52	105
PMTR-36b	VSD only	GROCERY	00920	cooling twr	2	1	0.805	522	332	363	0	0	281	178	195	0	0	7	4
PMTR-47b	VSD only	MTRPOOL	00857	chiller wtr	1	2	0.820	522	332	363	0	0	138	88	96	0	0	7	4
PMTR-45b	VSD only	MTRPOOL	00873	chiller wtr	3	1.5	0.805	522	332	363	0	0	316	201	220	0	0	17	8
PMTR-46b	VSD only	MTRPOOL	00873	chiller wtr	4	1.5	0.805	522	332	363	0	0	421	268	293	0	0	22	11
PMTR-61b	VSD only	PLT-BLDG	00109	cooling twr	2	5	0.835	522	332	363	0	0	676	430	471	0	0	36	18
PMTR-51b	VSD only	PLT-BLDG	00109	chilled wtr	1	3	0.820	522	332	363	0	0	207	131	144	0	0	11	5
PMTR-56b	VSD only	PLT-BLDG	00253	chiller	2	20	0.865	522	332	363	0	0	2,611	1,661	1,818	0	0	138	69
PMTR-57b	VSD only	PLT-BLDG	00253	chiller, centri.	2	7.5	0.855	522	332	363	0	0	991	630	690	0	0	52	26
PMTR-54b	VSD only	PLT-BLDG	00253	chiller	2	7.5	0.855	522	332	363	0	0	991	630	690	0	0	52	26
PMTR-55b	VSD only	PLT-BLDG	00253	chiller	2	20	0.865	522	332	363	0	0	2,611	1,661	1,818	0	0	138	69
PMTR-59b	VSD only	PLT-BLDG	00253	cooling twr	2	15	0.865	522	332	363	0	0	1,958	1,246	1,364	0	0	103	52
PMTR-50b	VSD only	PLT-BLDG	00263	975 gal/min	1	7.5	0.855	522	332	363	0	0	495	315	345	0	0	26	13
PMTR-52b	VSD only	PLT-BLDG	00263	chilled wtr	1	7.5	0.820	522	332	363	0	0	516	328	360	0	0	27	14
PMTR-48b	VSD only	PLT-BLDG	00263	imp	2	7.5	0.855	522	332	363	0	0	991	630	690	0	0	52	26
PMTR-49b	VSD only	PLT-BLDG	00263	690 gal/min	1	3	0.820	522	332	363	0	0	207	131	144	0	0	11	5
PMTR-53b	VSD only	PLT-BLDG	00263	chilled water	1	25	0.855	522	332	363	0	0	1,651	1,050	1,150	0	0	87	44
PMTR-62b	VSD only	PLT-BLDG	00263	CWP	1	2	0.805	522	332	363	0	0	140	89	98	0	0	7	4
PMTR-60b	VSD only	PLT-BLDG	00263	cooling twr	1	25	0.855	522	332	363	0	0	1,651	1,050	1,150	0	0	87	44
PMTR-64b	VSD only	PLT-BLDG	00263	CWP heat	1	5	0.835	522	332	363	0	0	338	215	235	0	0	18	9
PMTR-63b	VSD only	PLT-BLDG	00263	CWP heat	1	5	0.835	522	332	363	0	0	338	215	235	0	0	18	9

Table 2.24. (contd)

Energy-Efficient Pump Motor & VSD Operating Parameters

	Equipment Location and Description							Operating Schedule					Energy Consumption					Energy Demand	
ID	ERO Descript	Bldg Type	Fac No	Type	No of Units	HP	EEM Motor (Eff)	Summer On Peak (Hours)	Summer Mid Peak (Hours)	Winter Mid Peak (Hours)	Summer Off Peak (Hours)	Winter Off Peak (Hours)	Summer On-Peak (kWh)	Summer Mid-Peak (kWh)	Winter Mid-Peak (kWh)	Summer Off-Peak (kWh)	Winter Off-Peak (kWh)	On-Peak Summer (kW-mo)	Mid-Peak Winter (kW-mo)
VSD and EEM:																			
PMTR-8c	VSD & EEM	ADMIN	00281	hot wtr	1	1	0.865	522	332	363	0	0	131	83	91	0	0	3	7
PMTR-9c	VSD & EEM	ADMIN	00281	hot wtr	1	1	0.865	522	332	363	0	0	131	83	91	0	0	3	7
PMTR-7c	VSD & EEM	ADMIN	00985	hi eff	2	5	0.902	522	332	363	0	0	1,252	796	872	0	0	33	17
PMTR-3c	VSD & EEM	ADMIN	00988	chilled wtr	1	5	0.902	522	332	363	0	0	626	398	436	0	0	17	8
PMTR-2c	VSD & EEM	ADMIN	00988	chilled wtr	1	3	0.895	522	332	363	0	0	379	241	264	0	0	10	5
PMTR-1c	VSD & EEM	ADMIN	00988	imp	1	1	0.865	522	332	363	0	0	131	83	91	0	0	3	2
PMTR-4c	VSD & EEM	ADMIN	00988	cooling twr	1	3	0.895	522	332	363	0	0	379	241	264	0	0	10	5
PMTR-5c	VSD & EEM	ADMIN	00988	cooling twr	1	10	0.917	522	332	363	0	0	1,232	783	857	0	0	33	16
PMTR-6c	VSD & EEM	ADMIN	00988	cooling twr	1	20	0.934	522	332	363	0	0	2,418	1,538	1,684	0	0	64	32
PMTR-11c	VSD & EEM	BRK/ADM	00099	chilled wtr	1	2	0.866	522	747	525	0	0	130	187	131	0	0	7	3
PMTR-14c	VSD & EEM	BRK/ADM	00099	chilled wtr	1	2	0.866	522	747	525	0	0	130	187	131	0	0	7	3
PMTR-10c	VSD & EEM	BRK/ADM	00110	chilled wtr	1	1	0.865	522	747	525	0	0	65	93	66	0	0	3	2
PMTR-16c	VSD & EEM	BRK/ADM	00273	cooling twr	2	15	0.930	522	747	525	0	0	1,821	2,607	1,832	0	0	96	48
PMTR-17c	VSD & EEM	BRK/ADM	00273	cooling twr	2	15	0.930	522	747	525	0	0	1,821	2,607	1,832	0	0	96	48
PMTR-15c	VSD & EEM	BRK/ADM	00273	cooling twr	1	15	0.930	522	747	525	0	0	911	1,303	916	0	0	48	24
PMTR-12c	VSD & EEM	BRK/ADM	00273	chilled wtr	1	7.5	0.917	522	747	525	0	0	462	661	464	0	0	24	12
PMTR-13c	VSD & EEM	BRK/ADM	00273	chilled wtr	1	7.5	0.917	522	747	525	0	0	462	661	464	0	0	24	12
PMTR-31c	VSD & EEM	DINING	00254	chilled wtr	2	7.5	0.917	522	332	363	0	0	924	587	643	0	0	49	98
PMTR-36c	VSD & EEM	GROCERY	00920	cooling twr	2	1	0.865	522	332	363	0	0	261	166	182	0	0	7	3
PMTR-47c	VSD & EEM	MTRPOOL	00857	chiller wtr	1	2	0.866	522	332	363	0	0	130	83	91	0	0	7	3
PMTR-45c	VSD & EEM	MTRPOOL	00873	chiller wtr	3	1.5	0.865	522	332	363	0	0	294	187	205	0	0	16	8
PMTR-46c	VSD & EEM	MTRPOOL	00873	chiller wtr	4	1.5	0.865	522	332	363	0	0	392	249	273	0	0	21	10
PMTR-61c	VSD & EEM	PLT-BLDG	00109	cooling twr	2	5	0.902	522	332	363	0	0	626	398	436	0	0	33	17
PMTR-51c	VSD & EEM	PLT-BLDG	00109	chilled wtr	1	3	0.895	522	332	363	0	0	189	120	132	0	0	10	5
PMTR-56c	VSD & EEM	PLT-BLDG	00253	chiller	2	20	0.934	522	332	363	0	0	2,418	1,538	1,684	0	0	128	64
PMTR-57c	VSD & EEM	PLT-BLDG	00253	chiller, centri.	2	7.5	0.917	522	332	363	0	0	924	587	643	0	0	49	24
PMTR-54c	VSD & EEM	PLT-BLDG	00253	chiller	2	7.5	0.917	522	332	363	0	0	924	587	643	0	0	49	24
PMTR-55c	VSD & EEM	PLT-BLDG	00253	chiller	2	20	0.934	522	332	363	0	0	2,418	1,538	1,684	0	0	128	64
PMTR-59c	VSD & EEM	PLT-BLDG	00253	cooling twr	2	15	0.930	522	332	363	0	0	1,821	1,158	1,268	0	0	96	48
PMTR-50c	VSD & EEM	PLT-BLDG	00263	975 gal/min	1	7.5	0.917	522	332	363	0	0	462	294	322	0	0	24	12
PMTR-52c	VSD & EEM	PLT-BLDG	00263	chilled wtr	1	7.5	0.917	522	332	363	0	0	462	294	322	0	0	24	12
PMTR-48c	VSD & EEM	PLT-BLDG	00263	imp	2	7.5	0.917	522	332	363	0	0	924	587	643	0	0	49	24
PMTR-49c	VSD & EEM	PLT-BLDG	00263	690 gal/min	1	3	0.895	522	332	363	0	0	189	120	132	0	0	10	5
PMTR-53c	VSD & EEM	PLT-BLDG	00263	chilled water	1	25	0.941	522	332	363	0	0	1,500	954	1,045	0	0	79	40
PMTR-62c	VSD & EEM	PLT-BLDG	00263	CWP	1	2	0.866	522	332	363	0	0	130	83	91	0	0	7	3
PMTR-60c	VSD & EEM	PLT-BLDG	00263	cooling twr	1	25	0.941	522	332	363	0	0	1,500	954	1,045	0	0	79	40
PMTR-64c	VSD & EEM	PLT-BLDG	00263	CWP heat	1	5	0.902	522	332	363	0	0	313	199	218	0	0	17	8
PMTR-63c	VSD & EEM	PLT-BLDG	00263	CWP heat	1	5	0.902	522	332	363	0	0	313	199	218	0	0	17	8

Table 2.24. (contd)

Energy-Efficient Pump Motor & VSD Economic Parameters

			EEM Economic Parameters				VSD Economic Parameters					Annual Energy and Demand Savings					Life Cycle Cost	
ID	RI or ROF	ERO	Equip Price (1994 $)	Labor Cost (1994 $)	Rebate Incentive (1994 $)	Maint. Cost (1994 $)	VSD Price (1994 $)	Additional Cost (1994 $)	Additional O&M (1994 $)	Rebate Incentive (1994 $)	Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
PMTR-2a	RI	EEM	415	74	35	0	NA	NA	NA	NA	15	593	3	54	36	90	920	3.03
PMTR-12a	RI	EEM	647	81	60	0	NA	NA	NA	NA	15	397	3	28	29	57	59	1.09
PMTR-13a	RI	EEM	647	81	60	0	NA	NA	NA	NA	15	431	3	31	32	63	165	1.25
PMTR-31a	RI	EEM	1,294	162	120	0	NA	NA	NA	NA	15	539	11	43	71	113	109	1.08
PMTR-52a	RI	EEM	647	81	60	0	NA	NA	NA	NA	15	439	4	38	51	89	615	1.92
PMTR-53a	RI	EEM	1,658	136	135	0	NA	NA	NA	NA	15	1,214	12	103	139	242	1,874	2.13
PMTR-55a	RI	EEM	2,536	258	240	0	NA	NA	NA	NA	15	1,551	15	126	170	296	1,582	1.62
PMTR-3c	RI	VSD & EEM	478	74	40	0	1,368	3,000	10	52	15	4,288	4	424	42	467	1,112	1.23
PMTR-4c	RI	VSD & EEM	415	74	35	0	1,368	100	10	31	15	2,755	3	272	36	309	2,630	2.39
PMTR-5c	RI	VSD & EEM	780	84	70	0	2,168	100	10	102	15	7,750	4	768	38	806	9,792	4.31
PMTR-6c	RI	VSD & EEM	1,268	129	120	0	3,481	100	10	200	15	15,605	9	1,546	101	1,647	22,062	5.74
PMTR-7c	RI	VSD & EEM	956	148	80	0	2,736	200	20	104	15	7,957	4	788	44	832	8,900	3.31
PMTR-15c	RI	VSD & EEM	1,042	105	90	0	2,769	100	10	111	15	8,474	5	755	59	814	8,859	3.32
PMTR-16c	RI	VSD & EEM	2,084	210	180	0	5,538	200	20	222	15	16,948	11	1,510	119	1,629	17,717	3.32
PMTR-17c	RI	VSD & EEM	2,084	210	180	0	5,538	200	20	222	15	16,948	11	1,510	119	1,629	17,717	3.32
PMTR-59c	RI	VSD & EEM	2,084	210	180	0	5,538	200	20	151	15	11,501	11	1,139	119	1,258	11,266	2.46
PMTR-60c	RI	VSD & EEM	1,658	136	135	0	4,420	100	10	124	15	9,779	12	969	139	1,108	10,980	2.81
PMTR-61c	RI	VSD & EEM	956	148	80	0	2,736	200	20	52	15	3,978	4	394	44	438	2,066	1.53
Totals:	EEM		7,844	873	710	0	0	0	0	0		5,165	51	423	528	951	5,324	1.66
	VSD & EEM		13,805	1,528	1,190	0	37,660	4,500	160	1,371		105,985	77	10,074	862	10,936	113,102	3.05

2.10 FEDS Air Conditioner/Chiller EROs

Air conditioning/chiller EROs are analyzed by the Level-2 software. Energy and demand savings are based on the difference in coefficient of performance (COP) between new, high-efficiency replacement equipment and the existing equipment. Additional savings can result from the interactive effects of other EROs reducing the overall cooling load, which in turn results in a smaller replacement unit.

The following possible retrofits are considered by the Level-2 software:

- Package Units - replace with newer more efficient unit. There are two categories of package units: single zone (1.5 to 20 tons) and multi-zone (20 to 150 tons).

- Single Building Electric Chiller - replace with newer more efficient unit. There are four categories of electric chillers: large (75 to 200 tons) and small (20 to 75 tons) reciprocating, and large (500 to 1,200 tons) and small (200 to 500 tons) centrifugal.

- District Chilled Water - switch from district chilled water to single building electric chiller. FEDS is currently only implemented for buildings. Hence the only retrofit of district cooling systems is conversion to a building-level centralized system.

The FEDS software will also model existing heat pumps, window/room air conditioners, and evaporative coolers, but the current version of Level-2 does not analyze retrofit options for any of these A/C types.

2.10.1 Replace Existing A/C with High-Efficiency A/C

Description

Almost every building at Fort Irwin has some type of air conditioning equipment; however, much of this equipment is evaporative coolers, and is therefore not applicable for any Level-2 EROs. Energy and demand savings can be realized by replacing the existing conventional air conditioning equipment with new high-efficiency equipment. In addition, new environmental regulations call for the elimination of CFC refrigerants in the future. New equipment is available with non-CFC refrigerants to meet these regulations with efficiencies comparable to the best CFC-based models.

Assumptions

Technical assumptions are as follows:

- A/C equipment type and size was allowed to default based on Level-2 assumptions. These defaults were then modified with available data gathered from on-site inspections and/or the Real Property List.

- Existing units have efficiencies based on equipment type and age from a survey of manufacturers data over the last 20 years.

- New unit efficiencies are as follows:

Equipment Type	Description	COP
1	Small Centrifugal (200-500 ton)	5.86
2	Large Centrifugal (500-1200 ton)	5.17
3	Small Reciprocating (20-75 ton)	2.85
4	Large Reciprocating (75-200 ton)	3.63
6	Small Package (1.5-20 ton)	2.45
7	Large Package (20-150 ton)	2.63

- Existing and retrofit equipment size, energy use and demand are calculated based on building load calculations performed by the FEDS software.

- Packaged units have an expected equipment life of 12 years; chillers have an expected equipment life of 20 years.

Costs to implement the ERO are as follows:

- First cost of replacing equipment, including material and installation, is given in terms of capacity (in MBtu) as shown in the following table.

Equipment Type	First Cost Equation
1	$52404.9*(\mathrm{Cap.})^{0.673846}$
2	$52404.9*(\mathrm{Cap.})^{0.673846}$
3	$13130.72e^{1.469094*(\mathrm{Cap.})}$
4	$2346.001+49563.57*(\mathrm{Cap.})$
6	$272.6239+68357.43*(\mathrm{Cap.})$
7	$92082.77*(\mathrm{Cap.})^{0.514841}$

Results

Qualitative results of the ERO analysis appear in Table 2.25. The table contains specific energy, cost, and economic data for each piece of A/C equipment considered for replacement.

Table 2.25. FEDS Air Conditioning EROs

Building Set	Existing Technology	Retrofit Technology	Retro Number	Exist Eff., COP or Lamp Wattage	Retro. Eff., COP or Lamp Wattage	Existing Fuel	Retrofit Fuel	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Present Value of Installed Cost (1994$)	Value of Energy & Demand Savings (1994$)	Annualized Energy & Demand Savings (1994$)	Net Present Value (1994$)	SIR
ADMINISTRATION-07	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons)	3	2 55	3.63	Elec.	Elec.	257	19	71,588	95,029	9,604	23,441	1 3
CLINIC-01	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons)	1	2 65	3.63	Elec.	Elec.	63	18	27,057	35,674	3,180	8,617	1 3
GUEST HOUSES-02	Electric Package Unit	Split System Residential AC Unit (1.5 to 5.4167 tons)	10	2 21	2.78	Elec.	Elec.	93	19	3,197	3,590	3,702	394	1.1
HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons)	1	2 97	5 86	Elec.	Elec.	373	62	41,206	116,316	13,705	75,110	2 8
MWR-02	Electric Air Cool Heat Pump	Air to Air Heat Pump w/ Supplementary Elec. Heat Coil	16	2 08	2 64	Elec.	Elec.	123	26	22,852	23,786	5,209	934	1 0
TOTALS			31					909	144	165,900	274,395	35,400	108,496	1.7

2.11 Central Chiller Plant EROs

This section presents three EROs related to the central chillers located in Buildings 253, 263 and 273. These chillers serve small distribution loops connected to barracks, a dining facility, and several office buildings. Chilled water is supplied 24 hours/day, year-round. The first two EROs consider the possible connection of the chilled water loops served by Buildings 253 and 263. The remainder of this introduction is related to these two options. The last ERO deals with chilled water and condenser water temperature reset based on outside air temperature for all three central chillers.

According to site personnel, the chillers in Buildings 253 and 263 are oversized for the load. In Building 253, there are two 250-ton chillers (both R-11), one of which can usually more than handle the entire load. In Building 263, there is a 350-ton chiller that has broken down due to operating at extremely low loads. This chiller was originally rated for 550 tons, but was recently converted to R-134a, which resulted in a 200-ton loss of capacity. The Fort has been considering connecting the two distribution loops to better make use of the available capacity and combination of chiller sizes.

In 1985, a study was conducted to determine the feasibility of adding thermal energy storage (TES) to the chillers at Building 253. At that time, the Building 263 chilled water loop had not yet been constructed. The study concluded that TES was too expensive based on a simple payback of 18.8 years for a two-tank chilled water system, or 13 years for a eutectic salt ice storage system. Changes in the electric rate structure, improvements in TES technology, and the combined load from both chilled water loops may now make TES a more attractive option.

Two ERO options are considered here: connecting the two chilled water loops and adding a 100-ton chiller to meet low loads, or connecting the two loops and adding TES. Both of these options will result in lower energy and demand charges, and increased equipment life due to better operating conditions. Please note that all of the following tables and calculations were based on average monthly profiles; each month is represented by a single daily profile. In this context, the percentages are more important than the number of hours in each block.

Assumptions common to both EROs:

- Existing chiller load, based on outdoor temperature, was estimated for the Building 253 loop from information in the 1985 TES study (DMJM Energy Systems 1985) and conversations with Fort personnel. Data were interpolated for each hour from the estimated values in the following table. This load was prorated by square footage to apply to the Building 263 loop.

Outdoor Temperature	Chiller Tonnage Required
110	350
100	300
90	250
80	185
70	120
<60	50

- Outdoor temperatures were found in the China Lake TMY weather tape. A 24-hr average temperature profile was generated for each month. Daily average chiller loads were estimated from the weather data and assumed load above. The following table details the load range, number of hours in each range (12 mo*24 hr = 288 total hours), and percentage of time in each range.

	Bldg. 253		Bldg. 263	
Load Range (tons)	No. of Hours	Percent of Hours	No. of Hours	Percent of Hours
0-49	0	NA	134	47%
50-74	131	45%	34	12%
75-99	25	9%	26	9%
100-124	18	6%	28	10%
125-149	18	6%	20	7%
150-174	21	7%	23	8%
175-199	13	5%	19	7%
200-224	13	5%	4	1%
225-249	16	6%	0	NA
250-274	12	4%	0	NA
275-299	15	5%	0	NA
300-324	6	2%	0	NA

- Chiller efficiency was assumed to be a function of percent of full load capacity as follows:

Percent of Full Load	Efficiency (kW/ton)
10	1.5
20	1.0
30	0.9
40	0.8
50-70	0.75
80-100	0.7

- The chilled water loop connection between the two plants is estimated to cost $80,000 if the Corps of Engineers does the work. This estimate was provided by the Fort energy manager.

The new chiller option and the TES option are mutually exclusive, that is, only one of the two EROs can be implemented. Based on the assumptions and analysis presented in this section, the TES option is the most cost-effective option. However, full analyses are shown for both options since both have a positive NPV and other (non-economic) factors may make the new chiller option more feasible.

2.11.1 Chilled Water Loop Connection and New Chiller

Description

Both chilled water loops operate year-round, with a variable load depending on outdoor conditions. As shown above, approximately 45% of the time the chillers are severely underloaded, resulting in poor equipment operation and inefficiency. In general, chillers operate most efficiently at or near their rated capacity. Based on information from the 1985 TES study (DMJM Energy Systems 1985), it is estimated that a 100-ton chiller could handle the entire load from both loops for much of the winter season. If the load exceeds this chiller's capacity, other chillers could be brought on-line as needed to meet the load. This would allow the chillers to be run fully loaded to optimize efficiency. During the summer, the larger chillers could be base-loaded to within 100 tons of the load, and the 100-ton unit could be used to meet the remaining demand. This is a common operating strategy where multiple, increasing capacity chillers are available.

Controlling the chillers to obtain the most economical operation at each load condition could be done in a number of ways. The simplest system involves manually turning the chillers on and off in response to chilled water supply and return temperatures and outdoor air temperature. This requires monitoring at both chiller plants to ensure that the appropriate chillers are active to meet the load. More complex systems may involve electronic control systems that can either monitor and control the chillers from a remote location, or automatically regulate chiller operation to meet the load based on chilled water and outdoor air temperatures.

Assumptions

In addition to the common assumptions listed above, the technical assumptions are as follows:

- The combined hours at each load are shown in the following table. The majority of the time the chillers are operating at minimal load due to low outdoor temperatures. Most of the hours in the 75-99 ton block are actually 82 tons: 50 tons from the Building 253 loop and 32 tons from the Building 263 loop.

Load Range (tons)	No. of Hours	Percent of Hours
75-99	123	42.7%
100-124	11	3.8%
125-149	16	5.6%
150-174	8	2.8%
175-199	15	5.2%
200-224	12	4.2%
225-249	9	3.1%
250-274	12	4.2%
275-299	9	3.1%
300-324	10	3.5%
325-349	7	2.4%
350-374	10	3.5%
375-399	10	3.5%
400-424	5	1.7%
425-449	10	3.5%
450-474	11	3.8%
475-499	5	1.7%
500-524	5	1.7%

- The number of hours at each active chiller capacity is shown in the following table. Chillers besides the new 100-ton unit are assumed to be loaded to within 20 tons of their full capacity before another chiller is brought on-line. The new 100-ton unit is assumed to be loaded up to its full-rated capacity before another chiller is started.

Active Capacity (tons)	No. of Hours	Percent of Hours
100	125	43.4%
250	61	21.2%
350 (100 + 250)	40	13.9%
450 (100 + 350)	33	11.4%
500 (2 x 250)	22	7.6%
600 (2 x 250 + 100)	7	2.4%

- Annual savings are calculated from the average daily profiles for each month. The chiller efficiency for each hour is found depending on the load as described above. The efficiency in kW/ton is multiplied by the required tonnage to find the electric demand (kW) at each hour. This is multiplied by an average 30 days/month and summed over the year to calculate the electric energy (kWh).

In addition to the common assumptions listed above, the cost assumptions are as follows:

- The new 100-ton chiller is estimated to cost $73,700, including cooling tower, pumps, and installation.
- No costs were included for a control system. It is assumed that the chillers would be controlled manually. If an electronic system is considered, it should be viewed in conjunction with any plans for a basewide EMCS or SCADA system in mind.

Results

The complete quantitative results of this ERO appear in Table 2.26. The table contains specific energy, cost, and economic performance data. Although this ERO has a positive NPV, it is eliminated from further consideration by the TES option discussed below.

Budget Implications. The initial cost of this ERO is $153,700 for all cost-effective implementations.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in electric energy savings of 324,609 kWh at a value of $19,240, and electric demand savings of 401 kW-months at a value of $3,165.

Operations and Maintenance. An additional $750 per year (approximately 1% of chiller first cost) is assumed for the new chiller to cover normal operating maintenance.

2.11.2 Chilled Water Loop Connection and Thermal Energy Storage

Description

Fort Irwin's electric utility, Southern California Edison (SCE), is summer-peaking, due mostly to the growth of installed electrically driven air conditioning. Accordingly, SCE charges more for both energy and demand during its on-peak period—the period when the majority of the air conditioning takes place. Thermal energy storage (TES) can be used to avoid these high on-peak energy and demand rates by making and storing ice or chilled-water off-peak for use during the on-peak period. In addition, TES can be used to remove the "load following" characteristics of the chillers, i.e. the chillers can be run at a constant full load instead of varying with the instantaneous load conditions. This will both save energy and extend the life of the chillers. It has been suggested that continuous steady operation of a chiller (or any other electric appliance) can possibly double the equipment life.

There are two principal techniques for TES, ice storage and chilled-water storage. Each method has its advantages and disadvantages depending on the size of the load, space available, chilling equipment, etc. For this analysis, chilled-water storage is considered since the chillers are already in place and there is plenty of room for the larger storage tank required for chilled water. The current chilled-water storage design favors stratified storage that stores warm, secondary return water and cooled, chiller discharge water in the same tank. Chilled-water storage systems normally charge with output chilled-water from standard chillers operating at normal air-conditioning temperatures. Detailed information regarding the design and operation of stratified chilled-water storage can be found in (EPRI 1988).

As discussed above, there are already plans to connect the two chilled water loops. By adding TES to the combined system, the existing chillers can be operated in an optimized manner. Chillers are operated fully loaded during the off-peak periods to meet the instantaneous load as well as charge the storage. During the on-peak period, the chillers are shut down and the storage discharged to provide the required cooling energy. This frees the chillers from operation at part loads where efficiency is reduced, as well as operation during the more expensive on-peak period. One myth about TES is that even though demand charges will be reduced, energy consumption will increase. This is not always the case. The efficiency improvement due to full-load operation can lead to significant energy savings.

The full capacity of the TES system is only required during the warmest part of the year. During this time, the chillers are operating eighteen hours a day to charge the storage tank to provide the six hours of on-peak cooling. The rest of the year, the full capacity of the storage tank is not required during the on-peak period, but the system can still be used for storage. As the required storage decreases, the time when the storage is discharging can be increased. For example, in December, one chiller may be required to run (fully loaded) for only six hours to provide chilled water for the rest of the day. By careful observation and planning the system can be optimized to get the full benefit from the TES all year.

Assumptions

In addition to the common assumptions listed above, the technical assumptions are as follows:

- No increase in efficiency is assumed for operation during the cooler, night-time off-peak period. Greater efficiency improvements due to full-load operation will overshadow any savings due to lower condenser water temperatures.

- The combined hours at each load are shown in the following table. The majority of the time the chillers are operating at minimal load due to low outdoor temperatures. Most of the hours in the 75-99 ton block are actually 82 tons: 50 tons from the Building 253 loop, and 32 tons from the Building 263 loop.

Load Range (tons)	No. of Hours	Percent of Hours
75-99	123	42.7%
100-124	11	3.8%
125-149	16	5.6%
150-174	8	2.8%
175-199	15	5.2%
200-224	12	4.2%
225-249	9	3.1%
250-274	12	4.2%
275-299	9	3.1%
300-324	10	3.5%
325-349	7	2.4%
350-374	10	3.5%
375-399	10	3.5%
400-424	5	1.7%
425-449	10	3.5%
450-474	11	3.8%
475-499	5	1.7%
500-524	5	1.7%

- The number of hours at each active chiller capacity is shown in the following table. Chillers are fully loaded at all times, either meeting the instantaneous load, charging the storage, or both. Over 53% of the time the chillers are off, and the TES is meeting the load, in comparison to the existing situation where at least two chillers are operating at all times.

Chiller Tonnage	Number of Hours	Percent of Hours
Off	155	53.8%
250	7	2.4%
350	57	19.8%
500 (2x250)	28	9.7%
600 (250 + 350)	41	14.2%

- The following table illustrates the basis for the savings calculations for the peak month (July). The second column is the chilled water tonnage required each hour. The third column is the active chiller tonnage—the tonnage of chilled water being produced each hour. The fourth column is the difference between the active capacity and the required tonnage, or the tons stored. The last column is the cumulative amount stored. It may be easier to visualize if the day is assumed to start at 1800 hours (the end of the on-peak period). For each hour after 1800, an amount of cooling is added to the storage until 1200 hours (the start of the on-peak period). At this time, the chillers are cut-off and the storage provides the cooling. For this month, the required storage is the sum of the tons required during the on-peak period, 3,541 ton-hrs.

Hour of the Day	Tons Required	Active Capacity	Tons Stored each Hour	Cumulative Storage
0	330	600	270	1,330
1	311	600	289	1,619
2	283	600	317	1,936
3	273	600	327	2,263
4	259	600	341	2,604
5	266	600	334	2,938
6	305	600	295	3,233
7	352	600	248	3,381
8	397	500	103	3,484
9	437	500	63	3,548
10	461	500	0	0
11	481	500	0	0
12	499	0	-499	0
13	512	0	-512	0
14	518	0	-518	0
15	522	0	-522	0
16	512	0	-512	0
17	496	0	-496	0
18	466	600	134	134
19	441	600	159	159
20	408	600	192	352
21	387	600	213	565
22	365	600	235	800
23	340	600	260	1,060

In other months, it may be better to try to meet the entire load during a shorter time period. The following table shows the same type of information for January, where the entire daily load is met in the first six hours of the day, which happens to be the super-off-peak period, with the lowest electric rates during the winter season.

Hour of the Day	Tons Required	Active Capacity	Tons Stored each Hour	Cumulative Storage
0	82	350	268	268
1	82	350	268	535
2	82	350	268	803
3	82	350	268	1,070
4	82	350	268	1,338
5	82	250	168	1,505
6	82	0	0	0
7	82	0	0	0
8	82	0	0	0
9	82	0	0	0
10	82	0	0	0
11	82	0	0	0
12	82	0	0	0
13	82	0	0	0
14	82	0	0	0
15	82	0	0	0
16	82	0	0	0
17	82	0	0	0
18	82	0	0	0
19	82	0	0	0
20	82	0	0	0
21	82	0	0	0
22	82	0	0	0
23	82	0	0	0

Using a spreadsheet, the active capacity was modified hourly to just meet the required monthly storage during the off-peak period and still allow each chiller to run as close to full load as possible. It is recommended that the chilled water use be metered to determine actual usage patterns before designing any TES system for these two chilled water loops.

- The peak storage required occurs in July, when 3,541 ton-hrs are required during the on-peak period. Normally, TES is sized to meet the load on the peak day. Since this is an monthly average, the actual storage required was assumed to be 4,000 ton-hrs. Assuming that 90% of the storage tank can be used effectively for TES, a 365,000-gallon tank is required.

- The storage tank is assumed to be partially buried, pre-stressed concrete approximately 20 ft deep and 56 ft in diameter. It is assumed that there is room for the storage tank somewhere between the two chiller plants near the proposed chilled water loop cross-tie line.

- It is assumed that the TES will not result in any significant increase in pumping energy. If the system is designed properly, a minimum of controls are required.

In addition to the common assumptions listed above, the cost assumptions are as follows:

- The concrete tank will cost approximately $300,000. Excavation and backfill are assumed to cost $12,000. Design of the system, including the diffuser inside the tank, are assumed to cost approximately $20,000. An additional $20,000 is estimated for miscellaneous piping, valves, etc., to connect the TES to the chilled water system.
- The electric utility (SCE) provides rebates as an incentive for the installation of TES systems. This rebate is $200/kW of peak load shifted. For this ERO, approximately 390 kW will be shifted off-peak, for a total rebate of $78,000.
- An additional $1,500/yr is assumed for operations and maintenance of the TES system.

Results

The complete quantitative results of this ERO appear in Table 2.26. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial cost of this ERO is $432,000 for all cost-effective implementations. As discussed above, there is a $78,000 rebate available from SCE for the installation of the TES system.

Energy and Cost Savings. It is estimated that implementation of this ERO will result in electric energy savings of 322,122 kWh at a value of $43,446, and electric demand savings of 2,110 kW-months at a value of $30,478.

Operations and Maintenance. An additional $1,500 per year is assumed for the TES system to cover normal operating maintenance.

2.11.3 Chiller Water Temperature Reset ERO

Description

Large water-cooled chillers are typically selected for 45°F leaving-chilled-water temperature and 95°F leaving-condenser-water temperature. Anything that can be done to raise the chilled water temperature and lower the condenser water temperature is going to save energy. It has been shown that for every degree of temperature change, there is a 1.5% change in chiller efficiency (Competitek 1991).

The easiest way to raise the chilled water temperature is manually, by trial and error. Most systems can operate effectively at 2-4°F higher temperature with no noticeable impact on cooling performance. If this is the case, the setpoint should be increased further, until the temperature is just low enough to meet the load. Of course, this temperature will vary by season, and it may be necessary to return to the 45°F setpoint during the hottest days of the year. There are two possible problems that may arise from this action: inadequate capacity, and loss of humidity control. Inadequate capacity is usually a function of the air handling system. Using the trial and error approach, the system with the most marginal capacity can be found, and the temperature setpoint adjusted to just meet that system. Loss of humidity control in a area like Fort Irwin should not be of concern, since this is usually associated with the dehumidifying ability of the coil.

The easiest way to lower condenser water temperature is to run the cooling tower more. Before this step is undertaken, a thorough examination of the cooling tower is in order, to determine the energy trade-offs between operating the chiller versus operating the cooling tower. There are three factors to consider: 1) type of cooling tower, 2) local climate conditions, and 3) operating hours. The type of cooling tower is important since it determines the tower fan energy. A forced draft tower uses about three times as much fan energy as an induced draft tower; therefore an induced draft tower makes temperature reset more viable. In a very humid local climate, the cooling tower has to work harder to provide the same amount of cooling as it does in a dry area. Again, the climate of Fort Irwin makes this option more attractive. The last item to consider is operating hours, which have an effect on both chiller and cooling tower efficiency.

Assumptions

The technical assumptions are as follows:

- The three chiller plants (Bldgs. 253, 263, and 273) represent the majority of the water-cooled chillers on the Fort and are therefore the only chillers considered for this ERO. The tonnage of these chillers was found during site visits and from the Real Property List and is assumed correct.
- The existing cooling energy was derived from the cooling EUIs developed in Volume 2 of this report. The EUI was multiplied by the total square footage served by each chiller to calculate the annual energy consumption.
- The chillers are assumed to operate at 0.75 kW/ton, an average standard efficiency for water-cooled chillers.
- Chilled water temperature is assumed to be raised by 5°F and condenser water temperature is assumed to be lowered by 5°F, resulting in a 15% increase in efficiency. Actual temperature resets will be a function of the individual chiller, cooling tower, and air handling systems and may require some trial and error testing before the optimum setpoints are found.

The cost assumptions are as follows:

- It should be relatively easy to adjust these temperature setpoints in most cases. For this ERO an initial labor charge of $30, and an annual $30 maintenance increase is assumed. These charges should cover the initial temperature reset and any necessary modifications over the course of the year to match the seasonal weather variations.

Results

The complete quantitative results of this ERO appear in Table 2.27. The table contains specific energy, cost, and economic performance data. Analysis of this ERO was carried out independently of the new chiller and TES EROs discussed above. Any savings estimated here are for existing chiller operating conditions.

Budget Implications. The initial cost of this ERO is $90 for all cost-effective implementations.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in electric energy savings of 273,806 kWh/yr at an annualized value of $18,938, and electric demand savings of 1,129 kW-months at a value of $12,387.

Operations and Maintenance. An additional $30 per year is assumed for each chiller to cover any necessary modifications to the temperature setpoints during the year.

Table 2.26. Central Chiller Plant EROs

Central Chiller Plant Operating Parameters

				Annual Energy Consumption					Sum Coincident Demand		
				Summer			Winter		Summer		Winter
ID	Equipment	Number of Units	Rating (Ton)	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Existing Chillers	3	2x250, 1x350	210,164	217,510	369,499	336,394	452,314	1,444	1,313	1,452
2	Existing Chillers	3	2x250, 1x350	210,164	217,510	369,499	336,394	452,314	1,444	1,313	1,452

Central Chiller Plant ERO Operating Parameters

		Annual Energy Consumption					Sum Coincident Demand		
		Summer			Winter		Summer		Winter
ID	Description of Replacement	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Connect B/253 & B/263, Add 100 ton chiller	194,749	196,476	324,433	248,391	293,556	1,347	1,191	1,130
2	Connect B/253 & B/263, Add TES	0	274,500	459,300	37,500	490,500	0	1,610	350

Central Chiller Plant Economic Parameters

					First Year Energy and Demand Savings					Life Cycle Cost	
ID	First Cost (1994 $)	Addn'l Maint. Cost (1994 $)	Utility Rebate (1994 $)	Life Expectancy (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	153,700	750	0	25	324,609	401	19,240	3,165	22,405	219,207	2.43
2	432,000	1,500	78,000	25	322,122	2,110	43,446	30,478	73,924	893,186	3.52

Table 2.27. Chilled and Condenser Water Temperature Reset EROs

Existing Chiller Operating Parameters

	Equipment Description			Operating Schedule						Annual Energy Consumption					Sum Coincident Demand		
				Summer			Winter		No. of	Summer			Winter		Summer		Winter
ID	Facility Number	Equipment	kW/ton	On Peak Hours	Mid Peak Hours	Off Peak Hours	Mid Peak Hours	Off Peak Hours	Months On Peak	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Bldg. 253	2-250 ton chillers	0.75	282	404	627	284	144	6	105,872	151,506	235,067	106,480	54,153	1,500	750	750
2	Bldg. 263	554 ton chiller	0.75	227	324	503	228	116	6	94,212	134,820	209,179	94,753	48,189	1,662	831	831
3	Bldg. 273	200 ton chiller	0.75	639	914	1,419	643	327	6	95,832	137,138	212,775	96,382	49,017	600	300	300

Chilled Water and Condenser Water Reset ERO Parameters

			Operating Schedule						Annual Energy Consumption					Sum Coincident Demand		
			Summer			Winter		No. of	Summer			Winter		Summer		Winter
ID	ERO Description	kW/ton	On Peak Hours	Mid Peak Hours	Off Peak Hours	Mid Peak Hours	Off Peak Hours	Months On Peak	On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	5 Degree Reset	0.6375	282	404	627	284	144	6	89,991	128,780	199,807	90,508	46,030	1,275	638	638
2	5 Degree Reset	0.6375	227	324	503	228	116	6	80,080	114,597	177,802	80,540	40,960	1,413	706	706
3	5 Degree Reset	0.6375	639	914	1,419	643	327	6	81,457	116,567	180,859	81,925	41,665	510	255	255

Chiller Reset Economic Parameters

				First Year Energy and Demand Savings					Life Cycle Cost	
ID	Installation Labor Cost (1994 $)	Annual O&M (1994 $)	ERO Life (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	30	30	25	97,962	450	6,775	4,939	11,714	201,183	6,707.11
2	30	30	25	87,173	499	6,029	5,472	11,502	197,519	6,584.96
3	30	30	25	88,672	180	6,133	1,976	8,108	139,087	4,637.24
Totals:										
	90	90		273,806	1,129	18,938	12,387	31,324	537,789	5,975.43

2.12 Domestic Refrigeration EROs

Description

New appliance standards that went into effect on January 1, 1990, eliminated the most inefficient refrigerator models from the market (Turiel 1990). New standards that took effect on January 1, 1993, made the least efficient 1993 models 26–28% more efficient than the average 1989 model. With the 1993 standard in effect, the incremental costs of design features needed to meet the standard are expected to increase the price of mass-produced units by 12.5%. It is reasonable to expect that replacement of all units with those that meet the 1993 standard will be economically attractive. This ERO was analyzed as a "replace immediately" option only, since there will be no choice but to replace units that fail with units meeting the new standard.

This ERO involves 1,897 full-sized units in family housing and 433 units in commercial building breakrooms, including barracks at Fort Irwin.

Assumptions

The following technical data and assumptions pertain to the ERO evaluation:

- Non-energy operations and maintenance (O&M) costs are the same for the retrofit models as for the current models. Refrigerator O&M includes replacement if the refrigeration system fails and repair of shelves and cleaning of coils, drip pans, and finished surfaces.
- Each family housing unit contains one full-size refrigerator with a DOE energy rating of 1,000 kWh/yr; actual consumption is 1,296 kWh/yr, and the peak factor (percent of refrigerators affecting peak load) is 0.90.
- Existing units are assumed to be 27% less efficient than the replacement units. A 17-cubic foot model was chosen from the GSA "catalog" as a replacement. Energy consumption for this model is 946 kWh/yr.

Results

The complete quantitative results of this ERO appear in Table 2.28. The table contains specific energy, cost and economic performance data. This ERO has no positive NPV options.

Table 2.28. Refrigeration EROs

Existing Refrigerator Operating Parameters

ID	Application	Size (cu.ft.)	# of units	Peak Factor	Average Load (kW/unit	Annual Energy Consumption					Sum Coincident Demand		
						Summer			Winter		Summer		Winter
						On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Comm. Bldg Breakrms	17	433	0.9	0.249	56,491	84,899	174,875	243,464	386,475	433	227	1,113
2	Family Housing	17	1,897	0.9	0.249	247,563	372,055	766,357	1,066,935	1,693,653	1,897	996	4,877

Efficient Refrigerator Operating Parameters

ID	Application	Size (cu.ft.)	# of units	Peak Factor	Average Load (kW/unit)	Annual Energy Consumption					Sum Coincident Demand		
						Summer			Winter		Summer		Winter
						On Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	Mid Peak (kWh/yr)	Off Peak (kWh/yr)	On Peak (kW-mo)	Mid Peak (kW-mo)	Mid Peak (kW-mo)
1	Comm. Bldg Breakrms	17	433	0.9	0.182	41,235	61,971	127,648	177,714	282,103	316	166	812
2	Family Housing	17	1,897	0.9	0.182	180,706	271,577	559,393	778,797	1,236,262	1,385	727	3,560

Efficient Refrigerator ERO Economics

ID	Economic Parameters		First Year Energy & Demand Savings					Life Cycle Cost	
	First Cost (1994 $)	Life (yr)	Energy (kWh)	Demand (kW-mo)	Energy (1994 $)	Demand (1994 $)	Total (1994 $)	NPV ($)	SIR
1	286,928	15	255,534	479	5,471	1,196	6,666	(35,461)	0.88
2	1,257,407	15	1,119,828	2,099	23,973	5,241	29,215	(155,403)	0.88

2.13 Modular Building EROs

Most of the new construction at Fort Irwin since the mid-1980s (excluding family housing) has been in the form of modular buildings. These are buildings that are manufactured off-site and brought to the Fort in sections. They are then connected together to form buildings in a manner similar to mobile homes. The modular buildings differ generally only in their furnishings, lighting, orientation, equipment brands and number of modules. The modular buildings are all-electric, and the energy use is thought to be particularly inefficient in these buildings.

From 21 December 1989 to 27 January 1992, two of the modular buildings (Bldgs. 567 and 571) were extensively monitored by PNL as part of a separate study sponsored by FORSCOM. The purpose of this test was to monitor electrical demands by end use and to monitor the response of the HVAC systems to internal and external loads. Several EROs that were evaluated as a result of this study are included here for formal LCC analysis. Additional detail on the end-use metering on these two buildings can be found in Armstrong and Keller (1994).

Since the metering provided unusually accurate estimates of the existing energy use for the modular buildings, it was decided to group all of the EROs pertaining to the modular buildings together so that common assumptions regarding energy consumption would be used. This may result in some reproduction as several of these EROs are analyzed elsewhere in this report for other building types. There are nine EROs analyzed below. The first five are identical to those analyzed as part of the metering.

Another group of EROs for modular buildings will be analyzed by the Level-2 software, and are included with the Level-2 results. These EROs include wall and ceiling insulation, DHW, lighting, and heat pump replacement.

Keep in mind that the results below are for individual EROs only; there has been no attempt to include any interactive effects between the EROs. In addition, the first four EROs all consider energy savings from adding controls. In each case, the full cost of the control system is included. If several of these EROs were implemented, costs would be reduced as some parts of the necessary controls systems may be used for several EROs.

It is recommended that any new modular buildings be specified with the energy saving controls, equipment, and envelope construction described below. Most of these measures could be applied either during module construction, or during building set-up to make the new buildings as efficient as possible.

Assumptions common to all modular office building EROs:

- There are 47 modular office/admin. buildings considered for these EROs. Additional modular buildings used for other purposes were not included since their existing energy use could not be assumed to be the same as the two metered office-type buildings.

- There are a total of 223,920 ft^2 of modular office space. Each module is 720 ft^2 (60 ft x 12 ft), for a total of 311 modules.

- The observed EUIs for the two metered buildings were 13.7 kWh/ft^2-yr for Building 567 and 10.4 kWh/ft^2-yr for Building 571. From these results, an average 12.05 kWh/ft^2-yr was assumed for all modular office buildings. This EUI, multiplied by the total modular office area, results in an annual electric energy use of 2,698,236 kWh. This total was split into the various electric rate periods by the ratio of the number of hours in each time period.

- Each module has its own thermostat and 3-ton heat pump.

2.13.1 Night and Weekend Setback

Description

Primary HVAC energy can be saved by implementing night and weekend setback schedules with an optimal start feature. Additional energy can be saved by including controls to prevent simultaneous heating and cooling.

The modular buildings currently use a separate thermostat to control the heat pump in each module. The large number of thermostats makes implementation of night setback a practical impossibility. An attractive solution is to add a central controller to each building. The controller will enable heating or cooling based on the average temperature sensed by multiple sensors. This will allow the heat pumps to heat or cool but not both. With a central control deadband of 1°C and module thermostat deadbands of 3 to 4°C, there will be ample margin for variation in individual setpoints to satisfy occupants' comfort criteria. At night and on weekends the central control will operate with a lower heating setpoint of 12 to 15°C and will disable cooling entirely. Time to recover from night setback will be estimated by an optimal start algorithm based on average indoor temperature, outdoor temperature, and daytime heating setpoint. This will allow a low night heating setpoint to be used without the penalty of having to initiate recovery on a fixed, early morning (worst-case) schedule.

A lower-cost alternative to the EMCS-type controller described above is a full-featured electronic thermostat wired to enable the heating and cooling modes of the individual module thermostats. Another alternative is to include sufficient inputs with the central control to measure the air temperature at each zone and completely replace the existing thermostats.

Assumptions

The technical assumptions are as follows:

- Results predict that elimination of simultaneous heating and cooling will save 4,000 kWh/yr in Bldg. 567 and 2,000 kWh/yr in Bldg. 571. Implementation of night and weekend setback with optimal start should save at least 6,000 kWh/yr in Bldg. 567 and 7,000 kWh/yr in Bldg. 571.

- An average savings of 9,500 kWh/yr and 46.5 kW-mo per building was assumed based on the results.

The cost assumptions are as follows:

- The small commercial building EMCS control market is large and very competitive. A number of manufacturers offer 16-point (e.g., 8 analog in, 8 digital out) units for under $1,500. Four temperature sensors and one outdoor temperature sensor will cost $300 and installation labor and programming will cost $500 per building assuming 10 or more buildings are involved. Wiring to existing thermostats will cost about $100 and thermostat replacement (if necessary) will cost about $100 each including labor. Maximum total cost is therefore about $3,200 per building. Note that the cost to expand the EMCS controller and add four additional room temperature sensors may be no more than the cost to replace all of the thermostats.

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is $150,400.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 441,800 kWh, for a cost savings of $24,835. Annual demand savings are estimated to be 2,186 kW-months, for a cost savings of $6,096.

2.13.2 Two-Speed Fan Motor

Description

Each heat pump has a supply air fan that operates continuously during occupied hours. A two-speed fan can be operated at two-thirds speed during occupied hours when there is no heating or cooling load. The measure requires replacement of the fan motor and installation of a relay to select high speed only when the heat pump compressor is on.

Assumptions

The technical assumptions are as follows:

- The fans in Buildings 567 and 571 use over 5,000 kWh/yr during fan-only operation. This can be reduced by 3,500 kWh/yr by replacing the fan motors with two-speed motors.
- There are 15 fan motors in the two metered buildings, for a total savings of 233 kWh/yr per fan.
- Demand savings will be minimal, since the fans will still be able to run at the high speed, which will most likely occur during the peak periods.

The cost assumption is as follows:

- It is estimated to cost $230 per fan to retrofit the heat pump units with two-speed fan motors.

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

2.13.3 Two-Speed Compressor

Description

The existing heat pumps have single-speed compressors. A heat pump equipped with a two-speed compressor operates more efficiently at part load by obtaining much closer approach temperatures in the evaporator and condenser heat exchangers and by dissipating less energy in the form of refrigerant loop friction losses. A two-stage expansion valve and two-stage room thermostat controls must also be provided with this retrofit.

Assumptions

The technical assumptions are as follows:

- Heat pumps can satisfy the loads 90% of the time at 60% of current capacity. Energy use under these conditions will be reduced by 25% in heating mode and 30% in cooling mode. This is estimated to reduce annual HVAC energy in the two metered buildings by 16,000 kWh and HVAC demand by 68.4 kW-mo.

- There are 15 heat pump compressors in the two metered buildings, for a total savings of 1,067 kWh/yr and 4.56 kW-mo per compressor.

The cost assumptions are as follows:

- The cost of a two-speed, three-ton compressor is $400; installation labor cost is $150; additional controls will cost about $200, installed, for a total of $750 per heat pump unit.

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is $240,507.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 331,733 kWh, for a cost savings of $19,917. Annual demand savings are estimated to be 1,418 kW-months, for a cost savings of $19,435.

2.13.4 Economizer Cooling

Description

Economizer cooling can be added to the existing system in a number of ways. The simplest system would involve one economizer damper retrofit package per heat pump. However, such a retrofit may not be feasible due to the compact nature of the heat pump units. We therefore consider a system that adds a filtered outdoor air fan unit, an exhaust fan unit, and an EMCS unit and variable-speed motor controller for every four modules. A back-draft damper will be provided at each heat pump supply air outlet and a motorized damper will be installed where the outside air duct branches to each of the four supply air ducts.

The EMCS will monitor the existing thermostat signals as well as exhaust and outside air temperatures and relative humidities and will control the new exhaust and supply air fan speeds and open or close the motorized dampers accordingly.

Assumptions

The technical assumptions are as follows:

- Energy and demand savings were calculated from the monitored compressor loads by applying a nominal cooling COP of 2.5 and assuming a supply air flow rate of 1,000 cfm per supply fan. On this basis, economizer cooling will save about 7,140 kWh/yr on workdays and 2,020 kWh/yr on non-workdays in Building 567. Demand savings will be about 35 kW-mo.

- Savings calculated for building 567 are assumed to be representative of all of the modular office buildings.

- It is assumed that economizer cooling will be limited to the winter season (Oct. through May). Therefore the savings were apportioned in the following manner: 7,140 kWh during the winter mid-peak period, and 2,020 kWh during the winter off-peak period. Demand savings all occur during the winter mid-peak period.

The cost assumptions are as follows:

- The costs for the economizer system for Building 567 are as follows: outside air fan (2): $1,700; outside air ductwork, installed: $2,160; motorized dampers (8): $1,600; exhaust fan with backdraft damper and curb, installed (2): $2,140; variable-speed drive, installed (2): $2,376; temperature & RH sensors, installed (3): $375; EMCS unit (2): $3,000; EMCS sensor and actuator interface: $850. The estimated total first cost for the retrofit is $14,200.

- Since the economizer package is applied once for every four modules, the total cost for all 311 modules is assumed to be $7,100 multiplied by 78 (311/4).

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

2.13.5 Reflective Roof

Description

The existing roof is a black EDPM membrane: White reflective roof coating materials are available to reduce heat gains from absorbed solar radiation.

Assumptions

The technical assumptions are as follows:

- Solar energy incident on the two metered buildings amounts to about 2,000,000 kWh per year. About 2% of this, or 40,000 kWh/yr, contributes to the aggregate annual cooling load estimated at 115,000 kWh (thermal) based on a COP of 2.5. White roofs will eliminate at least half of the 40,000 kWh/yr thermal load for an annual--mostly on-peak--electric load savings of 8,000 kWh and 33 kW-mo.

- There are 15 modules in the two metered buildings, for a total savings of 533 kWh/yr and 2.2 kW-mo per module. Savings was estimated to be 3,000 kWh/yr during both the summer on- and mid-peak periods, and 2,000 kWh/yr during the winter mid-peak period. Demand savings are assumed to all occur during the summer on-peak period.

The cost assumptions are as follows:

- The cost of coating the roof is estimated to be \$1.00/ft^2; the total cost for each module is therefore \$720. Renewal of the coating at 5-year intervals is assumed.

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is \$223,920.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 165,867 kWh, for a cost savings of \$16,015. Annual demand savings are estimated to be 684 kW-months, for a cost savings of \$13,111.

2.13.6 Double-Pane Windows

Description

Modular buildings have single-pane aluminum frame windows. Energy can be saved by replacing these windows with double-pane windows. Replacement window frames should be either vinyl or aluminum with a thermal break.

Assumptions

The technical assumptions are as follows:

- Percent of windows on each side of the building was estimated from observations during the site visit.

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy. The weather data used to determine this is from the China Lake TMY weather file.

- Single-pane windows have a U-value of 0.98 (Btu/hr-ft^2-F) and U-value for multi-glazed is 0.7 (Btu/hr-ft^2-F).

- The conductive heat loss or gain through the window was determined by the equation: $Q = UA\Delta T$. The temperature difference was determined by the average temperature for each month during the heating season from the TMY data for China Lake. The cooling season temperature was the average temperature difference for the entire cooling season, also from China Lake TMY data. It should be noted that this was broken up into each rate schedule (i.e., on, mid, ... peak)

- To determine the operating hours, each day (week day or week-end) was broken into on, mid, off, or super off hours, and then appropriately prorated for the season.

The cost assumptions are as follows:

- Double-pane windows are assumed to be \$9/ft^2 for materials and \$8/ft^2 for labor taken as an average from several sources (Means: Building Construction Cost Data 1992; The Richardson Rapid System, Process Plant Construction Estimating Standards, Volume 2, 1992; cost estimate from a manufacturer of efficient windows).

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

2.13.7 Shade Screens

Description

Shade screens are used to replace existing metal or fabric insect screens attached to the exterior of each window frame. The shade screen is made up of rows of miniature louvers which allow light to penetrate only at certain angles. By reducing the amount of sunlight which enters through the windows, cooling load can be substantially reduced. See the shade screen ERO in the manual envelope ERO section for more details about the design and operation of shade screens.

Assumptions

The technical assumptions are as follows:

- Percent of windows on each side of the building was estimated from observations during the site visits.

- All the months during the summer season (June through September) are assumed to contribute to the cooling energy. The weather data used to determine this is from the China Lake TMY weather file.

- The present shading coefficient is assumed to be 1.0 (i.e., no shading) and the proposed shading coefficient is assumed to be 0.3.

- Solar insolation attributing to heat gain through the windows was calculated from solar heat gain factor (Btu/h-ft^2) (SHGF) (from ASHRAE Fundamentals 1993, pg. 27.21-.22) assuming Fort Irwin is at 35 degrees latitude. Buildings are assumed to be oriented 45° from north; therefore, the SHGF used are for the NE, SE, NW, and SW faces of the building.

- Solar time, used by ASHRAE Fundamentals, was converted to Pacific Time to account for on, mid, and off peak energy consumption during the summer season.

- Each side of the building was analyzed separately to determine the best economic choices for installation of shade screens.

The cost assumptions are as follows:

- Shade screens is assumed to cost \$5.00/ft^2 including labor.

- SCE has a rebate of \$0.30/ft^2 of window films or screens. The rebate applies to southwest and southeast facing windows only.

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. Shade screens are cost-effective options on the southeast, southwest and northwest facing windows.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is \$16,450.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 29,191 kWh, for a cost savings of \$2,907. Annual demand savings are estimated to be 137 kW-months, for a cost savings of \$2,343.

2.13.8 Crawl Space Insulation

Description

Insulation can be added between the floor joists in the crawl space under each modular building to insulate the floor. The modular buildings are installed anywhere from three to six feet (depending on site elevation) above the ground on raised supports, allowing easy access to install insulation. Plywood skirting is already in place around the exterior of each building, which will protect the insulation. Two insulation levels are analyzed, R-19 and R-30.

Assumptions

The technical assumptions are as follows:

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy.

- The existing floor U-value is 0.359 (Btu/hr-ft^2-F) assuming no insulation.
- The proposed floor U-value is 0.0499 (Btu/hr-ft^2-F) assuming insulation of R-19.
- The proposed floor U-value is 0.0355 (Btu/hr-ft^2-F) assuming insulation of R-30.
- The floor is assumed to be wood joists on 16" centers (2' x 8' boards).
- The crawl space is assumed to be vented, therefore, for conductive heat exchange it is treated as an outside wall.

The cost assumptions are as follows:

- R-19: material = \$0.39/ft^2, labor = \$0.14/ft^2
- R-30: material = \$0.60/ft^2, labor = \$0.16/ft^2
  (from Means: Building Construction Cost Data 1992)

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. The most cost-effective insulation choice is R-19.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is \$124,770.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 293,454 kWh, for a cost savings of \$24,461. Annual demand savings are estimated to be 1,039 kW-mo, for a cost savings of \$14,300.

2.13.9 Weatherization

Description

Weatherization consists of caulking, weatherstripping and installing/replacing door seals to provide a tight seal to limit or eliminate infiltration. This will result in energy savings and increased occupant comfort.

Assumptions

The technical assumptions are as follows:

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy.
- Existing air leakage is assumed to be "average," 0.3 cfm/ft^2; proposed air leakage values are assumed to be "tight," 0.1 cfm/ft^2 (from ASHRAE Fundamentals, 1993, pg. 23.16).

- Heat gain calculations for heat gain or loss is from ASHRAE Fundamentals, 1993, pg. 25.13.
- It was assumed 2 doors per building with dimensions of 3' x 7'. Window dimensions were approximated from site visits.

The cost assumptions are as follows:

- Caulking: material = $0.06/ft, labor = $0.72/ft
- Weatherstripping material = $2.20/ft, labor = $1.92/ft
- Door Strips material = $2.60/ft, labor = $3.84/ft
  (from Means: Building Construction Cost Data 1992)

Results

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial installed cost of all cost-effective implementations of this ERO is $8,967.

Energy and Cost Savings. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 363,654 kWh, for a cost savings of $26,363. Annual demand savings are estimated to be 904 kW-months, for a cost savings of $11,800.

Table 2.29. Modular Office EROs

Existing Modular Trailer Operating Parameters

ID	Equipment Description	Number of Units	Energy						Demand		
			Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
				On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
MT-1	Thermostat	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-2	Fan motor	311	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-3	3 ton heat pump	311	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-4	3 ton heat pump	78	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-5	Black EDPM	311	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-6	Single pane window	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-7	Single pane window	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-8	Single pane window	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-9	Single pane window	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-10	Single pane window	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-11a	No Flr Ins.	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-11b	No Flr Ins.	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062
MT-12	Poor Weatherstrip	47	2,698,236	161,894	242,841	485,682	701,541	1,106,277	6,105	5,728	11,062

Modular Trailer ERO Operating Parameters

ID	Description of Replacement	Number of Units	Energy						Demand		
			Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
				On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
MT-1	Night Setback	47	2,256,436	140,744	221,691	383,833	607,541	902,626	6,105	4,635	9,969
MT-2	2-speed fan motor	311	2,625,669	157,540	236,310	472,620	682,674	1,076,524	6,105	5,728	11,062
MT-3	2-speed compressor	311	2,366,503	141,990	212,985	425,970	615,291	970,266	5,160	5,492	10,826
MT-4	Economizer cooling	78	2,267,716	161,894	242,841	485,682	365,961	1,011,337	6,105	5,728	8,332
MT-5	Reflective roof	311	2,532,369	99,694	180,641	485,682	660,075	1,106,277	5,421	5,728	11,062
MT-6	Double pane windows	47	2,670,103	160,334	241,281	483,768	700,245	1,084,475	6,075	5,722	11,030
MT-7	Shade Screens - NE side	47	2,690,722	160,422	241,484	480,998	701,541	1,106,277	6,094	5,725	11,062
MT-8	Shade Screens - SE side	47	2,687,451	160,280	239,093	480,260	701,541	1,106,277	6,093	5,718	11,062
MT-9	Shade Screens - SW side	47	2,687,344	153,497	241,114	484,915	701,541	1,106,277	6,041	5,724	11,062
MT-10	Shade Screens - NW side	47	2,690,722	156,231	241,757	484,916	701,541	1,106,277	6,062	5,726	11,062
MT-11a	Crawl Space Ins.: R-19	47	2,404,782	70,147	130,243	448,150	689,486	1,066,755	5,402	5,427	11,028
MT-11b	Crawl Space Ins.: R-30	47	2,391,110	65,873	124,997	446,401	688,925	1,064,914	5,369	5,413	11,026
MT-12	Weatherization	47	2,334,582	87,451	151,479	455,229	662,416	978,007	5,535	5,484	10,973

Modular Trailer ERO Economic Parameters

ID	First Cost (1994 $)	Rebate Amount (1994 $)	Life (Years)	First Year Energy and Demand Savings					Life Cycle Cost	
				Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
MT-1	150,400	0	15	441,800	2,186	24,835	6,096	30,931	314,125	3.09
MT-3	240,507	0	15	331,733	1,418	19,917	19,435	39,353	328,228	2.36
MT-5	223,920	0	25	165,867	684	16,015	13,111	29,126	277,647	2.24
MT-8	6,138	982	10	10,785	22	697	261	958	4,039	1.78
MT-9	6,138	982	10	10,892	69	1,317	1,244	2,561	32,627	7.33
MT-10	6,138	0	10	7,514	46	893	838	1,731	18,344	3.99
MT-11a	124,770	0	25	293,454	1,039	24,461	14,300	38,761	542,721	5.35
MT-12	8,967	0	25	363,654	904	26,363	11,800	38,162	648,218	73.29

2.14 Transmission and Distribution EROs

Even with efficiencies near 95%, distribution transformers represent the largest component of transmission and distribution (T&D) system energy consumption. Thus, the reduction of transformer loss is the primary energy resource opportunity in this section. Two additional T&D EROs, conservation voltage reduction and power factor correction, and a discussion of power distribution system renovations are presented following the transformer ERO analysis.

2.14.1 Transformer EROs

As described in Volume 2: Baseline Detail (Richman et al. 1994), transformer loss consists of both load and no-load loss. The load loss, developed by resistive heating in the transformer windings, varies as a function of the load squared (an I^2R relationship). No-load losses are developed in the core of the transformer, and are not a function of the power system load. Since average transformer loads at Fort Irwin are lower than the average capacities, a lot of the transformer loss is no-load. Therefore, the transformer energy consumption will not be affected greatly as a result of other ERO implementation throughout the base.

A total of eight transformer EROs have been considered for Fort Irwin. Both retrofit and phased implementation (replace immediately and replace-on-failure, respectively) are analyzed for the following options:

- Replace transformers with amorphous core transformers.
- Replace transformers with improved silicon steel core transformers.
- Replace transformers with amorphous core transformers and improved winding efficiency.
- Replace transformers with improved silicon steel core transformers and improved winding efficiency.

The tradeoff of efficiency and cost is a major factor in the specification and construction of transformers. Transformers can be built at several efficiency levels for a given capacity size. Typical transformer losses, which are representative of conventional transformer technology, are given in Volume 2 for transformer sizes found at Fort Irwin.

Amorphous steel transformer cores are a relatively recent development. Transformer no-load losses can be reduced by about 70% when amorphous steel is used for the transformer core. However, the amorphous steel is more expensive than conventional transformer core silicon steel, increasing the cost of a typical distribution transformer by about 40% (Brooks et al. 1986). As amorphous core transformers are typically smaller than 1,000 kVA, this analysis only considered the amorphous core option for transformers less than 1,000 kVA capacity.

Using improved silicon steel for transformer cores is another method of reducing transformer no-load loss. This can result in no-load loss reduction of about 25% with a corresponding increase in transformer cost of 20%, as compared to a conventional transformer (Brooks et al. 1986).

Both of the technologies described above affect only the no-load loss through the use of improved core materials. However, load-loss reduction is also possible by using more winding material to reduce the resistance and hence the load loss of the transformer. This practice is common in the manufacture of transformers, with the tradeoff of efficiency and cost as major factors in the specification and construction of transformers.

In order to determine the cost-effectiveness of each of the transformer EROs, the transformer cost, loss reduction potential, and the value of losses must be determined. The methodology used for estimating each is given below.

Cost Estimation

Because transformers can be specified and manufactured in many different configurations, obtaining costs that can be widely applied is difficult. For example, the transformer efficiency and cost is usually optimized for the customer's specific cost of energy, in order to minimize the total owning cost (initial cost plus total value of energy loss over the life of the equipment). In order to estimate transformer cost, the 1992 Means Electrical Cost Data was used (Means 1992a). These values were then adjusted by 3.75% to account for the escalation in materials and labor for 1993. Means is used by contractors for estimating the cost of a project, and tends to slightly overstate the actual cost of a project. This method of estimating cost is therefore conservative, as it slightly overstates the cost of the project. Used in the context of this analysis, it is useful for estimating the cost of a contractor-installed project, since major transformer retrofit work would likely be performed by a contractor.

The Means cost data was separated into material and labor categories. The material cost is the direct transformer cost, while the labor cost includes the labor, installation equipment, and contractor overhead and profit. These costs are given in Means for a variety of transformer types and voltages, which are given in Figures 2.1 and 2.2.

Hardware cost for the large transformers (greater than 750 kVA) are given below. These costs were estimated using a Westinghouse transformer price list (Westinghouse Electric Corporation 1987), adjusted to 1992 dollars using Means historical cost data (an escalation factor of 12%). Once again, these figures were then escalated by 3.75% to bring everything to 1993 dollars.

Large Transformer Hardware Cost

Primary (volts)	Secondary (volts)	Capacity (kVA)	Cost ($ 1992)
69,000	12,000	2,500	44,033
		3,750	48,677
		7,500	76,686
		10,000	92,373
69,000	4,160	3,750	47,732
12,000	4,160	2,000	23,409
		5,000	38,343
12,000	2,400	750	16,406
		1,000	17,528
12,000	480	750	16,243
		1,000	17,354
		1,500	19,579
		2,000	22,948
		2,500	25,346
12,000	208	750	17,055
		1,000	18,743
4160	480	750	15,529
		1,500	20,068

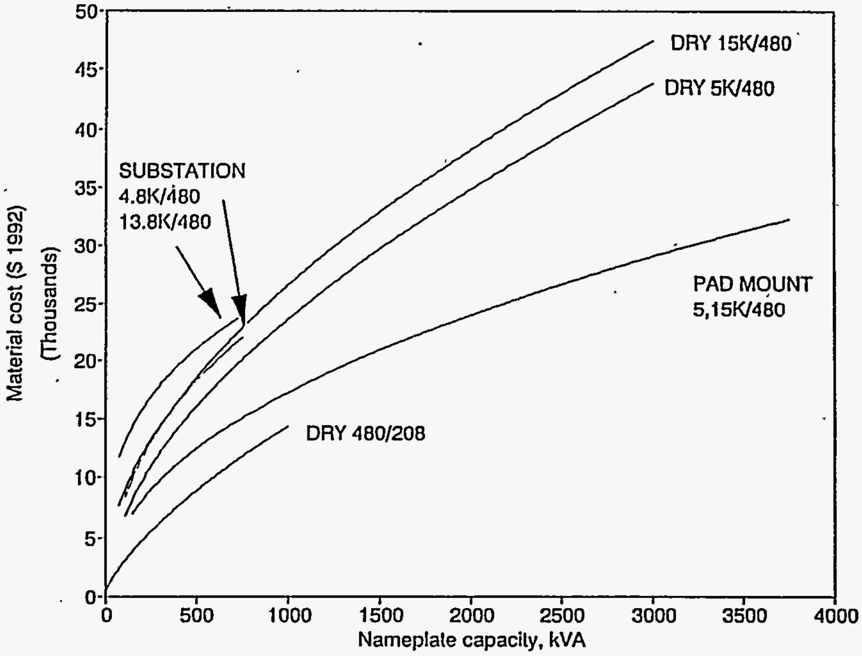

Figure 2.1. Means Transformer Material Cost

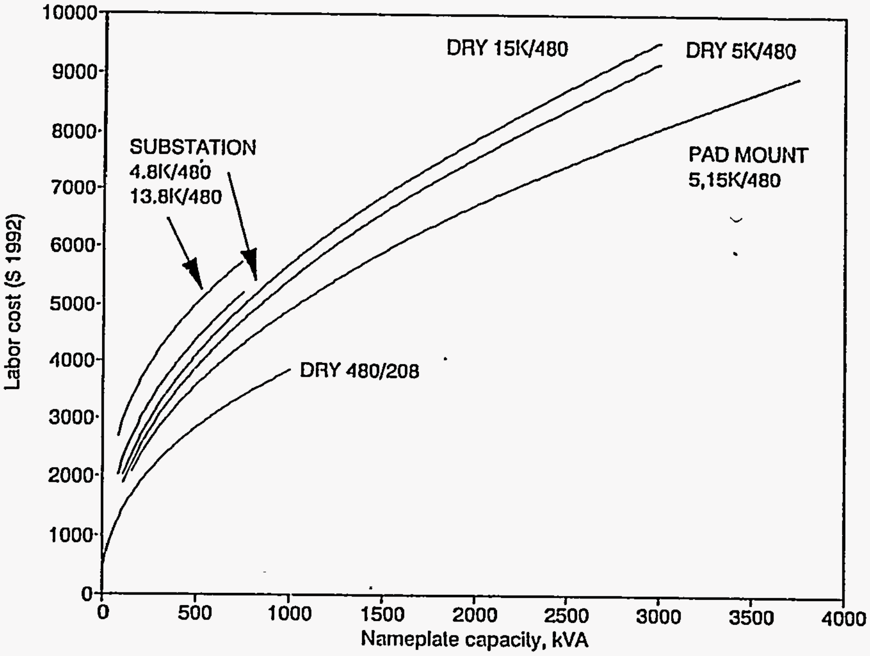

Figure 2.2. Means Transformer Labor Cost

The Means data shown in these two figures was used to create scaling relationships between transformer size and cost. The material cost data was separated into two categories: transformers with capacity less than or equal to 100 kVA, and transformers with capacity greater than 100 kVA and less than 750 kVA. A curve fit of the data was performed for each, with the resulting equations used to estimate the cost of all transformers within that category.

For transformers rated under 100 kVA, data for dry-type units with voltage rating of 240/480-120/208 was used for the curve fit. A scaling factor of 1.2 was included to adjust the cost for distribution voltage. Equation 2.1 gives the material cost estimate for transformers in this size category.

$$\text{Material cost} = 175\ S^{0.608}\ \text{(dollars)} \tag{2.1}$$

where S = Transformer capacity, kVA; $0 < S \leq 100$

For transformer sizes larger than 100 kVA and less than 750 kVA, the curve fit used the pad mount 5,15 kV voltage category data. Equation 2.2 gives the hardware cost algorithm for transformers in this size category.

$$\text{Material cost} = 639\ S^{0.477}\ \text{(dollars)} \tag{2.2}$$

where S = Transformer capacity, kVA; $100 < S < 750$

All transformers have similar labor costs, which were combined into a single curve-fit and is given in Equation 2.3.

$$\text{Labor cost} = 209\ S^{0.457}\ \text{(dollars)} \tag{2.3}$$

where S = Transformer capacity, kVA

Finally, the costs are adjusted by the city cost index, which account for differences in material cost and labor rates for various parts of the country with respect to the national average. For the Fort Irwin area of California, the material cost index is 1.0 and the labor cost index is 1.1.

While the old transformers being removed have some salvage value, this analysis assumes the benefit will be approximately equal to the labor demolition and disposal costs and could be subsequently ignored.

Loss Reduction

As mentioned previously, transformers can be specified with virtually any efficiency over a fairly broad range. Typical transformer losses, which are representative of conventional transformer technology, are given in the baseline report for transformer sizes found at Fort Irwin.

Amorphous core transformer no-load loss is approximately 30% of a conventional unit, with an estimated cost 1.4 times that of a conventional unit (Brooks et al. 1986). Since amorphous cores are not available for large transformers, it is assumed in this analysis that the amorphous core option is only available for sizes of 1000 kVA or smaller. Improved silicon steel transformers have approximately 75% of a conventional unit's no-load loss, and have an estimated capital cost of 1.2 times the present cost of a conventional distribution transformer (Brooks et al. 1986). For both of the above technologies, it is assumed that the load loss can be reduced by 20% with a 10% increase in the capital cost as compared to a conventional transformer, which is based calculations based on Westinghouse Electric Corporation technical data (1981).

Annual Energy Savings

The annual savings of the various transformer EROs considered are calculated in a three-step process. First, the peak power demand reduction is calculated and multiplied by the monthly demand charges over the year. Second, the no-load loss reduction is multiplied by the weighted average of energy cost. Finally, the load-loss reduction is computed as described below.

Since the load loss varies as a function of the square of the load, and different energy rates apply based on time-of-use, a detailed load consumption model has been developed for this analysis. An arbitrary load duration curve, shown in Figure 2.3, is assumed, and is expressed using Equation 2.4. The slope of the curve is determined by "a", which is a function of the load factor (average power divided by peak power). When "a" is zero, the power profile is flat and the load factor is equal to one.

$$P=e^{-at} \tag{2.4}$$

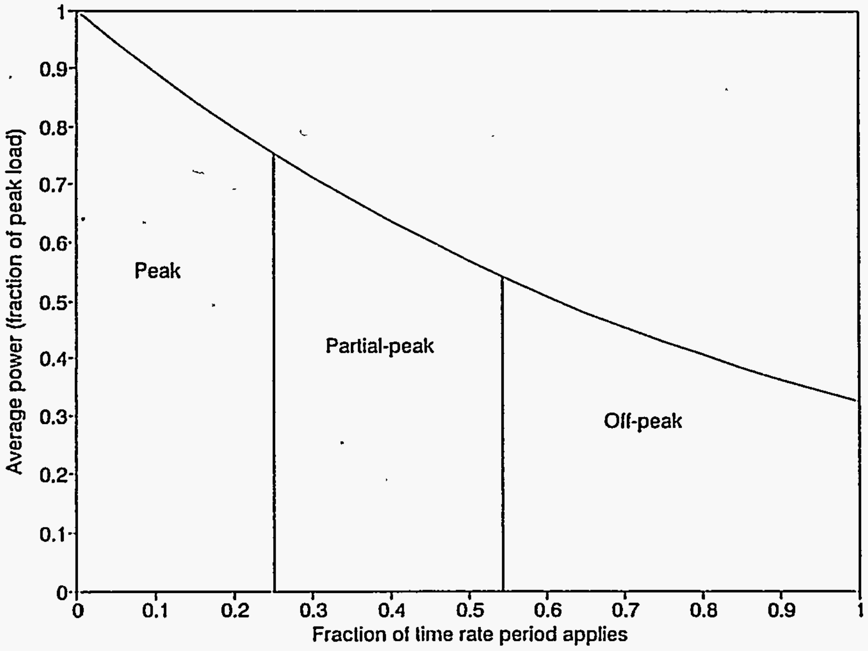

Figure 2.3. Weekly Load Duration Curve Used for Time-of-Loss Calculation

The average power is given in Equation 2.5, which is the same as the load factor since the peak power is normalized.

$$F_{LD}=\int_0^1 e^{-at} \tag{2.5}$$

where F_{LD} = Load Factor

The factor "a" can be explicitly calculated as a function of the load factor, F_{LD}. This transcendental equation was solved by iteration with a curve-fit applied to the data, which is given in Equation 2.6.

$$a=10.277e^{-3.779F_{LD}} \tag{2.6}$$

where F_{LD} = Load Factor; accurate over the range $0.3 \leq F_{LD} \leq 0.8$

The average power consumed during each of the rate periods (peak, partial-peak, and off-peak) is given in Equations 2.7, 2.8, and 2.9, respectively, where T_i is the fraction of time when that particular rate applies. The total load loss for each of the rate periods is the normalized square of these averages, as shown in Figure 2.4.

$$P_{ave}(On-Peak)=\frac{1}{aT_1}[1-e^{-aT_1}] \tag{2.7}$$

$$P_{ave}(Mid-Peak)=\frac{1}{aT_2}[e^{-aT_1}-e^{-a(T_1+T_2)}] \tag{2.8}$$

$$P_{ave}(Off-Peak)=\frac{1}{aT_3}[e^{-a(T_1+T_2)}-e^{-a}] \tag{2.9}$$

Results

The four transformer EROs described previously are shown below. Both replace immediately and replace-on-failure options have been analyzed. The complete quantitative results of this ERO appear in Table 2.30. This table contains specific energy, cost, and economic data related to the transformer EROs.

			Loss Red. (%)	
ERO No.	Description	Cost Factor	No-Load	Load
1	Improved silicon steel core	1.2	25	0
2	Amorphous core	1.4	70	0
3	Improved silicon steel/windings	1.3	25	20
4	Amorphous core/improved windings	1.5	70	20

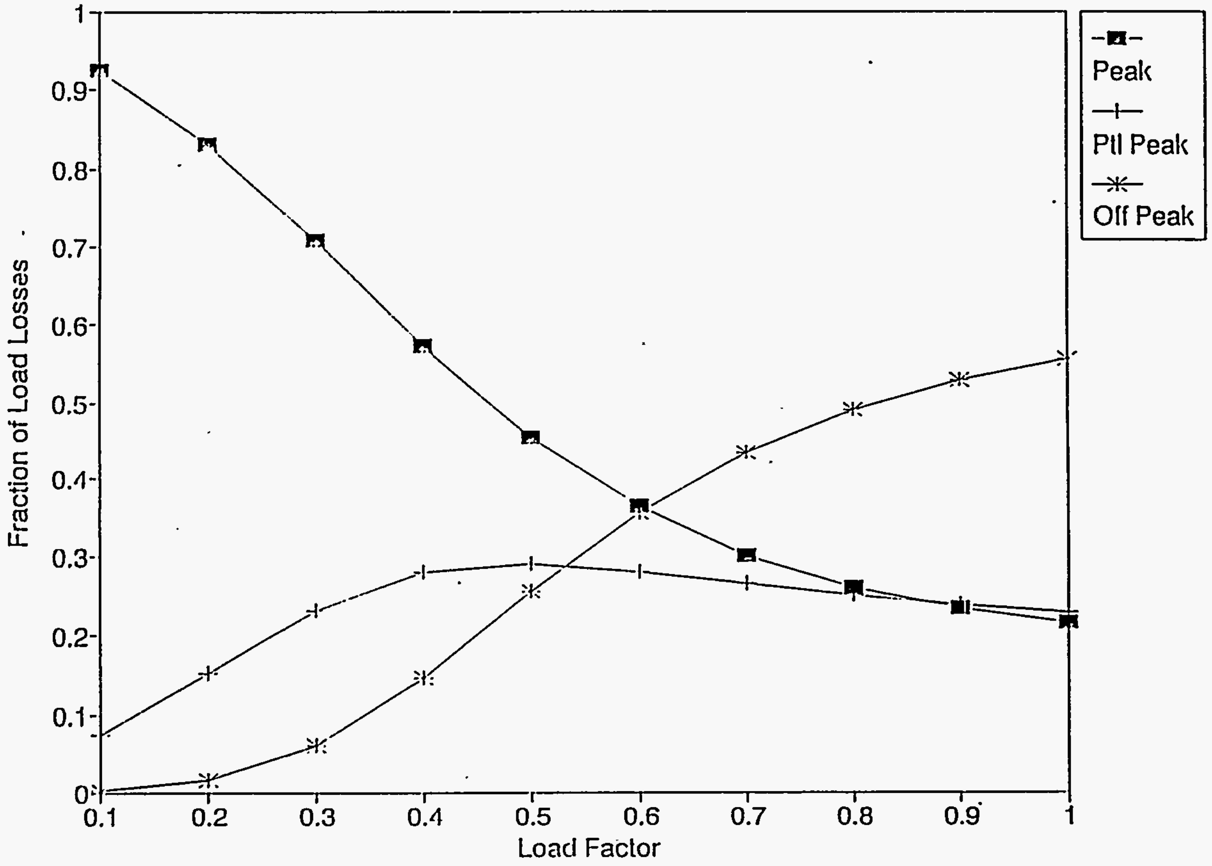

Figure 2.4. Load Loss Distribution Between Rate Periods

From Table 2.30, ERO #4 (amorphous core/improved windings) is the most cost-effective ERO for all transformer categories below 1,000 kVA. ERO #3 is the most cost-effective ERO for the 7,500 kVA substation transformers.

Budget Implications. The replace immediately implementation of this ERO is estimated to cost $19,305. The replace-on-failure implementations of this ERO are estimated to have a first cost of $3,364,580.

Energy and Cost Savings

The estimated annual energy savings for the replace immediately implementation of this ERO are 16,283 kWh, for a cost savings of $1,037. The associated demand savings are estimated to be 104 kW-months, for a cost savings of $804.

The estimated annual energy savings for the replace-on-failure implementations of this ERO are 1,134,891 kWh, for a cost savings of $35,276. The associated demand savings are estimated to be 3,516 kW-months, for a cost savings of $13,235. These summarized energy and cost savings are based on 100% implementation of all replace-on-failure options, which may not take place for several years.

Conclusions

There is only one cost-effective transformer ERO where it is worth replacing operating transformers. The full material and labor cost investment is too high to offset the accumulated energy cost savings. However, there is significant potential for energy savings with an aggressively pursued replace-on-failure strategy. Many of the existing transformers are within one year of their estimated 30-year lives. Annual energy savings would accrue as the new energy-efficient transformers are substituted for conventional transformers, with eventually the entire stock consisting of high-efficiency transformers.

The no-load loss on a transformer is highly dependent on the size of the unit. As shown in the baseline report, the average transformer capacity for Fort Irwin is much greater than the actual peak load, resulting in much higher no-load losses at the base. The potential to reduce this loss, by using transformer sizes closer to the actual requirements, is discussed below.

Transformer overload results in greater temperature rises than the unit is designed to tolerate, with the result of shortening the transformer life through insulation degradation. This temperature rise is dependent on the ambient temperature, pre-load conditions, and duration of the peak loads, which make it difficult to quantify. An example is that a minimum life expectancy of 20 years can be expected at 95°C and 100°C hot-spot temperatures for transformers rated for 55°C and 65°C rise, respectively (Gönen 1986). A more practical guideline is that transformers can be regularly loaded at 150% to 200% of nominal capacity without serious reduction in insulation life (ANSI/IEEE C57.92-1981).

When practical, transformers should be sized to minimize the total owning cost estimated over the life of the transformer. This includes the initial hardware, installation, and the accumulated energy loss costs. However, considerations of projected load growth or special circumstances need to be included when determining the size. Special considerations might include loads which are critical for Fort Irwin to perform its mission, which must be protected to the greatest extent practical against interruptions in electricity supply. This requirement warrants increased transformer size in exchange for enhanced reliability.

Based on metered consumption data and the connected transformer capacity, there is most likely opportunities to reduce transformer sizes at Fort Irwin. Not only would this result in reduced transformer energy consumption, but would also provide capital and labor cost savings as compared to installing transformers with the same capacity as before. Coupled with the energy-efficient units analyzed in this report, new strategies for transformer installation could result in significant cost savings.

2.14.2 Conservation Voltage Reduction

Energy can be saved by reducing Fort Irwin's distribution voltage by a small amount. This approach to energy conservation is known as conservation voltage reduction (CVR). The magnitude of the voltage reduction is constrained by the requirement that service entrance voltage be maintained above the standard minimum (5% below nominal) at all buildings and other loads on the distribution system.

How a given piece of end-use equipment responds to CVR can be described in terms of input (energy savings), output (service provided), and service life. The most common loads (lights, fans and pumps) respond with input and output reductions approximately proportional to the voltage reduction and a small (but hard to quantify) increase in service life. Loads controlled by feedback (refrigeration, air conditioning, most electric heaters, and computers or others that involve dc power supplies) respond, on the average, with practically no change in service, energy consumption, or service life.

An aggressive CVR implementation will use feedback from the most heavily loaded transformer near the end of each feeder to regulate substation voltage. A milder implementation will involve simply reducing the main transformer setpoints or tap points at each substation by a small (typically 0.5 to 2%) fixed amount. An intermediate implementation is possible using an open-loop control scheme in which the setpoint is varied with load.

Description

The ERO evaluated here consists of changing the voltage tap points of the main transformers. A fixed voltage reduction of 1% is appropriate for Fort Irwin because the distribution system is not heavily loaded and the simple change in setpoint does not involve any increase in maintenance activity. Open- or closed-loop control schemes are probably not necessary at Fort Irwin because the distribution lines and transformers are not heavily loaded.

Assumptions

The technical assumptions are as follows:

- There are five 37.5-MVA transformers at the main substation.
- Worst-case building service entrance voltages are currently at least 1% above the minimum acceptable voltage (i.e., a 1% voltage tap point reduction is feasible).
- A load-to-voltage reduction factor of 0.85 for the transformers is assumed based on factors of 0.76 for residential, 0.41 for industrial and 0.99 for commercial (Lovins et al. 1989, p. 296).

Costs to implement the ERO are based on the following assumptions:

- A semi-annual check of distribution voltage is assumed to be a part of the existing preventive maintenance program.
- The labor to change the tap points initially will cost $200 per transformer; there are five transformers at the main substation.

Results

The complete quantitative results of this ERO appear in Table 2.31. The table contains specific energy, cost, and economic performance data.

Budget Implications. The total first cost of implementing the ERO is estimated to be $1,000.

Energy, Demand, and Cost Savings. Annual energy savings of 613,632 kWh and cost savings of $39,042 per year will result from this ERO. Demand savings (including kVAR costs) are estimated to be 2,128 kW-months per year with a cost savings of $17,148 per year.

2.14.3 Power Factor Correction

Power factor correction reduces losses in the transmission system and generators of the supplying utility and reduces or eliminates excess reactive load charges that a large customer typically incurs each month. The more aggressive power factor correction measures can also reduce losses in a site's distribution lines and transformers.

Low power factors are usually due to the load current lagging the voltage (i.e., to the reactive component of a load). The reactive component is a significant part of any motor, transformer or inductive ballast load. The current associated with the reactive component does not contribute to the service provided by the load and does not result directly in a power demand. However, indirect power consumption due to resistance (I^2R) loss occurs in the T&D system.

A lagging power factor can be corrected (brought closer to unity power factor) by installing capacitors. Power factor correcting capacitors are most effective when installed at each load that has a reactive component. Power-factor corrected inductive ballasts are the most common implementation of this approach. However, it is generally not economical to retrofit capacitors to each load because of the high cost per load. The practical alternative implementations are 1) service entrance capacitors (advantage: reduced transformer loss), 2) capacitors on primary and secondary of each distribution transformer (eliminates most of the excitation current with fixed capacitors), 3) at the substation (most economical place to install switched banks or modulating reactors), and 4) distributed along feeder lines.

Description

Only the simplest implementations are considered here because the site's reactive loads are expected to change significantly with implementation of other electric EROs. Power correction by fixed capacitors at the substation will reduce losses in the main transformers that result from lagging power factor but will not affect the corresponding losses in the rest of the site's distribution system. More importantly, these implementations will reduce losses in the transmission and generation system and eliminate the excess reactive load charges that Fort Irwin has been paying monthly.

The option analyzed for power factor correction at Fort Irwin was to size the capacitors to correct the power factor to 1 (unity). This option will remove the monthly excess reactive load charge by completely correcting the power factor, giving slightly lower losses in the main transformers as well.

Assumptions

The technical assumptions are as follows:

- The ratio of reactive baseload to reactive peak load is taken to be 0.5 (i.e., equal to the ratio of real power baseload to peak load that has been observed in a year of continuous power monitoring at the site).
- The largest monthly peak reactive and excess reactive loads at Fort Irwin were 9 MVAR.

- Losses at the main transformers due to poor power factor, calculated as part of a similar study for Fort Drum, NY, are as follows: 0.2172 kWh saved per actual kVAR and 0.000388 kW per actual kVAR. It is assumed that these losses (when weighted for actual kVARs) provide reasonable estimates of the losses that occur in substation transformers of the type typically found on military bases.

Cost estimates are based on the following data.

- Labor and material costs of the ERO [Means, manufacturers, 1992c] are as follows:

ERO Item Description	Material ($/MVAR)	Labor ($/MVAR)	Total ($/MVAR)	Annualized O&M Cost ($/yr)
9 kV Static	2,815	695	3,510	0.2%

Results

The complete quantitative results of this ERO appear in Table 2.31. The table contains specific energy, cost, and economic performance data.

Budget Implications. The total first cost of implementing the ERO is estimated to be $31,590.

Energy, Demand and Cost Savings. Annual energy savings of 15,454 kWh and cost savings of $983 per year will result from this ERO. Demand savings are estimated to be 1,476 kW-mo and 71,150 excess KVAR-mo per year, corresponding to a cost savings of $22,677 per year.

Operation and Maintenance. There is a finite probability of equipment failure during the nominal life of the power factor correction equipment. The product of failure probability and replacement cost is reflected in the O&M cost estimate.

2.14.4 Power Distribution Equipment Renovations

The following section discusses potential energy savings due to improvements in the power distribution system. The analysis was completed at the request of the Fort Irwin energy manager.

A large amount of electricity and electric capacity is delivered throughout the electrical distribution system at Fort Irwin. This creates a natural potential for energy savings. The quality, type, and capacity of distribution lines, connections and transformer equipment can have a major effect on the amount of line and equipment losses throughout the system. Losses associated with transformer equipment are analyzed and discussed in Section 2.14.1. Other potential savings may be available in the quality and layout of connections and other equipment.

One currently available renovation system consists of the cleaning of contacts, balancing of panel distributions, and installing control equipment to de-energize unneeded areas. This system is operated on a lease basis that derives payment from a savings estimation prepared by the installing company. The estimation is prepared by the installing company after inspecting utility bills and the power distribution system. No other information or examples of current installations was available prior to the finalization of this report.

The proposed renovations appear to be generally maintenance-oriented. Installed equipment is retained on a temporary basis and is removed if leases are not continued. Without additional information on the actual technologies applied and examples of the savings estimation process, it is inappropriate to recommend the pursuit of this type of system renovation.

Table 2.30. Transformer EROs

Existing Transformer Operating Parameters

	Existing Equipment Characterisitics							Energy						Demand		
									Summer			Winter		Summer		Winter
ID	Description	Size (kVA)	Phase	Number of Units	Year Installed (Year)	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1	Transformer	5	1	2	1973	41	103	952	73	101	183	245	350	1	1	2
2	Transformer	10	1	13	1963	68	136	9,753	724	1,008	1,862	2,512	3,647	11	10	17
3	Transformer	10	1	9	1973	68	136	6,752	501	698	1,289	1,739	2,525	7	7	12
4	Transformer	10	1	3	1983	68	136	2,251	167	233	430	580	842	2	2	4
5	Transformer	10	1	2	1973	68	136	1,500	111	155	286	387	561	2	2	3
6	Transformer	10	3	18	1973	88	247	18,926	1,487	2,034	3,649	4,874	6,883	24	22	37
7	Transformer	10	3	12	1963	88	247	12,617	991	1,356	2,432	3,249	4,588	16	15	25
8	Transformer	10	3	14	1963	68	136	10,503	780	1,085	2,005	2,706	3,927	12	11	18
9	Transformer	10	3	3	1963	68	136	2,251	167	233	430	580	842	2	2	4
10	Transformer	15	1	15	1983	84	198	14,412	1,099	1,517	2,764	3,712	5,320	17	16	26
11	Transformer	15	1	8	1973	84	198	7,686	586	809	1,474	1,980	2,838	9	8	14
12	Transformer	15	1	13	1963	84	198	12,490	952	1,315	2,395	3,217	4,611	15	14	23
13	Transformer	15	3	15	1973	106	280	18,700	1,454	1,995	3,598	4,816	6,837	23	21	36
14	Transformer	15	3	6	1963	106	280	7,480	582	798	1,439	1,926	2,735	9	9	14
15	Transformer	15	3	6	1983	106	280	7,480	582	798	1,439	1,926	2,735	9	9	14
16	Transformer	15	3	11	1963	84	198	10,569	806	1,112	2,027	2,722	3,902	13	12	19
17	Transformer	15	3	18	1973	87	198	17,767	1,347	1,862	3,404	4,576	6,578	21	19	32
18	Transformer	25	1	4	1963	118	304	5,516	427	587	1,061	1,421	2,021	7	6	10
19	Transformer	25	1	6	1973	118	304	8,274	641	880	1,591	2,131	3,032	10	9	16
20	Transformer	25	1	4	1983	118	304	5,516	427	587	1,061	1,421	2,021	7	6	10
21	Transformer	25	3	31	1963	149	430	55,604	4,391	5,997	10,729	14,318	20,169	73	66	110
22	Transformer	25	3	18	1973	149	430	32,286	2,549	3,482	6,230	8,314	11,711	42	39	64
23	Transformer	25	3	6	1983	149	430	10,762	850	1,161	2,077	2,771	3,904	14	13	21
24	Transformer	25	3	3	1963	118	304	4,137	320	440	795	1,065	1,516	5	5	8
25	Transformer	25	3	3	1973	118	304	4,137	320	440	795	1,065	1,516	5	5	8
26	Transformer	25	3	6	1983	118	304	8,274	641	880	1,591	2,131	3,032	10	9	16
27	Transformer	25	3	18	1973	118	304	24,822	1,922	2,640	4,773	6,393	9,095	31	28	47
28	Transformer	25	3	6	1983	118	304	8,274	641	880	1,591	2,131	3,032	10	9	16
29	Transformer	37.5	1	12	1963	166	404	22,958	1,760	2,425	4,407	5,913	8,453	28	25	43
30	Transformer	37.5	1	18	1973	166	404	34,436	2,640	3,638	6,610	8,869	12,679	41	38	64
31	Transformer	37.5	1	5	1983	166	404	9,566	733	1,011	1,836	2,464	3,522	12	11	18
32	Transformer	37.5	3	6	1963	198	585	14,394	1,141	1,557	2,779	3,706	5,210	19	17	29
33	Transformer	37.5	3	3	1973	198	585	7,197	571	778	1,390	1,853	2,605	9	9	14
34	Transformer	37.5	3	3	1983	198	585	7,197	571	778	1,390	1,853	2,605	9	9	14
35	Transformer	37.5	3	2	1963	166	404	3,826	293	404	734	985	1,409	5	4	7
36	Transformer	37.5	3	3	1983	166	404	5,739	440	606	1,102	1,478	2,113	7	6	11
37	Transformer	37.5	3	6	1963	166	404	11,479	880	1,213	2,203	2,956	4,226	14	13	21
38	Transformer	37.5	3	6	1983	166	404	11,479	880	1,213	2,203	2,956	4,226	14	13	21
39	Transformer	45	3	7	1963	223	683	19,105	1,525	2,076	3,693	4,919	6,892	26	23	39
40	Transformer	45	3	2	1973	223	683	5,459	436	593	1,055	1,405	1,969	7	7	11
41	Transformer	45	3	4	1983	223	683	10,917	871	1,186	2,110	2,811	3,938	15	13	22
42	Transformer	50	1	37	1963	185	535	82,447	6,513	8,894	15,909	21,230	29,901	108	99	163
43	Transformer	50	1	8	1973	185	535	17,826	1,408	1,923	3,440	4,590	6,465	23	21	35
44	Transformer	50	1	17	1983	185	535	37,881	2,992	4,086	7,310	9,754	13,738	49	45	75
45	Transformer	50	3	6	1963	246	734	17,932	1,424	1,942	3,464	4,617	6,484	24	22	36
46	Transformer	50	3	3	1973	246	734	8,966	712	971	1,732	2,309	3,242	12	11	18
47	Transformer	50	3	6	1983	246	734	17,932	1,424	1,942	3,464	4,617	6,484	24	22	36
48	Transformer	50	3	2	1963	185	535	4,457	352	481	860	1,148	1,616	6	5	9
49	Transformer	50	3	3	1973	185	535	6,685	528	721	1,290	1,721	2,424	9	8	13

Table 2.30. (contd)

Existing Transformer Operating Parameters

	Existing Equipment Characterisitics							Energy						Demand		
ID	Description	Size (kVA)	Phase	Number of Units	Year Installed (Year)	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
									On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
50	Transformer	50	3	7	1963	234	748	20,296	1,632	2,218	3,929	5,226	7,291	28	25	42
51	Transformer	50	3	3	1973	234	748	8,698	700	950	1,684	2,240	3,125	12	11	18
52	Transformer	50	3	6	1983	234	748	17,396	1,399	1,901	3,368	4,479	6,250	24	22	36
53	Transformer	75	1	13	1963	285	700	42,794	3,286	4,526	8,217	11,021	15,744	52	48	80
54	Transformer	75	1	16	1973	285	700	52,670	4,044	5,570	10,113	13,565	19,378	64	59	98
55	Transformer	75	1	23	1983	285	700	75,712	5,813	8,007	14,538	19,500	27,855	92	84	141
56	Transformer	75	3	10	1973	360	990	42,782	3,350	4,586	8,242	11,017	15,586	55	50	83
57	Transformer	75	3	3	1983	360	990	12,835	1,005	1,376	2,473	3,305	4,676	16	15	25
58	Transformer	75	3	3	1973	360	990	12,835	1,005	1,376	2,473	3,305	4,676	16	15	25
59	Transformer	100	1	12	1963	355	920	49,859	3,864	5,307	9,589	12,840	18,260	62	57	95
60	Transformer	100	1	6	1973	355	920	24,930	1,932	2,653	4,794	6,420	9,130	31	28	47
61	Transformer	100	1	11	1983	355	920	45,704	3,542	4,864	8,790	11,770	16,738	57	52	87
62	Transformer	100	3	3	1963	445	1,130	15,546	1,200	1,651	2,988	4,004	5,703	19	18	29
63	Transformer	100	3	3	1973	445	1,130	15,546	1,200	1,651	2,988	4,004	5,703	19	18	29
64	Transformer	100	3	3	1983	445	1,130	15,546	1,200	1,651	2,988	4,004	5,703	19	18	29
65	Transformer	100	3	2	1963	355	920	8,310	644	884	1,598	2,140	3,043	10	9	16
66	Transformer	100	3	3	1983	473	11,130	50,328	5,692	7,077	10,454	12,923	14,182	141	126	195
67	Transformer	100	3	3	1963	416	798	13,653	1,007	1,404	2,604	3,517	5,120	15	14	23
68	Transformer	112.5	3	2	1983	530	1,270	12,171	931	1,283	2,335	3,135	4,487	15	13	22
69	Transformer	112.5	3	1	1963	530	1,270	6,086	465	642	1,168	1,567	2,244	7	7	11
70	Transformer	112.5	3	1	1983	530	1,270	6,086	465	642	1,168	1,567	2,244	7	7	11
71	Transformer	150	3	2	1963	560	1,690	13,650	1,087	1,480	2,638	3,515	4,931	18	17	28
72	Transformer	150	3	1	1983	560	1,690	6,825	543	740	1,319	1,757	2,465	9	8	14
73	Transformer	167	1	8	1983	500	1,600	49,578	3,989	5,418	9,598	12,765	17,809	68	62	102
74	Transformer	167	3	1	1963	500	1,600	6,197	499	677	1,200	1,596	2,226	8	8	13
75	Transformer	167	3	3	1983	633	3,212	27,576	2,421	3,208	5,426	7,096	9,425	47	42	68
76	Transformer	225	3	3	1983	880	2,420	31,373	2,456	3,363	6,044	8,079	11,430	40	37	61
77	Transformer	225	3	1	1973	880	2,420	10,458	819	1,121	2,015	2,693	3,810	13	12	20
78	Transformer	300	3	4	1983	1,050	3,250	51,558	4,123	5,610	9,971	13,275	18,579	70	64	105
79	Transformer	300	3	1	1983	749	3,202	10,197	866	1,158	1,994	2,625	3,554	16	15	24
80	Transformer	300	3	2	1983	1,050	3,250	25,779	2,061	2,805	4,985	6,638	9,290	35	32	52
81	Transformer	300	3	1	1963	1,050	3,250	12,889	1,031	1,402	2,493	3,319	4,645	17	16	26
82	Transformer	500	3	1	1983	1,600	5,200	19,922	1,607	2,181	3,859	5,129	7,145	27	25	41
83	Transformer	500	3	4	1963	1,600	5,200	79,688	6,429	8,725	15,435	20,517	28,582	110	100	165
84	Transformer	500	3	5	1983	1,600	5,200	99,610	8,036	10,907	19,294	25,646	35,727	137	126	207
85	Transformer	750	3	1	1973	1,800	7,600	24,398	2,068	2,767	4,769	6,280	8,516	38	35	56
86	Transformer	750	3	1	1983	1,800	7,600	24,398	2,068	2,767	4,769	6,280	8,516	38	35	56
87	Transformer	7,500	3	5	1973	11,600	50,600	795,373	67,828	90,600	155,640	204,702	276,603	1,258	1,142	1,853

Table 2.30. (contd)

Transformer ERO Operating Parameters

	ERO Equipment Characteristics			Energy						Demand		
					Summer			Winter		Summer		Winter
ID	ERO Description	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1a	Improved Silicon Steel (No Load Loss Reduction)	31	103	773	63	85	150	199	276	1	1	2
2a	Improved Silicon Steel (No Load Loss Reduction)	51	136	7,816	609	835	1,504	2,013	2,855	10	9	15
3a	Improved Silicon Steel (No Load Loss Reduction)	51	136	5,411	421	578	1,042	1,394	1,977	7	6	10
4a	Improved Silicon Steel (No Load Loss Reduction)	51	136	1,804	140	193	347	465	659	2	2	3
5a	Improved Silicon Steel (No Load Loss Reduction)	51	136	1,203	94	128	231	310	439	2	1	2
6a	Improved Silicon Steel (No Load Loss Reduction)	66	247	15,456	1,280	1,724	3,008	3,979	5,465	23	21	34
7a	Improved Silicon Steel (No Load Loss Reduction)	66	247	10,304	853	1,149	2,005	2,652	3,643	15	14	23
8a	Improved Silicon Steel (No Load Loss Reduction)	51	136	8,418	656	899	1,620	2,168	3,075	11	10	16
9a	Improved Silicon Steel (No Load Loss Reduction)	51	136	1,804	140	193	347	465	659	2	2	3
10a	Improved Silicon Steel (No Load Loss Reduction)	63	198	11,652	934	1,270	2,254	3,000	4,193	16	14	24
11a	Improved Silicon Steel (No Load Loss Reduction)	63	198	6,214	498	677	1,202	1,600	2,236	8	8	13
12a	Improved Silicon Steel (No Load Loss Reduction)	63	198	10,098	810	1,101	1,954	2,600	3,634	14	13	21
13a	Improved Silicon Steel (No Load Loss Reduction)	80	280	15,216	1,246	1,684	2,955	3,917	5,414	22	20	33
14a	Improved Silicon Steel (No Load Loss Reduction)	80	280	6,087	498	674	1,182	1,567	2,166	9	8	13
15a	Improved Silicon Steel (No Load Loss Reduction)	80	280	6,087	498	674	1,182	1,567	2,166	9	8	13
16a	Improved Silicon Steel (No Load Loss Reduction)	63	198	8,544	685	932	1,653	2,200	3,075	12	11	18
17a	Improved Silicon Steel (No Load Loss Reduction)	65	198	14,337	1,142	1,556	2,771	3,692	5,176	19	18	29
18a	Improved Silicon Steel (No Load Loss Reduction)	89	304	4,482	365	494	870	1,154	1,599	6	6	10
19a	Improved Silicon Steel (No Load Loss Reduction)	89	304	6,723	548	741	1,305	1,731	2,398	10	9	14
20a	Improved Silicon Steel (No Load Loss Reduction)	89	304	4,482	365	494	870	1,154	1,599	6	6	10
21a	Improved Silicon Steel (No Load Loss Reduction)	112	430	45,485	3,787	5,093	8,861	11,708	16,035	68	62	101
22a	Improved Silicon Steel (No Load Loss Reduction)	112	430	26,411	2,199	2,957	5,145	6,798	9,311	39	36	59
23a	Improved Silicon Steel (No Load Loss Reduction)	112	430	8,804	733	986	1,715	2,266	3,104	13	12	20
24a	Improved Silicon Steel (No Load Loss Reduction)	89	304	3,362	274	371	652	865	1,199	5	4	7
25a	Improved Silicon Steel (No Load Loss Reduction)	89	304	3,362	274	371	652	865	1,199	5	4	7
26a	Improved Silicon Steel (No Load Loss Reduction)	89	304	6,723	548	741	1,305	1,731	2,398	10	9	14
27a	Improved Silicon Steel (No Load Loss Reduction)	89	304	20,169	1,644	2,224	3,914	5,193	7,194	29	26	43
28a	Improved Silicon Steel (No Load Loss Reduction)	89	304	6,723	548	741	1,305	1,731	2,398	10	9	14
29a	Improved Silicon Steel (No Load Loss Reduction)	125	404	18,594	1,500	2,035	3,601	4,787	6,670	26	23	39
30a	Improved Silicon Steel (No Load Loss Reduction)	125	404	27,891	2,250	3,053	5,402	7,181	10,005	38	35	58
31a	Improved Silicon Steel (No Load Loss Reduction)	125	404	7,747	625	848	1,501	1,995	2,779	11	10	16
32a	Improved Silicon Steel (No Load Loss Reduction)	149	585	11,791	986	1,325	2,299	3,035	4,147	18	16	26
33a	Improved Silicon Steel (No Load Loss Reduction)	149	585	5,896	493	662	1,149	1,518	2,073	9	8	13
34a	Improved Silicon Steel (No Load Loss Reduction)	149	585	5,896	493	662	1,149	1,518	2,073	9	8	13
35a	Improved Silicon Steel (No Load Loss Reduction)	125	404	3,099	250	339	600	798	1,112	4	4	6
36a	Improved Silicon Steel (No Load Loss Reduction)	125	404	4,648	375	509	900	1,197	1,667	6	6	10
37a	Improved Silicon Steel (No Load Loss Reduction)	125	404	9,297	750	1,018	1,801	2,394	3,335	13	12	19
38a	Improved Silicon Steel (No Load Loss Reduction)	125	404	9,297	750	1,018	1,801	2,394	3,335	13	12	19
39a	Improved Silicon Steel (No Load Loss Reduction)	167	683	15,685	1,321	1,771	3,062	4,037	5,494	24	22	36
40a	Improved Silicon Steel (No Load Loss Reduction)	167	683	4,481	377	506	875	1,153	1,570	7	6	10
41a	Improved Silicon Steel (No Load Loss Reduction)	167	683	8,963	755	1,012	1,750	2,307	3,140	14	13	20
42a	Improved Silicon Steel (No Load Loss Reduction)	139	535	67,452	5,618	7,555	13,141	17,363	23,774	101	92	150
43a	Improved Silicon Steel (No Load Loss Reduction)	139	535	14,584	1,215	1,633	2,841	3,754	5,140	22	20	32
44a	Improved Silicon Steel (No Load Loss Reduction)	139	535	30,991	2,581	3,471	6,038	7,977	10,923	46	42	69
45a	Improved Silicon Steel (No Load Loss Reduction)	185	734	14,699	1,232	1,653	2,867	3,783	5,163	22	20	33
46a	Improved Silicon Steel (No Load Loss Reduction)	185	734	7,349	616	827	1,433	1,892	2,582	11	10	17
47a	Improved Silicon Steel (No Load Loss Reduction)	185	734	14,699	1,232	1,653	2,867	3,783	5,163	22	20	33
48a	Improved Silicon Steel (No Load Loss Reduction)	139	535	3,646	304	408	710	939	1,285	5	5	8
49a	Improved Silicon Steel (No Load Loss Reduction)	139	535	5,469	456	613	1,066	1,408	1,928	8	7	12
50a	Improved Silicon Steel (No Load Loss Reduction)	176	748	16,707	1,418	1,897	3,267	4,300	5,825	26	24	39
51a	Improved Silicon Steel (No Load Loss Reduction)	176	748	7,160	608	813	1,400	1,843	2,497	11	10	17

Table 2.30. (contd)

Transformer ERO Operating Parameters

	ERO Equipment Characterisitics			Energy						Demand		
					Summer			Winter		Summer		Winter
ID	ERO Description	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
52a	Improved Silicon Steel (No Load Loss Reduction)	176	748	14,321	1,216	1,626	2,800	3,686	4,993	22	20	33
53a	Improved Silicon Steel (No Load Loss Reduction)	214	700	34,677	2,802	3,801	6,719	8,928	12,428	48	44	72
54a	Improved Silicon Steel (No Load Loss Reduction)	214	700	42,680	3,448	4,678	8,269	10,988	15,296	59	54	89
55a	Improved Silicon Steel (No Load Loss Reduction)	214	700	61,352	4,957	6,724	11,887	15,796	21,989	85	78	128
56a	Improved Silicon Steel (No Load Loss Reduction)	270	990	34,895	2,879	3,882	6,787	8,983	12,365	51	46	76
57a	Improved Silicon Steel (No Load Loss Reduction)	270	990	10,469	864	1,165	2,036	2,695	3,709	15	14	23
58a	Improved Silicon Steel (No Load Loss Reduction)	270	990	10,469	864	1,165	2,036	2,695	3,709	15	14	23
59a	Improved Silicon Steel (No Load Loss Reduction)	266	920	40,527	3,307	4,473	7,866	10,433	14,447	58	52	86
60a	Improved Silicon Steel (No Load Loss Reduction)	266	920	20,263	1,653	2,237	3,933	5,217	7,224	29	26	43
61a	Improved Silicon Steel (No Load Loss Reduction)	266	920	37,149	3,031	4,100	7,210	9,564	13,243	53	48	79
62a	Improved Silicon Steel (No Load Loss Reduction)	334	1,130	12,621	1,026	1,389	2,448	3,249	4,509	18	16	27
63a	Improved Silicon Steel (No Load Loss Reduction)	334	1,130	12,621	1,026	1,389	2,448	3,249	4,509	18	16	27
64a	Improved Silicon Steel (No Load Loss Reduction)	334	1,130	12,621	1,026	1,389	2,448	3,249	4,509	18	16	27
65a	Improved Silicon Steel (No Load Loss Reduction)	266	920	6,754	551	746	1,311	1,739	2,408	10	9	14
66a	Improved Silicon Steel (No Load Loss Reduction)	355	11,130	47,219	5,507	6,800	9,880	12,121	12,912	140	124	192
67a	Improved Silicon Steel (No Load Loss Reduction)	312	798	10,919	844	1,160	2,099	2,812	4,003	13	12	21
68a	Improved Silicon Steel (No Load Loss Reduction)	398	1,270	9,849	792	1,076	1,907	2,536	3,538	13	12	20
69a	Improved Silicon Steel (No Load Loss Reduction)	398	1,270	4,925	396	538	953	1,268	1,769	7	6	10
70a	Improved Silicon Steel (No Load Loss Reduction)	398	1,270	4,925	396	538	953	1,268	1,769	7	6	10
71a	Improved Silicon Steel (No Load Loss Reduction)	420	1,690	11,197	940	1,261	2,185	2,882	3,929	17	16	25
72a	Improved Silicon Steel (No Load Loss Reduction)	420	1,690	5,598	470	631	1,092	1,441	1,964	9	8	13
73a	Improved Silicon Steel (No Load Loss Reduction)	375	1,600	40,815	3,466	4,635	7,980	10,505	14,229	64	58	94
74a	Improved Silicon Steel (No Load Loss Reduction)	375	1,600	5,102	433	579	998	1,313	1,779	8	7	12
75a	Improved Silicon Steel (No Load Loss Reduction)	475	3,212	23,416	2,173	2,837	4,658	6,023	7,725	45	40	64
76a	Improved Silicon Steel (No Load Loss Reduction)	660	2,420	25,590	2,111	2,847	4,977	6,587	9,067	37	34	56
77a	Improved Silicon Steel (No Load Loss Reduction)	660	2,420	8,530	704	949	1,659	2,196	3,022	12	11	19
78a	Improved Silicon Steel (No Load Loss Reduction)	788	3,250	42,357	3,574	4,788	8,272	10,902	14,821	65	59	97
79a	Improved Silicon Steel (No Load Loss Reduction)	562	3,202	8,556	768	1,012	1,691	2,201	2,884	15	14	22
80a	Improved Silicon Steel (No Load Loss Reduction)	788	3,250	21,178	1,787	2,394	4,136	5,451	7,410	33	30	48
81a	Improved Silicon Steel (No Load Loss Reduction)	788	3,250	10,589	893	1,197	2,068	2,725	3,705	16	15	24
82a	Improved Silicon Steel (No Load Loss Reduction)	1,200	5,200	16,417	1,398	1,868	3,212	4,225	5,713	26	24	38
83a	Improved Silicon Steel (No Load Loss Reduction)	1,200	5,200	65,667	5,593	7,473	12,847	16,901	22,854	104	94	153
84a	Improved Silicon Steel (No Load Loss Reduction)	1,200	5,200	82,084	6,991	9,342	16,059	21,126	28,567	129	118	191
85a	Improved Silicon Steel (No Load Loss Reduction)	1,350	7,600	20,455	1,832	2,415	4,041	5,263	6,905	36	33	53
86a	Improved Silicon Steel (No Load Loss Reduction)	1,350	7,600	20,455	1,832	2,415	4,041	5,263	6,905	36	33	53
87a	Improved Silicon Steel (No Load Loss Reduction)	8,700	50,600	668,311	60,249	79,253	132,184	171,931	224,694	1,200	1,084	1,737
1c	Amorphous Core (No Load Loss Reduction)	12	103	449	43	56	90	116	144	1	1	1
2c	Amorphous Core (No Load Loss Reduction)	20	136	4,330	401	523	861	1,114	1,431	8	7	12
3c	Amorphous Core (No Load Loss Reduction)	20	136	2,998	277	362	596	771	991	6	5	8
4c	Amorphous Core (No Load Loss Reduction)	20	136	999	92	121	199	257	330	2	2	3
5c	Amorphous Core (No Load Loss Reduction)	20	136	666	62	81	132	171	220	1	1	2
6c	Amorphous Core (No Load Loss Reduction)	26	247	9,210	908	1,166	1,855	2,368	2,913	20	18	28
7c	Amorphous Core (No Load Loss Reduction)	26	247	6,140	605	778	1,237	1,578	1,942	13	12	19
8c	Amorphous Core (No Load Loss Reduction)	20	136	4,663	432	564	927	1,199	1,541	9	8	13
9c	Amorphous Core (No Load Loss Reduction)	20	136	999	92	121	199	257	330	2	2	3
10c	Amorphous Core (No Load Loss Reduction)	25	198	6,683	638	827	1,337	1,719	2,163	14	12	19
11c	Amorphous Core (No Load Loss Reduction)	25	198	3,564	340	441	713	917	1,154	7	7	10
12c	Amorphous Core (No Load Loss Reduction)	25	198	5,792	553	716	1,159	1,489	1,874	12	11	17
13c	Amorphous Core (No Load Loss Reduction)	32	280	8,946	872	1,124	1,798	2,300	2,853	19	17	27
14c	Amorphous Core (No Load Loss Reduction)	32	280	3,579	349	450	719	920	1,141	8	7	11
15c	Amorphous Core (No Load Loss Reduction)	32	280	3,579	349	450	719	920	1,141	8	7	11

Table 2.30. (contd)

Transformer ERO Operating Parameters

ID	ERO Equipment Characteristics			Energy						Demand		
		No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
	ERO Description				On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
16c	Amorphous Core (No Load Loss Reduction)	25	198	4,901	468	606	981	1,260	1,586	10	9	14
17c	Amorphous Core (No Load Loss Reduction)	26	198	8,162	774	1,005	1,631	2,099	2,653	16	15	23
18c	Amorphous Core (No Load Loss Reduction)	35	304	2,621	254	328	526	674	838	5	5	8
19c	Amorphous Core (No Load Loss Reduction)	35	304	3,931	381	492	789	1,011	1,258	8	7	12
20c	Amorphous Core (No Load Loss Reduction)	35	304	2,621	254	328	526	674	838	5	5	8
21c	Amorphous Core (No Load Loss Reduction)	45	430	27,271	2,701	3,466	5,499	7,011	8,594	60	53	84
22c	Amorphous Core (No Load Loss Reduction)	45	430	15,835	1,568	2,013	3,193	4,071	4,990	35	31	49
23c	Amorphous Core (No Load Loss Reduction)	45	430	5,278	523	671	1,064	1,357	1,663	12	10	16
24c	Amorphous Core (No Load Loss Reduction)	35	304	1,966	191	246	395	505	629	4	4	6
25c	Amorphous Core (No Load Loss Reduction)	35	304	1,966	191	246	395	505	629	4	4	6
26c	Amorphous Core (No Load Loss Reduction)	35	304	3,931	381	492	789	1,011	1,258	8	7	12
27c	Amorphous Core (No Load Loss Reduction)	35	304	11,794	1,144	1,477	2,368	3,032	3,773	25	22	35
28c	Amorphous Core (No Load Loss Reduction)	35	304	3,931	381	492	789	1,011	1,258	8	7	12
29c	Amorphous Core (No Load Loss Reduction)	50	404	10,739	1,031	1,334	2,151	2,761	3,461	22	20	31
30c	Amorphous Core (No Load Loss Reduction)	50	404	16,108	1,547	2,001	3,227	4,142	5,191	33	30	47
31c	Amorphous Core (No Load Loss Reduction)	50	404	4,474	430	556	896	1,151	1,442	9	8	13
32c	Amorphous Core (No Load Loss Reduction)	59	585	7,107	707	906	1,434	1,827	2,233	16	14	22
33c	Amorphous Core (No Load Loss Reduction)	59	585	3,553	353	453	717	913	1,116	8	7	11
34c	Amorphous Core (No Load Loss Reduction)	59	585	3,553	353	453	717	913	1,116	8	7	11
35c	Amorphous Core (No Load Loss Reduction)	50	404	1,790	172	222	359	460	577	4	3	5
36c	Amorphous Core (No Load Loss Reduction)	50	404	2,685	258	334	538	690	865	6	5	8
37c	Amorphous Core (No Load Loss Reduction)	50	404	5,369	516	667	1,076	1,381	1,730	11	10	16
38c	Amorphous Core (No Load Loss Reduction)	50	404	5,369	516	667	1,076	1,381	1,730	11	10	16
39c	Amorphous Core (No Load Loss Reduction)	67	683	9,530	954	1,221	1,926	2,450	2,980	21	19	30
40c	Amorphous Core (No Load Loss Reduction)	67	683	2,723	272	349	550	700	851	6	5	9
41c	Amorphous Core (No Load Loss Reduction)	67	683	5,445	545	698	1,100	1,400	1,703	12	11	17
42c	Amorphous Core (No Load Loss Reduction)	56	535	40,460	4,008	5,144	8,158	10,401	12,747	88	79	125
43c	Amorphous Core (No Load Loss Reduction)	56	535	8,748	867	1,112	1,764	2,249	2,756	19	17	27
44c	Amorphous Core (No Load Loss Reduction)	56	535	18,590	1,842	2,364	3,748	4,779	5,857	41	36	57
45c	Amorphous Core (No Load Loss Reduction)	74	734	8,878	884	1,134	1,792	2,282	2,786	20	18	28
46c	Amorphous Core (No Load Loss Reduction)	74	734	4,439	442	567	896	1,141	1,393	10	9	14
47c	Amorphous Core (No Load Loss Reduction)	74	734	8,878	884	1,134	1,792	2,282	2,786	20	18	28
48c	Amorphous Core (No Load Loss Reduction)	56	535	2,187	217	278	441	562	689	5	4	7
49c	Amorphous Core (No Load Loss Reduction)	56	535	3,281	325	417	661	843	1,034	7	6	10
50c	Amorphous Core (No Load Loss Reduction)	70	748	10,248	1,033	1,320	2,074	2,634	3,186	23	21	33
51c	Amorphous Core (No Load Loss Reduction)	70	748	4,392	443	566	889	1,129	1,366	10	9	14
52c	Amorphous Core (No Load Loss Reduction)	70	748	8,784	886	1,132	1,778	2,258	2,731	20	18	28
53c	Amorphous Core (No Load Loss Reduction)	86	700	20,067	1,930	2,496	4,021	5,160	6,460	41	37	59
54c	Amorphous Core (No Load Loss Reduction)	86	700	24,698	2,376	3,072	4,949	6,351	7,950	51	46	72
55c	Amorphous Core (No Load Loss Reduction)	86	700	35,504	3,415	4,416	7,115	9,129	11,429	73	66	104
56c	Amorphous Core (No Load Loss Reduction)	108	990	20,699	2,032	2,614	4,166	5,322	6,565	44	40	63
57c	Amorphous Core (No Load Loss Reduction)	108	990	6,210	610	784	1,250	1,596	1,970	13	12	19
58c	Amorphous Core (No Load Loss Reduction)	108	990	6,210	610	784	1,250	1,596	1,970	13	12	19
59c	Amorphous Core (No Load Loss Reduction)	107	920	23,728	2,305	2,973	4,765	6,101	7,585	50	45	71
60c	Amorphous Core (No Load Loss Reduction)	107	920	11,864	1,152	1,486	2,382	3,050	3,792	25	22	35
61c	Amorphous Core (No Load Loss Reduction)	107	920	21,751	2,113	2,725	4,368	5,592	6,953	46	41	65
62c	Amorphous Core (No Load Loss Reduction)	134	1,130	7,357	712	919	1,476	1,892	2,358	15	14	22
63c	Amorphous Core (No Load Loss Reduction)	134	1,130	7,357	712	919	1,476	1,892	2,358	15	14	22
64c	Amorphous Core (No Load Loss Reduction)	134	1,130	7,357	712	919	1,476	1,892	2,358	15	14	22
65c	Amorphous Core (No Load Loss Reduction)	107	920	3,955	384	495	794	1,017	1,264	8	7	12
66c	Amorphous Core (No Load Loss Reduction)	142	11,130	41,624	5,173	6,300	8,847	10,678	10,626	137	122	187

Table 2.30. (contd)

Transformer ERO Operating Parameters

	ERO Equipment Characterisitics			Energy						Demand		
		No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
ID	ERO Description				On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
67c	Amorphous Core (No Load Loss Reduction)	125	798	5,998	551	721	1,191	1,543	1,993	11	10	16
68c	Amorphous Core (No Load Loss Reduction)	159	1,270	5,669	543	703	1,135	1,458	1,831	12	10	16
69c	Amorphous Core (No Load Loss Reduction)	159	1,270	2,835	271	351	568	729	915	6	5	8
70c	Amorphous Core (No Load Loss Reduction)	159	1,270	2,835	271	351	568	729	915	6	5	8
71c	Amorphous Core (No Load Loss Reduction)	168	1,690	6,780	677	867	1,369	1,743	2,124	15	14	21
72c	Amorphous Core (No Load Loss Reduction)	168	1,690	3,390	338	433	685	871	1,062	8	7	11
73c	Amorphous Core (No Load Loss Reduction)	150	1,600	25,042	2,525	3,226	5,069	6,437	7,785	57	51	80
74c	Amorphous Core (No Load Loss Reduction)	150	1,600	3,130	316	403	634	805	973	7	6	10
75c	Amorphous Core (No Load Loss Reduction)	190	3,212	15,928	1,727	2,168	3,276	4,091	4,666	41	37	57
76c	Amorphous Core (No Load Loss Reduction)	264	2,420	15,179	1,490	1,917	3,055	3,902	4,814	33	29	46
77c	Amorphous Core (No Load Loss Reduction)	264	2,420	5,060	497	639	1,018	1,301	1,605	11	10	15
78c	Amorphous Core (No Load Loss Reduction)	315	3,250	25,795	2,586	3,309	5,215	6,630	8,054	58	52	81
79c	Amorphous Core (No Load Loss Reduction)	225	3,202	5,603	592	748	1,146	1,440	1,677	14	12	19
80c	Amorphous Core (No Load Loss Reduction)	315	3,250	12,897	1,293	1,655	2,607	3,315	4,027	29	26	41
81c	Amorphous Core (No Load Loss Reduction)	315	3,250	6,449	647	827	1,304	1,658	2,014	14	13	20
82c	Amorphous Core (No Load Loss Reduction)	480	5,200	10,108	1,022	1,305	2,047	2,598	3,136	23	21	32
83c	Amorphous Core (No Load Loss Reduction)	480	5,200	40,430	4,088	5,220	8,188	10,392	12,543	92	83	130
84c	Amorphous Core (No Load Loss Reduction)	480	5,200	50,538	5,109	6,524	10,235	12,990	15,679	115	103	162
85c	Amorphous Core (No Load Loss Reduction)	540	7,600	13,357	1,409	1,781	2,730	3,432	4,005	33	30	46
86c	Amorphous Core (No Load Loss Reduction)	540	7,600	13,357	1,409	1,781	2,730	3,432	4,005	33	30	46
1e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	31	82	726	57	78	140	187	265	1	1	1
2e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	7,415	556	772	1,418	1,910	2,759	8	8	13
3e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	5,133	385	534	982	1,322	1,910	6	5	9
4e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	1,711	128	178	327	441	637	2	2	3
5e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	1,141	86	119	218	294	424	1	1	2
6e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	66	198	14,447	1,148	1,565	2,791	3,720	5,223	19	18	29
7e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	66	198	9,631	766	1,044	1,861	2,480	3,482	13	12	19
8e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	7,985	599	831	1,527	2,057	2,971	9	8	14
9e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	51	109	1,711	128	178	327	441	637	2	2	3
10e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	63	158	10,977	846	1,164	2,109	2,827	4,031	13	12	21
11e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	63	158	5,855	451	621	1,125	1,508	2,150	7	7	11
12e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	63	158	9,514	733	1,009	1,828	2,450	3,493	12	11	18
13e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	80	224	14,263	1,121	1,534	2,750	3,673	5,185	18	17	28
14e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	80	224	5,705	449	613	1,100	1,469	2,074	7	7	11
15e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	80	224	5,705	449	613	1,100	1,469	2,074	7	7	11
16e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	63	158	8,050	621	854	1,547	2,073	2,956	10	9	15
17e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	65	158	13,528	1,037	1,429	2,597	3,484	4,982	16	15	25
18e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	4,206	329	451	810	1,083	1,532	5	5	8
19e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	6,309	494	676	1,216	1,625	2,299	8	7	12
20e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	4,206	329	451	810	1,083	1,532	5	5	8
21e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	112	344	42,459	3,392	4,617	8,210	10,932	15,309	57	52	86
22e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	112	344	24,654	1,969	2,681	4,767	6,348	8,889	33	30	50
23e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	112	344	8,218	656	894	1,589	2,116	2,963	11	10	17
24e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	3,155	247	338	608	812	1,149	4	4	6
25e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	3,155	247	338	608	812	1,149	4	4	6
26e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	6,309	494	676	1,216	1,625	2,299	8	7	12
27e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	18,927	1,482	2,029	3,647	4,874	6,896	24	22	37
28e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	89	243	6,309	494	676	1,216	1,625	2,299	8	7	12
29e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	125	323	17,493	1,356	1,862	3,364	4,505	6,406	22	20	33
30e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	125	323	26,240	2,034	2,793	5,047	6,758	9,608	33	30	50
31e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	125	323	7,289	565	776	1,402	1,877	2,669	9	8	14

Table 2.30. (contd)

Transformer ERO Operating Parameters

ID	ERO Equipment Characterisitics			Energy						Demand		
	ERO Description	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
					On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
32e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	149	468	10,994	882	1,199	2,127	2,831	3,955	15	14	23
33e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	149	468	5,497	441	600	1,064	1,415	1,978	7	7	11
34e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	149	468	5,497	441	600	1,064	1,415	1,978	7	7	11
35e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	125	323	2,916	226	310	561	751	1,068	4	3	6
36e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	125	323	4,373	339	466	841	1,126	1,601	5	5	8
37e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	125	323	8,747	678	931	1,682	2,253	3,203	11	10	17
38e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	125	323	8,747	678	931	1,682	2,253	3,203	11	10	17
39e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	167	546	14,600	1,179	1,600	2,828	3,759	5,234	20	18	30
40e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	167	546	4,171	337	457	808	1,074	1,495	6	5	9
41e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	167	546	8,343	674	914	1,616	2,148	2,991	12	11	17
42e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	139	428	62,959	5,031	6,847	12,174	16,211	22,695	85	78	128
43e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	139	428	13,613	1,088	1,481	2,632	3,505	4,907	18	17	28
44e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	139	428	28,927	2,312	3,146	5,593	7,448	10,428	39	36	59
45e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	185	587	13,699	1,101	1,496	2,652	3,527	4,923	19	17	28
46e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	185	587	6,849	550	748	1,326	1,764	2,462	9	9	14
47e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	185	587	13,699	1,101	1,496	2,652	3,527	4,923	19	17	28
48e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	139	428	3,403	272	370	658	876	1,227	5	4	7
49e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	139	428	5,105	408	555	987	1,314	1,840	7	6	10
50e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	176	598	15,519	1,263	1,710	3,011	3,995	5,540	22	20	33
51e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	176	598	6,651	541	733	1,290	1,712	2,374	9	9	14
52e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	176	598	13,302	1,083	1,466	2,581	3,425	4,748	19	17	28
53e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	214	560	32,612	2,532	3,475	6,274	8,399	11,932	41	37	62
54e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	214	560	40,138	3,116	4,278	7,722	10,337	14,686	50	46	77
55e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	214	560	57,698	4,479	6,149	11,100	14,859	21,111	72	66	110
56e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	270	792	32,648	2,586	3,528	6,303	8,407	11,825	43	39	65
57e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	270	792	9,794	776	1,058	1,891	2,522	3,547	13	12	20
58e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	270	792	9,794	776	1,058	1,891	2,522	3,547	13	12	20
59e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	266	736	38,021	2,979	4,079	7,326	9,791	13,845	49	45	74
60e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	266	736	19,010	1,490	2,039	3,663	4,895	6,923	24	22	37
61e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	266	736	34,852	2,731	3,739	6,716	8,975	12,692	45	41	68
62e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	334	904	11,852	925	1,268	2,282	3,052	4,324	15	14	23
63e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	334	904	11,852	925	1,268	2,282	3,052	4,324	15	14	23
64e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	334	904	11,852	925	1,268	2,282	3,052	4,324	15	14	23
65e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	266	736	6,337	497	680	1,221	1,632	2,308	8	7	12
66e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	355	8,904	39,641	4,517	5,606	8,248	10,178	11,092	113	100	155
67e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	312	638	10,376	773	1,075	1,982	2,673	3,873	12	11	18
68e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	398	1,016	9,273	717	985	1,783	2,388	3,400	11	10	18
69e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	398	1,016	4,636	358	493	891	1,194	1,700	6	5	9
70e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	398	1,016	4,636	358	493	891	1,194	1,700	6	5	9
71e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	420	1,352	10,430	840	1,141	2,020	2,685	3,744	14	13	22
72e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	420	1,352	5,215	420	570	1,010	1,343	1,872	7	7	11
73e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	375	1,280	37,910	3,086	4,178	7,355	9,760	13,531	54	49	80
74e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	375	1,280	4,739	386	522	919	1,220	1,691	7	6	10
75e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	475	2,570	21,229	1,887	2,492	4,187	5,462	7,200	37	33	54
76e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	660	1,936	23,942	1,896	2,587	4,622	6,165	8,671	31	29	48
77e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	660	1,936	7,981	632	862	1,541	2,055	2,890	10	10	16
78e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	788	2,600	39,406	3,188	4,324	7,637	10,145	14,112	55	50	82
79e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	562	2,562	7,830	673	897	1,535	2,015	2,709	13	11	19
80e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	788	2,600	19,703	1,594	2,162	3,818	5,073	7,056	27	25	41
81e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	788	2,600	9,851	797	1,081	1,909	2,536	3,528	14	13	21
82e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rddn)	1,200	4,160	15,237	1,244	1,682	2,958	3,923	5,430	22	20	32

Table 2.30. (contd)

Transformer ERO Operating Parameters

ID	ERO Equipment Characterisitics			Energy						Demand		
	ERO Description	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	Summer			Winter		Summer		Winter
					On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
83e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	1,200	4,160	60,946	4,976	6,730	11,830	15,690	21,720	87	79	130
84e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	1,200	4,160	76,183	6,220	8,412	14,788	19,613	27,150	108	99	162
85e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	1,350	6,080	18,730	1,607	2,143	3,669	4,820	6,490	30	27	44
86e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	1,350	6,080	18,730	1,607	2,143	3,669	4,820	6,490	30	27	44
87e	Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn)	8,700	40,480	610,886	52,747	70,211	119,821	157,207	210,900	995	902	1,459
1g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	12	82	403	37	49	80	104	133	1	1	1
2g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	3,929	348	460	775	1,011	1,335	7	6	10
3g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	2,720	241	319	536	700	924	5	4	7
4g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	907	80	106	179	233	308	2	1	2
5g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	604	54	71	119	156	205	1	1	2
6g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	26	198	8,201	776	1,007	1,638	2,109	2,671	16	15	23
7g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	26	198	5,467	517	672	1,092	1,406	1,781	11	10	16
8g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	4,231	375	496	834	1,089	1,438	7	7	11
9g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	20	109	907	80	106	179	233	308	2	1	2
10g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	25	158	6,009	550	720	1,192	1,546	2,001	11	10	16
11g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	25	158	3,205	293	384	636	824	1,067	6	5	9
12g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	25	158	5,208	477	624	1,033	1,340	1,734	10	9	14
13g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	32	224	7,993	748	974	1,593	2,056	2,624	16	14	22
14g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	32	224	3,197	299	389	637	822	1,049	6	6	9
15g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	32	224	3,197	299	389	637	822	1,049	6	6	9
16g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	25	158	4,406	403	528	874	1,133	1,467	8	7	12
17g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	26	158	7,353	668	877	1,457	1,891	2,459	13	12	19
18g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	2,345	218	285	467	603	772	5	4	6
19g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	3,517	327	427	700	905	1,158	7	6	10
20g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	2,345	218	285	467	603	772	5	4	6
21g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	45	344	24,245	2,305	2,990	4,847	6,235	7,868	49	44	70
22g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	45	344	14,078	1,339	1,736	2,814	3,620	4,568	28	25	40
23g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	45	344	4,693	446	579	938	1,207	1,523	9	8	13
24g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	1,759	164	213	350	452	579	3	3	5
25g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	1,759	164	213	350	452	579	3	3	5
26g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	3,517	327	427	700	905	1,158	7	6	10
27g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	10,552	982	1,281	2,100	2,714	3,474	20	18	29
28g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	35	243	3,517	327	427	700	905	1,158	7	6	10
29g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	9,638	887	1,161	1,914	2,479	3,197	18	16	26
30g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	14,457	1,331	1,741	2,871	3,719	4,795	27	25	39
31g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	4,016	370	484	798	1,033	1,332	8	7	11
32g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	59	468	6,310	603	781	1,263	1,623	2,041	13	12	18
33g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	59	468	3,155	301	390	631	811	1,021	6	6	9
34g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	59	468	3,155	301	390	631	811	1,021	6	6	9
35g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	1,606	148	193	319	413	533	3	3	4
36g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	2,410	222	290	479	620	799	5	4	7
37g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	4,819	444	580	957	1,240	1,598	9	8	13
38g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	50	323	4,819	444	580	957	1,240	1,598	9	8	13
39g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	67	546	8,444	812	1,050	1,692	2,171	2,719	17	16	25
40g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	67	546	2,413	232	300	483	620	777	5	4	7
41g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	67	546	4,825	464	600	967	1,241	1,554	10	9	14
42g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	56	428	35,967	3,421	4,437	7,191	9,249	11,668	72	65	103
43g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	56	428	7,777	740	959	1,555	2,000	2,523	16	14	22
44g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	56	428	16,525	1,572	2,039	3,304	4,250	5,361	33	30	47
45g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	74	587	7,879	754	976	1,577	2,026	2,546	16	14	23
46g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	74	587	3,939	377	488	789	1,013	1,273	8	7	11

Table 2.30. (contd)

Transformer ERO Operating Parameters

	ERO Equipment Characterisitics			Energy						Demand		
					Summer			Winter		Summer		Winter
ID	ERO Description	No Load Loss (Watts)	Load Loss (Watts)	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
47g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	74	587	7,879	754	976	1,577	2,026	2,546	16	14	23
48g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	56	428	1,944	185	240	389	500	631	4	4	6
49g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	56	428	2,916	277	360	583	750	946	6	5	8
50g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	70	598	9,060	878	1,133	1,818	2,329	2,901	19	17	27
51g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	70	598	3,883	376	486	779	998	1,243	8	7	12
52g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	70	598	7,766	753	971	1,559	1,997	2,487	16	15	23
53g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	86	560	18,002	1,660	2,171	3,577	4,630	5,964	34	31	49
54g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	86	560	22,156	2,044	2,672	4,402	5,699	7,340	42	38	60
55g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	86	560	31,849	2,938	3,841	6,328	8,192	10,551	60	54	86
56g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	108	792	18,452	1,739	2,260	3,682	4,745	6,025	36	33	52
57g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	108	792	5,536	522	678	1,105	1,424	1,808	11	10	16
58g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	108	792	5,536	522	678	1,105	1,424	1,808	11	10	16
59g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	107	736	21,222	1,978	2,578	4,225	5,458	6,983	41	37	59
60g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	107	736	10,611	989	1,289	2,113	2,729	3,491	20	18	29
61g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	107	736	19,454	1,813	2,364	3,873	5,003	6,401	38	34	54
62g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	134	904	6,587	611	798	1,310	1,694	2,173	13	11	18
63g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	134	904	6,587	611	798	1,310	1,694	2,173	13	11	18
64g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	134	904	6,587	611	798	1,310	1,694	2,173	13	11	18
65g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	107	736	3,537	330	430	704	910	1,164	7	6	10
66g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	142	8,904	34,045	4,183	5,107	7,215	8,735	8,806	110	98	150
67g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	125	638	5,454	480	635	1,074	1,403	1,862	9	8	14
68g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	159	1,016	5,093	467	612	1,011	1,310	1,692	10	9	14
69g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	159	1,016	2,546	234	306	505	655	846	5	4	7
70g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	159	1,016	2,546	234	306	505	655	846	5	4	7
71g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	168	1,352	6,013	577	746	1,204	1,546	1,940	12	11	18
72g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	168	1,352	3,007	288	373	602	773	970	6	6	9
73g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	150	1,280	22,137	2,146	2,769	4,443	5,692	7,087	46	42	66
74g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	150	1,280	2,767	268	346	555	711	886	6	5	8
75g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	190	2,570	13,741	1,441	1,823	2,805	3,531	4,141	34	30	47
76g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	264	1,936	13,532	1,275	1,658	2,700	3,480	4,419	27	24	38
77g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	264	1,936	4,511	425	553	900	1,160	1,473	9	8	13
78g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	315	2,600	22,844	2,201	2,845	4,579	5,874	7,346	47	42	67
79g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	225	2,562	4,876	497	634	989	1,253	1,503	11	10	16
80g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	315	2,600	11,422	1,100	1,422	2,290	2,937	3,673	24	21	34
81g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	315	2,600	5,711	550	711	1,145	1,468	1,836	12	11	17
82g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	480	4,160	8,927	868	1,119	1,793	2,295	2,852	19	17	27
83g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	480	4,160	35,709	3,471	4,476	7,172	9,181	11,409	75	68	107
84g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	480	4,160	44,636	4,338	5,595	8,964	11,477	14,262	94	84	133
85g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	540	6,080	11,632	1,184	1,509	2,359	2,990	3,591	27	24	38
86g	Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn)	540	6,080	11,632	1,184	1,509	2,359	2,990	3,591	27	24	38

Table 2.30. (contd)

Transformer ERO Economic Parameters

					First Year Energy and Demand Savings					Life Cycle Cost	
ID	RI/ ROF	Time to Failure	First Cost (1994 $)	Xfmr Life (years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1g	ROF	10	2,445	30	550	1	17	5	22	167	1.09
2g	ROF	1	23,238	30	5,824	15	333	100	433	3,430	1.15
3g	ROF	10	16,088	30	4,032	10	124	37	161	1,279	1.11
4g	ROF	20	5,363	30	1,344	3	12	4	15	120	1.04
5g	ROF	10	3,575	30	896	2	28	8	36	284	1.11
6g	ROF	10	32,176	30	10,725	29	331	110	440	4,594	1.19
7g	ROF	1	21,451	30	7,150	20	410	136	546	5,690	1.27
8g	ROF	1	25,026	30	6,272	16	358	108	466	3,694	1.15
9g	ROF	1	5,363	30	1,344	3	77	23	100	792	1.15
10g	ROF	20	33,531	30	8,403	22	73	23	96	751	1.04
11g	ROF	10	17,883	30	4,482	12	138	43	181	1,421	1.11
12g	ROF	1	29,060	30	7,283	19	417	131	548	4,289	1.15
13g	ROF	10	33,531	30	10,706	29	330	107	437	4,341	1.18
14g	ROF	1	13,412	30	4,283	12	245	80	325	3,226	1.25
15g	ROF	20	13,412	30	4,283	12	37	12	49	490	1.07
16g	ROF	1	24,589	30	6,162	16	352	111	463	3,629	1.15
17g	ROF	10	40,237	30	10,415	27	320	100	420	3,408	1.11
18g	ROF	1	11,865	30	3,171	8	182	59	240	1,979	1.17
19g	ROF	10	17,798	30	4,757	13	146	47	194	1,598	1.12
20g	ROF	20	11,865	30	3,171	8	28	9	37	300	1.05
21g	ROF	1	91,954	30	31,359	87	1,798	603	2,400	24,602	1.28
22g	ROF	10	53,393	30	18,208	50	561	188	750	7,688	1.20
23g	ROF	20	17,798	30	6,069	17	53	18	71	724	1.07
24g	ROF	1	8,899	30	2,378	6	136	44	180	1,484	1.17
25g	ROF	10	8,899	30	2,378	6	73	24	97	799	1.12
26g	ROF	20	17,798	30	4,757	13	41	13	55	451	1.05
27g	ROF	10	53,393	30	14,271	38	439	142	582	4,794	1.12
28g	ROF	20	17,798	30	4,757	13	41	13	55	451	1.05
29g	ROF	1	44,599	30	13,319	35	762	242	1,004	9,008	1.21
30g	ROF	10	66,899	30	19,979	53	615	195	810	7,274	1.15
31g	ROF	20	18,583	30	5,550	15	48	15	64	570	1.06
32g	ROF	1	22,300	30	8,084	23	464	157	620	6,535	1.30
33g	ROF	10	11,150	30	4,042	11	125	42	167	1,759	1.21
34g	ROF	20	11,150	30	4,042	11	35	12	47	497	1.08
35g	ROF	1	7,433	30	2,220	6	127	40	167	1,501	1.21
36g	ROF	20	11,150	30	3,330	9	29	9	38	342	1.06
37g	ROF	1	22,300	30	6,660	18	381	121	502	4,504	1.21
38g	ROF	20	22,300	30	6,660	18	58	18	76	684	1.06
39g	ROF	1	28,801	30	10,660	30	612	209	821	8,730	1.31
40g	ROF	10	8,229	30	3,046	9	94	32	126	1,342	1.22
41g	ROF	20	16,458	30	6,092	17	53	18	71	758	1.08
42g	ROF	1	161,458	30	46,481	129	2,664	894	3,558	30,841	1.20
43g	ROF	10	34,910	30	10,050	28	310	104	414	3,590	1.14
44g	ROF	20	74,183	30	21,356	59	186	63	249	2,151	1.05
45g	ROF	1	26,182	30	10,053	28	577	195	772	8,357	1.33
46g	ROF	10	13,091	30	5,027	14	155	53	208	2,249	1.23
47g	ROF	20	26,182	30	10,053	28	88	30	117	1,270	1.09
48g	ROF	1	8,727	30	2,512	7	144	48	192	1,667	1.20

Table 2.30. (contd)

Transformer ERO Economic Parameters

					First Year Energy and Demand Savings					Life Cycle Cost	
ID	RI/ ROF	Time to Failure	First Cost (1994 $)	Xfmr Life (years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
49g	ROF	10	13,091	30	3,769	10	116	39	155	1,346	1.14
50g	ROF	1	30,546	30	11,236	32	645	224	869	9,199	1.31
51g	ROF	10	13,091	30	4,815	14	149	52	200	2,122	1.22
52g	ROF	20	26,182	30	9,631	28	84	29	113	1,198	1.08
53g	ROF	1	71,180	30	24,792	65	1,419	452	1,871	18,533	1.27
54g	ROF	10	87,606	30	30,513	81	939	299	1,239	12,277	1.19
55g	ROF	20	125,933	30	43,863	116	382	122	504	4,982	1.07
56g	ROF	10	54,754	30	24,330	66	750	247	997	11,516	1.29
57g	ROF	20	16,426	30	7,299	20	64	21	85	976	1.11
58g	ROF	10	16,426	30	7,299	20	225	74	299	3,455	1.29
59g	ROF	1	77,221	30	28,637	77	1,640	531	2,171	22,337	1.30
60g	ROF	10	38,610	30	14,318	38	441	143	584	6,011	1.21
61g	ROF	20	70,786	30	26,250	70	229	74	303	3,111	1.08
62g	ROF	1	19,305	30	8,958	24	513	165	678	7,912	1.42
63g	ROF	10	19,305	30	8,958	24	276	89	365	4,258	1.30
64g	ROF	20	19,305	30	8,958	24	78	25	103	1,203	1.11
65g	ROF	1	12,870	30	4,773	13	273	89	362	3,723	1.30
66g	RI	NA	19,305	30	16,283	104	1,037	804	1,842	16,432	1.85
67g	ROF	1	19,305	30	8,199	20	468	139	607	6,695	1.36
68g	ROF	20	23,054	30	7,079	19	62	19	81	589	1.05
69g	ROF	1	11,527	30	3,539	9	202	64	267	1,941	1.17
70g	ROF	20	11,527	30	3,539	9	31	10	41	294	1.05
71g	ROF	1	26,417	30	7,637	21	438	149	587	4,032	1.16
72g	ROF	20	13,209	30	3,819	11	33	11	45	306	1.04
73g	ROF	20	111,179	30	27,441	78	240	83	323	1,657	1.03
74g	ROF	1	13,897	30	3,430	10	197	68	265	1,369	1.10
75g	ROF	20	41,692	30	13,836	47	122	50	172	1,495	1.07
76g	ROF	20	48,012	30	17,842	49	156	51	207	1,876	1.07
77g	ROF	10	16,004	30	5,947	16	183	60	244	2,216	1.19
78g	ROF	20	73,357	30	28,714	81	251	86	337	3,218	1.08
79g	ROF	20	18,339	30	5,321	17	47	18	65	468	1.05
80g	ROF	20	36,679	30	14,357	41	125	43	168	1,609	1.08
81g	ROF	1	18,339	30	7,178	20	412	141	553	5,296	1.30
82g	ROF	20	23,358	30	10,995	32	96	34	130	1,408	1.11
83g	ROF	1	93,430	30	43,979	126	2,525	881	3,405	37,058	1.41
84g	ROF	20	116,788	30	54,974	158	480	168	648	7,041	1.11
85g	ROF	10	30,192	30	12,766	40	396	152	547	5,623	1.25
86g	ROF	20	30,192	30	12,766	40	112	43	155	1,587	1.10
87e	ROF	10	587,523	30	184,487	897	5,853	3,492	9,344	107,049	1.25
Totals:											
	RI		19,305		16,283	104	1,037	804	1,842	16,432	1.85
	ROF		3,364,580		1,134,891	3,516	35,276	13,235	48,511	487,090	1.14

Table 2.31. Conservation Voltage Reduction and Power Factor Correction EROs

Existing T & D Operating Parameters

				Energy						Demand			
				Annual	Summer			Winter		Summer		Winter	Total
ID	Equipment Type	Number of Units	Size (MVA)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)	Reactive (kVAR-mo)
1	Sub. Transformers	5	37.5	72,192,000	7,138,683	9,193,504	14,707,296	16,775,628	24,376,889	80,025	74,207	96,153	NA
2	Capacitor Bank	1	NA	72,192,000	7,138,683	9,193,504	14,707,296	16,775,628	24,376,889	80,025	74,207	96,153	71,150

Efficient T & D Operating Parameters

				Energy						Demand			
				Annual	Summer			Winter		Summer		Winter	Total
ID	Description of Replacement	Number of Units	Size (MVA)	Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)	Reactive (kVAR-mo)
1	Conservation Voltage Reduction	5	37.5	71,578,368	7,078,004	9,115,359	14,582,284	16,633,035	24,169,685	79,345	73,576	95,336	NA
2	Power Factor Correction to Unity	1	9	72,176,546	7,137,155	9,191,536	14,704,148	16,772,037	24,371,671	79,997	73,576	95,336	0

Efficient T & D ERO Economic Parameters

			First Year Energy and Demand Savings							Life Cycle Cost	
ID	First Cost (1994 $)	Life Expectancy (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Reactive Demand (kVAR-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Reactive Demand (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	1,000	25	613,632	2,128	NA	39,042	17,148	NA	56,190	966,624	967.62
2	31,590	25	15,454	1,476	71,150	983	4,889	17,788	23,660	375,744	12.89

2.15 Peak Shifting EROs

Conventional peak shaving EROs (i.e., using diesel generators) cannot be considered at Fort Irwin due to the current rate schedule. SCE prohibits any type of on-site power generation as part of the incremental sales agreement. In addition, strict air quality standards would make most on-site generation extremely costly. For this reason, opportunities for peak shifting were explored. Peak shifting is simply the shifting of electric loads from the on-peak period to the off-peak period. Perhaps the most well-known peak shifting ERO is thermal energy storage, which was discussed in another section. The following ERO proposes adding a new water storage tank to the domestic water supply system so that water well pumping can be eliminated during the on-peak period.

Description

Water wells at Fort Irwin operate on an intermittent basis throughout the day to maintain necessary pressure and capacity in the water storage tanks. By adding another storage tank and filling it during the off-peak period, it is possible to avoid pumping during the more costly on-peak period. Note that this ERO will not save any energy since the load is simply being shifted from one time period to another, but it will result in lower electricity charges.

The new tank will be placed about halfway between the main cantonment and the Langford Lake Basin water wells, near an existing booster station and 16-inch water line.

Assumptions

The technical assumptions are as follows:

- There are eleven operating water wells at Fort Irwin. In FY93, they pumped nearly 992 million gallons. Almost half of this was pumped during the four summer months of June, July, August, and September. Assuming that the pumping is the same every day, this is an average of about 4 million gallons per day (mgd) during the summer, and 2.3 mgd during the winter.
- The new water tank has a capacity of 500,000 gallons; enough to completely curtail any pumping during the summer on-peak period from 12 noon to 6 pm.
- Suitable controls are already in place to control the pump operation, ensuring that pumping will not occur during the on-peak period.
- Energy consumption for each utility rate period was estimated as the total consumption for all pumps (calculated by the sum-product of operating hours and power draw) multiplied by the fraction of total energy consumption for the entire Fort in each rate period. Since time-of-day operating profiles for the well pumps were not available, this was assumed to be a good way to apportion consumption and provide a conservative estimate.
- Pumping is assumed to be shifted from the 12 noon to 6 pm time block, to the 12 midnight to 6 am time block. Pump energy used during the summer on-peak period is shifted to the summer off-peak period. Pump energy during the same six hours in the winter (part of the mid-peak period) is shifted to the winter off-peak period.

- All of the pumps currently contribute to the summer on-peak demand. After ERO implementation, summer on-peak demand from the pumps falls to zero, and winter mid-peak demand decreases by 6/15, representing the 6 hours when no pumping takes place.

- Pump capacity and power draw was determined from the SCE well pump tests performed in early 1992. Pump operating hours were collected during a site visit in July, 1993, and represent annual pump run-time from June 3, 1992 to June 2, 1993. The following table details the well pump data:

Well ID	Capacity gpm	Power Draw kW	Annual Run Hours
I-3	513	70.5	1,820
I-5	493	62.4	3,028
I-6	383	52.9	3,420
I-7	1,047	133.0	3,024
B-1	545	59.6	3,100
B-2	119	24.8	344
B-4	414	56.9	3,262
B-5	837	87.5	2,441
L-1	751	90.0	3,590
L-2	664	76.4	3,195
L-3	562	69.7	1,146

The cost assumptions are as follows:

- The costs to build, install, and connect the new tank to the existing water lines are as follows:

500 kgal steel tank, on grade	$184,000
Site clearing, leveling, etc.	$700
Concrete pad: 4,900 ft², 6" thick	$9,100
300 ft of 12" dia. pipe	$10,300
Trenching: 300 ft	$1,400
Pipe fittings, valves, etc.	$5,000
Total:	$210,500

These costs were estimates from Means and Richardson and include 15% for contractor overhead and profit. Actual project costs may be higher or lower than these estimates depending on actual site conditions.

- There will be an increase in maintenance costs, estimated to be $250 per year, for routine tank, valve, and pipe inspections.

Results

The complete quantitative results of this ERO appear in Table 2.32. The table contains specific energy, cost, and economic performance data.

Budget Implications. The initial cost of this ERO is $210,500.

Energy and Cost Savings. It is estimated that this ERO will result in electric energy cost savings of $25,684, and electric demand savings of 1,097 kW-months, for a cost savings of $16,019. Energy cost savings result from shifting an equal amount of energy consumption from on- and mid-peak periods to off-peak periods.

Operations and Maintenance. There will be an increase in maintenance costs, estimated to be $250 per year, for routine tank, valve, and pipe inspections.

Table 2.32. Peak Shifting EROs

Existing Well Pump Operating Parameters

		Energy						Demand		
			Summer			Winter		Summer		Winter
ID	Equipment	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1	Well Pumps	2,139,810	197,510	309,801	495,280	463,985	673,234	784	784	784

ERO Well Pump Operating Parameters

		Energy						Demand		
			Summer			Winter		Summer		Winter
ID	Description of Replacement	Annual Total (kWh/yr)	On-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	Mid-Peak (kWh/yr)	Off-Peak (kWh/yr)	On-Peak (kW-mo)	Mid-Peak (kW-mo)	Mid-Peak (kW-mo)
1	Add New 500 KGal. Tank & Reschedule Pump Operating Hrs	2,139,810	0	309,801	692,790	278,391	858,828	0	784	470

ERO Well Pump Economic Parameters

				First Year Energy and Demand Savings					Life Cycle Cost	
ID	First Cost (1994 $)	Annual O&M Cost (1994 $)	Life Expectancy (Years)	Energy Savings (kWh)	Demand Savings (kW-mo)	Energy Savings (1994 $)	Demand Savings (1994 $)	Total Savings (1994 $)	NPV (1994 $)	SIR
1	210,500	250	40	0	1,097	25,684	16,019	41,703	554,481	3.63

2.16 Convert Fleet Vehicles to Compressed Natural Gas

Description

The Fort Irwin motor vehicle fleet consists of 234 GSA vehicles and 152 vehicles owned by the primary on-site maintenance contractor (Dyncorp). These vehicles presently run on unleaded, premium unleaded gasoline or diesel fuel. These vehicles are general transportation vehicles including: cars, pickups, trucks, vans and wagons. All of these vehicles can be converted to operate on compressed natural gas (CNG) as a primary fuel source. While natural gas is currently not available at Fort Irwin, studies are planned or underway to assess the cost of extending a natural gas pipeline to the main post area. This ERO is analyzed assuming natural gas is already available.

Two options were considered for selecting refueling stations. The first option provides two refueling stations. The first station is intended primarily for use by GSA vehicles and will have 160 slow-fill stations and one two-hose fast-fill station. The second station, intended primarily for contractor use, would have 128 slow-fill stations and no fast-fill stations. This option is based on the assumption that two-thirds of the GSA vehicles and 80% of the contractor vehicles would be refueled at slow-fill stations. This provides for a majority of slow-fill refueling stations. Slow-fill stations use electricity during off hours and are more energy-cost efficient. The energy savings over time may more than offset the higher initial installation cost.

The second option provides two refueling stations each with eighty slow-fill stations and one two-hose fast-fill station. This option is based on the assumption that one-third of the GAS vehicles and two-thirds of the contractor vehicles would be refueled at slow-fill stations. This option will not be as energy-cost efficient but has a lower initial installation cost.

Converting Gasoline Vehicles to CNG

Most gasoline powered cars and trucks can be converted to operate on CNG in either single fuel (CNG only) or a dual fuel (either gasoline or CNG) configuration. Modifications include changes to the fuel delivery and carburetor system. Fuel injected cars can also be easily converted. The conversion equipment consists of fuel storage cylinders, a pressure regulator, a gas/air mixer, a fuel selector control (for dual fuel use), and a fuel gauge. A typical vehicle can usually be converted to CNG in less than a day.

Converting Diesel Vehicles to CNG

One of the primary advantages of diesel fuel is its high centane rating which allows the fuel to auto-ignite when sufficiently compressed. Compression ignition simplifies the diesel engine, as compared to spark plug engines, by eliminating the spark plugs, distributors, and other electrical components. Ordinarily, natural gas will not auto-ignite due to its low centane rating. Therefore, some means of igniting the alternative fuel must be provided. Some of the proven ignition methods are to add spark plugs, glow plugs, or use a fumigation system. The traditional thought to have a diesel engine burn natural gas would mean adding spark plugs and associated electronics. Rather than make these extensive engine modifications, a fumigation system can be used. A fumigation system burns natural gas in tandem with diesel fuel. For this type of conversion, diesel is used as a "pilot fuel" for starting and for low engine RPM operation. The amount of natural gas is increased as engine speed increases. Retrofitting a diesel engine to CNG using a fumigation system is very similar to converting a gasoline engine to CNG. The major difference is the need for an RPM monitoring device to control the mixture of diesel and natural gas. The mixture of fuels is controlled by either mechanical or solenoid switches. Diesel is used to start the engine and is decreased as engine speed increases. When engine speed drops off during gear changes, diesel again becomes the primary fuel.

Assumptions

Table 2.33 identifies all the vehicles at Fort Irwin under consideration for conversion to CNG.

The technical assumptions are as follows:

- Gasoline energy content is 125,000 Btu per gallon.
- Diesel energy content is 138,700 Btu per gallon.
- CNG fuel efficiency is 7% greater than gasoline or diesel fuel.
- The fumigation system conversion will operate with an overall average fuel mix ratio of 40% diesel and 60% CNG.
- Vehicle mileage, fuel consumption, fuel cost, and O&M cost are based on records maintained on the base and by assumptions based on typical usage of vehicles on similar bases where actual data was not available.
- The life of the refueling station should exceed the 25-year life-cycle cost analysis.
- The conversion equipment should last close to 25 years.

The cost assumptions are as follows:

- The cost to convert existing vehicles for CNG operation is assumed to be $2,000 for each car and $3,000 for each truck (regardless of size). New CNG vehicles are assumed to be available (through GSA) at approximately the same price as common gas or diesel fueled models.
- O&M costs for vehicles operating on CNG are estimated to be reduced by as much as 50%. For this analysis, an average 25% reduction is assumed.
- The first option for the two refueling stations is estimated to cost $1,080,000 including installation. The cost of the two refueling stations for the second option is estimated to be $963,000 including installation.

Results

The complete quantitative results of this ERO appear in Table 2.33. The table contains specific energy, cost, and economic performance data. The most cost-effective implementation of this ERO involves immediate conversion of all vehicles to CNG, and the construction of the filling station described as option two. However, both filling station options have a positive NPV (option one: $9,932,181, option two: $10,091,649). Note that the last two lines in the economics portion of the table contain the summed results of the individual vehicles as well as the energy and costs associated with the filling station.

Budget Implications. Implementation cost for vehicle conversion only is estimated to be $1,084,000 for all vehicles identified in Table 2.33. Both conversion equipment and new CNG vehicles are available through normal GSA contracts and/or from the private sector.

Federal tax deductions for the contractor vehicle conversions are available. A tax deduction of $50,000 each for the seven heavy trucks, and $2,000 each for the remaining 145 vehicles would result in a possible tax deduction of $780,000. There are presently no incentives provided for conversion of GSA vehicles. This tax deduction was not included in the cost savings analysis.

Energy and Cost Savings. It is estimated that this ERO will reduce annual gasoline consumption by approximately 634,367 gallons per year and diesel by 18,480 gallons per year. Natural gas consumption will increase by approximately 303,925 therms per year. Electrical consumption by the natural gas refueling stations is estimated to be 275,132 kWh per year for option one and 275,080 per year for option two. Net energy savings will be 14,632 MBtu per year for both options.

This results in a fuel cost reduction of $526,524 per year in gasoline and $13,860 per year in diesel. However, there will be a cost increase of $115,887 per year in natural gas and $21,064 per year in electricity for option one or $18,598 per year in electricity for option two. Net energy cost reduction is $403,433 per year for option one and $405,899 per year for option two.

Operations and Maintenance. Natural gas has many advantages over liquid fuels like gasoline and diesel. Since it is a gas, it burns more easily and completely. It also burns cooler than gasoline. For these and other reasons, CNG vehicles require less O&M than standard vehicles. Spark plugs last longer and the engine operates cleaner. Oil changes may be less frequent and still be cleaner. Changes in the vehicle performance result in reduced engine, transmission and tire wear. It has been estimated by some sources that these factors may result in increased vehicle life and increase resale value. Some sources have estimated that O&M costs can be reduced by as much as 50%. Furthermore, with overnight slow-fill stations, operator time is no longer wasted waiting in refueling lines at the beginning or end of the day. In the case of fast-fill stations, the refueling time is similar to that of standard fuel vehicles. Net reduction in operations and maintenance cost is estimated to be $376,047 per year.

Table 2.33. Convert Fleet Vehicles to CNG

Existing Vehicle Operating Parameters

ID	Equipment Description	Number of Units	Existing Fuel	Time until Failure (years)	Miles per Year (miles)	Annual Fuel Consumption (gal/yr)	Annualized O&M Costs (1994 $)
GSA/Government Vehicles.							
G-CNG-1	Sedan Compact/Midsize	58	Gasoline	1	1,599,002	51,581	140,712
G-CNG-2	Pickup compact/4dr, under 8510 GVW	10	Gasoline	3	350,900	29,242	47,372
G-CNG-3	Truck light weight under 8,000 GVW	21	Gasoline	3	645,015	53,751	85,142
G-CNG-4	Truck med. wght over 8,001, under 17,000 GVW	48	Gasoline	4	326,256	25,097	114,842
G-CNG-5	Truck heavy weight over 17,001 GVW	11	Gasoline	4	151,745	15,175	13,354
G-CNG-6	Van multipurpose	59	Gasoline	1	1,712,593	114,173	354,507
G-CNG-7	Bus multipurpose	10	Gasoline	5	233,640	46,728	20,560
G-CNG-8	Truck heavy weight over 17,001 GVW	14	Diesel	4	232,610	23,261	67,457
G-CNG-9	Ambulance patient Transport	3	Diesel	6	25,536	3,192	3,933
Contractor Vehicles:							
C-CNG-1	Sedan compact/Midsize	16	Gasoline	4	441,104	14,229	38,817
C-CNG-2	Pickup compact/4dr, under 8510 GVW	72	Gasoline	5	2,526,480	210,540	341,075
C-CNG-3	Truck light weight under 8,000 GVW	6	Gasoline	5	184,290	15,358	24,326
C-CNG-4	Truck medium weight over 8,001, under 17,000 GVW	18	Gasoline	5	122,292	9,407	43,047
C-CNG-5	Truck heavy weight over 17,001 GVW	2	Gasoline	6	27,590	2,759	4,249
C-CNG-6	Van multipurpose	32	Gasoline	5	928,864	61,924	192,275
C-CNG-7	Truck medium weight over 8,001, under 17,000 GVW	1	Diesel	4	6,794	523	1,970
C-CNG-8	Truck heavy weight over 17,001 GVW	5	Diesel	6	83,075	10,384	10,551

Energy Efficient Vehicle Operating Parameters

ID	Description of Replacement	Number of Units	Resulting Fuel	Miles per Year (miles)	Annual Fuel Consumption (gal/yr)	Annual Fuel Consumption (therms/yr)	Annualized O&M Costs (1993 $)
GSA/Government Vehicles:							
G-CNG-1	CNG Vehicle	58	CNG	1,599,002	0	52,767	105,534
G-CNG-2	CNG Vehicle	10	CNG	350,900	0	29,914	35,529
G-CNG-3	CNG Vehicle	21	CNG	645,015	0	54,988	63,856
G-CNG-4	CNG Vehicle	48	CNG	326,256	0	25,674	86,132
G-CNG-5	CNG Vehicle	11	CNG	151,745	0	15,524	10,015
G-CNG-6	CNG Vehicle	59	CNG	1,712,593	0	116,799	265,880
G-CNG-7	CNG Vehicle	10	CNG	233,640	0	47,803	15,420
G-CNG-8	CNG Vehicle	14	CNG & Diesel	232,610	9,304	14,278	50,593
G-CNG-9	CNG Vehicle	3	CNG & Diesel	25,536	1,277	1,959	2,949
Contractor Vehicles:							
C-CNG-1	CNG Vehicle	16	CNG	441,104	0	14,556	29,113
C-CNG-2	CNG Vehicle	72	CNG	2,526,480	0	215,382	255,806
C-CNG-3	CNG Vehicle	6	CNG	184,290	0	15,711	18,245
C-CNG-4	CNG Vehicle	18	CNG	122,292	0	9,623	32,285
C-CNG-5	CNG Vehicle	2	CNG	27,590	0	2,822	3,187
C-CNG-6	CNG Vehicle	32	CNG	928,864	0	63,349	144,206
C-CNG-7	CNG Vehicle	1	CNG & Diesel	6,794	209	321	1,478
C-CNG-8	CNG Vehicle	5	CNG & Diesel	83,075	4,154	6,374	7,913

Table 2.33. (contd)

Energy-Efficient Vehicle ERO Economic Parameters

ID	PV of Installed Cost (1993 $)	RI or ROF	Life Expectancy (Years)	Energy Savings (MBtu)	Annualized Energy Savings (1993 $)	Annualized O&M Savings (1993 $)	Net Present Value (1933 $)	SIR
GSA/Government Vehicles:								
G-CNG-1	116,000	RI	3	1,171	27,028	35,178	955,229	9.23
G-CNG-2	30,000	RI	6	664	15,322	11,843	437,805	15.59
G-CNG-3	63,000	RI	6	1,220	28,165	21,285	788,575	13.52
G-CNG-4	144,000	RI	7	570	13,150	28,711	576,875	5.01
G-CNG-5	33,000	RI	9	344	7,951	3,338	161,416	5.89
G-CNG-6	177,000	RI	3	2,592	59,826	88,627	2,379,452	14.44
G-CNG-7	30,000	RI	10	1,061	24,485	5,140	430,166	17.01
G-CNG-8	42,000	RI	9	512	5,198	16,864	337,922	9.05
G-CNG-9	9,000	RI	14	70	713	983	20,213	3.25
Contractor Vehicles:								
C-CNG-1	32,000	RI	9	323	7,456	9,704	263,511	9.23
C-CNG-2	216,000	RI	10	4,779	110,321	85,269	3,152,193	15.59
C-CNG-3	18,000	RI	10	349	8,047	6,082	225,307	13.52
C-CNG-4	54,000	RI	10	214	4,929	10,762	216,209	5.00
C-CNG-5	6,000	RI	12	63	1,446	1,062	37,188	7.20
C-CNG-6	96,000	RI	10	1,406	32,448	48,069	1,290,550	14.44
C-CNG-7	3,000	RI	9	12	117	493	7,493	3.50
C-CNG-8	15,000	RI	10	229	2,320	2,638	70,381	5.69
Totals:	1,084,000			15,577	348,923	376,047	11,400,484	11.52
Vehicles with Option 1 Station								
	2,164,000			14,638	327,858	376,047	9,932,181	5.59
Vehicles with Option 2 Station								
	2,047,000			14,638	330,325	376,047	10,091,649	5.93

3.0 Energy Resource Opportunity Impact Study

All energy resource opportunities (EROs) identified in Section 2 of this report are subjected to economic analysis to determine their cost-effectiveness. The economic analysis is part of the FEDS (Facility Energy Decision Screening) process for developing fuel-neutral assessments of facilities to identify and quantify major efficiency resources, supply alternatives, and fuel-switching opportunities. The intent of the assessment is to identify the major resource alternatives available to decision makers. The economic analysis provides an estimate of the magnitude of the cost-effective resource available at a facility using the most realistic assumptions possible. Individual projects should be examined more thoroughly at a project level at the implementation stage.

Section 3.1 discusses the methodology and assumptions used in the economic analysis, and Section 3.2 defines the analysis metrics. Section 3.3 describes the life-cycle cost evaluation method. Section 3.4 discusses the fuel rates used for the evaluation, and Section 3.5 presents the results of the evaluation for Fort Irwin. Section 3.6 presents additional notes on the analysis.

3.1 Economic Analysis Methodology and Assumptions

According to the provisions of 10 CFR Part 436, federal agencies are required to analyze all potential energy investments using a life-cycle cost (LCC) methodology developed by the National Institute of Standards and Technology (NIST). The NIST LCC methodology calculates all relevant costs of a project and discounts them to result in present dollars, and then subtracts that sum from a similarly constructed LCC of baseline, current conditions or technology. This difference is called the net present value (NPV) of the action being considered. Actions are cost-effective if the NPV is positive and greater than the NPV of alternative actions. Following this methodology results in minimizing the LCC of energy services at a site.

This economic analysis is central to the Federal Energy Management Program (FEMP) model approach for federal energy efficiency using the FEDS system to develop a fuel-neutral assessment of facilities to identify and quantify energy efficiency resources, supply alternatives, and fuel switching opportunities.

All EROs identified by the FEDS assessment and described in this resource assessment report are therefore subjected to the LCC economic analysis to determine their cost-effectiveness. The purpose of the FEDS assessment is to identify the facility energy efficiency resource alternatives available to decision makers; the economic analysis provides an estimate of the installed cost and energy savings of the cost-effective resource available at a facility using the most current and realistic assumptions possible. Individual projects and actions considered for implementation should be examined and analyzed more thoroughly at a project level prior to design and implementation.

Under the NIST methodology, energy prices are escalated and costs and benefits are discounted using factors taken from the current edition of "Energy Prices and Discount Factors for Life-Cycle Cost Analysis." Costs and benefits are analyzed over a 25-year period, reflecting the average expected remaining life of a typical building. Other key assumptions in the methodology are:

- Prices for all goods and services (e.g., installed cost of a technology) will vary at the same rate as the inflation rate; therefore the "real" rate of inflation is zero.

- Energy or fuel prices vary at a rate different than that of the inflation rate. NIST reports the value by which the energy prices vary from the real rate of inflation (the escalation rate).

- All costs and benefits are discounted using the current federal discount rate (3.1% real for CY 1994).

- All EROs are analyzed for a 25-year period. This does not mean that a 25-year life is assumed for all installed equipment: actual estimates of equipment life are used, and the costs of replacing worn out equipment over a 25-year period are incorporated. The 25-year analysis period also does not mean that all streams of savings from EROs are assumed to endure 25 years: many are assumed to disappear as the existing equipment is replaced with more efficient equipment as part of the baseline.

- The analysis assumes that up-front unconstrained federal financing (at the federal discount rate) is available for all potential energy efficiency improvements and actions.

The last assumption, unconstrained (unlimited) federal financing, is incorporated into the LCC analysis to determine the total cost-effective energy efficiency resource at a site. Therefore, the analysis (under the unconstrained funding assumption) results in a menu of all identified energy project opportunities whose benefits exceed their costs.

In the presence of constraints on the funding available to implement these projects, some method of prioritizing the projects is needed. It is for this reason that a savings to investment ratio (SIR) is calculated to rank order projects starting with the project with the highest SIR. This ranking allows available capital to be allocated to those cost-effective projects in an order that results in the greatest savings per dollar of investment.

For most agencies or facilities, the entire list of cost-effective projects from the LCC analysis is significant and cannot be financed from a single source. Rather, all available funding sources need to be determined. Funding sources include federal funds (MILCON, ECIP, Federal Energy Efficiency Fund); utility financing including utility offered rebates or other financial assistance; and energy services industry-financed projects. Each of these funding sources has its own requirements and its own costs and therefore, the cost-effectiveness of individual projects needs to be evaluated using the LCC analysis adjusted for each potential funding source's costs and constraints.

Many assumptions in addition to those listed above are required in the course of a FEDS assessment. In every case, the analysis team attempts to make the most realistic and defensible assumption. Where uncertainty exists, the team attempts to error on the side of conservatism. Therefore, the resulting estimate of the total cost-effective energy efficiency resource is a minimum estimate of the total potential resource, given the above assumptions. A more exact estimate and/or the development and design of projects may require a detailed facility audit, which is beyond the scope of a FEDS assessment.

3.1.1 Building Sector Analysis Methodology and Assumptions

The analysis of EROs within the building sector was performed using the FEDS model, a multi-level energy analysis software system. As discussed in Section 1, there are currently two levels of FEDS: FEDS level-1 (FEDS-1) and FEDS level-2 (FEDS-2). FEDS-1 assesses the likelihood of cost-effective energy projects based on high-level facility inputs and numerous assumptions, while FEDS-2 provides detailed information on energy and cost savings, as well as the estimated investment requirement for specific technology retrofits.

Currently, FEDS-1 and FEDS-2 analyze most major building end uses (heating, cooling, lighting, insulation, and service hot water) including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads). The analysis provides specific cost, energy and demand, and life-cycle cost information, by cost-effective technology. The FEDS analysis is performed using a sophisticated optimization algorithm that takes into account the complex economic and energy components involved. This optimization algorithm performs energy use simulations for a number of equipment combinations for each building type and finds the optimal set. As part of this algorithm, the FEDS model estimates existing energy consumption for the site based long-term weather data using a 30-year average. While the estimated consumption may not match any single year's consumption, it should represent the site's average consumption over a number of years, assuming other factors remain constant. For a more detailed discussion about the calculation methodology used by FEDS, see PNL, *Facility Energy Decision Screening System User's Guide*, 1993; or Dirks, J.A. and L.E. Wrench, "Facility Energy Decision Screening (FEDS) Software System," *Proceedings of the International Energy and Environmental Congress*, Minneapolis, MN, Aug. 4-5, 1993.

3.1.2 Non-Building Sector Analysis Methodology and Assumptions

The FEDS model currently analyzes most building end uses, which include heating, cooling, lighting, insulation, and service hot water. There are other building sector EROs that are not currently part of the FEDS model, including motors, exterior lighting, and some building envelope actions such as double-paned windows and window films. These EROs are evaluated by PNL staff in the same manner that non-building sector EROs (transmission and distribution, vehicles) are evaluated. As with the FEDS analysis, the non-FEDS analysis complies with 10 CFR 436; however, because it is not performed using a complex computer model, there are tradeoffs made between the best methods to perform the calculations and the feasibility of those methods.

There are two main differences between the analysis performed by FEDS and the non-FEDS analysis. First, the FEDS analysis assumes in the baseline situation (what would happen if the ERO was not implemented) that a piece of equipment will be replaced upon failure by the most life-cycle cost-effective piece of equipment, in accordance with 10 CFR 436. The non-FEDS analysis uses a baseline defined in conjunction with site personnel; therefore, the baseline may not always reflect replacement of exhausted equipment with the most life-cycle cost-effective equipment.

Second, the non-FEDS analysis uses actual energy consumption data to determine base energy consumption, and then applies an estimate of savings to that consumption. The FEDS analysis, on the other hand, bases its energy consumption estimate on 30-year average weather data. Ideally, the non-FEDS estimate would be weather-normalized, however the data required for such an effort are difficult to obtain. The result of this is that, unless the actual year's weather was similar to the 30-year average, the consumption estimates will be slightly different, as is the case at Fort Irwin.

3.2 Economic Analysis Metrics Used

The EROs described in Section 2 were analyzed in a number of ways, with the intent of presenting a variety of analysis metrics. An analysis metric is a numerical measure of the attractiveness of an ERO as an investment. Different analysis metrics are used for different purposes. Some economic metrics commonly used to evaluate measure effectiveness include net savings and the savings to investment ratio.

3.2.1 Net Savings

The most useful analysis metric is the Net Savings, expressed in dollars. The net savings, as described in Section 3.3.6, is the difference between the LCCs of a project and its baseline. This is equivalent to saying that the net savings is the present value of all of the benefits associated with an ERO, less the present value of all of the costs of the ERO. The concept of present value is discussed in more detail in the following paragraphs. The net savings is used to define the cost-effectiveness of an ERO: a negative net savings means that the costs of an ERO outweigh its benefits, while a positive net savings means that the benefits are greater than the costs. The higher the net savings, the better.

The costs and the benefits of an efficiency investment occur at different periods of time, which must be accounted for in the analysis. The timing of the streams of costs and benefits is accounted for in an LCC analysis by converting all streams to present values. Present values account for the fact that a dollar today is worth more than a dollar tomorrow, for two primary reasons: general price inflation and the time value of money. In the face of general price inflation, the purchasing power of a dollar declines over time, and since the true value of money lies in what it is capable of purchasing, inflation causes its value to decline. The time value of money refers to the fact that even in the absence of general price inflation, money received sooner is preferred to money received later.

It is this preference for consuming sooner rather than later that leads to the existence of positive rates of interest, even in the absence of price level inflation. Individuals and firms are willing to pay a premium to obtain goods and services sooner rather than later: the premium they are willing to pay is the "real rate of interest." (Although interest rates are generally positive, negative rates can exist for short periods of time, but cannot persist.) The market rate of interest, or the "nominal" rate, is the real rate plus the rate of inflation (this is a slight simplification).

3.2.2 Savings to Investment Ratio

The SIR is used to prioritize a group of minimum LCC EROs. For example, suppose a total of 100 EROs were evaluated. Of these, suppose 25 had negative net savings, leaving 75 EROs to consider. Of these, say that there are 5 groups of mutually exclusive pairs, and that the highest net savings ERO of each group is selected. This results in the elimination of 5 EROs, for a grand total of 70 EROs to be implemented. Suppose the total cost of implementing all 70 is $5 million, and the facility has an annual budget for energy modernization projects of $1 million. The SIR would be used to determine which of the 70 EROs provide the greatest "return on investment," thereby deserving immediate implementation. It is important to note that selection of cost-effective EROs should not be done on the basis of the SIR. That would not minimize the LCC. Rather, it is necessary to select the cost-effective set of EROs on the basis of their net savings. The SIR should only be used for prioritization.

3.2.3 Discounted Payback Period

The discounted payback period was calculated to illustrate the time frame over which an investment would pay for itself with savings in energy, demand, O&M, and replacement capital expenditures. The dollar streams used in the payback calculation are discounted to compensate for the time value of money, and annualized values are used to allow for comparison of projects that have differing cost and savings time profiles. The discounted payback should not be used to select among mutually exclusive projects, as this will lead to a failure to acquire much of the cost-effective resource. Discounted payback can be used to prioritize among a set of selected projects. Discounted payback will sort projects in the same order as the SIR.

3.3 Life-Cycle Cost Evaluation Method

Federal agencies are required to evaluate energy-related investments on the basis of minimum life-cycle costs (10 CFR Part 436). A life-cycle cost evaluation computes the total long-run costs of a number of potential actions, and selects the action that minimizes the long-run costs. The life-cycle cost (LCC) of a potential investment is the present value of all of the costs associated with the investment over time. The first step in calculating the LCC is the identification of the relevant costs: these are listed in Table 3.1.

3.3.1 Life-Cycle Cost Calculation

The LCC of an alternative is calculated by summing the present values of the installed cost, the annual energy cost, the annual O&M cost, and the replacement cost, as shown in Equation 3.1.

$$LCC = PV(IC) + PV(EC) + PV(OM) + PV(REP) \tag{1}$$

where LCC = Life-Cycle Cost
PV(IC) = Present value of installed cost
PV(EC) = Present value of annual energy cost
PV(OM) = Present value of annual O&M cost
PV(REP) = Present value of future replacement cost

Table 3.1. Cost Elements in a Life-Cycle Cost Analysis

Cost Element	Description	Example
Installed Cost	Cost of materials purchased and the labor required to install them.	Price of an energy efficient lighting fixture, plus cost of labor to install it.
Energy Cost	Annual expenditures on energy to operate equipment.	A lighting fixture that draws 100 watts and operates 2,000 hours annually requires 200,000 watt-hours (200 kWh) annually. At an electricity price of $0.10 per kWh, this fixture has an annual energy cost of $20.
Non-fuel Operations and Maintenance	Annual expenditures on parts and activities required to operate equipment.	Replacing burned out light bulbs.
Replacement Costs	Expenditures to replace equipment upon failure.	Replacing an oil furnace when it is no longer usable.

3.3.2 Installed Cost

The installed cost is the one-time, first cost of an ERO. Replacement of existing equipment in the baseline case is covered by the replacement cost category. The present value of installed cost is used because not all EROs are "Replace Immediately" (RI) actions. In those cases where the ERO is to be implemented immediately, the present value of the installed cost is equal to the installed cost. When implementation of an ERO is scheduled for some future time, however, as in the case of "Replace on Failure" (ROF) EROs, the installed cost paid at that time must be discounted back to the present.
The calculation for the present value of installed cost is equal to:

$$PV(IC) = \frac{IC}{(1+d)^N} \tag{2}$$

where PV(IC) = Present value of installed cost
IC = Installed cost
d = Discount rate
N = Number of years until failure or removal of existing equipment

3.3.3 Energy Cost

The present value of the annual energy cost is composed of both energy and demand costs. Energy costs represent the recurring annual expenditures on energy to operate equipment. These costs include both the fuel costs for consumption and the demand charges. The estimated stream of annual energy and demand costs over the analysis period is adjusted to account for increasing real energy prices, and is discounted to determine the present value of the future cost stream. This adjustment for price escalation and discounting is accomplished through the use of a modified uniform present value factor (UPV*). The UPV* incorporates the discount rate and the projected energy price rates of change. For ROF measures, the existing stream of costs is assumed to continue until failure of the existing equipment, at which time the ERO cost stream replaces it. The UPV* is calculated using Equation 3.3.

$$UPV^{*}{}_{N} = \sum_{n=1}^{N} \frac{I_{(1993+n)}}{(1+d)^n} \tag{3}$$

where UPV* = Modified uniform present value factor
n = Counter used to designate each year, with n=1 for the year 1994;
N = Number of periods over which energy costs or savings accrue;
$I_{(1993+n)}$ = Projected average fuel price index, provided by NIST
d = Discount rate

The present value of energy costs is then calculated using Equation 3.4:

$$PV(EC) = AEC \times UPV^{*}{}_{N} \tag{4}$$

where PV(EC) = Present value of energy cost
AEC = Annual energy and demand cost
UPV^{*}_{N} = Modified uniform present value factor.

3.3.4 Operations and Maintenance Cost

The present value of the annual operations and maintenance (O&M) cost is the discounted stream of annual non-fuel expenditures on parts and activities required to operate the equipment. The present value of the stream of expenditures is calculated using the uniform present value factor (UPV). As with energy costs, for ROF measures the existing stream of costs is assumed to continue until failure of the existing equipment, at which time the ERO cost stream replaces it. The UPV is calculated using Equation 3.5.

$$UPV_N = \frac{(1 + d)^N - 1}{d\ (1 + d)^N} \tag{5}$$

where UPV = Uniform present value factor
d = Discount rate
N = Number of periods over which the costs or savings accrue.

The present value of operations and maintenance savings is then given by Equation 3.6.

$$PV(OM) = OM \times UPV_N \tag{6}$$

where PV(OM) = Present value of annual O&M costs
OM = Annual O&M expenditures
UPV_N = Uniform present value factor.

3.3.5 Replacement Cost

Although the installed cost category covers the first cost of implementing an ERO, subsequent equipment installations fall into the replacement cost category, as do all equipment costs associated with the baseline case. Unlike energy and O&M expenditures, replacement costs are not regular, annual expenses. The present value of the replacement cost is the discounted stream of expenditures to replace equipment upon failure. While the cost to replace a piece of equipment is actually borne in the year in which the equipment is bought, the replacement costs are annualized for this analysis. Any part of the annualized cost that would be borne after the analysis period is then subtracted off of the total, in effect adding a salvage value. If the remaining time in the analysis period is less than the life of equipment installed for the ERO, the installed cost will overstate the true cost. The replacement cost calculation corrects for this overstatement. In this type of situation, the PV(Replacement Cost) is negative, corresponding to negative replacement costs (salvage value).

Existing equipment is assumed to have no salvage value or disposal cost. While these may not be entirely accurate assumptions, they partially offset each other. If salvage value is to be included for existing equipment, a few requirements must be met. First, it must be likely that the base will actually carry out a salvage process rather than dispose of the equipment. Regardless of value, if the base does not carry out this process, no savings will be accrued. Second, the salvage value should be the actual value of the equipment in its existing condition, less all costs associated with preparing it for sale and selling it. If this resulting net value is not greater than the disposal cost, then it should be ignored for analysis purposes. The replacement cost is annualized as shown in Equation 3.7, and the PV(Replacement Cost) is calculated using Equation 3.8.

$$\mathrm{REP_A = REP \times \frac{d}{1 - (d + 1)^{-L}}} \tag{7}$$

$$\mathrm{PV(REP) = REP_A \times UPV_{25-N}} \tag{8}$$

where $\mathrm{REP_A}$ = Annualized replacement cost
REP = Replacement cost
d = Discount rate
L = Life of ERO equipment
N = Number of periods until replacement
PV(REP) = Present value of annualized replacement cost
$\mathrm{UPV_N}$ = Uniform present value factor, as discussed in Section 3.3.4.

Equation 3.7 yields a present value at the time of replacement, rather than at the beginning of the analysis period. This value must be discounted to current dollars using the single present value factor (SPV). While the UPV is used to calculate the present value of a stream of annual costs or savings, the SPV is used to find the present value of a single non-annual amount. The SPV is calculated using Equation 3.9, and the present value of replacement costs in current dollars is represented by Equation 3.10.

$$SPV_N = \frac{1}{(1 + d)^N} \tag{9}$$

$$\mathrm{PV_c(REP) = PV(REP) \times SPV_N} \tag{10}$$

where $\mathrm{PV_c(REP)}$= Current dollar present value
REP= Replacement cost
d= discount rate
N= number of periods until replacement
$\mathrm{SPV_N}$= Single present value factor.

3.3.6 Net Savings Calculation

Energy resource opportunities are selected for implementation on the basis of their net savings. The net savings of an ERO is the life-cycle savings of the ERO as compared to not implementing the ERO:

$$NS = LCC - LCC' \tag{11}$$

where NS = the net savings of the ERO,
LCC = the life-cycle cost of the existing situation,
LCC' = the life-cycle cost if the ERO is implemented.

Most EROs are selected according to a very simple rule: if the net savings are positive, then the project should be undertaken. If the net savings are zero or negative, then the ERO should not be implemented. A positive net savings means the long-run costs of the ERO are less than the long-run costs of the existing situation.

The selection criteria can be complicated by a number of factors. If the ERO is part of a set of mutually exclusive options, then only the option with the highest net savings is selected. For example, many of the motors at Fort Irwin can be replaced with energy-efficient models, or a variable speed drive (VSD) can be added to the existing motor, or the existing motor can be replaced with an energy-efficient model with a VSD. The analysis would proceed by calculating the LCC of the existing motors, the LCC of energy-efficient motors, and the LCC of VSDs added to both the existing and the energy-efficient motor. Any of the EROs might be chosen, or it may be optimal to do nothing. If the net savings of two or more EROs considered is positive, then the ERO with the highest net savings would be selected.

3.3.7 Savings to Investment Ratio Calculation

The savings to investment ratio (SIR) is equal to the total savings of an ERO divided by the installed cost of that ERO. Any ERO with an SIR greater than 1 indicates that the savings outweigh the costs. Thus, an SIR of 1 denotes a net savings of 0. As noted earlier, the SIR is only to be used as a prioritization measure, rather than a selection device. Equation 3.12 defines the SIR.

$$SIR = \frac{PV(ES) + PV(OMS) + PV(REPS)}{PV(IC)} \tag{12}$$

where SIR = Savings to investment ratio of an ERO,
PV(ES) = Present value of energy savings of an ERO,
PV(OMS) = Present value of O&M savings of an ERO,
PV(REPS) = Present value of replacement savings of an ERO, and
PV(IC) = Present value of the installed cost of an ERO.

3.3.8 Discounted Payback Period Calculation

The discounted payback period is the present value of the installed cost divided by the annualized present value of total savings. Equations 3.14 and 3.15 show the calculation of the annualized present value of total savings, and equation 3.16 shows the calculation of the discounted payback period.

$$TS = PV(ES) + PV(OMS) + PV(REPS) \tag{13}$$

where TS = present value of total savings associated with an ERO,
PV(ES) = Present value of energy and demand savings of an ERO,
PV(OMS) = Present value of O&M savings of an ERO,
PV(REPS) = Present value of replacement savings of an ERO.

$$ATS = TS \times \frac{d}{1-(d+1)^{-p}} \qquad (14)$$

where ATS = annualized total savings associated with an ERO,
TS = present value of total savings associated with an ERO,
d = discount rate
P = analysis period.

$$DPB = \frac{PV(IC)}{ATS} \qquad (15)$$

where DPB = discounted payback period,
PV(IC) = Present value of the installed cost of an ERO,
ATS = annualized total savings associated with an ERO.

3.4 Fuel Cost Determination

In order to examine the energy resource opportunities (EROs) at Fort Irwin, marginal fuel costs must be calculated. The marginal, or avoided, cost of fuel service is used in conjunction with the estimated energy savings of an ERO to calculate the dollar value of those savings. While the costs of propane, gasoline, and diesel are straight-forward because they are flat rates, the cost of electricity at Fort Irwin is complicated by the structure of the rate schedule under which Fort Irwin purchases its electricity and the uncertainty regarding that rate in the future.

Fort Irwin purchases its electricity from Southern California Edison (SCE) under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate (ISR) rider. The ISR essentially adds a declining block rate component to the time-of-use structure in that it provides a base level of energy at a fixed monthly charge, while consumption above the base level is billed at the incremental rate, which is lower than the base energy rate in most cases. The structure is unlike a declining block rate structure in that Fort Irwin is billed for the base level of energy regardless of whether it is used, so valuing energy savings becomes more complicated if consumption drops below this level. In the process of determining the appropriate marginal rate for use in this analysis, it was determined that there is some uncertainty as to whether Fort Irwin will be able to renew the ISR contract when it expires in 1996-97. Because of this uncertainty, it was determined that the appropriate marginal rates to use would be those found in the TOU-8 schedule. For further discussion and explanation, see Appendix A of this report.

3.5 Summary of ERO Impact Study

Table 3.2 defines the assumptions that are common to all of the EROs analyzed. The rates in effect are straightforward; however, mention should be made as to the calculation of the full cost of energy. In a forthcoming PNL report, "Determining Appropriate Energy Costs for Federal Residential Building Standards Analysis," by S. A. Shankle et al., the authors note that the appropriate cost of energy to use in determining the correct level of investment in energy-efficient construction should include the following elements (shown after Table 3.2 on the next page):

Table 3.2. Assumptions Used in LCC Analysis

Discount Rate:	3.1% real
Analysis Period:	25 years
Current Fuel Prices:	
Natural Gas:	$0.35/Therm
Electricity:	
Summer On-Peak	$0.13752/kWh
Summer Mid-Peak	$0.06517/kWh
Summer Off-Peak	$0.04077/kWh
Winter Mid-Peak	$0.07688/kWh
Winter Off-Peak	$0.04335/kWh
Electricity Demand:	
Summer On-Peak	$18.90/kW
Summer Mid-Peak	$2.35/kW
Winter Mid-Peak	$3.15/kW
Propane (LPG):	$0.473/gallon
Gasoline:	$0.83/gallon
Diesel:	$0.67/gallon
Fuel Conversion Factors:	
Natural Gas:	10.00 Therms/MBtu
Electricity:	292.997 kWh/MBtu
Propane:	10.526 gallons/MBtu
Gasoline:	8.0000 gallons/MBtu
Diesel:	7.1942 gallons/MBtu

1. Energy rates paid to the supplier by the federal facility;

2. Avoidable demand charges;

3. Avoidable distribution system losses;

4. Avoidable distribution system capital costs;

5. Avoidable external costs of energy supply and distribution.

The incorporation of the above elements is referred to as the "full cost" of energy. Current federal life-cycle costing methods do not include the cost of environmental externalities unless they are reflected in some manner within the utility bill. The external cost of energy will increasingly become internalized within the LCC process, however, due to such factors as utility least-cost planning, the 1990 Amendments to the Clean Air Act, and emissions trading. As these costs become internalized, they will be reflected in the actual cost of energy paid by the facility, and will no longer need to receive separate consideration.

Table 3.3 defines the column headings used in the remaining tables in this section. One of the distinctions made is between first year energy savings and full implementation energy savings. First year energy savings are those savings that should be experienced after the first year of the analysis. These savings will be zero for EROs that will not be implemented immediately. Full implementation energy savings are those savings that should be experienced after the ERO has been fully implemented; either after the first year, or sometime in the future. Differences in these numbers can be caused when an ERO is implemented in steps; for example, when a variable speed drive (VSD) is added immediately to an existing motor, there are immediate savings associated with that action (first year savings); however, the second part of the ERO is to replace the existing motor when it fails with an energy efficient motor. Once this has been done, the equipment should experience the full savings of the ERO action, that is the full implementation savings.

Table 3.3. Description of Column Headings

All Tables (Except Summaries)

Column Heading	Description	Unit
End Use	Designates the general end-use of an ERO.	End Use
Building Type	Designates the building type used in building (FEDS) analysis; descriptive field in non-building analysis - designates the specific equipment or facility affected.	Building Type
Use Area	Designates the specific equipment or facility affected.	Use Area
Existing Technology	Equipment that is affected by the ERO	Equipment
Resulting Technology	Describes the ERO. See Section 2 of this document for complete descriptions of each ERO. Also indicates whether the ERO is to be done now or in the future (RI vs. ROF) for non-building EROs.	Description

Annual Energy and Demand Reduction Tables - FEDS (Building) EROs

Column Heading	Description	Unit
Retrofit Energy Savings	Energy savings attributable to the retrofit measure.	MBtu per year
Retrofit Demand Savings	Demand savings attributable to the retrofit measure.	kW per month
Energy Savings due to Interactive Effects	Energy savings resulting from the retrofit measure including all interactive savings.	MBtu per year

Column Heading	Description	Unit
Demand Savings due to Interactive Effects	Demand Savings resulting from the retrofit measure including all interactive savings.	kW per month
Net Savings	Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost.	1994 Constant dollars
Savings to Investment Ratio	Present value of total savings divided by present value of installed cost.	None
Discounted Payback Period	Present value of installed cost divided by annualized value of total savings.	Years.

Annual Energy and Demand Reduction Tables - Manual (Non-Building) EROs

Column Heading	Description	Unit
First Year Energy Savings	Energy savings that will be realized in the first year.	MBtu per year
First Year Demand Savings	Demand savings that will be realized in the first year.	kW-month per year
Full Implementation Energy Savings	Energy savings that will be realized once the ERO is fully implemented.	MBtu per year
Full Implementation Demand Savings	Demand Savings that will be realized once the ERO is fully implemented.	kW-month per year
Net Savings	Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost.	1994 Constant dollars
Savings to Investment Ratio	Present value of total savings divided by present value of installed cost.	None
Discounted Payback Period	Present value of installed cost divided by annualized value of total savings.	Years.

Table 3.3. (contd)

Present Value of Costs and Savings Tables

Column Heading	Description	Unit
Present Value of Installed Cost	Present value of the labor and materials cost of implementing the ERO. Equals actual cost for immediate EROs, discounted cost for ROF EROs.	1994 Constant dollars
Present Value of Rebate	Present value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years.	1994 Constant dollars
Present Value of Net Installed Cost	Present value of the installed cost less the present value of any rebate available for the ERO.	1994 Constant dollars
Present Value of Energy Savings	Present value of the energy cost savings that will be realized after implementation of ERO.	1994 Constant dollars
Present Value of Demand Savings	Present value of the electricity demand cost savings that will be realized after implementation of the ERO.	1994 Constant dollars
Present Value of O&M Savings	Present value of the stream of maintenance cost reductions attributable to the ERO. May be negative, indicating ERO has higher maintenance costs than the current equipment.	1994 Constant dollars
Present Value of Replacement Savings	Present value of the stream of replacement cost savings attributable to the ERO. May be negative, indicating that the ERO has higher replacement costs than the current equipment.	1994 Constant dollars
Present Value of Total Savings	Sum of energy, demand, O&M, and replacement savings associated with the ERO.	1994 Constant dollars
Net Savings	Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost.	1994 Constant dollars
Savings to Investment Ratio	Present value of total savings divided by present value of installed cost.	None
Discounted Payback Period	Present value of installed cost divided by annualized value of total savings.	Years.
First Cost (FEDS tables only)	The initial capital cost of the measure if it were to be installed immediately.	1994 Constant dollars

Table 3.3. (contd)

Annualized Values of Costs and Savings Tables

Column Heading	Description	Unit
Annualized Installed Cost	Annualized value of the labor and materials cost of implementing the ERO. Equals actual cost for immediate EROs, discounted cost for ROF EROs. Calculated from the present value.	1994 Constant dollars
Annualized Value of Rebate	Annualized value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years. Calculated from the present value.	1994 Constant dollars
Annualized Net Installed Cost	Annualized value of the installed cost less the available rebate for the ERO. Calculated from the present value.	1994 Constant dollars
Annualized Energy Savings	Annualized value of the energy cost savings that will be realized after implementation of ERO. Calculated from the present value.	1994 Constant dollars
Annualized Demand Savings	Annualized value of the electricity demand cost savings that will be realized after implementation of the ERO. Calculated from the present value.	1994 Constant dollars
Annualized O&M Savings	Annualized value of the stream of maintenance cost reductions attributable to the ERO. May be negative, indicating ERO has higher maintenance costs than the current equipment. Calculated from the present value.	1994 Constant dollars
Annualized Replacement Savings	Annualized value of the stream of replacement cost savings attributable to the ERO. May be negative, indicating that the ERO has higher replacement costs than the current equipment. Calculated from the present value.	1994 Constant dollars
Annualized Total Savings	Sum of energy, demand, O&M, and replacement savings associated with the ERO.	1994 Constant dollars
Annualized Net Savings	Annualized reduction in life-cycle cost due to ERO. Equals annualized total savings less annualized installed cost.	1994 Constant dollars
Savings to Investment Ratio	Annualized total savings divided by present value of installed cost.	None

Table 3.3. (contd)

Cumulative Annual Energy and Demand Reduction Tables

Column Heading	Description	Unit
Cumulative First Year Energy Savings	Energy savings that would be realized in the first year if all EROs with equal and higher SIRs were implemented.	MBtu per year
Cumulative First Year Demand Savings	Demand savings that would be realized in the first year if all EROs with equal and higher SIRs were implemented.	kW-month per year
Cumulative Full Implementation Energy Savings	Energy savings that would be realized once the ERO is fully implemented, if all EROs with equal and higher SIRs were implemented.	MBtu per year
Cumulative Full Implementation Demand Savings	Demand Savings that would be realized once the ERO is fully implemented, if all EROs with equal and higher SIRs were implemented.	kW-month per year
Cumulative Net Savings	Reduction in life-cycle cost if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings less cumulative value of installed cost.	1994 Constant dollars
Cumulative Savings to Investment Ratio	SIR of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings divided by cumulative value of installed cost.	None
Cumulative Discounted Payback Period	Discounted payback of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of installed cost divided by annualized cumulative value of total savings.	Years.
Individual ERO Savings to Investment Ratio	Present value of total savings divided by present value of installed cost for individual ERO.	None

Table 3.3. (contd)

Cumulative Present Value of Costs and Savings Tables

Column Heading	Description	Unit
Cumulative Present Value of Installed Cost	Present value of the labor and materials cost of implementing entire project, if all EROs with equal and higher SIRs were implemented	1994 Constant dollars
Cumulative Present Value of Rebate	Present value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years.	1994 Constant dollars
Cumulative Present Value of Net Installed Cost	Present value of the installed cost less the present value of any rebate available for the ERO.	1994 Constant dollars
Cumulative Present Value of Energy Savings	Present value of the energy cost savings that would be realized after implementation of ERO, if all EROs with equal and higher SIRs were implemented.	1994 Constant dollars
Cumulative Present Value of Demand Savings	Present value of the electricity demand cost savings that would be realized after implementation of the ERO, if all EROs with equal and higher SIRs were implemented.	1994 Constant dollars
Cumulative Present Value of O&M Savings	Present value of the stream of maintenance cost reductions, if all EROs with equal and higher SIRs were implemented.	1994 Constant dollars
Cumulative Present Value of Replacement Savings	Present value of the stream of replacement cost savings, if all EROs with equal and higher SIRs were implemented.	1994 Constant dollars
Cumulative Present Value of Total Savings	Sum of energy, demand, O&M, and replacement savings if all EROs with equal and higher SIRs were implemented	1994 Constant dollars
Cumulative Net Savings	Reduction in life-cycle cost if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings less cumulative value of installed cost.	1994 Constant dollars
Cumulative SIR	SIR of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings divided by cumulative value of installed cost.	None

Table 3.3. (contd)

Column Heading	Description	Unit
Cumulative Discounted Payback Period	Discounted payback of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of installed cost divided by annualized cumulative value of total savings.	Years.
Individual ERO SIR	Present value of total savings divided by present value of installed cost for individual ERO.	None

The annual energy and demand reductions and the present values of costs and savings for all EROs are presented in Tables 3.5 and 3.6. All tables have been sub-divided into two groups: building EROs (evaluated using FEDS-2) and non-building EROs (non-FEDS evaluation process). Many EROs have negative net savings, and so are not cost-effective. Many others are cost-effective, but are inferior to an alternative ERO. Tables 3.7 and 3.8 present the annual energy and demand reductions and the present values of costs and savings for all cost-effective EROs that are not excluded by an ERO with a higher net savings. The annualized values of the costs and savings for these EROs are given in Table 3.9. Tables 3.10 and 3.11 present cumulative values for the energy and demand reductions and the costs and savings for the cost-effective EROs. The cumulative values are calculated by sorting the EROs by their SIRs, and then summing the values over the EROs. The resulting table allows the reader to compare the total energy, demand, and dollar savings available for any given level of total investment. A cumulative SIR is calculated as well. The cumulative SIR shows the SIR of all EROs up to that point, if all were implemented as a single project. The SIR of each individual ERO is shown as well, to illustrate how the EROs were sorted. Cumulative values are presented for non-building EROs only, as EROs calculated using the FEDS process cannot be summed due to the fact that not all interactive effects are accounted for on an individual ERO basis.

The total energy, demand, and dollar savings, as well as the overall net savings and SIR are presented in Table 3.14. The cost-effective efficiency resource at Fort Irwin is estimated to be over 132,200 MBtu for building EROs; and 156,000 MBtu the first year for non-building EROs, rising to over 160,000 MBtu after full implementation of all non-building EROs. Building EROs represent monthly demand savings of almost 3,600 kW; and the non-building EROs represent demand savings of 54,000 kW the first year, and almost 59,000 kW after all non-building EROs have been fully implemented.

Estimated annual energy consumption using FEDS-2 is approximately 546,600 MBtu (see Section 3.1.2 for discussion), including chilled water and district hot water. The building energy savings would be equivalent to 24% of estimated annual energy consumption. Typical annual energy consumption, as determined by actual consumption figures, at Fort Irwin is approximately 1,100,000 MBtu. This number includes fuel use by vehicles; if vehicle fuel use is excluded, then total estimated energy consumption at Fort Irwin is approximately 500,000 MBtu. The non-building energy savings would be equivalent to 14.6% of typical annual total energy consumption (see Table S.2 in Volume 2 for annual totals). Demand savings would be equivalent to 14.5% of typical annual electricity demand.

These savings can be broken down further into electricity and fossil fuel savings. For building EROs, the estimated annual electricity consumption at Fort Irwin is 89,120 MWh. Full implementation of all electric EROs results in a reduction of 16,040 MWh. This represents a reduction of approximately 18% over total electricity consumption. The estimated annual fossil fuel consumption (propane) at Fort Irwin is 209,100 MBtu. Full implementation of all fossil fuel EROs results in net conservation of 71,020 MBtu. This represents net conservation of 34% of total consumption. The end uses of chilled water and district hot water were not broken out by fuel. The estimated annual chilled water use is 2,007,000 ton-hours. Full implementation of all chilled water EROs results in a reduction of 330,700 ton-hours, or 16% of total consumption. The estimated annual district hot water use is 9,238 MBtu. Full implementation of all district hot water EROs results in a reduction of 7,680 MBtu, or 83% of total consumption.

For non-building EROs, the estimated annual electricity consumption at Fort Irwin is 79,760 MWh. Full implementation of all electric EROs results in a reduction of 12,150 MWh. This represents a reduction of approximately 15.2% over total electricity consumption. The estimated annual fossil fuel consumption (propane, gasoline, and diesel) at Fort Irwin is 823,830 MBtu. Full implementation of all fossil fuel EROs results in conservation of 187,350 MBtu and a new load of 68,780 MBtu (natural gas for vehicles) for a net reduction of 118,570 MBtu. This represents conservation of 22.7% of total consumption, new load of 8.3%, and an overall decrease of 14.4%.

The total cost-effective resource for building EROs would require an investment with a present value of almost $7.7 million and would generate overall savings with a present value of $33.7 million. The net savings of the investment would be $26.0 million, with an overall SIR of 4.39. The annualized value of the energy and demand savings would be $2.0 million, or 20% of estimated annual energy and demand costs (FEDS-2 calculated expenditures to be $10.3 million).

The total cost-effective resource for non-building EROs would require an investment with a present value of over $16.2 million, would generate energy and demand savings with a present value of over $45.7 million, and would generate overall savings with a present value of $53.6 million. The net savings of the investment would be almost $37.6 million, with an overall SIR of 3.35. The annualized value of the energy and demand savings would be almost $2.7 million, or 25% of estimated annual energy costs (see Table S.2 in Volume 2 for annual totals). 1992 expenditures for electricity, propane, gasoline, and diesel were taken from Volume 2 and adjusted with prices used in the LCC analysis to calculate this percentage. See section 3.6 of Volume 3 for an explanation of this adjustment process.

The cost-effective ERO results have been aggregated by ERO category. The ERO category results are presented in Table 3.12, and the annualized values for non-building EROs are in Table 3.13. For building EROs, hot water EROs represent the greatest efficiency resource, accounting for 30.7% of the total energy savings. Heating and lighting EROs also represent significant savings; with heating EROs accounting for approximately 29% and lighting accounting for approximately 26% of the total 132,230 MBtu savings. Cost information broken out by ERO category is not available for building EROs at this time.

For non-building EROs, vehicles represent the greatest efficiency resource, accounting for $10.1 million of the total $37.6 million net savings and only $2.0 million of the total $16 million installed cost. The remaining non-building ERO categories have net savings ranging from $0.3 million to $9.4 million. The highest SIR is represented by the air conditioning EROs.

The LCC results have also been combined into a fuel balance table, as presented in Table 3.15. For the buildings EROs, this table (Table 3.15a) shows the existing energy use, resulting energy use, and net conservation for each fuel, plus the end uses of chilled water and district hot water. The non-building ERO table (Table 3.15b) shows the existing energy use, conservation, new load, resulting use, and net conservation for each fuel. Similar figures are also provided for demand. The new load columns are necessary due to the fuel-switch to natural gas and electricity for the vehicles EROs. The net conservation columns are the difference between conservation and new load. The resulting use columns are derived by subtracting net conservation from existing use.

3.5.1 Additional Notes

- The minimum LCC ERO for family housing HVAC was determined to be a natural gas heat pump, with a net savings of $6.9 million. This measure was evaluated to demonstrate the savings potential of the gas heat pump, however, because the technology is not commercially available, the next best ERO, a ground source heat pump, was the recommended measure.

- Tables 3.5b and 3.6b report the LCC values for individual vehicle EROs. These tables do not include the construction costs of the filling stations; however, beginning with Tables 3.6 and 3.7, the cost-effective vehicle EROs are aggregated into one line, with filling station costs included in the LCC figures. All vehicle EROs were determined to be cost-effective, however, converting the vehicles immediately was the recommended solution in all cases. There were also two options for filling stations. While both were determined to be cost-effective, option 2 had the greatest net savings and is therefore the station represented in Tables 3.6 through 3.15. For a more detailed explanation on the vehicle EROs, see the vehicles section within Section 2.0.

- Lighting control EROs were calculated under two scenarios: the first assumed that controls would be added to the existing fixtures, and the second assumed that existing fixtures had been replaced with T-8 fixtures. Because the FEDS model calculated T-8 fixtures to be cost-effective, the results presented in Tables 3.6 on assume that controls are placed on the T-8 fixtures. Lighting controls were found to be cost-effective under both scenarios, with the same measures recommended in each measure for the different fixtures. The only difference occurs in the level of savings associated with the two scenarios, as the T-8 lighting does not require as much electricity as existing fixtures for daily operation.

- As mentioned in Section 3.5, total expenditures on energy during 1992, as found in Volume 2, were adjusted with current prices in order to estimate the percentage of dollar savings available. Only those expenditures for fuels in which EROs were proposed have been included for this analysis; expenditures for jet fuels (JP-4 and JP-8) were not included. Table 3.4 lists 1992 expenditures, the adjustment factor used for the conversion, and the adjusted expenditures for each fuel type.

  The adjustment factor is the ratio of the prices used in the LCC analysis to the prices used in the Volume 2 baseline report. Prices for diesel, gasoline, and propane were assumed to be the same, however, the amount of gasoline consumed was assumed to be higher than that reported in Volume 2. The difference in the expenditure level for gasoline, then, is due to an adjustment in the assumed amount of fuel purchased; the price was not assumed to have changed.

  Electricity expenditures were adjusted by recalculating the energy bills using the TOU-8 rates without the incremental sales rate. The rate used for each time period is reported in Table 3.2. Rates for reactive demand (kVAR) were assumed to remain constant under both the TOU-8 rate schedule and the ISR schedule, so no adjustment was made to kVAR charges.

Table 3.4. Summary of Expenditure Adjustment Process

1992 Fuel	Adjustment Expenditures	Adjusted Factor	Expenditures
Diesel	$2,491,088	1	$2,491,088
Electricity	$6,271,513	See discussion	$6,512,309
Gasoline	$446,098	See discussion	$649,960
Natural Gas	$0	0	$0
Propane	$1,120293	1	$1,120,293
Totals	$10,253,155		$10,663,157

- Rebates were assumed to be available for implementation of some EROs. Because of the uncertainty of rebate values over time, it was assumed that only those EROs implemented immediately or within the first three years of the analysis period would be eligible for a rebate.

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Heating	ADMINISTRATION-01	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-01	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-01	ADMINISTRATION	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	15	1	13	1	5,348	3.40	5.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL62 FL 1X8 2F96T12 STD2	FL131 FL 1X8 2F96T12ES ELC2 REF	25	2	26	2	7,625	2.40	7.4
Lights	ADMINISTRATION-01	ADMINISTRATION	FL3 FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	33	2	31	2	12,388	3.40	5.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL1 FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	49	4	43	4	19,687	4.30	4.2
Lights	ADMINISTRATION-01	ADMINISTRATION	IN11 INC 100 CEIL	FL189 CFL 2-15 CEIL FIXT	2	0	1	0	670	6.00	3.0
Lights	ADMINISTRATION-01	ADMINISTRATION	IN28 INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-01	ADMINISTRATION	IN5 INC 60 CEIL	FL181 CFL 13 + BLST UNIT	14	1	12	1	7,506	7.10	2.5
Lights	ADMINISTRATION-01	ADMINISTRATION	EX1 EXIT INC (2x20)	EX6 EXIT - LED	17	1	11	1	7,822	5.50	3.2
Hot Water	ADMINISTRATION-01	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	19	0	19	0	169	2.70	1.0
Hot Water	ADMINISTRATION-01	ADMINISTRATION	Electric SHW Heater	0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	1	0	1	0	586	3.60	1.5
Roof	ADMINISTRATION-01	ADMINISTRATION	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	1	1	64	0	3,012	1.70	11.9
Wall	ADMINISTRATION-01	ADMINISTRATION	Wall Insulation R Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-02	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-02	ADMINISTRATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-02	ADMINISTRATION	FL1 FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	650	45	750	73	371,308	5.80	3.1
Lights	ADMINISTRATION-02	ADMINISTRATION	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	18	1	19	2	8,770	4.30	4.2
Lights	ADMINISTRATION-02	ADMINISTRATION	EX1 EXIT INC (2x20)	EX6 EXIT LED	50	2	42	3	28,923	6.50	2.7
Hot Water	ADMINISTRATION-02	ADMINISTRATION	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	ADMINISTRATION-02	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling Increase insulation by R 19	1	1	44	5	3,011	1.20	15.3
Wall	ADMINISTRATION-02	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow In Insulation Increase Insulation by R 6.5	1	1	80	8	8,409	1.50	12.9
Heating	ADMINISTRATION-03	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-03	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-03	ADMINISTRATION	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	70	5	100	5	35,536	4.60	4.0
Lights	ADMINISTRATION-03	ADMINISTRATION	FL82 FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	152	10	184	10	74,494	3.20	5.6
Lights	ADMINISTRATION-03	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	113	8	115	8	20,233	1.40	13.1
Lights	ADMINISTRATION-03	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	226	15	227	15	100,866	4.10	4.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	880	58	833	58	388,869	4.90	3.7
Lights	ADMINISTRATION-03	ADMINISTRATION	FL13 FL 2X4 4F40T12 EEF2	FL237 FL 2X4 3F32T8 ELC3 REF	205	14	211	14	91,159	4.00	4.5
Lights	ADMINISTRATION-03	ADMINISTRATION	IN37: INC 75 FLD	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-03	ADMINISTRATION	IN6: INC 2-60 CEIL	FL182 CFL 2-13 + BLST UNIT	31	2	80	2	25,715	14.20	1.3
Lights	ADMINISTRATION-03	ADMINISTRATION	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	31	2	80	2	24,584	10.70	1.7
Lights	ADMINISTRATION-03	ADMINISTRATION	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	63	4	93	4	45,027	26.90	0.7
Lights	ADMINISTRATION-03	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	527	18	368	18	243,847	5.40	3.3
Hot Water	ADMINISTRATION-03	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	126	0	126	0	2,217	4.30	1.1
Roof	ADMINISTRATION-03	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling Increase insulation by R-11	1	1	625	0	53,462	3.70	5.5
Wall	ADMINISTRATION-03	ADMINISTRATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	2	0	2	0	153	3.00	7.0
Cooling	ADMINISTRATION-03a	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2	0	1	0	717	4.10	4.4
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL82 FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	4	0	3	0	1,574	3.00	5.9
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	3	0	2	0	451	1.40	13.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	5	0	4	0	2,296	4.10	4.4
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	21	1	18	1	8,940	4.80	3.7
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL13 FL 2X4 4F40T12 EEF2	FL237. FL 2X4 3F32T8 ELC3 REF	5	0	4	0	2,063	3.90	4.6
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN37: INC 75 FLD	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182 CFL 2-13 + BLST UNIT	1	0	1	0	455	11.00	1.6
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	1	0	1	0	429	8.20	2.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	1	0	1	0	941	24.30	0.7
Lights	ADMINISTRATION-03a	ADMINISTRATION	EX1 EXIT - INC (2x20)	EX6. EXIT - LED	4	0	3	0	1,987	5.60	3.2
Hot Water	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	2	0	2	0	36	3.20	1.4
Roof	ADMINISTRATION-03a	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase Insulation by R 8	1	1	21	0	1,693	3.30	6.2
Wall	ADMINISTRATION-03a	ADMINISTRATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-04	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-04	ADMINISTRATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-04	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	11	1	14	1	5,875	4.70	3.9
Lights	ADMINISTRATION-04	ADMINISTRATION	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	23	2	26	3	11,138	3.10	5.8
Lights	ADMINISTRATION-04	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	17	1	18	2	3,066	1.40	13.3
Lights	ADMINISTRATION-04	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	34	2	40	4	18,435	4.60	3.9
Lights	ADMINISTRATION-04	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	134	9	163	14	77,596	5.90	3.1
Lights	ADMINISTRATION-04	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	31	2	36	3	17,195	4.60	3.9
Lights	ADMINISTRATION-04	ADMINISTRATION	IN37. INC 75 FLD	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-04	ADMINISTRATION	IN6 INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	5	0	7	1	3,796	13.30	1.4
Lights	ADMINISTRATION-04	ADMINISTRATION	IN5 INC 60 CEIL	FL181 CFL 13 + BLST UNIT	5	0	7	1	3,616	9.90	1.8
Lights	ADMINISTRATION-04	ADMINISTRATION	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	10	1	13	1	8,016	30.10	0.6
Lights	ADMINISTRATION-04	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	25	1	26	1	15,075	6.80	2.6
Hot Water	ADMINISTRATION-04	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	6	0	6	0	103	3.70	1.3
Roof	ADMINISTRATION-04	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling Increase insulation by R-38	1	1	52	6	15,017	2.80	6.7
Wall	ADMINISTRATION-04	ADMINISTRATION	Wall Insulation R Value 0.00	Blow in Insulation Increase Insulation by R-6.5	1	1	75	6	16,717	2.80	6.6
Heating	ADMINISTRATION-05	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-05	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-05	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	166	12	189	12	67,420	3.60	5.0
Lights	ADMINISTRATION-05	ADMINISTRATION	IN11 INC 100 CEIL	FL189 CFL 2-15 CEIL FIXT	74	5	104	5	41,711	7.50	2.4
Lights	ADMINISTRATION-05	ADMINISTRATION	IN28 INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-05	ADMINISTRATION	IN29 INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-05	ADMINISTRATION	IN30: INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-05	ADMINISTRATION	IN7 INC 3-60 CEIL	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-05	ADMINISTRATION	EX1 EXIT - INC (2x20)	EX6 EXIT LED	67	2	85	2	36,529	6.20	2.9
Hot Water	ADMINISTRATION-05	ADMINISTRATION	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	ADMINISTRATION-05	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling Increase insulation by R 19	1	1	1198	0	93,066	3.30	6.2
Wall	ADMINISTRATION-05	ADMINISTRATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-06	ADMINISTRATION	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-06	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06	ADMINISTRATION	FL3 FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	59	4	48	4	24,359	4.10	4.4
Lights	ADMINISTRATION-06	ADMINISTRATION	IN11: INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	26	2	22	2	11,746	7.00	2.6
Lights	ADMINISTRATION-06	ADMINISTRATION	IN28. INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06	ADMINISTRATION	IN29: INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06	ADMINISTRATION	IN30: INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06	ADMINISTRATION	IN7: INC 3 60 CEIL	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06	ADMINISTRATION	EX1· EXIT - INC (2x20)	EX6 EXIT LED	50	2	39	2	23,868	5.60	3.2
Hot Water	ADMINISTRATION-06	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	10	0	10	0	176	3.70	1.3
Roof	ADMINISTRATION-06	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling Increase Insulation by R 8	1	1	47	0	1,704	1.50	13.9
Wall	ADMINISTRATION-06	ADMINISTRATION	Wall Insulation R-Value 0.00	Interior Masonry Surface Increase Insulation by R-4.3	1	1	161	0	125	1.00	20.9
Heating	ADMINISTRATION-06a	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-06a	ADMINISTRATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06a	ADMINISTRATION	FL3. FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	17	1	22	1	7,928	4.60	3.9
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN11: INC 100 CEIL	FL189. CFL 2 15 CEIL FIXT	7	0	11	0	4,065	8.40	2.2
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN28 INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN29. INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN30: INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN7: INC 3 60 CEIL	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-06a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	8	0	12	0	4,815	6.50	2.8
Hot Water	ADMINISTRATION-06a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	6	0	6	0	100	3.40	1.3
Roof	ADMINISTRATION-06a	ADMINISTRATION	Roof Insulation R-Value 20.05	none	1	1	0	0	NA	NA	NA
Wall	ADMINISTRATION-06a	ADMINISTRATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-07	ADMINISTRATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-07	ADMINISTRATION	Electric Conv Chiller	Air Cooled Reciprocating Chiller (75 to 200 tons cooling)	257	19	317	19	23,441	1.30	7.7
Lights	ADMINISTRATION-07	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	63	4	70	5	26,459	2.80	6.4
Lights	ADMINISTRATION-07	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105· FL 2X4 2F40T12ES ELC2	50	3	55	4	20,893	2.80	6.4
Lights	ADMINISTRATION-07	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6· EXIT LED	26	1	30	1	14,950	6.60	2.7
Lights	ADMINISTRATION-07	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182· CFL 2 13 + BLST UNIT	17	1	22	1	12,573	12.20	1.5
Hot Water	ADMINISTRATION-07	ADMINISTRATION	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	ADMINISTRATION-07	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling Increase insulation by R 30	1	1	248	1	45,331	2.50	7.4
Wall	ADMINISTRATION-07	ADMINISTRATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-07a	ADMINISTRATION	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-07a	ADMINISTRATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	15	1	18	2	7,113	3.00	6.0
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	12	1	11	1	5,413	2.90	6.1
Lights	ADMINISTRATION-07a	ADMINISTRATION	EX1· EXIT - INC (2x20)	EX6: EXIT LED	6	0	5	0	3,368	6.10	2.9
Lights	ADMINISTRATION-07a	ADMINISTRATION	IN6: INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	4	0	3	0	2,938	11.80	1.5
Hot Water	ADMINISTRATION-07a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	9	0	9	0	87	1.80	2.6
Roof	ADMINISTRATION-07a	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling· Increase insulation by R-38	1	1	91	10	30,648	4.30	4.3
Wall	ADMINISTRATION-07a	ADMINISTRATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-08	ADMINISTRATION	Hot Water (Generated) Forced Air Furnace	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-08	ADMINISTRATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-08	ADMINISTRATION	Chilled Water Chill Water Coil	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-08	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	17	1	21	1	6,977	2.70	6.6
Lights	ADMINISTRATION-08	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	41	3	57	3	17,714	2.90	6.2
Lights	ADMINISTRATION-08	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	969	67	1326	75	450,751	3.50	5.1
Lights	ADMINISTRATION-08	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	9	0	7	0	4,165	5.50	3.2
Lights	ADMINISTRATION-08	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	17	1	24	1	12,535	11.90	1.5
Hot Water	ADMINISTRATION-08	ADMINISTRATION	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	79	0	79	0	47,518	35.60	0.6
Hot Water	ADMINISTRATION-08	ADMINISTRATION	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	ADMINISTRATION-08	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling Increase insulation by R-19	1	1	133	6	15,128	1.50	12.1
Wall	ADMINISTRATION-08	ADMINISTRATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	ADMINISTRATION-09	ADMINISTRATION	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	ADMINISTRATION-09	ADMINISTRATION	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	ADMINISTRATION-09	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	3517	244	4175	385	1,804,162	3.80	4.8
Lights	ADMINISTRATION-09	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	153	5	185	9	90,435	6.70	2.7
Hot Water	ADMINISTRATION-09	ADMINISTRATION	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	38	4	38	4	7,146	18.10	0.3
Roof	ADMINISTRATION-09	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling Increase insulation by R 19	1	1	182	42	31,962	1.40	13.4
Wall	ADMINISTRATION-09	ADMINISTRATION	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	BARRACKS-01	BARRACKS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	BARRACKS-01	BARRACKS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-01	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	8	0	5	0	1,818	2.40	7.4
Lights	BARRACKS-01	BARRACKS	FL82· FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4	0	2	0	589	1.60	10.8
Lights	BARRACKS-01	BARRACKS	FL94: FL 1X4 2F40T12ES EEF2	FL106· FL 1X4 2F40T12ES ELC2	1	0	1	0	83	1.20	15.0
Lights	BARRACKS-01	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	8	0	5	0	1,818	2.40	7.4
Lights	BARRACKS-01	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	3	0	1	0	1,002	4.50	3.9
Lights	BARRACKS-01	BARRACKS	IN28. INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-01	BARRACKS	IN30: INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-01	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	12	0	9	0	5,006	5.40	3.3
Lights	BARRACKS-01	BARRACKS	EX1: EXIT - INC (2x20)	EX6· EXIT LED	8	0	4	0	3,662	5.20	3.4
Hot Water	BARRACKS-01	BARRACKS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	19	0	19	0	324	4.20	1.1
Roof	BARRACKS-01	BARRACKS	Roof Insulation R-Value 11.00	Attic Ceiling Increase insulation by R 11	1	1	29	0	926	1.40	14.9
Wall	BARRACKS-01	BARRACKS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	BARRACKS-02	BARRACKS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	BARRACKS-02	BARRACKS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-02	BARRACKS	FL4 FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	252	10	222	10	65,396	2.60	6.9

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	BARRACKS-02	BARRACKS	FL82 FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	117	4	78	4	20,386	1.70	10.5
Lights	BARRACKS-02	BARRACKS	FL94 FL 1X4 2F40T12ES REF2	FL106 FL 1X4 2F40T12ES ELC2	38	1	29	1	3,500	1.20	14.5
Lights	BARRACKS-02	BARRACKS	FL3 FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	252	10	222	10	65,395	2.60	6.9
Lights	BARRACKS-02	BARRACKS	IN11 INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	99	4	61	4	33,252	4.70	3.8
Lights	BARRACKS-02	BARRACKS	IN28 INC 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-02	BARRACKS	IN30 INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-02	BARRACKS	IN5. INC 60 CEIL	FL181. CFL 13 + BLST UNIT	384	15	335	15	169,131	5.70	3.1
Lights	BARRACKS-02	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	268	9	222	9	128,861	5.60	3.2
Hot Water	BARRACKS-02	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	2000	0	2000'	0	162,771	17.70	1.0
Roof	BARRACKS-02	BARRACKS	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	1	1	887	0	16,568	1.50	13.4
Wall	BARRACKS-02	BARRACKS	Wall Insulation R-Value 0.00	Blow in Insulation Increase Insulation by R 6.5	1	1	1039	0	7,666	1.10	19.3
Heating	BARRACKS-03	BARRACKS	Other Fuels Conv Boiler	Add Automatic Electric Damper	17	0	17	0	724	4.80	2.3
Cooling	BARRACKS-03	BARRACKS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-03	BARRACKS	FL194: CFL 2-15 WALL FIXT	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-03	BARRACKS	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	2	0	2	0	886	5.10	3.5
Lights	BARRACKS-03	BARRACKS	IN15. INC 60 TABLE LAMP	FL181: CFL 13 + BLST UNIT	38	1	24	1	15,793	5.40	3.3
Lights	BARRACKS-03	BARRACKS	EX1: EXIT INC (2x20)	EX6 EXIT - LED	50	2	32	2	23,368	5.50	3.2
Hot Water	BARRACKS-03	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	204	0	204	0	9,427	7.00	1.5
Roof	BARRACKS-03	BARRACKS	Roof Insulation R'Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	723	0	70,533	8.30	2.5
Wall	BARRACKS-03	BARRACKS	Wall Insulation R-Value 7.00	none	1	1	0	0	NA	NA	NA
Heating	BARRACKS-04	BARRACKS	Hot Water (Generated) Fan Coil	New Conventional Individual Building LPG Boiler	132	0	-133	0	29,390	3.60	3.4
Cooling	BARRACKS-04	BARRACKS	Chilled Water Chill Water Coil	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-04	BARRACKS	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	41	2	48	2	9,456	1.90	9.3
Lights	BARRACKS-04	BARRACKS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	4	0	5	0	1,079	2.70	6.6
Lights	BARRACKS-04	BARRACKS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	53	2	66	2	27,623	6.00	3.0
Hot Water	BARRACKS-04	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	329	0	329	0	30,483	8.70	2.4
Hot Water	BARRACKS-04	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden Boiler, Wrap Tank w Insulation, LFSHs, Aerators	127	0	127	0	33,667	16.10	0.8
Roof	BARRACKS-04	BARRACKS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 19	1	1	3522	6	345,751	13.10	1.5
Wall	BARRACKS-04	BARRACKS	Wall Insulation R-Value 7.00	Blow-in Insulation: Increase Insulation by R 2.4	1	1	592	1	31,507	2.00	9.6
Heating	BARRACKS-05	BARRACKS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	BARRACKS-05	BARRACKS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-05	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	1	0	1	0	227	1.70	10.4
Lights	BARRACKS-05	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	0	0	0	0	22	2.10	8.4
Lights	BARRACKS-05	BARRACKS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	2	0	1	0	742	5.20	3.4
Hot Water	BARRACKS-05	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	41	0	41	0	3,754	8.80	2.4
Roof	BARRACKS-05	BARRACKS	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	BARRACKS-05	BARRACKS	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	BARRACKS-06	BARRACKS	Hot Water (Generated) Fan Coil	none	0	0	0	0	NA	NA	NA
Cooling	BARRACKS-06	BARRACKS	Chilled Water Chill Water Coil	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-06	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	14	1	19	1	3,500	2.00	9.0
Lights	BARRACKS-06	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL28 FL 1X4 2F40T12 ELC2	1	0	1	0	270	2.60	7.0
Lights	BARRACKS-06	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	18	1	23	1	9,280	5.90	3.0
Hot Water	BARRACKS-06	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	314	0	314	0	28,395	7.40	2.8
Roof	BARRACKS-06	BARRACKS	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	BARRACKS-06	BARRACKS	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	BARRACKS-07	BARRACKS	Hot Water (Generated) Fan Coil	none	0	0	0	0	NA	NA	NA
Cooling	BARRACKS-07	BARRACKS	Chilled Water Chill Water Coil	none	0	0	0	0	NA	NA	NA
Lights	BARRACKS-07	BARRACKS	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	26	1	41	1	3,545	1.40	12.7
Lights	BARRACKS-07	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	15	1	25	1	4,885	3.10	5.9
Lights	BARRACKS-07	BARRACKS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	22	1	38	1	8,262	3.90	4.6
Lights	BARRACKS-07	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	204	7	273	7	104,108	5.90	3.0
Lights	BARRACKS-07	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	92	4	122	4	42,401	5.90	3.0
Lights	BARRACKS-07	BARRACKS	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	216	8	280	8	106,053	7.90	2.3
Hot Water	BARRACKS-07	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	768	0	768	0	364,573	19.30	1.1
Roof	BARRACKS-07	BARRACKS	Roof Insulation R-Value 8.90	Suspended Ceiling Increase insulation by R-19	1	1	1135	1	99,867	2.80	6.9
Wall	BARRACKS-07	BARRACKS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	CHAPEL-01	CHAPEL	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	CHAPEL-01	CHAPEL	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	CHAPEL-01	CHAPEL	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	30	3	37	4	24,042	21.30	0.8
Lights	CHAPEL-01	CHAPEL	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	6	0	7	1	3,331	3.90	4.6
Lights	CHAPEL-01	CHAPEL	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	8	0	6	0	4,766	6.50	2.7
Hot Water	CHAPEL-01	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	9	0	9	0	146	3.20	1.4
Roof	CHAPEL-01	CHAPEL	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 38	1	1	108	9	36,330	11.20	1.7
Wall	CHAPEL-01	CHAPEL	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	69	5	17,848	4.50	4.2
Heating	CHAPEL-02	CHAPEL	Other Fuels Conv Boiler	Add Automatic Electric Damper	7	0	7	0	345	3.40	3.9
Cooling	CHAPEL-02	CHAPEL	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	CHAPEL-02	CHAPEL	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	137	12	137	12	79,788	15.60	1.2
Lights	CHAPEL-02	CHAPEL	FL4 FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	26	2	24	2	9,719	2.80	6.4
Lights	CHAPEL-02	CHAPEL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	7	0	3,985	5.60	3.2
Hot Water	CHAPEL-02	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	18	0	18	0	304	3.90	1.2
Roof	CHAPEL-02	CHAPEL	Roof Insulation R Value 20.05	Suspended Ceiling, Increase Insulation by R 8	1	1	62	0	656	1.10	18.8
Wall	CHAPEL-02	CHAPEL	Wall Insulation R Value 5.32	Interior Masonry Surface Increase Insulation by R-4.3	1	1	134	0	5,511	1.60	12.9
Heating	CLINIC-01	CLINIC	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	CLINIC-01	CLINIC	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	63	18	61	18	8,617	1.30	8.8
Lights	CLINIC-01	CLINIC	FL5 FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	4	0	4	0	1,768	2.90	6.1
Lights	CLINIC-01	CLINIC	FL4 FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	14	1	15	1	7,223	5.60	3.2
Lights	CLINIC-01	CLINIC	FL3 FL 2X4 2F40T12 STD2	FL51. FL 2X4 2F32T8 ELC2	7	0	8	0	3,518	5.70	3.2
Lights	CLINIC-01	CLINIC	FL2 FL 2X4 3F40T12 STD1,2	FL236 FL 2X4 3F32T8 ELC3	45	3	50	3	25,146	7.10	2.6
Lights	CLINIC-01	CLINIC	FL1 FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	86	6	99	6	47,187	6.90	2.6
Lights	CLINIC-01	CLINIC	HS13: HPS 70 PEND	none	0	0	0	0	NA	NA	NA

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	CLINIC-01	CLINIC	EX1: EXIT - INC (2x20)	EX6 EXIT LED	9	0	10	0	5,136	6 20	2 9
Hot Water	CLINIC-01	CLINIC	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	CLINIC-01	CLINIC	Roof Insulation R Value 20 05	Suspended Ceiling Increase insulation by R 19	1	1	10	0	158	1 10	17 6
Wall	CLINIC-01	CLINIC	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	CLINIC-02	CLINIC	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	CLINIC-02	CLINIC	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	CLINIC-02	CLINIC	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	21	1	19	1	9,876	3 70	4 8
Lights	CLINIC-02	CLINIC	FL62: FL 1X8 2F96T12 STD2	FL131· FL 1X8 2F96T12ES ELC2 REF	3	0	2	0	911	3 10	5 8
Lights	CLINIC-02	CLINIC	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	18	1	14	1	7,930	4 80	3.8
Lights	CLINIC-02	CLINIC	FL79: FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	14	1	11	1	6,151	4 00	4 5
Lights	CLINIC-02	CLINIC	IN1: INC 40 CEIL	FL178. CFL 9 + BLST UNIT	1	0	0	0	476	6 40	2 8
Lights	CLINIC-02	CLINIC	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	7	0	5	0	3,840	9 20	1 9
Lights	CLINIC-02	CLINIC	IN6: INC 2 60 CEIL	FL182. CFL 2 13 + BLST UNIT	3	0	1	0	1,636	11 90	1.5
Lights	CLINIC-02	CLINIC	EX1: EXIT - INC (2x20)	EX6: EXIT LED	126	4	74	4	57,148	5 40	3 3
Hot Water	CLINIC-02	CLINIC	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	28	0	28	0	421	2 90	1 6
Roof	CLINIC-02	CLINIC	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R-19	1	1	71	0	6,363	6 90	3 0
Wall	CLINIC-02	CLINIC	Wall Insulation R-Value 0.00	Blow in Insulation. Increase Insulation by R 6.5	1	1	285	0	5,049	1 20	17 4
Heating	COMMISSARIES	COMMISSARIES	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	COMMISSARIES	COMMISSARIES	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	COMMISSARIES	COMMISSARIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	13	1	18	1	7,031	3 90	4 7
Lights	COMMISSARIES	COMMISSARIES	FL63: FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	49	2	63	3	12,217	1 80	10 0
Lights	COMMISSARIES	COMMISSARIES	FL61: FL 1X8 4F96T12 STD2	FL130 FL 1X8 4F96T12ES ELC2 REF	12	1	15	1	5,614	6 40	2 9
Lights	COMMISSARIES	COMMISSARIES	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	6	0	8	0	2,784	3 50	3 2
Lights	COMMISSARIES	COMMISSARIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	6	0	8	0	3,145	6 70	2 7
Lights	COMMISSARIES	COMMISSARIES	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	2	0	2	0	527	3 40	5 3
Lights	COMMISSARIES	COMMISSARIES	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	84	4	108	6	45,775	5 90	3 0
Lights	COMMISSARIES	COMMISSARIES	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	72	3	95	5	34,536	4 90	3 7
Lights	COMMISSARIES	COMMISSARIES	EX2: EXIT - INC (2x15)	EX6 EXIT - LED	8	0	10	0	11,656	10 50	1 7
Lights	COMMISSARIES	COMMISSARIES	HS13: HPS 150 PEND	LS4. LPS 90 PEND	21	1	28	1	5,116	1 80	10 1
Lights	COMMISSARIES	COMMISSARIES	IN11: INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	5	0	6	0	2,405	11 40	1 6
Lights	COMMISSARIES	COMMISSARIES	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	6	0	8	0	3,921	12 70	1 4
Lights	COMMISSARIES	COMMISSARIES	IN8: INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	11	0	14	1	7,548	40 60	0 4
Hot Water	COMMISSARIES	COMMISSARIES	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	197	0	197	0	20,374	89 30	0 2
Roof	COMMISSARIES	COMMISSARIES	Roof Insulation R-Value 8 90	Suspended Ceiling: Increase insulation by R-38	1	1	311	72	178,949	3 50	5 1
Wall	COMMISSARIES	COMMISSARIES	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Cooling	ELECTRONICS-01	ELECTRONICS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ELECTRONICS-01	ELECTRONICS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1	0	1	0	697	5 70	3 2
Roof	ELECTRONICS-01	ELECTRONICS	Roof Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Wall	ELECTRONICS-01	ELECTRONICS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Cooling	ELECTRONICS-02	ELECTRONICS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ELECTRONICS-02	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	34	2	35	2	14,146	4 30	4 2
Lights	ELECTRONICS-02	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6· EXIT · LED	13	0	13	0	6,252	5 80	3 1
Roof	ELECTRONICS-02	ELECTRONICS	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	ELECTRONICS-02	ELECTRONICS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	ELECTRONICS-03	ELECTRONICS	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	ELECTRONICS-03	ELECTRONICS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	ELECTRONICS-03	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	94	3	105	3	38,473	8 10	2 2
Lights	ELECTRONICS-03	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	4	0	4	0	2,191	6 00	3 0
Hot Water	ELECTRONICS-03	ELECTRONICS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	8	0	8	0	153	5 70	0 8
Roof	ELECTRONICS-03	ELECTRONICS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	14	0	952	1 50	12 4
Wall	ELECTRONICS-03	ELECTRONICS	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-4.3	1	1	46	0	2,977	1 70	11.5
Heating	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	34	1	33	1	15,460	4 00	4 5
Lights	FH-3 OR MORE-01	MULTI FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	250	11	126	11	108,909	3 80	4 7
Lights	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	IN8. INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	157	7	58	7	76,042	10 30	1 7
Hot Water	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	1874	0	1874	0	30,079	3 30	1 4
Roof	FH-3 OR MORE-01	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 11 00	Attic Ceiling: Increase insulation by R-19	1	1	487	0	8,910	1 20	17.2
Wall	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Wall Insulation R-Value 7 00	none	1	1	0	0	NA	NA	NA
Heating	FH-3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	FH-3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	158	7	106	7	80,231	4 30	4 1
Lights	FH 3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	1169	52	774	54	584,026	4 20	4 2
Lights	FH 3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	731	32	622	34	440,282	12 50	1 4
Hot Water	FH-3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	7917	0	7917	0	19,267	2 00	0 5
Roof	FH 3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 30 00	none	1	1	0	0	NA	NA	NA
Wall	FH-3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	Wall Insulation R-Value 19 00	none	1	1	0	0	NA	NA	NA
Heating	FH 3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH-3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	93	4	84	8	37,909	3 70	4 9
Lights	FH 3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	691	30	598	55	392,096	4 60	3 9
Lights	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	432	19	437	35	277,242	13 30	1 3
Hot Water	FH-3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	3618	0	3618	0	94,393	5 50	1 2
Roof	FH-3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 30 00	Attic Ceiling. Increase insulation by R-19	1	1	470	46	20,672	1 10	16 3
Wall	FH 3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	Wall Insulation R-Value 19 00	none	1	1	0	0	NA	NA	NA
Heating	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	37	2	-5	2	11,679	3 10	5 6
Lights	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	273	12	172	12	131,907	4 10	4 3
Lights	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	170	8	117	8	95,225	11 70	1 5
Hot Water	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe. LFSHs, Aer , Lower Tank Temp	1730	0	1730	0	24,718	2 60	1 8

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 30	1	1	7623	0	913,862	6.80	2.9
Wall	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R Value 0.00	Blow in Insulation Increase Insulation by R 6.5	1	1	1811	0	67,286	1.30	14.8
Heating	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	16	1	17	1	6,591	2.90	7.2
Lights	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN1: INC 40 CEIL	FL178: CFL 9 + BLST UNIT	9	0	10	0	4,446	3.40	5.3
Lights	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	60	3	81	3	34,587	4.70	3.8
Lights	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN6: INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	53	2	77	2	33,450	6.20	2.9
Hot Water	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	FH DETACHED-02	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	15	1	14	1	5,673	2.40	7.4
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	8	0	7	0	2,803	1.90	9.6
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	IN5. INC 60 CEIL	FL181 CFL 13 + BLST UNIT	308	14	259	14	151,270	4.10	4.3
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	38	2	11	2	17,513	9.80	1.8
Hot Water	FH DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	668	0	668	0	11,795	2.20	2.9
Roof	FH DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	FH DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	FH-DUPLEX-01	DUPLEX	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	FH-DUPLEX-01	DUPLEX	IN11: INC 100 CEIL	FL189 CFL 2-15 CEIL FIXT	61	3	58	3	31,627	4.40	4.1
Lights	FH-DUPLEX-01	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	450	20	205	20	257,258	4.60	3.8
Lights	FH-DUPLEX-01	DUPLEX	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	282	12	192	12	203,631	14.80	1.2
Hot Water	FH DUPLEX-01	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	6234	0	6234	0	126,398	8.40	0.5
Roof	FH DUPLEX-01	DUPLEX	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 30	1	1	2973	13	491,496	2.90	6.6
Wall	FH DUPLEX-01	DUPLEX	Wall Insulation R-Value 0.00	Blow in Insulation: Increase Insulation by R 6.5	1	1	2424	13	364,427	2.60	7.3
Heating	FH DUPLEX-02	DUPLEX	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	FH DUPLEX-02	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	7	0	15	0	3,967	3.00	6.1
Lights	FH-DUPLEX-02	DUPLEX	IN1: INC 40 CEIL	FL178: CFL 9 + BLST UNIT	4	0	12	0	2,859	4.40	4.2
Lights	FH-DUPLEX-02	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	27	1	34	1	15,920	4.70	3.8
Lights	FH DUPLEX-02	DUPLEX	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	24	1	31	1	15,134	6.20	2.9
Hot Water	FH DUPLEX-02	DUPLEX	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	1132	0	1132	0	20,386	4.60	1.0
Roof	FH-DUPLEX-02	DUPLEX	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	FH-DUPLEX-02	DUPLEX	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	FH DUPLEX-03	DUPLEX	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	FH-DUPLEX-03	DUPLEX	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	FH-DUPLEX-03	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	40	2	55	2	20,904	2.90	6.1
Lights	FH-DUPLEX-03	DUPLEX	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	21	1	35	1	11,450	2.30	7.8
Lights	FH-DUPLEX-03	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	827	37	1146	47	521,056	5.00	3.6
Lights	FH-DUPLEX-03	DUPLEX	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	103	5	229	6	78,873	15.70	1.2
Hot Water	FH-DUPLEX-03	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	10311	0	10311	0	309,710	17.50	0.4
Roof	FH-DUPLEX-03	DUPLEX	Roof Insulation R-Value 30.00	Attic Ceiling Increase insulation by R-19	1	1	1416	53	68,504	1.20	15.5
Wall	FH-DUPLEX-03	DUPLEX	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	CLUBS-01	CLUBS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	CLUBS-01	CLUBS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	CLUBS-01	CLUBS	FL117: FL 1X8 1F96T12ES STD1	none	0	0	0	0	NA	NA	NA
Lights	CLUBS-01	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	6	0	1,055	2.40	7.6
Lights	CLUBS-01	CLUBS	FL205: FL 2X4 2F40T12HO STD2	none	0	0	0	0	NA	NA	NA
Lights	CLUBS 01	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL232. FL 2X4 3F40T12 ELC3	13	1	16	1	5,926	4.10	4.4
Lights	CLUBS-01	CLUBS	EX1: EXIT INC (2x20)	EX6. EXIT LED	3	0	3	0	1,619	5.70	3.1
Lights	CLUBS-01	CLUBS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	3	0	6	0	1,666	6.20	2.9
Hot Water	CLUBS-01	CLUBS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	1	0	1	0	16	3.30	1.4
Roof	CLUBS-01	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R-8	1	1	45	0	3,170	2.40	8.6
Wall	CLUBS-01	CLUBS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	CLUBS 02	CLUBS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	CLUBS 02	CLUBS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	CLUBS-02	CLUBS	FL117: FL 1X8 1F96T12ES STD1	FL123 FL 1X8 1F96T12ES EEF1	3	0	4	0	1,477	1.90	9.2
Lights	CLUBS-02	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131 FL 1X8 2F96T12ES FLC2 REF	12	1	16	1	5,422	3.90	4.7
Lights	CLUBS-02	CLUBS	FL205: FL 2X4 2F40T12HO STD2	none	0	0	0	0	NA	NA	NA
Lights	CLUBS 02	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	63	3	88	5	35,976	4.90	3.7
Lights	CLUBS-02	CLUBS	EX1: EXIT - INC (2x20)	EX6. EXIT LED	8	0	8	0	4,536	6.20	2.9
Lights	CLUBS-02	CLUBS	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	12	1	16	1	8,007	10.80	1.7
Hot Water	CLUBS-02	CLUBS	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	CLUBS-02	CLUBS	Roof Insulation R Value 20.05	Suspended Ceiling Increase insulation by R 30	1	1	136	20	54,331	4.50	4.1
Wall	CLUBS 02	CLUBS	Wall Insulation R-Value 0.00	Interior Masonry Surface Increase Insulation by R 10.9	1	1	103	15	25,602	2.00	9.4
Heating	CLUBS-03	CLUBS	Other Fuels Conv Boiler	Add Automatic Electric Damper	1	0	1	0	30	1.30	16.5
Cooling	CLUBS-03	CLUBS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	CLUBS-03	CLUBS	FL117 FL 1X8 1F96T12ES STD1	FL123 FL 1X8 1F96T12ES EEF1	5	0	4	0	2,132	1.90	9.5
Lights	CLUBS-03	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131. FL 1X8 2F96T12ES FLC2 REF	16	1	18	1	7,916	3.70	4.9
Lights	CLUBS-03	CLUBS	FL205 FL 2X4 2F40T12HO STD2	none	0	0	0	0	NA	NA	NA
Lights	CLUBS-03	CLUBS	FL79 FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	89	5	101	8	49,586	4.40	4.0
Lights	CLUBS-03	CLUBS	EX1 EXIT - INC (2x20)	EX6 EXIT LED	13	0	15	1	8,127	6.90	2.6
Lights	CLUBS-03	CLUBS	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	17	1	14	2	10,967	9.70	1.8
Hot Water	CLUBS-03	CLUBS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	369	0	369	0	38,070	75.90	0.3
Roof	CLUBS-03	CLUBS	Roof Insulation R Value 8.90	Suspended Ceiling Increase insulation by R-38	1	1	278	36	108,814	4.50	4.1
Wall	CLUBS-03	CLUBS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	1	0	1	0	301	2.40	7.5

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL82. FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	0	0	0	0	133	1 80	10 1
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	16	1	19	1	8,928	4 50	4 0
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	IN8· INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	2	0	2	0	1,083	11 20	1 6
Hot Water	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	9	6	9	4	6,855	5 60	1 0
Roof	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 30 00	none	1	1	0	0	NA	NA	NA
Wall	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 19 00	none	1	1	0	0	NA	NA	NA
Heating	GUEST HOUSES 02	MILITARY MOBILE HOMES	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	GUEST HOUSES-02	MILITARY MOBILE HOMES	Electric Package Unit	Split System Residential AC Unit (1 5 to 5 4167 tons cooling)	93	19	88	18	394	1 10	0 9
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1	0	1	0	369	2 60	6 9
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	0	0	0	0	179	1 90	9 1
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	18	1	20	1	10,320	4 70	3 8
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	2	0	2	0	1,371	12 90	1 4
Hot Water	GUEST HOUSES 02	MILITARY MOBILE HOMES	Electric SHW Heater	0.76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	-5	7	-5	3	1,425	6 10	0 2
Roof	GUEST HOUSES-02	MILITARY MOBILE HOMES	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R-30	1	1	210	0	31,705	4 30	4 5
Wall	GUEST HOUSES-02	MILITARY MOBILE HOMES	Wall Insulation R-Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	HANGER	HANGAR	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	HANGER	HANGAR	HS17. HPS 250 PEND	LS5: LPS 135 PEND	30	3	26	3	11,600	2 90	6 2
Lights	HANGER	HANGAR	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	2	0	1,812	5 20	3 4
Roof	HANGER	HANGAR	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R-30	1	1	1060	0	118,577	19 00	1.1
Wall	HANGER	HANGAR	Wall Insulation R Value 0 00	Blow-in Insulation: Increase Insulation by R 13	1	1	1006	0	89,300	5 40	3 8
Heating	HOSPITAL	HOSPITAL	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	89	1 30	9 3
Cooling	HOSPITAL	HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling)	373	62	373	62	75,110	2 80	3 1
Lights	HOSPITAL	HOSPITAL	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	479	17	492	18	195,225	9 70	1 9
Lights	HOSPITAL	HOSPITAL	FL4· FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	250	9	250	9	100,566	7 90	2 3
Lights	HOSPITAL	HOSPITAL	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	63	2	59	2	32,336	5 90	3 0
Hot Water	HOSPITAL	HOSPITAL	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	567	0	567	0	31,984	6 60	2 0
Roof	HOSPITAL	HOSPITAL	Roof Insulation R-Value 8.90	none	1	1	0	0	NA	NA	NA
Wall	HOSPITAL	HOSPITAL	Wall Insulation R-Value 0 00	Interior Masonry Surface Increase Insulation by R-4 3	1	1	351	0	11,228	1 30	15 6
Heating	LABS 01	LABS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	LABS-01	LABS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	LABS-01	LABS	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	58	4	49	4	22,946	4 20	4 3
Lights	LABS 01	LABS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	13	0	9	0	5,860	5 50	3 2
Hot Water	LABS-01	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators	3	0	3	0	45	3 30	1 4
Roof	LABS-01	LABS	Roof Insulation R-Value 20.05	none	1	1	0	0	NA	NA	NA
Wall	LABS-01	LABS	Wall Insulation R Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	LABS-02	LABS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	LABS 02	LABS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	LABS-02	LABS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	29	2	23	2	11,493	4 20	4 3
Lights	LABS-02	LABS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	4	0	2	0	1,896	5 30	3 3
Hot Water	LABS 02	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	2	0	2	0	26	3 40	1 4
Roof	LABS-02	LABS	Roof Insulation R-Value 0 00	Suspended Ceiling: Increase insulation by R 19	1	1	93	0	8,009	4 80	4.3
Wall	LABS-02	LABS	Wall Insulation R Value 0 00	none	1	1	0	0	NA	NA	NA
Heating	MILITARY OTHER-01	MILITARY OTHER	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	MILITARY OTHER-01	MILITARY OTHER	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	MILITARY OTHER-01	MILITARY OTHER	FL82· FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	34	3	31	3	17,741	2 70	6 5
Lights	MILITARY OTHER-01	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	159	5	141	5	77,253	5 70	3.1
Hot Water	MILITARY OTHER-01	MILITARY OTHER	Electric SHW Heater	Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM)	-1	0	-1	0	253	3 50	1 6
Roof	MILITARY OTHER-01	MILITARY OTHER	Roof Insulation R Value 0 00	Attic Ceiling: Increase insulation by R-11	1	1	89	0	5,048	2 00	10 1
Wall	MILITARY OTHER-01	MILITARY OTHER	Wall Insulation R-Value 0 00	none	1	1	0	0	NA	NA	NA
Heating	MILITARY OTHER-02	MILITARY OTHER	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	MILITARY OTHER-02	MILITARY OTHER	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	44	4	41	4	22,751	2 70	6 5
Lights	MILITARY OTHER-02	MILITARY OTHER	EX1: EXIT INC (2x20)	EX6: EXIT - LED	151	5	127	5	72,083	5 60	3 2
Roof	MILITARY OTHER-02	MILITARY OTHER	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	MILITARY OTHER-02	MILITARY OTHER	Wall Insulation R Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	MILITARY OTHER-03	MILITARY OTHER	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	MILITARY OTHER-03	MILITARY OTHER	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	MILITARY OTHER-03	MILITARY OTHER	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	9	1	10	1	5,576	4 30	4 2
Lights	MILITARY OTHER-03	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	5	0	2,615	7 40	2 4
Hot Water	MILITARY OTHER-03	MILITARY OTHER	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp.	0	0	0	0	48	5 10	1 1
Roof	MILITARY OTHER-03	MILITARY OTHER	Roof Insulation R-Value 20 05	Suspended Ceiling: Increase insulation by R 30	1	1	7	1	1,904	1 50	12.3
Wall	MILITARY OTHER-03	MILITARY OTHER	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	MILITARY OTHER-04	MILITARY OTHER	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	MILITARY OTHER-04	MILITARY OTHER	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	MILITARY OTHER-04	MILITARY OTHER	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	30	3	27	3	20,971	19 50	0 9
Lights	MILITARY OTHER-04	MILITARY OTHER	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	9	1	8	1	4,258	4 20	4 3
Hot Water	MILITARY OTHER-04	MILITARY OTHER	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	3	0	3	0	12	1 30	3 6
Roof	MILITARY OTHER-04	MILITARY OTHER	Roof Insulation R-Value 7 15	Attic Ceiling: Increase insulation by R-19	1	1	17	0	937	1 90	10 7
Wall	MILITARY OTHER-04	MILITARY OTHER	Wall Insulation R-Value 0,00	none	1	1	0	0	NA	NA	NA
Lights	MILITARY OTHER-05	MILITARY OTHER	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	47	2	48	2	19,190	5 10	3 5
Lights	MILITARY OTHER 05	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	17	1	17	1	8,395	5 80	3 1
Hot Water	MILITARY OTHER-05	MILITARY OTHER	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	120	0	120	0	12,205	39 20	0 5
Roof	MILITARY OTHER-05	MILITARY OTHER	Roof Insulation R-Value 0 00	none	1	1	0	0	NA	NA	NA
Wall	MILITARY OTHER-05	MILITARY OTHER	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	FL62: FL 1X8 2F96T12 STD2	FL74: FL 1X8 2F96T12 ELC2	204	32	208	32	36,978	1 50	12 2
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	6	1	6	1	1,200	1 40	13 0
Lights	PROD PROCESS-01	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	243	38	247	38	94,241	2 90	6 1
Lights	PROD PROCESS 01	PRODUCTION and/or PROCESS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	209	7	212	7	103,892	5 80	3 1
Roof	PROD/PROCESS-01	PRODUCTION and/or PROCESS	Roof Insulation R-Value 0 00	none	1	1	0	0	NA	NA	NA
Wall	PROD/PROCESS-01	PRODUCTION and/or PROCESS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	FL62· FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	324	46	330	46	32,525	1 30	14 0

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	4	1	5	1	979	1.90	12.1
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	170	24	173	24	63,922	3.00	5.9
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	EX1. EXIT - INC (2x20)	EX6 EXIT - LED	13	0	13	0	6,561	6.00	3.0
Roof	PROD/PROCESS-02	PRODUCTION and/or PROCESS	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	PROD/PROCESS-02	PRODUCTION and/or PROCESS	Wall Insulation R Value 8.79	none	1	1	0	0	NA	NA	NA
Cooling	RECREATION-01	RECREATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-01	RECREATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	33	4	33	4	21,227	5.00	3.6
Lights	RECREATION-01	RECREATION	EX1 EXIT - INC (2x20)	EX6: EXIT - LED	13	0	13	0	6,190	5.70	3.1
Lights	RECREATION-01	RECREATION	IN5: INC 60 CEIL	FL181. CFL 13 + BLST UNIT	33	4	33	4	21,227	5.00	3.6
Lights	RECREATION-01	RECREATION	EX1. EXIT INC (2x20)	EX6 EXIT - LED	13	0	13	0	6,190	5.70	3.1
Roof	RECREATION-01	RECREATION	Roof Insulation R Value 11.00	none	1	1	0	0	NA	NA	NA
Wall	RECREATION-01	RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	RECREATION-02	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	86	1.40	8.0
Heating	RECREATION-02	RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	RECREATION-02	RECREATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-02	RECREATION	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4	0	0	0	1,714	2.80	6.2
Lights	RECREATION-02	RECREATION	FL81: FL 2X4 2F40T12ES STD2	FL105 FL 2X4 2F40T12ES ELC2	11	1	6	1	5,087	3.20	5.6
Lights	RECREATION-02	RECREATION	FL79. FL 2X4 4F40T12ES STD2	FL232: FL 2X4 3F40T12 ELC3	6	0	1	0	3,043	5.10	3.4
Lights	RECREATION-02	RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT LED	4	0	1	0	1,751	5.00	3.4
Lights	RECREATION-02	RECREATION	IN30. INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-02	RECREATION	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	40	2	22	3	24,021	8.30	2.2
Lights	RECREATION-02	RECREATION	IN8. INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	5	0	0	0	3,050	23.70	0.7
Lights	RECREATION-02	RECREATION	MV3: MERC 100 PEND	none	0	0	0	0	NA	NA	NA
Hot Water	RECREATION-02	RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	18	0	18	0	298	3.60	1.3
Roof	RECREATION-02	RECREATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-30	1	1	4164	88	868,002	23.40	0.8
Wall	RECREATION-02	RECREATION	Wall Insulation R Value 7.00	Blow in Insulation: Increase Insulation by R 2 4	1	1	179	9	27,337	2.30	8.2
Heating	RECREATION-03	RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-03	RECREATION	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	112	14	112	14	57,132	16.90	1.1
Lights	RECREATION-03	RECREATION	MH3: MH 100 PEND	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-03	RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT LED	8	0	8	0	4,129	5.70	3.1
Roof	RECREATION-03	RECREATION	Roof Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Wall	RECREATION-03	RECREATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	RECREATION-04	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	3	0	3	0	215	2.70	7.9
Cooling	RECREATION-04	RECREATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	RECREATION-04	RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	1	0	1	0	336	2.80	6.3
Lights	RECREATION-04	RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	23	1	23	2	12,699	5.20	3.5
Lights	RECREATION-04	RECREATION	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	4	0	1,618	3.70	4.9
Lights	RECREATION-04	RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	12	1	15	1	7,011	5.40	3.3
Lights	RECREATION-04	RECREATION	FL79: FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	17	1	15	1	8,845	4.30	4.2
Lights	RECREATION-04	RECREATION	HS14: HPS 100 PEND	LS3: LPS 55 PEND	12	1	13	1	2,605	1.50	11.9
Lights	RECREATION-04	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	8	0	9	0	5,040	6.80	2.6
Hot Water	RECREATION-04	RECREATION	Other Fuels Central Boiler	LPG, Wrap Tank w/ Insulation, LFSHs, Aerators	76	0	76	0	7,379	14.10	1.5
Roof	RECREATION-04	RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	109	12	25,023	2.10	8.8
Wall	RECREATION-04	RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Electric Baseboard	none	0	0	0	0	NA	NA	NA
Lights	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	37	3	34	1	24,690	17.10	1.0
Lights	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	11	1	9	0	4,614	3.50	5.1
Lights	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	8	0	5	0	3,264	4.70	3.7
Hot Water	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	5	0	5	0	651	14.20	0.4
Roof	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R-19	1	1	9	2	1,240	2.50	7.4
Wall	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow-in Insulation Increase Insulation by R 6 5	1	1	22	5	2,295	1.70	10.5
Heating	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	639	58	803	55	512,894	20.50	0.9
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	182	16	232	16	103,462	4.30	4.2
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	63	2	66	2	34,183	6.20	2.9
Hot Water	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	39	4	39	4	4,750	25.10	0.1
Roof	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R-38	1	1	345	0	87,453	4.20	4.3
Wall	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	35	3	34	3	13,336	2.40	7.5
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL6: FL 2X2 2F40T12U STD2	FL54 FL 2X2 2F32T8U ELC2	55	5	58	5	25,964	3.20	5.7
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	4	0	2	0	1,833	3.10	5.7
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	200	17	191	17	97,060	4.00	4.5
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	11	1	7	1	7,088	18.00	1.0
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT LED	21	1	9	1	8,987	5.10	3.4
Hot Water	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	55	0	55	0	900	3.50	1.3
Roof	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Roof Insulation R Value 11.00	Attic Ceiling: Increase Insulation by R 8	1	1	512	0	52,505	10.80	1.9
Wall	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Wall Insulation R Value 0.00	Blow in Insulation Increase Insulation by R 6 5	1	1	223	0	5,440	1.30	16.1
Heating	SECURITY-01	SECURITY	Electric Baseboard	none	0	0	0	0	NA	NA	NA
Cooling	SECURITY-01	SECURITY	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	SECURITY-01	SECURITY	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	4	0	3	1	2,803	42.60	0.4
Roof	SECURITY-01	SECURITY	Roof Insulation R Value 8.69	Attic Ceiling Increase insulation by R 19	1	1	8	1	5,275	24.10	0.8
Wall	SECURITY-01	SECURITY	Wall Insulation R Value 5.32	Interior Masonry Surface Increase Insulation by R 10 9	1	1	11	0	1,876	1.50	12.1
Heating	SECURITY-02	SECURITY	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SECURITY-02	SECURITY	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SECURITY-02	SECURITY	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	576	20	555	20	304,156	48.00	0.4
Lights	SECURITY-02	SECURITY	FL1 FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	162	6	149	6	61,156	9.00	2.0
Lights	SECURITY-02	SECURITY	EX1 EXIT - INC (2x20)	EX6 EXIT LED	50	2	45	2	24,325	5.60	3.2

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Hot Water	SECURITY-02	SECURITY	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	2	1	2	1	1,250	3.10	1.8
Roof	SECURITY-02	SECURITY	Roof Insulation R Value 0.00	none	1	1	0	0	NA	NA	NA
Wall	SECURITY-02	SECURITY	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	SECURITY-03	SECURITY	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SECURITY-03	SECURITY	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	SECURITY-03	SECURITY	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	499	17	633	28	330,336	59.90	0.3
Lights	SECURITY-03	SECURITY	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	141	5	167	7	68,239	11.90	1.6
Lights	SECURITY-03	SECURITY	EX1: EXIT - INC (2x20)	EX6: EXIT LED	25	1	32	1	15,610	7.00	2.6
Hot Water	SECURITY-03	SECURITY	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	SECURITY-03	SECURITY	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	10	2	3,128	1.80	9.9
Wall	SECURITY-03	SECURITY	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	SHOPS-02	SHOPS	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Heating	SHOPS-02	SHOPS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-02	SHOPS	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-02	SHOPS	HS13: HPS 70 PEND	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-02	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	71	2	63	3	35,215	5.70	3.1
Hot Water	SHOPS-02	SHOPS	Electric SHW Heater	Wrap Old Elo Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	2	0	2	0	97	3.50	0.8
Hot Water	SHOPS-02	SHOPS	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	SHOPS-02	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 19	1	1	299	11	38,405	2.10	8.9
Wall	SHOPS-02	SHOPS	Wall Insulation R Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	SHOPS-03	SHOPS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-03	SHOPS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-03	SHOPS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	12	1	11	1	5,315	3.90	5.1
Lights	SHOPS-03	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	63	4	62	4	29,027	4.80	3.7
Lights	SHOPS-03	SHOPS	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	256	18	262	18	94,171	3.80	4.8
Lights	SHOPS-03	SHOPS	FL61· FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	68	5	66	5	30,163	6.50	2.8
Lights	SHOPS-03	SHOPS	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	6	0	5	0	2,664	3.50	5.1
Lights	SHOPS-03	SHOPS	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	11	1	10	1	4,581	3.90	4.6
Lights	SHOPS-03	SHOPS	IN1: INC 40 CEIL	FL178. CFL 9 + BLST UNIT	13	1	12	1	6,948	6.50	2.7
Lights	SHOPS-03	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	12	1	11	1	6,423	9.00	2.0
Lights	SHOPS-03	SHOPS	IN8. INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	23	2	23	2	14,394	28.00	0.6
Lights	SHOPS-03	SHOPS	IN6: INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	6	0	5	0	3,404	12.10	1.5
Lights	SHOPS-03	SHOPS	MH36: MH 250 HE PEND	LS4: LPS 90 PEND	462	33	469	33	236,026	7.40	2.4
Lights	SHOPS-03	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	71	2	61	2	34,905	5.70	3.1
Hot Water	SHOPS-03	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	362	0	362	0	5,116	2.60	1.8
Roof	SHOPS-03	SHOPS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	954	0	79,720	4.20	4.9
Wall	SHOPS-03	SHOPS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	SHOPS-04	SHOPS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-04	SHOPS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-04	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	6	0	9	0	4,251	6.30	2.9
Lights	SHOPS-04	SHOPS	FL63 FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	16	1	18	1	4,497	1.60	11.1
Lights	SHOPS-04	SHOPS	FL2: FL 2X4 3F40T12 STD1,2	FL236· FL 2X4 3F32T8 ELC3	3	0	6	0	2,817	9.10	2.0
Lights	SHOPS-04	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	118	9	151	9	64,750	7.10	2.6
Lights	SHOPS-04	SHOPS	IN12: INC 2-100 CEIL	HS12. HPS 50 PEND	7	1	10	1	5,357	8.90	2.0
Lights	SHOPS-04	SHOPS	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	8	1	11	1	6,528	14.00	1.3
Lights	SHOPS-04	SHOPS	MV8. MERC 1000 PEND	HS19: HPS 400 PEND	169	13	204	13	98,855	16.00	1.1
Lights	SHOPS-04	SHOPS	MV5: MERC 250 PEND	LS4: LPS 90 PEND	26	2	53	2	13,751	4.70	3.9
Lights	SHOPS-04	SHOPS	EX1: EXIT - INC (2x20)	EX7: EXIT : SELF LUMINOUS	19	1	19	1	8,381	3.40	5.3
Hot Water	SHOPS-04	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	14	0	14	0	214	3.00	1.6
Roof	SHOPS-04	SHOPS	Roof Insulation R-Value 5.00	Attic Ceiling: Increase insulation by R-19	1	1	7038	0	799,303	26.80	0.8
Wall	SHOPS-04	SHOPS	Wall Insulation R-Value 0.00	Blow-in Insulation. Increase Insulation by R-6.5	1	1	810	0	53,650	3.70	5.9
Heating	SHOPS-05	SHOPS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Heating	SHOPS-05	SHOPS	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-05	SHOPS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-05	SHOPS	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	212	17	214	17	109,811	5.90	3.1
Lights	SHOPS-05	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	231	18	233	18	116,238	4.70	3.8
Lights	SHOPS-05	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	578	46	573	46	268,376	6.10	3.0
Lights	SHOPS-05	SHOPS	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	28	2	25	2	5,497	1.40	12.6
Lights	SHOPS-05	SHOPS	IN28· INC 150 PEND	HS11: HPS 35 PEND	15	1	13	1	7,256	4.70	3.8
Lights	SHOPS-05	SHOPS	IN29. INC 200 PEND	HS12: HPS 50 PEND	85	7	78	7	44,165	6.20	2.9
Lights	SHOPS-05	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	6	0	5	0	3,418	8.20	2.2
Lights	SHOPS-05	SHOPS	IN6. INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	12	1	10	1	7,364	11.10	1.6
Lights	SHOPS-05	SHOPS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	42	1	34	1	19,915	5.60	3.2
Hot Water	SHOPS-05	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	40	0	40	0	649	3.30	1.4
Roof	SHOPS-05	SHOPS	Roof Insulation R-Value 0.00	Suspended Ceiling Increase insulation by R-19	1	1	474	0	15,526	1.40	14.5
Wall	SHOPS-05	SHOPS	Wall Insulation R Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	SHOPS-06	SHOPS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-06	SHOPS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-06	SHOPS	FL79: FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	166	13	160	13	79,275	3.90	4.7
Lights	SHOPS-06	SHOPS	IN5. INC 60 CEIL	FL181. CFL 13 + BLST UNIT	3	0	2	0	1,792	8.10	2.2
Lights	SHOPS-06	SHOPS	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	8	0	6	0	3,919	5.50	3.2
Hot Water	SHOPS-06	SHOPS	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	SHOPS-06	SHOPS	Roof Insulation R-Value 8.69	Attic Ceiling: Increase Insulation by R 8	1	1	32	0	1,225	1.50	13.5
Wall	SHOPS-06	SHOPS	Wall Insulation R Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	SHOPS-07	SHOPS	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	SHOPS-07	SHOPS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-07	SHOPS	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	11	1	14	1	5,983	2.90	6.3
Lights	SHOPS-07	SHOPS	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	77	6	92	6	45,057	3.80	4.7
Lights	SHOPS-07	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	5	0	5	0	2,358	4.60	3.9
Lights	SHOPS-07	SHOPS	FL3 FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	73	6	88	6	42,681	5.30	3.4

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	SHOPS-07	SHOPS	HS20: HPS 1000 PEND	none	0	0	0	0	NA	NA	NA
Lights	SHOPS-07	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	33	1	36	1	17,764	6.10	2.9
Hot Water	SHOPS-07	SHOPS	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	SHOPS-07	SHOPS	Roof Insulation R-Value 20.05	none	1	1	0	0	NA	NA	NA
Wall	SHOPS-07	SHOPS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Lights	STORAGE-01	STORAGE	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	298	34	305	34	148,420	11.00	1.6
Lights	STORAGE-01	STORAGE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	96	3	98	3	48,364	5.80	3.1
Roof	STORAGE-01	STORAGE	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	STORAGE-01	STORAGE	Wall Insulation R-Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	STORAGE-02	STORAGE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	STORAGE-02	STORAGE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	STORAGE-02	STORAGE	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	1370	158	1357	158	678,056	10.90	1.6
Roof	STORAGE-02	STORAGE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase Insulation by R 8	1	1	341	0	15,355	1.30	14.7
Wall	STORAGE-02	STORAGE	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-01	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-01	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-01	WAREHOUSE	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	284	24	274	24	193,870	19.40	0.9
Lights	WAREHOUSE-01	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	80	7	79	7	39,066	4.10	4.4
Lights	WAREHOUSE-01	WAREHOUSE	HS15: HPS 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-01	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	163	5	158	5	80,746	5.70	3.1
Roof	WAREHOUSE-01	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase Insulation by R 8	1	1	69	0	319	1.00	19.3
Wall	WAREHOUSE-01	WAREHOUSE	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Lights	WAREHOUSE-02	WAREHOUSE	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	128	11	129	11	87,602	19.50	0.9
Lights	WAREHOUSE-02	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	36	3	36	3	17,506	4.10	4.4
Lights	WAREHOUSE-02	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	29	1	29	1	14,435	5.70	3.1
Roof	WAREHOUSE-02	WAREHOUSE	Roof Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Wall	WAREHOUSE-02	WAREHOUSE	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-03	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-03	WAREHOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	8	1	7	1	3,960	3.60	4.9
Lights	WAREHOUSE-03	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	11	0	6,118	5.70	3.1
Roof	WAREHOUSE-03	WAREHOUSE	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	WAREHOUSE-03	WAREHOUSE	Wall Insulation R-Value 8.79	none	1	1	0	0	NA	NA	NA
Lights	WAREHOUSE-04	WAREHOUSE	HS15: HPS 150 PEND	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-04	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	8	0	4,137	5.70	3.1
Roof	WAREHOUSE-04	WAREHOUSE	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	WAREHOUSE-04	WAREHOUSE	Wall Insulation R-Value 8.79	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-05	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-05	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-05	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	356	31	324	31	113,015	2.50	7.3
Lights	WAREHOUSE-05	WAREHOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	25	2	21	2	12,535	2.70	6.6
Lights	WAREHOUSE-05	WAREHOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	63	5	51	5	30,951	3.50	5.1
Lights	WAREHOUSE-05	WAREHOUSE	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	33	3	28	3	14,116	4.20	4.3
Lights	WAREHOUSE-05	WAREHOUSE	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	8	1	6	1	4,045	2.60	6.8
Lights	WAREHOUSE-05	WAREHOUSE	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	75	6	61	6	32,842	2.80	6.3
Lights	WAREHOUSE-05	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	20	2	17	2	9,417	4.00	4.5
Lights	WAREHOUSE-05	WAREHOUSE	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	187	16	166	16	92,485	5.60	3.2
Lights	WAREHOUSE-05	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	108	9	94	9	52,066	4.40	4.1
Lights	WAREHOUSE-05	WAREHOUSE	IN30: INC 300 PEND	LS2: LPS 35 PEND	159	14	142	14	83,779	7.30	2.5
Lights	WAREHOUSE-05	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	113	4	96	4	54,180	5.60	3.2
Hot Water	WAREHOUSE-05	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	60	0	60	0	931	3.10	1.5
Roof	WAREHOUSE-05	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	1	1	1154	0	98,407	4.00	5.2
Wall	WAREHOUSE-05	WAREHOUSE	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-06	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-06	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-06	WAREHOUSE	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	13	1	11	1	5,495	2.10	8.5
Lights	WAREHOUSE-06	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	7	0	3,995	5.60	3.2
Hot Water	WAREHOUSE-06	WAREHOUSE	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	5	0	5	0	546	7.40	0.7
Roof	WAREHOUSE-06	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 19	1	1	746	0	87,926	19.00	1.1
Wall	WAREHOUSE-06	WAREHOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	397	0	28,550	3.30	6.4
Heating	WAREHOUSE-07	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-07	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-07	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	1	0	0	0	116	1.20	14.4
Lights	WAREHOUSE-07	WAREHOUSE	FL80: FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	22	2	16	2	10,959	3.20	5.6
Lights	WAREHOUSE-07	WAREHOUSE	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	3	0	3	0	1,722	4.30	4.1
Lights	WAREHOUSE-07	WAREHOUSE	FL158: FL 1X8 4F96T12HO STD2 REF	LS6: LPS 180 PEND	231	20	211	20	117,613	7.30	2.5
Lights	WAREHOUSE-07	WAREHOUSE	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	697	60	627	60	351,785	5.60	3.2
Lights	WAREHOUSE-07	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	42	4	41	4	23,368	4.90	3.7
Lights	WAREHOUSE-07	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	1	0	3,286	4.80	3.6
Hot Water	WAREHOUSE-07	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	10	0	10	0	160	3.20	1.4
Roof	WAREHOUSE-07	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	1	1	1232	0	128,155	5.30	3.8
Wall	WAREHOUSE-07	WAREHOUSE	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-08	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-08	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-08	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	0	0	0	0	17	1.20	14.7
Lights	WAREHOUSE-08	WAREHOUSE	FL80: FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	4	0	3	0	1,622	3.00	6.0
Lights	WAREHOUSE-08	WAREHOUSE	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	1	0	0	0	275	4.30	4.2
Lights	WAREHOUSE-08	WAREHOUSE	FL158: FL 1X8 4F96T12HO STD2 REF	LS6: LPS 180 PEND	37	3	29	3	17,914	7.00	2.6
Lights	WAREHOUSE-08	WAREHOUSE	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	113	10	91	10	55,452	5.50	3.3
Lights	WAREHOUSE-08	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	7	1	6	1	3,298	4.30	4.2
Lights	WAREHOUSE-08	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	7	0	4,000	5.60	3.2

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	6	0	6	0	90	3.10	1.5
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	7	0	7	0	442	40.50	0.3
Roof	WAREHOUSE-08	WAREHOUSE	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	188	0	17,230	4.50	4.5
Wall	WAREHOUSE-08	WAREHOUSE	Wall Insulation R Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE-09	WAREHOUSE	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-09	WAREHOUSE	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-09	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	30	3	28	3	9,719	2.50	7.2
Lights	WAREHOUSE-09	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	13	0	12	0	6,198	5.70	3.1
Hot Water	WAREHOUSE-09	WAREHOUSE	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Hot Water	WAREHOUSE-09	WAREHOUSE	Electric SHW Heater	0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	0	0	0	0	42	2.30	1.6
Roof	WAREHOUSE-09	WAREHOUSE	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	161	0	14,177	3.70	5.5
Wall	WAREHOUSE-09	WAREHOUSE	Wall Insulation R-Value 8.79	Blow-in Insulation. Increase Insulation by R-2.4	1	1	193	0	919	1.00	20.1
Lights	WAREHOUSE-10	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	36	3	36	3	11,749	2.50	7.2
Lights	WAREHOUSE-10	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	13	0	6,207	5.70	3.1
Roof	WAREHOUSE-10	WAREHOUSE	Roof Insulation R-Value 8.69	none	1	1	0	0	NA	NA	NA
Wall	WAREHOUSE-10	WAREHOUSE	Wall Insulation R-Value 8.79	none	1	1	0	0	NA	NA	NA
Cooling	WAREHOUSE-11	WAREHOUSE	Electric Conv Chiller	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-11	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	13	1	18	1	6,949	3.50	5.2
Lights	WAREHOUSE-11	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	5	0	2,590	6.90	2.6
Hot Water	WAREHOUSE-11	WAREHOUSE	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	WAREHOUSE-11	WAREHOUSE	Roof Insulation R-Value 30.00	none	1	1	0	0	NA	NA	NA
Wall	WAREHOUSE-11	WAREHOUSE	Wall Insulation R-Value 25.00	none	1	1	0	0	NA	NA	NA
Heating	WAREHOUSE 12	WAREHOUSE	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	WAREHOUSE-12	WAREHOUSE	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	WAREHOUSE-12	WAREHOUSE	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	125	11	154	18	111,684	25.00	0.7
Lights	WAREHOUSE-12	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	35	3	42	5	24,250	5.40	3.3
Lights	WAREHOUSE-12	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	5	0	2,581	6.90	2.6
Hot Water	WAREHOUSE-12	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	6	0	6	0	91	3.10	1.5
Roof	WAREHOUSE-12	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R 30	1	1	433	28	154,241	13.50	1.4
Wall	WAREHOUSE-12	WAREHOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 13	1	1	84	19	30,547	3.30	5.6
Heating	DINING HALLS-01	DINING HALLS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	DINING HALLS-01	DINING HALLS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	DINING HALLS-01	DINING HALLS	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	18	1	18	1	3,196	1.40	12.4
Lights	DINING HALLS-01	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	17	1	16	1	8,400	5.80	3.1
Hot Water	DINING HALLS-01	DINING HALLS	Electric SHW Heater	Wrap Old Elo Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	44	2	44	2	4,361	7.50	0.7
Roof	DINING HALLS-01	DINING HALLS	Roof Insulation R-Value 11.00	none	1	1	0	0	NA	NA	NA
Wall	DINING HALLS-01	DINING HALLS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	DINING HALLS-03	DINING HALLS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	DINING HALLS-03	DINING HALLS	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	DINING HALLS-03	DINING HALLS	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	52	3	59	3	10,250	1.50	12.1
Lights	DINING HALLS-03	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	59	2	54	2	28,911	5.70	3.1
Hot Water	DINING HALLS-03	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	202	0	202	0	3,206	3.20	1.4
Roof	DINING HALLS-03	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	117	0	5,739	1.80	11.4
Wall	DINING HALLS-03	DINING HALLS	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	DINING HALLS-04	DINING HALLS	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	DINING HALLS-04	DINING HALLS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	DINING HALLS-04	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	4	0	4	0	1,984	5.40	3.4
Lights	DINING HALLS-04	DINING HALLS	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	24	1	26	2	14,170	9.90	1.8
Lights	DINING HALLS-04	DINING HALLS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	16	1	18	1	10,673	10.90	1.6
Lights	DINING HALLS-04	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	8	0	5,138	6.90	2.6
Hot Water	DINING HALLS-04	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	186	0	186	0	2,954	3.20	1.4
Roof	DINING HALLS-04	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	234	25	84,736	7.50	2.5
Wall	DINING HALLS-04	DINING HALLS	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-10.9	1	1	205	23	67,005	6.00	3.1
Heating	DINING HALLS-05	DINING HALLS	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	DINING HALLS-05	DINING HALLS	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	DINING HALLS-05	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	8	0	9	1	3,833	5.30	3.4
Lights	DINING HALLS-05	DINING HALLS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	8	0	9	1	4,040	3.90	4.6
Lights	DINING HALLS-05	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	4	0	1,324	3.60	5.0
Lights	DINING HALLS-05	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2	0	2	0	1,020	6.30	2.8
Hot Water	DINING HALLS-05	DINING HALLS	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Roof	DINING HALLS-05	DINING HALLS	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R-38	1	1	1017	85	368,956	101.90	0.2
Wall	DINING HALLS-05	DINING HALLS	Wall Insulation R-Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	DINING HALLS-06	DINING HALLS	Hot Water (Generated) Forced Air Furnace	none	0	0	0	0	NA	NA	NA
Cooling	DINING HALLS-06	DINING HALLS	Chilled Water Chill Water Coil	none	0	0	0	0	NA	NA	NA
Lights	DINING HALLS-06	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	23	1	38	1	11,085	5.00	3.6
Lights	DINING HALLS-06	DINING HALLS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	23	1	38	1	11,704	3.70	4.8
Lights	DINING HALLS-06	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131. FL 1X8 2F96T12ES ELC2 REF	10	0	14	1	3,559	3.30	5.5
Lights	DINING HALLS-06	DINING HALLS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	6	0	8	0	3,021	6.10	2.9
Hot Water	DINING HALLS-06	DINING HALLS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden Boiler, Wrap Tank w Insulation, LFSHs, Aerators	186	0	186	0	51,093	23.20	0.9
Roof	DINING HALLS-06	DINING HALLS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 38	1	1	550	6	82,321	7.10	2.7
Wall	DINING HALLS-06	DINING HALLS	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	MWR-02	MORALE-WELFARE-RECREATION	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	MWR-02	MORALE-WELFARE-RECREATION	Electric Air Cool Heat Pump	Air to Air Heat Pump with Supplementary Electric Heat Coil	123	26	123	26	934	1.00	4.4
Lights	MWR-02	MORALE-WELFARE-RECREATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	41	3	48	3	22,664	3.50	5.1
Lights	MWR-02	MORALE-WELFARE-RECREATION	IN6. INC 2 60 CEIL	FL182. CFL 2 13 + BLST UNIT	5	0	6	0	3,545	10.20	1.8
Lights	MWR-02	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	67	2	69	2	36,653	6.20	2.9
Hot Water	MWR-02	MORALE-WELFARE-RECREATION	Electric SHW Heater	Wrap Old Elo Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	8	1	8	1	839	5.60	0.8
Roof	MWR-02	MORALE-WELFARE RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 11	1	1	15	0	116	1.00	17.8
Wall	MWR-02	MORALE WELFARE RECREATION	Wall Insulation R Value 19.00	none	1	1	0	0	NA	NA	NA
Heating	MWR-03	MORALE WELFARE-RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Cooling	MWR-03	MORALE WELFARE RECREATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	MWR-03	MORALE WELFARE RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	1	0	1	0	521	2.70	6.5
Lights	MWR-03	MORALE WELFARE RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	30	2	34	4	21,402	4.80	3.8
Lights	MWR-03	MORALE-WELFARE RECREATION	FL2: FL 2X4 3F40T12 STD1,2	FL236. FL 2X4 3F32T8 ELC3	1	0	1	0	798	6.00	3.0
Lights	MWR-03	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	21	1	21	1	12,768	6.80	2.6
Lights	MWR-03	MORALE WELFARE RECREATION	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	1	0	1	0	755	27.50	0.7
Lights	MWR-03	MORALE WELFARE RECREATION	IN37: INC 75 FLD	none	0	0	0	0	NA	NA	NA
Hot Water	MWR-03	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	7	0	7	0	16	1.20	3.2
Roof	MWR-03	MORALE WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	71	7	16,272	2.30	8.0
Wall	MWR-03	MORALE-WELFARE RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	MWR-04	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	7	0	7	0	298	2.00	8.7
Heating	MWR-04	MORALE-WELFARE RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	MWR-04	MORALE-WELFARE RECREATION	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	MWR-04	MORALE-WELFARE RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	4	0	3	0	1,634	3.60	4.9
Lights	MWR-04	MORALE-WELFARE RECREATION	IN29. INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-04	MORALE WELFARE RECREATION	IN30: INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-04	MORALE-WELFARE RECREATION	IN10 INC 3-75 CEIL	none	0	0	0	0	NA	NA	NA
Lights	MWR-04	MORALE-WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	42	1	19	1	18,152	5.20	3.4
Hot Water	MWR-04	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	98	0	98	0	7,624	10.70	1.6
Hot Water	MWR-04	MORALE-WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	16	0	16	0	262	3.70	1.3
Roof	MWR-04	MORALE-WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	555	0	55,483	10.50	2.0
Wall	MWR-04	MORALE-WELFARE-RECREATION	Wall Insulation R-Value 0.00	none	1	1	0	0	NA	NA	NA
Heating	MWR-05	MORALE-WELFARE RECREATION	Other Fuels Conv Boiler	none	0	0	0	0	NA	NA	NA
Cooling	MWR-05	MORALE-WELFARE-RECREATION	Electric Conv Chiller	none	0	0	0	0	NA	NA	NA
Lights	MWR-05	MORALE-WELFARE RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	2	0	7	0	2,048	6.70	2.8
Lights	MWR-05	MORALE-WELFARE-RECREATION	IN29: INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-05	MORALE-WELFARE-RECREATION	IN30 INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-05	MORALE-WELFARE-RECREATION	IN10: INC 3-75 CEIL	none	0	0	0	0	NA	NA	NA
Lights	MWR-05	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	8	0	10	0	5,218	7.00	2.6
Hot Water	MWR-05	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	121	0	121	0	5,997	12.90	0.8
Roof	MWR-05	MORALE-WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	1	1	129	13	38,701	5.30	3.5
Wall	MWR-05	MORALE WELFARE-RECREATION	Wall Insulation R-Value 5.32	Interior Masonry Surface: Increase Insulation by R-10.9	1	1	194	16	56,177	5.80	3.2
Heating	MWR-05a	MORALE-WELFARE RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	MWR-05a	MORALE-WELFARE RECREATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	MWR-05a	MORALE-WELFARE RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1	0	0	0	328	4.40	4.1
Lights	MWR-05a	MORALE-WELFARE-RECREATION	IN29: INC 200 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-05a	MORALE-WELFARE-RECREATION	IN30 INC 300 PEND	none	0	0	0	0	NA	NA	NA
Lights	MWR-05a	MORALE-WELFARE-RECREATION	IN10. INC 3-75 CEIL	none	0	0	0	0	NA	NA	NA
Lights	MWR-05a	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	8	0	6	0	4,697	6.40	2.8
Hot Water	MWR-05a	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp.	6	0	6	0	104	3.40	1.3
Roof	MWR-05a	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 11.00	Attic Ceiling. Increase insulation by R-38	1	1	27	2	7,438	3.90	4.8
Wall	MWR-05a	MORALE-WELFARE-RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Heating	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	3	0	3	0	204	2.90	7.1
Cooling	MWR-06	MORALE-WELFARE-RECREATION	Electric Package Unit	none	0	0	0	0	NA	NA	NA
Lights	MWR-06	MORALE-WELFARE-RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2	0	2	0	1,167	4.80	3.7
Lights	MWR-06	MORALE-WELFARE-RECREATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	163	12	186	18	103,973	5.50	3.3
Lights	MWR-06	MORALE-WELFARE-RECREATION	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	1	0	1	0	468	1.50	12.0
Lights	MWR-06	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	7	0	5	0	3,732	6.50	2.7
Lights	MWR-06	MORALE-WELFARE-RECREATION	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	7	1	8	1	5,839	11.30	1.6
Hot Water	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	none	0	0	0	0	NA	NA	NA
Hot Water	MWR-06	MORALE-WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	59	0	59	0	5,332	7.50	2.8
Roof	MWR-06	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	1	1	15	2	519	1.10	17.3
Wall	MWR-06	MORALE-WELFARE-RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	MWR-07	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	329	5.10	4.1
Cooling	MWR-07	MORALE-WELFARE-RECREATION	Electric Conv Chiller	none	0	0	0	0	NA	NA	NA
Lights	MWR-07	MORALE-WELFARE-RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	3	0	4	0	1,914	5.20	3.5
Lights	MWR-07	MORALE-WELFARE-RECREATION	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	248	19	295	29	157,010	5.50	3.3
Lights	MWR-07	MORALE-WELFARE-RECREATION	FL63. FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	4	0	7	1	949	1.40	13.3
Lights	MWR-07	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT LED	10	0	10	1	6,083	6.90	2.6
Lights	MWR-07	MORALE-WELFARE RECREATION	IN6: INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	11	1	10	1	8,537	10.90	1.6
Hot Water	MWR-07	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins Pipe, LFSHs, Aerators	8	0	8	0	44	2.40	0.8
Roof	MWR-07	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	1	1	42	4	2,454	1.20	15.7
Wall	MWR-07	MORALE-WELFARE-RECREATION	Wall Insulation R-Value 5.32	none	1	1	0	0	NA	NA	NA
Heating	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	7	0	9	1	4,065	3.70	4.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	10	1	14	1	6,978	7.50	2.4
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	FL6: FL 2X2 2F40T12U STD2	FL54 FL 2X2 2F32T8U ELC2	0	0	0	0	180	6.40	2.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	HS13. HPS 70 PEND	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	3	0	4	0	1,999	9.30	1.9
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	4	0	5	0	3,415	42.30	0.4
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	MH36: MH 250 HE PEND	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6 EXIT LED	8	0	10	0	5,197	7.00	2.6
Hot Water	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	1	0	1	0	158	9.90	0.6
Roof	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R 38	1	1	65	6	32,564	8.90	2.0
Wall	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Wall Insulation R-Value 8.79	Blow-in Insulation: Increase Insulation by R 6.5	1	1	16	3	4,362	1.90	9.7
Heating	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Other Fuels Conv Furn	none	0	0	0	0	NA	NA	NA
Cooling	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL5 FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	6	1	4	1	2,126	2.20	8.1

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	1	Bldg. 253	250 ton chiller	Reset chilled and condenser water temps. - RI	334	450	334	450	201,183	6,707.11	0.0
AC	2	Bldg. 263	554 ton chiller	Reset chilled and condenser water temps. - RI	298	499	298	499	197,519	6,584.96	0.0
AC	3	Bldg. 273	200 ton chiller	Reset chilled and condenser water temps. - RI	303	180	303	180	139,087	4,637.24	0.0
Central Chillers	1		Existing Chillers	Connect B/253 & B/263, Add 100 ton chiller - RI	1,108	401	1,108	401	219,207	2.43	7.1
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES - RI	1,099	2,110	1,099	2,110	893,186	3.52	4.9
Controls	MT-1		Thermostat	Night Setback - RI	1,508	2,186	1,508	2,186	314,125	3.09	5.6
DHW & A/C	1	00013	CHILLER-air cooled	Install Desuperheater - RI	6	63	6	63	7,635	3.30	5.2
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater - RI	75	27	75	27	11,980	7.47	2.3
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	75	27	75	27	11,980	7.47	2.3
DHW & A/C	4	00034	PKG UNIT	Install Desuperheater - RI	3	9	3	0	-174	0.84	20.4
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	60	27	60	27	9,877	6.33	2.7
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	20	9	20	0	1,990	2.78	6.2
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	40	18	40	18	5,933	4.99	3.4
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	99	45	99	45	17,765	7.87	2.2
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	159	72	159	72	29,597	9.03	1.9
DHW & A/C	10	00037	PKG A/C	Install Desuperheater - RI	60	27	60	27	9,877	6.33	2.7
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	40	36	40	36	8,823	4.98	3.5
DHW & A/C	12	00152	PKG UNIT	Install Desuperheater - RI	2	9	2	0	-539	0.52	33.2
DHW & A/C	13	00166	CHILLER-air cooled	Install Desuperheater - RI	2,178	630	2,178	630	365,486	14.84	1.2
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	218	76	218	76	36,469	10.52	1.6
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater - RI	47	18	47	18	6,950	5.68	3.0
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	85	32	85	32	14,074	7.79	2.2
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	76	86	76	86	19,850	5.65	3.0
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater - RI	158	180	158	180	43,471	6.38	2.7
DHW & A/C	19	00237	AIR CONDITIONER	Install Desuperheater - RI	22	27	22	27	5,013	3.71	4.6
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater - RI	28	43	28	43	7,902	4.15	4.2
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	190	58	190	58	32,023	11.33	1.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	5	22	5	22	1,666	2.02	8.5
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater - RI	6	23	6	23	1,907	2.13	8.1
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater - RI	5	22	5	22	1,666	2.02	8.5
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	6	23	6	23	1,907	2.13	8.1
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	34	41	34	41	9,912	5.13	3.4
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater - RI	8	9	8	9	683	1.61	10.7
DHW & A/C	28	00488	PKG A/C	Install Desuperheater - RI	10	72	10	72	8,986	3.44	5.0
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	12	15	12	15	1,883	2.37	7.3
DHW & A/C	30	00857	Chiller-air cooled	Install Desuperheater - RI	12	72	12	72	9,712	3.64	4.7
DHW & A/C	31	00905	CHILLER-air cooled	Install Desuperheater - RI	155	72	155	72	23,881	7.48	2.3
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	29	14	29	14	2,890	3.22	5.3
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	243	92	243	92	42,194	10.39	1.7
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	7	27	7	27	2,604	2.41	7.2
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	40	72	40	72	13,496	4.66	3.7
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	9	22	9	22	2,570	2.57	6.7
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater - RI	5	14	5	14	801	1.60	10.8
DHW & A/C	38	01322	AIR CONDITIONER	Install Desuperheater - RI	3	9	3	9	-233	0.79	21.7
DHW & A/C	39	01322	AIR CONDITIONER	Install Desuperheater - RI	3	9	3	9	-233	0.79	21.7
DHW & A/C	40	01322	PKG UNIT	Install Desuperheater - RI	3	9	3	9	-233	0.79	21.7
DHW & A/C	41	01322	PKG UNIT	Install Desuperheater - RI	3	9	3	9	-233	0.79	21.7
DHW & A/C	42	01322	PKG UNIT	Install Desuperheater - RI	3	9	3	9	-233	0.79	21.7
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater - RI	5	14	5	14	801	1.60	10.8
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	11	54	11	54	7,338	3.49	4.9
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater - RI	110	18	110	18	15,732	11.59	1.5
Envelope	MT-10		Single pane window	Shade Screens - NW side - RI	26	46	26	46	17,362	3.83	4.5
Envelope	MT-11a		None	Crawl Space Insulation: R-19 - RI	1,002	1,039	1,002	1,039	542,721	5.35	3.2
Envelope	MT-11b		None	Crawl Space Insulation: R-30 - RI	1,048	1,087	1,048	1,087	519,672	3.90	4.4
Envelope	MT-12		Leaky	Weatherization - RI	1,241	904	1,241	904	648,218	73.29	0.2
Envelope	MT-5		Black EDPM	Reflective roof - RI	566	684	566	684	277,647	2.24	7.7
Envelope	MT-6		Single pane window	Double pane windows - RI	176	68	176	68	-46,458	0.44	38.8
Envelope	MT-7		Single pane window	Shade Screens - NE side - RI	26	15	26	15	-168	0.97	17.7
Envelope	MT-8		Single pane window	Shade Screens - SE side - RI	37	22	37	22	5,021	1.97	8.7
Envelope	MT-9		Single pane window	Shade Screens - SW side - RI	37	69	37	69	32,627	7.33	2.4
Envelope	Family Housing	1961 Vintage		Double-paned windows - RI	229	30	229	30	-246,610	0.21	83.0
Envelope	Family Housing	1963 Vintage		Double-paned windows - RI	250	33	250	33	-269,606	0.21	83.0
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	1,203	790	1,203	790	508,458	17.14	1.0
Envelope	Family Housing	1964, 1965, 1966 Vintage		Double-paned windows - RI	153	20	153	20	-164,535	0.21	83.0
Envelope	Family Housing	1983 Vintage		Double-paned windows - RI	236	31	236	31	-255,041	0.21	83.0
Envelope	Family Housing	1984 Vintage		Double-paned windows - RI	176	23	176	23	-189,460	0.21	83.0
Envelope	Admin	ADMIN: MISC post 1964		Weatherization - RI	68	44	68	44	27,627	11.11	1.5
Envelope	Admin	ADMIN: MISC post 1964		Window Screen- NE side - RI	20	12	20	12	-134	0.97	17.7
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - SE side - RI	7	4	7	4	996	1.97	8.7

Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	FL82· FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	4	0	3	0	1,807	3 00	6 0
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	FL3· FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	35	3	25	3	15,605	4 10	4 4
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	FL79 FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	14	1	14	1	6,387	3 50	5 1
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	11	1	7	1	5,407	7 10	2 5
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	7	1	5	1	3,761	7 60	2 4
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	9	1	6	1	5,518	23 60	0 8
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN6 INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	4	0	3	0	2,491	10 10	1 8
Hot Water	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	4	0	4	0	469	9 20	0 6
Roof	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	1	1	60	0	2,154	1 50	14 0
Wall	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Wall Insulation R Value 0 00	none	1	1	0	0	NA	NA	NA
Heating	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Conv Boiler	Add Automatic Electric Damper	4	0	4	0	289	2 70	7 8
Cooling	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Electric Evap Cooler	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	4	0	7	0	2,328	6 30	2 9
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	4	0	7	0	2,013	2 80	6 4
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	20	2	26	2	10,708	3 30	5 4
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL2: FL 2X4 3F40T12 STD1,2	FL236 FL 2X4 3F32T8 ELC3	2	0	6	0	1,598	7 80	2 4
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL62: FL 1X8 2F96T12 STD2	FL131· FL 1X8 2F96T12ES ELC2 REF	1	0	5	0	1,077	5 50	3 4
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL81: FL 2X4 2F40T12ES STD2	FL105· FL 2X4 2F40T12ES ELC2	1	0	4	0	949	7 50	2 5
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL79· FL 2X4 4F40T12ES STD2	FL237· FL 2X4 3F32T8 ELC3 REF	38	3	51	3	19,169	3 80	4 7
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189 CFL 2·15 CEIL FIXT	2	0	5	0	1,592	11 40	1 6
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	10	1	15	1	7,277	11 80	1 5
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	10	0	15	0	4,557	3 60	5 0
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	5	0	5	0	123	5 50	1 0
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	45	0	45	0	1,969	38 80	0 2
Roof	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Roof Insulation R-Value 20 05	Suspended Ceiling: Increase Insulation by R 8	1	1	202	0	16,864	3 50	5 9
Wall	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Wall Insulation R-Value 0 00	Interior Masonary Surface: Increase Insulation by R-4 3	1	1	123	0	1,812	1 20	18 0
Heating	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Air Heat Pump	none	0	0	0	0	NA	NA	NA
Cooling	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Air Cool Heat Pump	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	FL5· FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	50	3	62	3	24,663	3 20	5 6
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	76	5	81	5	38,082	5 70	3 2
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	FL6. FL 2X2 2F40T12U STD2	FL54 FL 2X2 2F32T8U ELC2	2	0	3	0	953	4 80	3 8
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	HS13: HPS 70 PEND	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178· CFL 9 + BLST UNIT	21	1	25	1	11,626	7 40	2 4
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	IN8: INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	30	2	37	2	20,910	34 30	0 5
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	MH36: MH 250 HE PEND	none	0	0	0	0	NA	NA	NA
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	11	0	4,902	6 60	2 7
Hot Water	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Central Boiler	Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators	14	1	14	1	6,150	52 70	0 3
Roof	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R·8	1	1	81	0	11,764	2 10	8 8
Wall	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Wall Insulation R-Value 5 32	none	1	1	0	0	NA	NA	NA

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - SW side - RI	30	55	30	55	25,898	7.33	2.4
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - NW Side - RI	5	9	5	9	3,445	3.83	4.5
Envelope	Family Housing	ADMIN: MISC post 1964		Double Paned Window - RI	62	18	62	18	-28,399	0.31	54.8
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization - RI	557	366	557	366	241,072	27.99	0.6
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen- NE side - RI	12	7	12	7	-76	0.97	17.7
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - SE side - RI	4	3	4	3	565	1.97	8.7
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - SW side - RI	17	31	17	31	14,676	7.33	2.4
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - NW Side - RI	3	5	3	5	1,952	3.83	4.5
Envelope	Family Housing	ADMIN: MISC pre 1964		Double Paned Window - RI	35	10	35	10	-16,094	0.31	54.8
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	47	31	47	31	18,563	9.01	1.9
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen- NE side - RI	11	6	11	6	-73	0.97	17.7
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen - SE side - RI	4	2	4	2	542	1.97	8.7
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen - SW side - RI	16	30	16	30	14,078	7.33	2.4
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen - NW Side - RI	3	5	3	5	1,873	3.83	4.5
Envelope	Family Housing	BRK/ADM MISC		Double Paned Window - RI	34	10	34	10	-15,437	0.31	54.8
Envelope	Barracks	Concrete Block: Barracks		Weatherization - RI	409	269	409	269	173,276	17.70	1.0
Envelope	Barracks	Concrete Block: Barracks		Window Screen- NE side - RI	27	16	27	16	-176	0.97	17.7
Envelope	Barracks	Concrete Block: Barracks		Window Screen - SE side - RI	29	17	29	17	3,905	1.97	8.7
Envelope	Barracks	Concrete Block: Barracks		Window Screen - SW side - RI	39	72	39	72	34,111	7.33	2.4
Envelope	Barracks	Concrete Block: Barracks		Window Screen - NW Side - RI	20	36	20	36	13,513	3.83	4.5
Envelope	Family Housing	Concrete Block: Barracks		Double Paned Window - RI	114	33	114	33	-52,202	0.31	54.8
Envelope	Family Housing	Concrete Block: Misc -post 1980		Double Paned Window - RI	35	10	35	10	-16,165	0.31	54.8
Envelope	Misc	Concrete Block: Misc -post 1980		Weatherization - RI	299	197	299	197	124,741	13.97	1.2
Envelope	Misc	Concrete Block: Misc -post 1980		Window Screen- NE side - RI	7	4	7	4	-48	0.97	17.7
Envelope	Misc	Concrete Block: Misc -post 1980		Window Screen - SE side - RI	10	6	10	6	1,418	1.97	8.7
Envelope	Misc	Concrete Block: Misc -post 1980		Window Screen - SW side - RI	10	19	10	19	9,214	7.33	2.4
Envelope	Misc	Concrete Block: Misc -post 1980		Window Screen - NW Side - RI	7	13	7	13	4,903	3.83	4.5
Envelope	Family Housing	Concrete Block: Misc -pre 1980		Double Paned Window - RI	40	12	40	12	-18,535	0.31	54.8
Envelope	Misc	Concrete Block: Misc -pre 1980		Weatherization - RI	217	142	217	142	92,117	19.11	0.9
Envelope	Misc	Concrete Block: Misc -pre 1980		Window Screen- NE side - RI	8	5	8	5	-54	0.97	17.7
Envelope	Misc	Concrete Block: Misc -pre 1980		Window Screen - SE side - RI	12	7	12	7	1,626	1.97	8.7
Envelope	Misc	Concrete Block: Misc -pre 1980		Window Screen - SW side - RI	12	22	12	22	10,564	7.33	2.4
Envelope	Misc	Concrete Block: Misc -pre 1980		Window Screen - NW Side - RI	8	15	8	15	5,622	3.83	4.5
Envelope		Concrete Block: w/ SE win only		Weatherization - RI	24	16	24	16	6,474	2.54	6.8
Envelope		Concrete Block: w/ SE win only		Window Screen- NE side - RI	0	0	0	0	0	NA	NA
Envelope		Concrete Block: w/ SE win only		Window Screen - SE side - RI	18	11	18	11	2,487	1.97	8.7
Envelope		Concrete Block: w/ SE win only		Window Screen - SW side - RI	0	0	0	0	0	NA	NA
Envelope		Concrete Block: w/ SE win only		Window Screen - NW Side - RI	0	0	0	0	0	NA	NA
Envelope	Family Housing	Concrete Block: w/ SE win only		Double Paned Window - RI	15	4	15	4	-7,088	0.31	54.8
Envelope	Dining	DINING: MSIC		Weatherization - RI	203	133	203	133	85,324	15.77	1.1
Envelope	Dining	DINING: MSIC		Window Screen- NE side - RI	12	7	12	7	-81	0.97	17.7
Envelope	Dining	DINING: MSIC		Window Screen - SE side - RI	4	3	4	3	605	1.97	8.7
Envelope	Dining	DINING: MSIC		Window Screen - SW side - RI	18	33	18	33	15,734	7.33	2.4
Envelope	Dining	DINING: MSIC		Window Screen - NW Side - RI	3	6	3	6	2,093	3.83	4.5
Envelope	Family Housing	DINING: MSIC		Double Paned Window - RI	42	11	42	11	-17,342	0.31	55.4
Envelope		Masonite Siding: post 1950		Weatherization - RI	755	496	755	496	331,363	46.17	0.4
Envelope		Masonite Siding: post 1950		Window Screen- NE side - RI	30	17	30	17	-196	0.97	17.7
Envelope		Masonite Siding: post 1950		Window Screen - SE side - RI	11	7	11	7	1,531	1.97	8.7
Envelope		Masonite Siding: post 1950		Window Screen - SW side - RI	44	81	44	81	38,348	7.33	2.4
Envelope		Masonite Siding: post 1950		Window Screen - NW Side - RI	8	14	8	14	5,102	3.83	4.5
Envelope	Family Housing	Masonite Siding: post 1950		Double Paned Window - RI	91	27	91	27	-42,052	0.31	54.8
Envelope		Masonite Siding: pre 1950		Weatherization - RI	1,827	1,200	1,827	1,200	794,401	32.01	0.5
Envelope		Masonite Siding: pre 1950		Window Screen- NE side - RI	72	42	72	42	-469	0.97	17.7
Envelope		Masonite Siding: pre 1950		Window Screen - SE side - RI	34	21	34	21	4,629	1.97	8.7
Envelope		Masonite Siding: pre 1950		Window Screen - SW side - RI	109	202	109	202	95,684	7.33	2.4
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side - RI	20	36	20	36	13,495	3.83	4.5
Envelope	Family Housing	Masonite Siding: pre 1950		Double Paned Window - RI	231	67	231	67	-106,187	0.31	54.8
Envelope		Metal Siding		Weatherization - RI	1,024	672	1,024	672	445,841	33.69	0.5
Envelope		Metal Siding		Window Screen- NE side - RI	55	32	55	32	-360	0.97	17.7
Envelope		Metal Siding		Window Screen - SE side - RI	76	46	76	46	10,339	1.97	8.7
Envelope		Metal Siding		Window Screen - SW side - RI	77	142	77	142	67,187	7.33	2.4
Envelope		Metal Siding		Window Screen - NW Side - RI	55	99	55	99	37,110	3.83	4.5
Envelope	Family Housing	Metal Siding		Double Paned Window - RI	261	76	261	76	-120,120	0.31	54.8
Envelope	Family Housing	MOTORPOOL		Double Paned Window - RI	63	18	63	18	-28,952	0.31	54.8
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	62	41	62	41	26,113	15.46	1.1
Envelope	Motorpool	MOTORPOOL		Window Screen- NE side - RI	21	12	21	12	-136	0.97	17.7
Envelope	Motorpool	MOTORPOOL		Window Screen - SE side - RI	7	5	7	5	1,016	1.97	8.7
Envelope	Motorpool	MOTORPOOL		Window Screen - SW side - RI	30	56	30	56	26,403	7.33	2.4
Envelope	Motorpool	MOTORPOOL		Window Screen - NW Side - RI	5	9	5	9	3,512	3.83	4.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Family Housing	MWR		Double Paned Window - RI	15	4	15	4	-6,711	0 31	54.8
Envelope	MWR	MWR		Weatherization - RI	10	6	10	6	2,960	3.17	5.4
Envelope	MWR	MWR		Window Screen- NE side - RI	5	3	5	3	-32	0.97	17.7
Envelope	MWR	MWR		Window Screen - SE side - RI	2	1	2	1	235	1 97	8.7
Envelope	MWR	MWR		Window Screen - SW side - RI	7	13	7	13	6,120	7.33	2.4
Envelope	MWR	MWR		Window Screen - NW Side - RI	1	2	1	2	814	3.83	4.5
Envelope	Family Housing	Northeast, 1961 Vintage		Window Screen - RI	258	150	258	150	-1,690	0.97	17.7
Envelope	Family Housing	Northeast, 1963 Vintage		Window Screen - RI	282	164	282	164	-1,850	0.97	17.7
Envelope	Family Housing	Northeast, 1964, 1965, 1966 Vintage		Window Screen - RI	172	100	172	100	-1,129	0.97	17.7
Envelope	Family Housing	Northeast, 1983 Vintage		Window Screen - RI	264	153	264	153	-1,729	0 97	17.7
Envelope	Family Housing	Northeast, 1984 Vintage		Window Screen - RI	198	115	198	115	-1,300	0 97	17.7
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen - RI	103	186	103	186	69,803	3.83	4.5
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	113	204	113	204	76,372	3.83	4.5
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen - RI	69	124	69	124	46,608	3 83	4.5
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen - RI	105	190	105	190	71,365	3.83	4.5
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen - RI	79	143	79	143	53,668	3.83	4.5
Envelope	Family Housing	SECURTY		Double Paned Window - RI	3	1	3	1	-1,375	0.31	54.8
Envelope	Security	SECURTY		Window Screen- NE side - RI	1	1	1	1	-6	0.97	17.7
Envelope	Security	SECURTY		Window Screen - SE side - RI	0	0	0	0	48	1.97	8.7
Envelope	Security	SECURTY		Window Screen - SW side - RI	1	3	1	3	1,254	7.33	2.4
Envelope	Security	SECURTY		Window Screen - NW Side - RI	0	0	0	0	167	3.83	4.5
Envelope	Family Housing	SHOP		Double Paned Window - RI	62	18	62	18	-28,359	0.31	54.8
Envelope	Shop	SHOP		Weatherization - RI	199	131	199	131	84,456	18.67	0.9
Envelope	Shop	SHOP		Window Screen- NE side - RI	20	12	20	12	-133	0 97	17.7
Envelope	Shop	SHOP		Window Screen - SE side - RI	7	4	7	4	995	1.97	8.7
Envelope	Shop	SHOP		Window Screen - SW side - RI	29	55	29	55	25,862	7.33	2.4
Envelope	Shop	SHOP		Window Screen - NW Side - RI	5	9	5	9	3,440	3.83	4.5
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	370	225	370	225	50,445	1.97	8.7
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen - RI	405	246	405	246	55,215	1.97	8.7
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	247	150	247	150	33,697	1.97	8.7
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	378	230	378	230	51,595	1.97	8.7
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	284	173	284	173	38,801	1.97	8.7
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen - RI	151	279	151	279	132,108	7.33	2.4
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	164	303	164	303	143,521	7.33	2.4
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen - RI	100	185	100	185	87,588	7.33	2.4
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	153	284	153	284	134,112	7.33	2.4
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen - RI	115	213	115	213	100,856	7.33	2.4
Envelope	Family Housing	TRAINING		Double Paned Window - RI	20	6	20	6	-9,395	0.31	54.8
Envelope	Training	TRAINING		Weatherization - RI	82	54	82	54	32,873	9.06	1.9
Envelope	Training	TRAINING		Window Screen- NE side - RI	7	4	7	4	-44	0.97	17.7
Envelope	Training	TRAINING		Window Screen - SE side - RI	2	1	2	1	330	1.97	8.7
Envelope	Training	TRAINING		Window Screen - SW side - RI	10	18	10	18	8,568	7.33	2.4
Envelope	Training	TRAINING		Window Screen - NW Side - RI	2	3	2	3	1,140	3.83	4.5
Envelope	Barracks	U Shaped Bldgs: Barracks		Weatherization - RI	1,432	940	1,432	940	614,151	22.55	0.8
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen- NE side - RI	59	-15	59	-15	-389	0.97	17.7
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - SE side - RI	197	120	197	120	26,894	1.97	8.7
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - SW side - RI	199	369	199	369	174,765	7.33	2.4
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - NW Side - RI	59	107	59	107	40,117	3.83	4.5
Envelope	Family Housing	U Shaped Bldgs: Barracks		Double Paned Window - RI	477	139	477	139	-219,450	0.31	54.8
Envelope	Family Housing	U Shaped Bldgs: Other		Double Paned Window - RI	68	20	68	20	-31,335	0.31	54.8
Envelope	Other	U Shaped Bldgs: Other		Weatherization - RI	382	251	382	251	166,045	32.15	0.5
Envelope	Other	U Shaped Bldgs: Other		Window Screen- NE side - RI	8	-2	8	-2	-56	0.97	17.7
Envelope	Other	U Shaped Bldgs: Other		Window Screen - SE side - RI	28	17	28	17	3,840	1.97	8.7
Envelope	Other	U Shaped Bldgs: Other		Window Screen - SW side - RI	28	53	28	53	24,955	7.33	2.4
Envelope	Other	U Shaped Bldgs: Other		Window Screen - NW Side - RI	8	15	8	15	5,728	3.83	4.5
Envelope	Family Housing	WHS		Double Paned Window - RI	14	4	14	4	-5,741	0.34	51.3
Envelope	WHS	WHS		Weatherization - RI	104	68	104	68	44,122	18.79	0.9
Envelope	WHS	WHS		Window Screen- NE side - RI	4	2	4	2	-28	0.97	17.7
Envelope	WHS	WHS		Window Screen - SE side - RI	2	1	2	1	208	1.97	8.7
Envelope	WHS	WHS		Window Screen - SW side - RI	6	11	6	11	5,402	7.33	2.4
Envelope	WHS	WHS		Window Screen - NW Side - RI	1	2	1	2	719	3.83	4.5
Envelope		Wood Siding		Weatherization - RI	87	57	87	57	37,033	21.45	0.8
Envelope		Wood Siding		Window Screen- NE side - RI	9	5	9	5	-60	0.97	17.7
Envelope		Wood Siding		Window Screen - SE side - RI	3	2	3	2	450	1.97	8.7
Envelope		Wood Siding		Window Screen - SW side - RI	13	25	13	25	11,708	7.33	2.4
Envelope		Wood Siding		Window Screen - NW Side - RI	2	4	2	4	1,558	3.83	4.5
Envelope	Family Housing	Wood Siding		Double Paned Window - RI	28	8	28	8	-12,838	0.31	54.8
Envelope	Family Housing	1961		Weatherization - RI	1,803	1,184	1,803	1,184	749,345	13.50	1.3
Envelope	Family Housing	1963		Weatherization - RI	1,971	1,295	1,971	1,295	830,164	16 20	1.1

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Family Housing	1983		Weatherization - RI	746	490	746	490	289,719	7.43	2.3
Envelope	Family Housing	1984		Weatherization - RI	554	364	554	364	214,222	7.21	2.4
Fam. Hsg. HVAC	1a	Family Housing	Residential HVAC	Std. Eff. Air Source HP - RI	56,846	6,680	56,846	6,680	946,598	1.21	14.2
Fam. Hsg. HVAC	1a	Family Housing	Residential HVAC	Std. Eff. Air Source HP - ROF	0	0	56,846	6,680	1,905,966	1.53	11.3
Fam. Hsg. HVAC	1b	Family Housing	Residential HVAC	High Eff. Air Source HP - RI	69,239	15,882	69,239	15,882	-5,785	1.00	17.2
Fam. Hsg. HVAC	1b	Family Housing	Residential HVAC	High Eff. Air Source HP - ROF	0	0	69,239	15,882	1,315,629	1.17	14.7
Fam. Hsg. HVAC	2a	Family Housing	Residential HVAC	Std. Eff. Grnd Source HP - RI	69,794	12,076	69,794	12,076	4,233,677	1.73	10.0
Fam. Hsg. HVAC	2a	Family Housing	Residential HVAC	Std. Eff. Grnd Source HP - ROF	0	0	69,794	12,076	4,024,218	1.86	9.3
Fam. Hsg. HVAC	2b	Family Housing	Residential HVAC	High Eff. Grnd Source HP - RI	76,678	15,226	76,678	15,226	5,244,863	1.74	9.9
Fam. Hsg. HVAC	2b	Family Housing	Residential HVAC	High Eff. Grnd Source HP - ROF	0	0	76,678	15,226	4,679,589	1.82	9.5
Fam. Hsg. HVAC	3a	Family Housing	Residential HVAC	Std. Eff. NG Furnace & DX - RI	13,324	6,287	13,324	6,287	4,351,339	2.36	7.3
Fam. Hsg. HVAC	3a	Family Housing	Residential HVAC	Std. Eff. NG Furnace & DX - ROF	0	0	13,324	6,287	3,821,213	2.48	6.9
Fam. Hsg. HVAC	3b	Family Housing	Residential HVAC	High Eff. NG Furnace & DX - RI	32,897	15,110	32,897	15,110	2,531,283	1.30	13.3
Fam. Hsg. HVAC	3b	Family Housing	Residential HVAC	High Eff. NG Furnace & DX - ROF	0	0	32,897	15,110	2,717,312	1.40	12.3
Fam. Hsg. HVAC	4a	Family Housing	Residential HVAC	Std. Eff. LPG Furnace & DX - RI	13,324	6,287	13,324	6,287	3,009,411	1.94	8.9
Fam. Hsg. HVAC	4a	Family Housing	Residential HVAC	Std. Eff. LPG Furnace & DX - ROF	0	0	13,324	6,287	3,029,752	2.17	7.9
Fam. Hsg. HVAC	4b	Family Housing	Residential HVAC	High Eff. LPG Furnace & DX - RI	32,897	15,110	32,897	15,110	1,400,933	1.16	14.8
Fam. Hsg. HVAC	4b	Family Housing	Residential HVAC	High Eff. LPG Furnace & DX - ROF	0	0	32,897	15,110	2,050,639	1.30	13.3
Fam. Hsg. HVAC	5	Family Housing	Residential HVAC	Gas Heat Pump - RI	2,468	34,378	2,468	34,378	6,944,238	1.74	9.9
Fam. Hsg. HVAC	5	Family Housing	Residential HVAC	Gas Heat Pump - ROF	0	0	2,468	34,378	6,194,256	1.81	9.5
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	105	16	105	16	13,882	4.63	3.7
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - ROF	0	0	105	16	13,461	4.63	3.7
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - RI	333	52	333	52	32,996	3.70	4.7
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - ROF	0	0	333	52	23,165	3.42	5.0
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - RI	256	39	256	39	25,525	3.78	4.6
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - ROF	0	0	256	39	17,853	3.48	4.9
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - RI	333	52	333	52	32,996	3.70	4.7
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - ROF	0	0	333	52	23,165	3.42	5.0
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - RI	43	6	43	6	4,055	2.33	7.4
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - ROF	0	0	43	6	3,993	2.35	7.3
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - RI	29	5	29	5	4,018	2.57	6.7
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - ROF	0	0	29	5	4,010	2.62	6.6
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - RI	76	13	76	13	10,631	7.25	2.4
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - ROF	0	0	76	13	10,207	7.19	2.4
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	277	51	277	51	36,498	8.93	1.9
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - ROF	0	0	277	51	34,802	8.80	2.0
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,402	2.11	8.2
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - ROF	0	0	42	6	3,348	2.13	8.1
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,923	2.28	7.5
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - ROF	0	0	42	6	3,869	2.30	7.5
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	32	6	32	6	2,955	2.74	6.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - ROF	0	0	32	6	2,854	2.73	6.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	32	6	32	6	2,955	2.74	6.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - ROF	0	0	32	6	2,854	2.73	6.3
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - RI	42	8	42	8	4,999	4.25	4.1
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - ROF	0	0	42	8	4,811	4.22	4.1
Heating	9	MTRPOOL - 00642	Unit Heaters	Radiant Heat - RI	34	0	34	0	-2,259	0.71	24.4
Heating	9	MTRPOOL - 00642	Unit Heaters	Radiant Heat - ROF	0	0	34	0	-1,865	0.75	23.0
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	32	6	32	6	4,245	5.16	3.3
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - ROF	0	0	32	6	4,090	5.13	3.4
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - RI	42	8	42	8	5,849	3.76	4.6
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - ROF	0	0	42	8	5,711	3.78	4.6
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - RI	222	40	222	40	19,582	2.81	6.1
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - ROF	0	0	222	40	14,531	2.66	6.5
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	250	40	250	40	23,281	3.15	5.5
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - ROF	0	0	250	40	16,971	2.94	5.9
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	126	17	126	17	9,037	1.98	8.7
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - ROF	0	0	126	17	7,681	2.07	8.3
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	67	8	67	8	4,630	2.01	8.6
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - ROF	0	0	67	8	3,548	2.05	8.4
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	86	17	86	17	10,811	5.70	3.0
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - ROF	0	0	86	17	10,355	5.64	3.1
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	51	8	51	8	6,239	5.05	3.4
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - ROF	0	0	51	8	5,986	5.01	3.4
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - RI	77	10	77	10	4,797	1.89	9.1
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - ROF	0	0	77	10	3,170	1.88	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - RI	38	6	38	6	2,654	1.87	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - ROF	0	0	38	6	2,429	1.98	8.7
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - RI	297	57	297	57	37,429	7.12	2.4

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - ROF	0	0	297	57	35,705	7.01	2.5
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	117	23	117	23	14,722	5.81	3.0
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - ROF	0	0	117	23	14,008	5.75	3.0
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,402	2.11	8.2
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - ROF	0	0	42	6	3,348	2.13	8.1
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	462	68	462	68	30,142	2.10	8.2
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - ROF	0	0	462	68	22,494	2.01	8.6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - RI	470	80	470	80	25,646	1.79	9.6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - ROF	0	0	470	80	20,004	1.76	9.8
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	82	11	82	11	5,827	1.95	8.8
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - ROF	0	0	82	11	5,000	2.04	8.4
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - RI	45	6	45	6	3,407	2.11	8.1
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - ROF	0	0	45	6	2,803	2.17	7.9
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	34	5	34	5	3,984	2.56	6.7
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - ROF	0	0	34	5	3,947	2.59	6.6
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	32	6	32	6	3,572	3.32	5.2
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - ROF	0	0	32	6	3,459	3.32	5.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	5	0	5	0	924	2.78	6.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - ROF	0	0	5	0	907	2.80	6.2
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	33	0	33	0	7,624	5.48	3.1
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - ROF	0	0	33	0	7,340	5.45	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	8	0	8	0	1,828	5.35	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - ROF	0	0	8	0	1,762	5.32	3.2
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	15	20	15	20	3,926	6.17	2.8
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - ROF	0	0	15	20	2,011	4.70	3.7
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - RI	16	21	16	21	3,847	4.21	4.1
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - ROF	0	0	16	21	3,672	4.16	4.1
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - RI	161	0	161	0	30,899	3.69	4.7
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - ROF	0	0	161	0	29,749	3.67	4.7
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	232	0	232	0	37 921	2.98	5.8
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - ROF	0	0	232	0	36,477	2.97	5.8
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - RI	12	6	12	6	1,040	1.68	10.3
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - ROF	0	0	12	6	1,108	1.92	9.0
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - RI	19	10	19	10	1,621	1.63	10.5
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - ROF	0	0	19	10	1,778	1.89	9.1
HVAC	MT-3		Heat pump	2-speed compressor - RI	1,132	1,418	1,132	1,418	328,228	2.36	7.3
HVAC	MT-4		Heat pump	Economizer cooling - RI	1,469	2,730	1,469	2,730	-132,193	0.76	22.6
HVAC	1	Admin	Programmable T-Stat	Night Setback - RI	7,583	101	7,583	101	909,248	46.28	0.4
HVAC	2	Chapel	Programmable T-Stat	Night Setback - RI	275	5	275	5	35,968	35.63	0.5
HVAC	3	Clinic	Programmable T-Stat	Night Setback - RI	645	28	645	28	112,544	55.18	0.3
HVAC	4	Comcatn	Programmable T-Stat	Night Setback - RI	964	24	964	24	136,424	66.68	0.3
HVAC	5	DGR	Programmable T-Stat	Night Setback - RI	555	20	555	20	91,366	24.99	0.7
HVAC	6	MtrPool	Programmable T-Stat	Night Setback - RI	3,439	46	3,439	46	419,976	152.64	0.1
HVAC	7	Shop-Elc	Programmable T-Stat	Night Setback - RI	52	4	52	4	10,946	8.90	1.9
HVAC	8	Traing	Programmable T-Stat	Night Setback - RI	413	44	413	44	114,454	20.45	0.8
Lighting	DLC-3a	Conference	Existing Lighting	Existing + Daylighting Controls - RI	95	NA	95	NA	45,443	35.62	0.5
Lighting	DLC-3b	Conference	T8 Lighting	T8 + Daylighting Controls - RI	64	NA	64	NA	32,210	25 04	0.7
Lighting	OS-3a	Conference	Existing Lighting	Existing + Occupancy Controls - RI	370	NA	370	NA	178,297	44.14	0.4
Lighting	OS-3b	Conference	T8 Lighting	T8 + Occupancy Controls - RI	248	NA	248	NA	126,608	31.63	0.5
Lighting	DLC-5a	Copy Room	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-5b	Copy Room	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-5a	Copy Room	Existing Lighting	Existing + Occupancy Controls - RI	74	NA	74	NA	32,748	9 44	1.8
Lighting	OS-5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	50	NA	50	NA	22,149	6.40	2.7
Lighting	DLC-7a	Hallway	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-7b	Hallway	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-7a	Hallway	Existing Lighting	Existing + Occupancy Controls - RI	1,366	NA	1,366	NA	660,755	58.50	0.3
Lighting	OS-7b	Hallway	T8 Lighting	T8 + Occupancy Controls - RI	915	NA	915	NA	469,897	41.89	0.4
Lighting	DLC-8a	Highbay	Existing Lighting	Existing + Daylighting Controls - RI	1,693	NA	1,693	NA	833,563	153.28	0.1
Lighting	DLC-8b	Highbay	T8 Lighting	T8 + Daylighting Controls - RI	1,134	NA	1,134	NA	599,101	110.44	0.2
Lighting	OS-8a	Highbay	Existing Lighting	Existing + Occupancy Controls - RI	3,077	NA	3,077	NA	1,510,876	131.34	0.1
Lighting	OS-8b	Highbay	T8 Lighting	T8 + Occupancy Controls - RI	2,062	NA	2,062	NA	1,082,188	94.36	0.2
Lighting	DLC-2a	Large Office/Room	Existing Lighting	Existing + Daylighting Controls - RI	1,444	NA	1,444	NA	709,929	40.77	0.4
Lighting	DLC-2b	Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	968	NA	968	NA	514,454	29.82	0.6
Lighting	OS-2a	Large Office/Room	Existing Lighting	Existing + Occupancy Controls - RI	1,642	NA	1,642	NA	784,568	25.91	0.7
Lighting	OS-2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	1,100	NA	1,100	NA	554,005	16.68	1.0
Lighting	DLC-4a	Lunchroom	Existing Lighting	Existing + Daylighting Controls - RI	98	NA	98	NA	47,274	42.45	0.4
Lighting	DLC-4b	Lunchroom	T8 Lighting	T8 + Daylighting Controls - RI	66	NA	66	NA	33,641	28.74	0.6
Lighting	OS-4a	Lunchroom	Existing Lighting	Existing + Occupancy Controls - RI	918	NA	918	NA	442,991	44.95	0.4
Lighting	OS-4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	615	NA	615	NA	315,071	32.26	0.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lighting	DLC-MT-3a	MT Conference	Existing Lighting	Existing + Daylighting Controls - RI	57	NA	57	NA	26,892	21.48	0.8
Lighting	DLC-MT-3b	MT Conference	T8 Lighting	T8 + Daylighting Controls - RI	38	NA	38	NA	18,925	15.13	1.1
Lighting	OS-MT-3a	MT Conference	Existing Lighting	Existing + Occupancy Controls - RI	220	NA	220	NA	104,090	26.19	0.7
Lighting	OS-MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	147	NA	147	NA	72,991	16.83	1.0
Lighting	DLC-MT-5a	MT Copy Room	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-MT-5b	MT Copy Room	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-MT-5a	MT Copy Room	Existing Lighting	Existing + Occupancy Controls - RI	45	NA	45	NA	18,021	5.35	3.2
Lighting	OS-MT-5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	30	NA	30	NA	11,615	3.72	4.6
Lighting	DLC-MT-7a	MT Hallway	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-MT-7b	MT Hallway	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-MT-7a	MT Hallway	Existing Lighting	Existing + Occupancy Controls - RI	-405	NA	-405	NA	-219,157	-9.97	NA
Lighting	OS-MT-7b	MT Hallway	T8 Lighting	T8 + Occupancy Controls - RI	-271	NA	-271	NA	161,433	7.59	NA
Lighting	DLC-MT-8a	MT Highbay	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-MT-8b	MT Highbay	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-MT-8a	MT Highbay	Existing Lighting	Existing + Occupancy Controls - RI	-749	NA	-749	NA	384 410	-15.61	NA
Lighting	OS-MT-8b	MT Highbay	T8 Lighting	T8 + Occupancy Controls - RI	-502	NA	-502	NA	-276,114	-12.16	NA
Lighting	DLC-MT-2a	MT Large Office/Room	Existing Lighting	Existing + Daylighting Controls - RI	296	NA	296	NA	145,082	13.19	1.3
Lighting	DLC-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	198	NA	198	NA	107,946	10.07	1.7
Lighting	OS-MT-2a	MT Large Office/Room	Existing Lighting	Existing + Occupancy Controls - RI	-25	NA	-25	NA	-49,660	-0.10	NA
Lighting	OS-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	-17	NA	-17	NA	-43,371	0.04	438.2
Lighting	DLC-MT-4a	MT Lunchroom	Existing Lighting	Existing + Daylighting Controls - RI	14	NA	14	NA	5,838	6.12	2.8
Lighting	DLC-MT-4b	MT Lunchroom	T8 Lighting	T8 + Daylighting Controls - RI	9	NA	9	NA	3,968	4.27	4.0
Lighting	OS-MT-4a	MT Lunchroom	Existing Lighting	Existing + Occupancy Controls - RI	76	NA	76	NA	24,976	2.82	6.1
Lighting	OS-MT-4b	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	51	NA	51	NA	14,477	2.04	8.5
Lighting	DLC-MT-6a	MT Restroom	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-MT-6b	MT Restroom	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-MT-6a	MT Restroom	Existing Lighting	Existing + Occupancy Controls - RI	9	NA	9	NA	-21,279	0.21	81.4
Lighting	OS-MT-6b	MT Restroom	T8 Lighting	T8 + Occupancy Controls - RI	6	NA	6	NA	-22,138	0.18	95.3
Lighting	DLC-MT-1a	MT Small Office	Existing Lighting	Existing + Daylighting Controls - RI	-10	NA	-10	NA	-13,790	0.51	33.9
Lighting	DLC-MT-1b	MT Small Office	T8 Lighting	T8 + Daylighting Controls - RI	-7	NA	-7	NA	-7,138	0.76	22.6
Lighting	OS-MT-1a	MT Small Office	Existing Lighting	Existing + Occupancy Controls - RI	-1,125	NA	-1,125	NA	-652,022	-4.62	NA
Lighting	OS-MT-1b	MT Small Office	T8 Lighting	T8 + Occupancy Controls - RI	-754	NA	-754	NA	-485,464	-3.31	NA
Lighting	DLC-6a	Restroom	Existing Lighting	Existing + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	DLC-6b	Restroom	T8 Lighting	T8 + Daylighting Controls - RI	0	NA	0	NA	0	NA	NA
Lighting	OS-6a	Restroom	Existing Lighting	Existing + Occupancy Controls - RI	457	NA	457	NA	203,416	9.82	1.8
Lighting	OS-6b	Restroom	T8 Lighting	T8 + Occupancy Controls - RI	307	NA	307	NA	138,582	6.68	2.6
Lighting	DLC-1a	Small Office	Existing Lighting	Existing + Daylighting Controls - RI	400	NA	400	NA	183,610	5.36	3.2
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls - RI	268	NA	268	NA	135,586	4.01	4.3
Lighting	OS-1a	Small Office	Existing Lighting	Existing + Occupancy Controls - RI	-433	NA	-433	NA	-305,450	-1.78	NA
Lighting	OS-1b	Small Office	T8 Lighting	T8 + Occupancy Contrpls - RI	-290	NA	-290	NA	-237,568	-1.19	NA
Motors	MT-2		Fan motor	2-speed fan motor - RI	248	0	248	0	-28,902	0.60	28.9
Motors	MTR-97	01315	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-97	01315	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - ROF	0	0	6	8	1,707	2.68	6.4
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - RI	7	10	7	10	3,462	3.79	4.5
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - ROF	0	0	1	1	60	1.14	15.2
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - RI	1	2	1	2	232	1.45	11.9
Motors	MTR-100	ADMIN - 00157	EVAP	EEM - ROF	0	0	0	0	-293	0.20	81.7
Motors	MTR-100	ADMIN - 00157	EVAP	EEM - RI	0	0	0	0	-436	0.01	1,387.3
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-102	ADMIN - 00236	EVAP	EEM - ROF	0	0	1	1	-878	0.20	84.7
Motors	MTR-102	ADMIN - 00236	EVAP	EEM - RI	1	1	1	1	-1,307	0.01	1,387.3
Motors	MTR-103	ADMIN - 00237	EVAP	EEM - ROF	0	0	8	11	3,252	3.12	5.5
Motors	MTR-103	ADMIN - 00237	EVAP	EEM - RI	9	13	9	13	4,669	3.82	4.5
Mptors	MTR-104	ADMIN - 00237	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - ROF	0	0	3	4	1,220	3.12	5.5
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - RI	3	5	3	5	1,751	3.82	4.5
Motors	MTR-51a	ADMIN - 00243	COOL	EEM - ROF	0	0	0	0	-321	0.13	136.9
Motors	MTR-51a	ADMIN - 00243	COOL	EEM - RI	0	0	0	0	-488	-0.11	NA
Motors	MTR-51b	ADMIN - 00243	COOL	VSD to Std - ROF	0	0	1	-0	-3,110	-0.03	NA
Motors	MTR-51b	ADMIN - 00243	COOL	VSD to Std - RI	1	0	1	0	-4,784	-0.28	NA
Motors	MTR-51c	ADMIN - 00243	COOL	VSD & EEM - ROF	0	0	1	0	-3,175	-0.00	NA
Motors	MTR-51c	ADMIN - 00243	COOL	VSD & EEM - RI	1	0	1	0	-4,829	-0.24	NA
Motors	MTR-106	ADMIN - 00248	EVAP	EEM - ROF	0	0	1	2	-734	0.41	41.7
Motors	MTR-106	ADMIN - 00248	EVAP	EEM - RI	2	2	2	2	-988	0.34	51.3
Motors	MTR-107	ADMIN - 00256	EVAP	EEM - ROF	0	0	1	1	-1,523	0.20	87.8
Motors	MTR-107	ADMIN - 00256	EVAP	EEM - RI	1	2	1	2	-2,135	0.03	541.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-108	ADMIN - 00257	EVAP	EEM - ROF	0	0	1	1	-1,523	0.20	87.8
Motors	MTR-108	ADMIN - 00257	EVAP	EEM - RI	1	2	1	2	-2,135	0.03	541.9
Motors	MTR-109	ADMIN - 00279	EVAP	EEM - ROF	0	0	2	3	1,259	0.41	41.6
Motors	MTR-109	ADMIN - 00279	EVAP	EEM - RI	3	4	3	4	1,615	0.35	49.4
Motors	MTR-110	ADMIN - 00281	EVAP	EEM - ROF	0	0	0	1	-259	0.42	41.5
Motors	MTR-110	ADMIN - 00281	EVAP	EEM - RI	1	1	1	1	316	0.36	47.5
Motors	MTR-111	ADMIN - 00281	EVAP	EEM - ROF	0	0	1	1	55	0.88	19.6
Motors	MTR-111	ADMIN - 00281	EVAP	EEM - RI	1	2	1	2	50	1.10	15.7
Motors	MTR-418a	ADMIN - 00281	Fan Motor	EEM - ROF	0	0	0	1	-219	0.39	44.0
Motors	MTR-418a	ADMIN - 00281	Fan Motor	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-418b	ADMIN - 00281	Fan Motor	VSD to Std - ROF	0	0	4	-0	-3,457	0.15	114.3
Motors	MTR-418b	ADMIN - 00281	Fan Motor	VSD to Std - RI	4	-0	4	-0	5,289	-0.05	NA
Motors	MTR-418c	ADMIN - 00281	Fan Motor	VSD & EEM - ROF	0	0	4	1	3,415	0.18	94.6
Motors	MTR-418c	ADMIN - 00281	Fan Motor	VSD & EEM - RI	4	1	4	1	-5,174	-0.01	NA
Motors	PMTR-8a	ADMIN - 00281	PMPMTR	EEM - ROF	0	0	0	1	-284	0.23	75.7
Motors	PMTR-8a	ADMIN - 00281	PMPMTR	EEM - RI	0	1	0	1	-419	0.05	346.4
Motors	PMTR-8b	ADMIN - 00281	PMPMTR	VSD to Std - ROF	0	0	3	-0	-545	0.53	32.3
Motors	PMTR-8b	ADMIN - 00281	PMPMTR	VSD to Std - RI	3	0	3	0	-760	0.47	36.6
Motors	PMTR-8c	ADMIN - 00281	PMPMTR	VSD & EEM - ROF	0	0	3	1	-584	0.55	31.2
Motors	PMTR-8c	ADMIN - 00281	PMPMTR	VSD & EEM - RI	3	1	3	1	-764	0.52	33.1
Motors	PMTR-9a	ADMIN - 00281	PMPMTR	EEM - ROF	0	0	0	1	-284	0.23	75.7
Motors	PMTR-9a	ADMIN - 00281	PMPMTR	EEM - RI	0	1	0	1	-419	0.05	346.4
Motors	PMTR-9b	ADMIN - 00281	PMPMTR	VSD to Std - ROF	0	0	3	-0	-545	0.53	32.3
Motors	PMTR-9b	ADMIN - 00281	PMPMTR	VSD to Std - RI	3	0	3	0	-760	0.47	36.6
Motors	PMTR-9c	ADMIN - 00281	PMPMTR	VSD & EEM - ROF	0	0	3	1	-584	0.55	31.2
Motors	PMTR-9c	ADMIN - 00281	PMPMTR	VSD & EEM - RI	3	1	3	1	764	0.52	33.1
Motors	MTR-112	ADMIN - 00320	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-112	ADMIN - 00320	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-116	ADMIN - 00408	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-116	ADMIN - 00408	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-117	ADMIN - 00411	EVAP	EEM - ROF	0	0	1	1	-464	0.35	48.6
Motors	MTR-117	ADMIN - 00411	EVAP	EEM - RI	1	1	1	1	-650	0.24	72.0
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-122	ADMIN - 00429	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-122	ADMIN - 00429	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - ROF	0	0	1	2	317	3.10	5.6
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - RI	1	2	1	2	514	3.75	4.6
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - ROF	0	0	3	4	1,317	3.23	5.3
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - RI	3	5	3	5	1,756	3.83	4.5
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-126	ADMIN - 00437	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-126	ADMIN - 00437	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-127	ADMIN - 00439	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-127	ADMIN - 00439	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - ROF	0	0	1	2	317	3.10	5.6
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - RI	1	2	1	2	514	3.75	4.6
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-129	ADMIN - 00442	EVAP	EEM - ROF	0	0	1	1	-503	0.36	47.7
Motors	MTR-129	ADMIN - 00442	EVAP	EEM - RI	1	1	1	1	-600	0.30	58.0
Motors	MTR-130	ADMIN - 00443	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-130	ADMIN - 00443	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-131	ADMIN - 00443	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-131	ADMIN - 00443	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-132	ADMIN - 00444	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-132	ADMIN - 00444	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-134	ADMIN - 00451	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-134	ADMIN - 00451	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - ROF	0	0	6	8	2,066	2.91	5.9
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5
Motors	MTR-136	ADMIN - 00452	EVAP	EEM - ROF	0	0	0	0	-293	0.20	84.7
Motors	MTR-136	ADMIN - 00452	EVAP	EEM - RI	0	0	0	0	-436	0.01	1,387.3
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-143	ADMIN - 00466	EVAP	EEM - ROF	0	0	0	1	-586	0.20	84.7
Motors	MTR-143	ADMIN - 00466	EVAP	EEM - RI	1	1	1	1	-871	0.01	1,387.3
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-155	ADMIN - 00521	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-155	ADMIN - 00521	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - ROF	0	0	6	8	2,635	3.23	5.3
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - RI	7	10	7	10	3,513	3.83	4.5
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-167	ADMIN - 00549	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-167	ADMIN - 00549	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-168	ADMIN - 00551	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-168	ADMIN - 00551	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-173	ADMIN - 00579	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-173	ADMIN - 00579	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-174	ADMIN - 00580	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-174	ADMIN - 00580	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-175	ADMIN - 00583	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-175	ADMIN - 00583	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-177	ADMIN - 00604	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-177	ADMIN - 00604	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-178	ADMIN - 00813	EVAP	EEM - ROF	0	0	0	1	-586	0.20	84.7
Motors	MTR-178	ADMIN - 00813	EVAP	EEM - RI	1	1	1	1	-871	0.01	1,387.3
Motors	MTR-52a	ADMIN - 00828	COOL	EEM - ROF	0	0	0	0	-321	0.13	136.9
Motors	MTR-52a	ADMIN - 00828	COOL	EEM - RI	0	0	0	0	-488	-0.11	NA
Motors	MTR-52b	ADMIN - 00828	COOL	VSD to Std - ROF	0	0	1	-0	-3,110	-0.03	NA
Motors	MTR-52b	ADMIN - 00828	COOL	VSD to Std - RI	1	0	1	0	-4,784	-0.28	NA
Motors	MTR-52c	ADMIN - 00828	COOL	VSD & EEM - ROF	0	0	1	0	-3,175	-0.00	NA
Motors	MTR-52c	ADMIN - 00828	COOL	VSD & EEM - RI	1	0	1	0	-4,829	-0.24	NA
Motors	MTR-179	ADMIN - 00930	EVAP	EEM - ROF	0	0	1	1	-747	0.38	45.3
Motors	MTR-179	ADMIN - 00930	EVAP	EEM - RI	1	2	1	2	-847	0.34	50.8
Motors	MTR-180	ADMIN - 00930	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-180	ADMIN - 00930	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM - ROF	0	0	2	3	360	3.00	5.7
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM - RI	2	3	2	3	605	3.92	4.4
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM - ROF	0	0	3	6	720	3.00	5.7
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM - RI	4	6	4	6	1,211	3.92	4.4
Motors	PMTR-7a	ADMIN - 00985	PMPMTR	EEM - ROF	0	0	2	3	120	1.14	15.2
Motors	PMTR-7a	ADMIN - 00985	PMPMTR	EEM - RI	3	4	3	4	464	1.45	11.9
Motors	PMTR-7b	ADMIN - 00985	PMPMTR	VSD to Std - ROF	0	0	25	1	4,595	2.48	6.9
Motors	PMTR-7b	ADMIN - 00985	PMPMTR	VSD to Std - RI	26	0	26	0	7,676	3.06	5.6
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM - ROF	0	0	26	3	5,302	2.63	6.6
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM - RI	27	4	27	4	8,900	3.31	5.2
Motors	MTR-1	ADMIN - 00988	AIRCOMP	EEM - ROF	0	0	0	1	-238	0.34	51.1
Motors	MTR-1	ADMIN - 00988	AIRCOMP	EEM - RI	0	1	0	1	-336	0.21	81.0
Motors	MTR-181	ADMIN - 00988	EVAP	EEM - ROF	0	0	1	1	282	2.69	6.4
Motors	MTR-181	ADMIN - 00988	EVAP	EEM - RI	1	1	1	1	475	3.47	5.0
Motors	MTR-182	ADMIN - 00988	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-182	ADMIN - 00988	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-183	ADMIN - 00988	EVAP	EEM - ROF	0	0	1	1	453	3.36	5.1
Motors	MTR-183	ADMIN - 00988	EVAP	EEM - RI	1	1	1	1	499	3.60	4.8
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - ROF	0	0	2	2	565	2.69	6.4
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - RI	2	3	2	3	950	3.47	5.0
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-421b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	1	-5,838	0.19	90.8
Motors	MTR-421b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-421c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-421c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-422b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	1	-5,838	0.19	90.8
Motors	MTR-422b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-422c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-422c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	2	7	258	1.22	14.1

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - RI	4	11	4	11	842	1.63	10.6
Motors	MTR-423b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	37	-4	-25,592	0.22	79.6
Motors	MTR-423b	ADMIN - 00988	Fan Motor	VSD to Std - RI	39	0	39	0	-39,283	0.02	697.0
Motors	MTR-423c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	38	7	-24,415	0.26	67.2
Motors	MTR-423c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	40	11	40	11	-37,287	0.08	224.6
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	325	2.94	5.9
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	544	3.83	4.5
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-425b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	-1	-5,838	0.19	90.8
Motors	MTR-425b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-425c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-425c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-426b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	-1	-5,838	0.19	90.8
Motors	MTR-426b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-426c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-426c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-427a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	0	1	-219	0.39	44.0
Motors	MTR-427a	ADMIN - 00988	Fan Motor	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-427b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	4	-0	-3,457	0.15	114.3
Motors	MTR-427b	ADMIN - 00988	Fan Motor	VSD to Std - RI	4	-0	4	-0	-5,289	-0.05	NA
Motors	MTR-427c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	4	1	-3,415	0.18	94.6
Motors	MTR-427c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	4	1	4	1	-5,174	-0.01	NA
Motors	MTR-428	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	24	10	3,623	2.83	6.1
Motors	MTR-428	ADMIN - 00988	Fan Motor	EEM - RI	34	14	34	14	6,930	4.05	4.2
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-429b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	-1	-5,838	0.19	90.8
Motors	MTR-429b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-429c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-429c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	1	2	-3	0.99	17.4
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-430b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	0	0	8	-1	-5,838	0.19	90.8
Motors	MTR-430b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8	-0	8	-0	-8,954	-0.01	NA
Motors	MTR-430c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	0	0	8	2	-5,598	0.23	73.4
Motors	MTR-430c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	8	3	8	3	-8,514	0.05	324.5
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - ROF	0	0	5	14	1,949	2.94	5.9
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - RI	6	16	6	16	3,265	3.83	4.5
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - ROF	0	0	1	1	22	1.05	16.4
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-53b	ADMIN - 00988	COOL	VSD to Std - ROF	0	0	13	-1	-7,599	0.28	62.4
Motors	MTR-53b	ADMIN - 00988	COOL	VSD to Std - RI	13	0	13	0	-13,456	0.02	773.6
Motors	MTR-53c	ADMIN - 00988	COOL	VSD & EEM - ROF	0	0	13	1	-7,302	0.31	55.6
Motors	MTR-53c	ADMIN - 00988	COOL	VSD & EEM - RI	14	2	14	2	-12,843	0.07	241.8
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - ROF	0	0	1	1	22	1.05	16.4
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-54b	ADMIN - 00988	COOL	VSD to Std - ROF	0	0	13	-1	-7,599	0.28	62.4
Motors	MTR-54b	ADMIN - 00988	COOL	VSD to Std - RI	13	0	13	0	-13,456	0.02	773.6
Motors	MTR-54c	ADMIN - 00988	COOL	VSD & EEM - ROF	0	0	13	1	-7,302	0.31	55.6
Motors	MTR-54c	ADMIN - 00988	COOL	VSD & EEM - RI	14	2	14	2	-12,843	0.07	241.8
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - ROF	0	0	1	1	22	1.05	16.4
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-55b	ADMIN - 00988	COOL	VSD to Std - ROF	0	0	13	-1	-7,599	0.28	62.4
Motors	MTR-55b	ADMIN - 00988	COOL	VSD to Std - RI	13	0	13	0	-13,456	0.02	773.6
Motors	MTR-55c	ADMIN - 00988	COOL	VSD & EEM - ROF	0	0	13	1	-7,302	0.31	55.6
Motors	MTR-55c	ADMIN - 00988	COOL	VSD & EEM - RI	14	2	14	2	-12,843	0.07	241.8
Motors	PMTR-1a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	0	0	-293	0.20	84.7
Motors	PMTR-1a	ADMIN - 00988	PMPMTR	EEM - RI	0	0	0	0	-436	0.01	1,387.3
Motors	PMTR-1b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	3	-0	-1,004	0.36	47.7
Motors	PMTR-1b	ADMIN - 00988	PMPMTR	VSD to Std - RI	3	0	3	0	-1,481	0.23	73.5
Motors	PMTR-1c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	3	0	-1,057	0.38	45.2
Motors	PMTR-1c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	3	0	3	0	-1,507	0.28	61.6
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	2	2	523	2.32	7.4
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - RI	2	3	2	3	920	3.03	5.7
Motors	PMTR-2b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	8	-0	-585	0.79	21.7
Motors	PMTR-2b	ADMIN - 00988	PMPMTR	VSD to Std - RI	9	-0	9	-0	-730	0.79	21.8

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-2c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	9	2	-54	0.98	17.5
Motors	PMTR-2c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	9	3	9	3	160	1.04	16.5
Motors	PMTR-3a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	2	3	613	2.38	7.3
Motors	PMTR-3a	ADMIN - 00988	PMPMTR	EEM - RI	2	4	2	4	1,107	3.16	5.4
Motors	PMTR-3b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	13	-1	-179	0.95	18.1
Motors	PMTR-3b	ADMIN - 00988	PMPMTR	VSD to Std - RI	14	0	14	0	-17	1.00	17.3
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	14	3	509	1.13	15.3
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	15	4	15	4	1,112	1.23	14.0
Motors	PMTR-4a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	2	2	523	2.32	7.4
Motors	PMTR-4a	ADMIN - 00988	PMPMTR	EEM - RI	2	3	2	3	920	3.03	5.7
Motors	PMTR-4b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	8	-0	904	1.68	10.3
Motors	PMTR-4b	ADMIN - 00988	PMPMTR	VSD to Std - RI	9	-0	9	-0	1,740	1.97	8.7
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	9	2	1,526	1.97	8.8
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	9	3	9	3	2,630	2.39	7.2
Motors	PMTR-5a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	2	2	161	1.23	14.0
Motors	PMTR-5a	ADMIN - 00988	PMPMTR	EEM - RI	2	4	2	4	526	1.66	10.4
Motors	PMTR-5b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	25	-1	5,352	3.31	5.2
Motors	PMTR-5b	ADMIN - 00988	PMPMTR	VSD to Std - RI	26	-0	26	-0	8,787	4.19	4.1
Motors	PMTR-5c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	26	2	5,913	3.34	5.2
Motors	PMTR-5c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	26	4	26	4	9,702	4.31	4.0
Motors	PMTR-6a	ADMIN - 00988	PMPMTR	EEM - ROF	0	0	4	6	1,310	2.16	8.0
Motors	PMTR-6a	ADMIN - 00988	PMPMTR	EEM - RI	6	9	6	9	2,571	3.01	5.7
Motors	PMTR-6b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	0	0	50	-2	11,666	3.99	4.3
Motors	PMTR-6b	ADMIN - 00988	PMPMTR	VSD to Std - RI	51	-0	51	-0	19,090	5.14	3.4
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	0	0	52	6	13,487	4.35	4.0
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	53	9	53	9	22,062	5.74	3.0
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - ROF	0	0	2	3	569	2.68	6.4
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - RI	2	3	2	3	1,154	3.79	4.5
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM - ROF	0	0	1	1	410	3.35	5.1
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM - RI	2	2	2	2	748	4.61	3.7
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM - ROF	0	0	1	1	448	3.49	4.9
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	PMTR-11a	BRK/ADM - 00099	PMPMTR	EEM - ROF	0	0	0	1	-294	0.32	54.5
Motors	PMTR-11a	BRK/ADM - 00099	PMPMTR	EEM - RI	0	1	0	1	-394	0.21	83.9
Motors	PMTR-11b	BRK/ADM - 00099	PMPMTR	VSD to Std - ROF	0	0	4	-0	-1,530	0.32	53.4
Motors	PMTR-11b	BRK/ADM - 00099	PMPMTR	VSD to Std - RI	4	0	4	0	-2,136	0.21	83.0
Motors	PMTR-11c	BRK/ADM - 00099	PMPMTR	VSD & EEM - ROF	0	0	4	1	-1,525	0.37	46.6
Motors	PMTR-11c	BRK/ADM - 00099	PMPMTR	VSD & EEM - RI	4	1	4	1	-2,069	0.28	61.8
Motors	PMTR-14a	BRK/ADM - 00099	PMPMTR	EEM - ROF	0	0	0	1	-284	0.32	54.1
Motors	PMTR-14a	BRK/ADM - 00099	PMPMTR	EEM - RI	0	1	0	1	-402	0.19	91.0
Motors	PMTR-14b	BRK/ADM - 00099	PMPMTR	VSD to Std - ROF	0	0	4	-0	-1,446	0.34	50.7
Motors	PMTR-14b	BRK/ADM - 00099	PMPMTR	VSD to Std - RI	4	0	4	0	-2,144	0.20	84.2
Motors	PMTR-14c	BRK/ADM - 00099	PMPMTR	VSD & EEM - ROF	0	0	4	1	-1,447	0.38	45.0
Motors	PMTR-14c	BRK/ADM - 00099	PMPMTR	VSD & EEM - RI	4	1	4	1	-2,077	0.28	62.4
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - ROF	0	0	1	2	267	2.77	6.2
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - RI	1	2	1	2	432	3.31	5.2
Motors	MTR-190	BRK/ADM - 00102	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-190	BRK/ADM - 00102	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-191	BRK/ADM - 00103	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-191	BRK/ADM - 00103	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - ROF	0	0	15	13	609	1.25	13.8
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM - ROF	0	0	7	13	1,398	1.58	10.9
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM - ROF	0	0	15	13	609	1.25	13.8
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-57	BRK/ADM - 00106	COOL	EEM - ROF	0	0	7	13	1,398	1.58	10.9
Motors	MTR-57	BRK/ADM - 00106	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - ROF	0	0	15	13	609	1.25	13.8
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM - ROF	0	0	7	13	1,398	1.58	10.9
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-490	BRK/ADM - 00108	HEAT	EEM - ROF	0	0	15	13	609	1.25	13.8

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-490	BRK/ADM - 00108	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - ROF	0	0	7	13	1,398	1.58	10.9
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM - ROF	0	0	19	16	761	1.25	13.8
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM - RI	21	18	21	18	1,217	1.33	13.0
Motors	MTR-60	BRK/ADM - 00110	COOL	EEM - ROF	0	0	8	16	1,747	1.58	10.9
Motors	MTR-60	BRK/ADM - 00110	COOL	EEM - RI	9	18	9	18	2,816	1.75	9.8
Motors	PMTR-10a	BRK/ADM - 00110	PMPMTR	EEM - ROF	0	0	0	0	-312	0.15	114.1
Motors	PMTR-10a	BRK/ADM - 00110	PMPMTR	EEM - RI	0	0	0	0	-471	-0.07	NA
Motors	PMTR-10b	BRK/ADM - 00110	PMPMTR	VSD to Std - ROF	0	0	2	-0	-1,296	0.18	98.4
Motors	PMTR-10b	BRK/ADM - 00110	PMPMTR	VSD to Std - RI	2	0	2	0	-1,944	-0.00	NA
Motors	PMTR-10c	BRK/ADM - 00110	PMPMTR	VSD & EEM - ROF	0	0	2	0	-1,358	0.21	83.8
Motors	PMTR-10c	BRK/ADM - 00110	PMPMTR	VSD & EEM - RI	2	0	2	0	-1,983	0.05	324.7
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - ROF	0	0	1	2	263	2.74	6.3
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - RI	1	2	1	2	425	3.27	5.3
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - ROF	0	0	15	13	609	1.25	13.8
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-61	BRK/ADM - 00111	COOL	EEM - ROF	0	0	7	13	1,398	1.58	10.9
Motors	MTR-61	BRK/ADM - 00111	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - ROF	0	0	31	60	6,552	1.58	10.9
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - RI	34	67	34	67	10,559	1.75	9.8
Motors	MTR-63	BRK/ADM - 00226	COOL	EEM - ROF	0	0	3	6	533	1.52	11.3
Motors	MTR-63	BRK/ADM - 00226	COOL	EEM - RI	3	6	3	6	958	1.73	9.9
Motors	MTR-64	BRK/ADM - 00226	COOL	EEM - ROF	0	0	1	2	152	1.52	11.3
Motors	MTR-64	BRK/ADM - 00226	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-194	BRK/ADM - 00249	EVAP	EEM - ROF	0	0	1	1	448	3.49	4.9
Motors	MTR-194	BRK/ADM - 00249	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	28	23	1,103	1.25	13.8
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - RI	31	26	31	26	1,765	1.33	13.0
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-497	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-497	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-498	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	4	3	183	1.29	13.3
Motors	MTR-498	BRK/ADM - 00249	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - ROF	0	0	15	13	730	1.29	13.3
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-195	BRK/ADM - 00250	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-195	BRK/ADM - 00250	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-500	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-500	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-501	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-501	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-502	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	15	13	730	1.29	13.3
Motors	MTR-502	BRK/ADM - 00250	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-503	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	28	23	1,324	1.29	13.3
Motors	MTR-503	BRK/ADM - 00250	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	4	3	183	1.29	13.3
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-505	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-505	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-506	BRK/ADM - 00250	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-506	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	15	13	730	1.29	13.3
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-509	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	28	23	1,324	1.29	13.3
Motors	MTR-509	BRK/ADM - 00251	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-510	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-510	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-511	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-511	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-512	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-512	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - ROF	0	0	4	3	183	1.29	13.3
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	15	13	730	1.29	13.3
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-517	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-517	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	28	23	1,324	1.29	13.3
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	1	1	46	1.29	13.3
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - ROF	0	0	4	3	183	1.29	13.3
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - ROF	0	0	1	1	486	3.62	4.8
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - ROF	0	0	29	57	3,903	1.40	12.3
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - ROF	0	0	0	1	76	1.52	11.3
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - RI	0	1	0	1	137	1.73	9.9
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-67	BRK/ADM - 00262	COOL	EEM - ROF	0	0	29	57	3,903	1.40	12.3
Motors	MTR-67	BRK/ADM - 00262	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - ROF	0	0	0	1	55	1.40	12.3
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-206	BRK/ADM - 00264	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-206	BRK/ADM - 00264	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - ROF	0	0	0	1	55	1.40	12.3
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - ROF	0	0	29	57	3,903	1.40	12.3
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - ROF	0	0	29	57	3,903	1.40	12.3
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - ROF	0	0	0	1	55	1.40	12.3
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-210	BRK/ADM - 00267	EVAP	EEM - ROF	0	0	1	1	338	3.05	5.6
Motors	MTR-210	BRK/ADM - 00267	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-73	BRK/ADM - 00267	COOL	EEM - ROF	0	0	29	57	3,903	1.40	12.3
Motors	MTR-73	BRK/ADM - 00267	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM - ROF	0	0	0	1	55	1.40	12.3
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - ROF	0	0	1	2	69	1.18	14.7

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - RI	1	3	1	3	222	1.49	11.6
Motors	MTR-432b	BRK/ADM - 00273	Fan Motor	VSD to Std - ROF	0	0	11	-1	-5,009	0.30	56.5
Motors	MTR-432b	BRK/ADM - 00273	Fan Motor	VSD to Std - RI	12	-0	12	-0	-7,631	0.14	123.2
Motors	MTR-432c	BRK/ADM - 00273	Fan Motor	VSD & EEM - ROF	0	0	12	2	-4,740	0.35	48.9
Motors	MTR-432c	BRK/ADM - 00273	Fan Motor	VSD & EEM - RI	12	3	12	3	-7,147	0.20	84.5
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - ROF	0	0	1	2	69	1.18	14.7
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - RI	1	3	1	3	222	1.49	11.6
Motors	MTR-433b	BRK/ADM - 00273	Fan Motor	VSD to Std - ROF	0	0	11	-1	-5,009	0.30	56.5
Motors	MTR-433b	BRK/ADM - 00273	Fan Motor	VSD to Std - RI	12	-0	12	-0	-7,631	0.14	123.2
Motors	MTR-433c	BRK/ADM - 00273	Fan Motor	VSD & EEM - ROF	0	0	12	2	-4,740	0.35	48.9
Motors	MTR-433c	BRK/ADM - 00273	Fan Motor	VSD & EEM - RI	12	3	12	3	-7,147	0.20	84.5
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - ROF	0	0	3	6	385	1.40	12.3
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - RI	3	6	3	6	906	1.69	10.2
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - ROF	0	0	1	2	152	1.52	11.3
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - ROF	0	0	31	60	5,713	1.52	11.3
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - RI	34	67	34	67	10,267	1.73	9.9
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	1	2	-68	0.89	19.5
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM - RI	1	3	1	3	59	1.09	15.8
Motors	PMTR-12b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	0	0	14	-1	-2,285	0.58	29.7
Motors	PMTR-12b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	14	-0	14	-0	-3,269	0.51	33.8
Motors	PMTR-12c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	0	0	14	2	-1,849	0.66	25.9
Motors	PMTR-12c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	15	3	15	3	-2,508	0.63	27.5
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	1	2	-1	1.00	17.2
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - RI	1	3	1	3	165	1.25	13.8
Motors	PMTR-13b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	0	0	14	-1	-2,264	0.58	29.5
Motors	PMTR-13b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	14	-0	14	-0	-3,234	0.51	33.5
Motors	PMTR-13c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	0	0	14	2	-1,782	0.68	25.4
Motors	PMTR-13c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	15	3	15	3	-2,402	0.64	26.8
Motors	PMTR-15a	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	2	4	169	1.18	14.6
Motors	PMTR-15a	BRK/ADM - 00273	PMPMTR	EEM - RI	3	5	3	5	574	1.54	11.2
Motors	PMTR-15b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	0	0	27	-2	4,298	2.38	7.2
Motors	PMTR-15b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	28	0	28	0	7,271	2.94	5.9
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	0	0	28	4	5,240	2.62	6.6
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	29	5	29	5	8,859	3.32	5.2
Motors	PMTR-16a	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	4	7	338	1.18	14.6
Motors	PMTR-16a	BRK/ADM - 00273	PMPMTR	EEM - RI	6	11	6	11	1,148	1.54	11.2
Motors	PMTR-16b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	0	0	54	-4	8,596	2.38	7.2
Motors	PMTR-16b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	56	0	56	0	14,542	2.94	5.9
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	0	0	56	7	10,481	2.62	6.6
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	58	11	58	11	17,717	3.32	5.2
Motors	PMTR-17a	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	4	7	338	1.18	14.6
Motors	PMTR-17a	BRK/ADM - 00273	PMPMTR	EEM - RI	6	11	6	11	1,148	1.54	11.2
Motors	PMTR-17b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	0	0	54	-4	8,596	2.38	7.2
Motors	PMTR-17b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	56	0	56	0	14,542	2.94	5.9
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	0	0	56	7	10,481	2.62	6.6
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	58	11	58	11	17,717	3.32	5.2
Motors	PMTR-20	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	0	1	-226	0.37	46.6
Motors	PMTR-20	BRK/ADM - 00273	PMPMTR	EEM - RI	1	1	1	1	-314	0.26	65.2
Motors	PMTR-21	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	0	1	-289	0.21	80.6
Motors	PMTR-21	BRK/ADM - 00273	PMPMTR	EEM - RI	0	1	0	1	-428	0.03	605.2
Motors	PMTR-23	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	0	1	-226	0.37	46.6
Motors	PMTR-23	BRK/ADM - 00273	PMPMTR	EEM - RI	1	1	1	1	-314	0.26	65.2
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	0	2	200	2.20	7.8
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - RI	0	1	0	1	251	2.31	7.5
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - ROF	0	0	0	1	56	1.34	12.9
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - RI	0	1	0	1	107	1.56	11.0
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - ROF	0	0	1	2	20	1.05	16.3
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - RI	1	3	1	3	218	1.48	11.6
Motors	MTR-434b	BRK/ADM - 00275	Fan Motor	VSD to Std - ROF	0	0	11	-1	-4,048	0.38	44.8
Motors	MTR-434b	BRK/ADM - 00275	Fan Motor	VSD to Std - RI	12	-0	12	-0	-7,634	0.14	123.5
Motors	MTR-434c	BRK/ADM - 00275	Fan Motor	VSD & EEM - ROF	0	0	12	2	-3,849	0.42	40.7
Motors	MTR-434c	BRK/ADM - 00275	Fan Motor	VSD & EEM - RI	12	3	12	3	-7,150	0.20	84.6
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - ROF	0	0	1	2	20	1.05	16.3
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - RI	1	3	1	3	218	1.48	11.6
Motors	MTR-435b	BRK/ADM - 00275	Fan Motor	VSD to Std - ROF	0	0	11	-1	-4,048	0.38	44.8
Motors	MTR-435b	BRK/ADM - 00275	Fan Motor	VSD to Std - RI	12	-0	12	-0	-7,634	0.14	123.5
Motors	MTR-435c	BRK/ADM - 00275	Fan Motor	VSD & EEM - ROF	0	0	12	2	-3,849	0.42	40.7
Motors	MTR-435c	BRK/ADM - 00275	Fan Motor	VSD & EEM - RI	12	3	12	3	-7,150	0.20	84.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - ROF	0	0	31	60	5,713	1.52	11.3
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - RI	34	67	34	67	10,267	1.73	9.9
Motors	MTR-79	BRK/ADM - 00275	COOL	EEM - ROF	0	0	3	6	533	1.52	11.3
Motors	MTR-79	BRK/ADM - 00275	COOL	EEM - RI	3	6	3	6	958	1.73	9.9
Motors	MTR-80	BRK/ADM - 00275	COOL	EEM - ROF	0	0	1	2	152	1.52	11.3
Motors	MTR-80	BRK/ADM - 00275	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - ROF	0	0	31	31	7,427	3.05	5.6
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - RI	36	35	36	35	16,435	4.61	3.7
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - ROF	0	0	6	6	1,791	3.49	4.9
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - RI	6	6	6	6	2,995	4.62	3.7
Motors	MTR-213	BRK/ADM - 00414	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-213	BRK/ADM - 00414	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-215	BRK/ADM - 00417	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-215	BRK/ADM - 00417	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-216	BRK/ADM - 00418	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-216	BRK/ADM - 00418	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-217	BRK/ADM - 00419	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-217	BRK/ADM - 00419	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-218	BRK/ADM - 00420	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-218	BRK/ADM - 00420	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-219	BRK/ADM - 00421	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-219	BRK/ADM - 00421	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-220	BRK/ADM - 00422	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-220	BRK/ADM - 00422	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-221	BRK/ADM - 00423	EVAP	EEM - ROF	0	0	2	2	-818	0.43	39.9
Motors	MTR-221	BRK/ADM - 00423	EVAP	EEM - RI	2	2	2	2	-1,094	0.36	47.9
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-225	BRK/ADM - 00487	EVAP	EEM - ROF	0	0	0	0	-204	0.43	39.9
Motors	MTR-225	BRK/ADM - 00487	EVAP	EEM - RI	1	1	1	1	-273	0.36	47.9
Motors	MTR-226	BRK/ADM - 00489	EVAP	EEM - ROF	0	0	0	0	-197	0.42	41.1
Motors	MTR-226	BRK/ADM - 00489	EVAP	EEM - RI	1	1	1	1	-286	0.33	52.3
Motors	MTR-227	BRK/ADM - 00491	EVAP	EEM - ROF	0	0	0	0	-197	0.42	41.1
Motors	MTR-227	BRK/ADM - 00491	EVAP	EEM - RI	1	1	1	1	-286	0.33	52.3
Motors	MTR-228	BRK/ADM - 00493	EVAP	EEM - ROF	0	0	0	0	-197	0.42	41.1
Motors	MTR-228	BRK/ADM - 00493	EVAP	EEM - RI	1	1	1	1	-286	0.33	52.3
Motors	MTR-229	BRK/ADM - 00494	EVAP	EEM - ROF	0	0	0	0	-197	0.42	41.1
Motors	MTR-229	BRK/ADM - 00494	EVAP	EEM - RI	1	1	1	1	-286	0.33	52.3
Motors	PMTR-22	BRK/ADM - 00494	PMPMTR	EEM - ROF	0	0	0	1	-226	0.37	46.6
Motors	PMTR-22	BRK/ADM - 00494	PMPMTR	EEM - RI	1	1	1	1	-314	0.26	65.2
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - ROF	0	0	7	7	1,866	3.20	5.4
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - RI	8	8	8	8	3,738	4.61	3.7
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-235	BRK/ADM - 00519	EVAP	EEM - ROF	0	0	0	0	-204	0.43	39.9
Motors	MTR-235	BRK/ADM - 00519	EVAP	EEM - RI	1	1	1	1	-273	0.36	47.9
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - ROF	0	0	9	8	2,239	3.20	5.4
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - RI	10	10	10	10	4,485	4.61	3.7
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - ROF	0	0	9	8	2,686	3.49	4.9
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-241	CHAPEL - 00212	EVAP	EEM - ROF	0	0	1	1	-464	0.35	48.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-241	CHAPEL - 00212	EVAP	EEM - RI	1	1	1	1	-650	0.24	72.0
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-243	CHAPEL - 00315	EVAP	EEM - ROF	0	0	0	1	-245	0.41	41.7
Motors	MTR-243	CHAPEL - 00315	EVAP	EEM - RI	1	1	1	1	-329	0.34	51.3
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - ROF	0	0	3	12	675	1.48	11.6
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - RI	5	17	5	17	1,593	2.00	8.6
Motors	MTR-3	CLINIC - 00171	AIRCOMP	EEM - ROF	0	0	1	3	-312	0.58	29.9
Motors	MTR-3	CLINIC - 00171	AIRCOMP	EEM - RI	1	3	1	3	-439	0.50	34.3
Motors	MTR-40a	CLINIC - 00171	CONDMTR	EEM - ROF	0	0	3	5	-1,368	0.37	47.1
Motors	MTR-40a	CLINIC - 00171	CONDMTR	EEM - RI	4	7	4	7	-1,903	0.26	66.9
Motors	MTR-40b	CLINIC - 00171	CONDMTR	VSD to Std - ROF	0	0	27	-2	-4,190	0.44	39.3
Motors	MTR-40b	CLINIC - 00171	CONDMTR	VSD to Std - RI	29	-0	29	-0	-5,743	0.36	47.3
Motors	MTR-40c	CLINIC - 00171	CONDMTR	VSD & EEM - ROF	0	0	30	5	-3,814	0.53	32.6
Motors	MTR-40c	CLINIC - 00171	CONDMTR	VSD & EEM - RI	31	7	31	7	-4,864	0.50	34.5
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - ROF	0	0	2	4	435	1.74	9.9
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - RI	4	5	4	5	985	2.47	7.0
Motors	MTR-436b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	0	0	37	-2	-8,092	0.50	34.1
Motors	MTR-436b	CLINIC - 00171	Fan Motor	VSD to Std - RI	39	0	39	0	-12,153	0.39	43.7
Motors	MTR-436c	CLINIC - 00171	Fan Motor	VSD & EEM - ROF	0	0	38	4	-7,369	0.55	31.2
Motors	MTR-436c	CLINIC - 00171	Fan Motor	VSD & EEM - RI	40	5	40	5	-10,951	0.46	37.8
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM - ROF	0	0	9	12	2,736	3.95	4.4
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM - RI	11	16	11	16	4,888	5.62	3.1
Motors	MTR-437b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	0	0	76	-4	-15,042	0.53	32.4
Motors	MTR-437b	CLINIC - 00171	Fan Motor	VSD to Std - RI	79	-0	79	0	-22,537	0.43	40.2
Motors	MTR-437c	CLINIC - 00171	Fan Motor	VSD & EEM - ROF	0	0	80	12	-12,692	0.61	28.4
Motors	MTR-437c	CLINIC - 00171	Fan Motor	VSD & EEM - RI	82	16	82	16	-18,784	0.52	32.8
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM - ROF	0	0	6	8	902	1.62	10.6
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM - RI	9	14	9	14	2,333	2.41	7.2
Motors	MTR-438b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	0	0	120	-6	-26,797	0.50	34.7
Motors	MTR-438b	CLINIC - 00171	Fan Motor	VSD to Std - RI	123	-0	123	-0	-40,433	0.38	45.1
Motors	MTR-438c	CLINIC - 00171	Fan Motor	VSD & EEM - ROF	0	0	122	8	-24,971	0.53	32.3
Motors	MTR-438c	CLINIC - 00171	Fan Motor	VSD & EEM - RI	126	14	126	14	-37,405	0.43	40.1
Motors	MTR-81	CLINIC - 00171	COOL	EEM - ROF	0	0	0	1	58	1.38	12.5
Motors	MTR-81	CLINIC - 00171	COOL	EEM - RI	0	1	0	1	93	1.50	11.5
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM - ROF	0	0	5	15	1,160	1.63	10.6
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM - RI	8	22	8	22	2,645	2.25	7.6
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM - ROF	0	0	5	15	1,160	1.63	10.6
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM - RI	8	22	8	22	2,645	2.25	7.6
Motors	MTR-244	CLINIC - 00235	EVAP	EEM - ROF	.0	0	1	1	-780	0.22	76.6
Motors	MTR-244	CLINIC - 00235	EVAP	EEM - RI	1	1	1	1	-1,378	-0.04	NA
Motors	MTR-245	CLINIC - 00242	EVAP	EEM - ROF	0	0	2	3	878	3.23	5.3
Motors	MTR-245	CLINIC - 00242	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-246	CLINIC - 00245	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3
Motors	MTR-246	CLINIC - 00245	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-247	CLINIC - 00245	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-247	CLINIC - 00245	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-248	CLUB - 00021	EVAP	EEM - ROF	0	0	3	3	819	3.35	5.1
Motors	MTR-248	CLUB - 00021	EVAP	EEM - RI	3	3	3	3	1,496	4.61	3.7
Motors	MTR-249	CLUB - 00037	EVAP	EEM - ROF	0	0	0	0	-204	0.43	39.9
Motors	MTR-249	CLUB - 00037	EVAP	EEM - RI	1	1	1	1	-273	0.36	47.9
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - ROF	0	0	1	2	291	2.92	5.9
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - RI	2	2	2	2	470	3.51	4.9
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM - ROF	0	0	6	6	1,162	2.92	5.9
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM - RI	6	7	6	7	1,881	3.51	4.9
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - ROF	0	0	3	3	581	2.92	5.9
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - RI	3	4	3	4	940	3.51	4.9
Motors	MTR-17	CLUB - 00202	COMPMTR	EEM - ROF	0	0	6	6	1,162	2.92	5.9
Motors	MTR-17	CLUB - 00202	COMPMTR	EEM - RI	6	7	6	7	1,881	3.51	4.9
Motors	MTR-250	CLUB - 00202	EVAP	EEM - ROF	0	0	1	1	448	3.49	4.9
Motors	MTR-250	CLUB - 00202	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-251	CLUB - 00202	EVAP	EEM - ROF	0	0	2	2	-1,646	0.25	67.9
Motors	MTR-251	CLUB - 00202	EVAP	EEM - RI	2	2	2	2	-2,407	0.09	190.7
Motors	MTR-252	CLUB - 00202	EVAP	EEM - ROF	0	0	0	0	-274	0.25	67.9
Motors	MTR-252	CLUB - 00202	EVAP	EEM - RI	0	0	0	0	-401	0.09	190.7
Motors	MTR-41	CLUB - 00202	CONDMTR	EEM - ROF	0	0	1	2	-335	0.53	32.2
Motors	MTR-41	CLUB - 00202	CONDMTR	EEM - RI	2	2	2	2	-409	0.52	33.1
Motors	MTR-42	CLUB - 00202	CONDMTR	EEM - ROF	0	0	1	2	287	2.90	5.9
Motors	MTR-42	CLUB - 00202	CONDMTR	EEM - RI	2	2	2	2	465	3.49	4.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-82	CLUB - 20018	COOL	EEM - ROF	0	0	0	1	87	1.58	10.9
Motors	MTR-82	CLUB - 20018	COOL	EEM - RI	0	1	0	1	141	1.75	9.8
Motors	MTR-253	DGR - 00308	EVAP	EEM - ROF	0	0	1	2	-929	0.35	48.6
Motors	MTR-253	DGR - 00308	EVAP	EEM - RI	2	2	2	2	-1,300	0.24	72.0
Motors	MTR-254	DGR - 00308	EVAP	EEM - ROF	0	0	2	3	813	3 12	5.5
Motors	MTR-254	DGR - 00308	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-4	DGR - 00308	AIRCOMP	EEM - ROF	0	0	0	1	-297	0.19	89.6
Motors	MTR-4	DGR - 00308	AIRCOMP	EEM - RI	0	1	0	1	-443	-0.00	NA
Motors	MTR-439	DGR - 00308	Fan Motor	EEM - ROF	0	0	6	8	1,913	4.54	3.8
Motors	MTR-439	DGR - 00308	Fan Motor	EEM - RI	7	10	7	10	3,177	6.12	2.8
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - ROF	0	0	4	6	1,953	5.72	3.0
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - RI	4	6	4	6	2,120	6.12	2.8
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - ROF	0	0	2	2	534	4.19	4.1
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - ROF	0	0	1	2	217	1.52	11.4
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - RI	2	3	2	3	394	1.87	9.2
Motors	MTR-522b	DGR - 00308	VENTLTR	VSD to Std - ROF	0	0	11	-1	-5,996	0.22	79.3
Motors	MTR-522b	DGR - 00308	VENTLTR	VSD to Std - RI	11	-0	11	-0	-7,969	0.10	175.0
Motors	MTR-522c	DGR - 00308	VENTLTR	VSD & EEM - ROF	0	0	12	2	-5,409	0.29	58.8
Motors	MTR-522c	DGR - 00308	VENTLTR	VSD & EEM - RI	12	3	12	3	-7,245	0.19	90.6
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM - ROF	0	0	1	2	243	1.56	11.0
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM - RI	2	3	2	3	392	1.86	9.2
Motors	MTR-523b	DGR - 00308	VENTLTR	VSD to Std - ROF	0	0	11	-1	-6,382	0.19	89.8
Motors	MTR-523b	DGR - 00308	VENTLTR	VSD to Std - RI	11	-0	11	-0	-7,971	0.10	175.3
Motors	MTR-523c	DGR - 00308	VENTLTR	VSD & EEM - ROF	0	0	12	2	-5,847	0.27	63.6
Motors	MTR-523c	DGR - 00308	VENTLTR	VSD & EEM - RI	12	3	12	3	-7,247	0.19	90.7
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM - ROF	0	0	2	3	428	1.90	9.0
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM - RI	3	4	3	4	735	2.44	7.1
Motors	MTR-524b	DGR - 00308	VENTLTR	VSD to Std - ROF	0	0	18	-1	-8,942	0.25	70.0
Motors	MTR-524b	DGR - 00308	VENTLTR	VSD to Std - RI	19	0	19	0	-11,871	0.13	130.1
Motors	MTR-524c	DGR - 00308	VENTLTR	VSD & EEM - ROF	0	0	19	3	-8,140	0.32	54.0
Motors	MTR-524c	DGR - 00308	VENTLTR	VSD & EEM - RI	20	4	20	4	-10,738	0.22	78.5
Motors	MTR-525a	DGR - 00308	VENTLTR	EEM - ROF	0	0	1	1	154	0.60	28.9
Motors	MTR-525a	DGR - 00308	VENTLTR	EEM - RI	1	1	1	1	-169	0.61	28.5
Motors	MTR-525b	DGR - 00308	VENTLTR	VSD to Std - ROF	0	0	5	-0	-3,592	0.17	101.4
Motors	MTR-525b	DGR - 00308	VENTLTR	VSD to Std - RI	6	-0	6	-0	-4,777	0.04	389.9
Motors	MTR-525c	DGR - 00308	VENTLTR	VSD & EEM - ROF	0	0	6	1	-3,445	0.22	76.9
Motors	MTR-525c	DGR - 00308	VENTLTR	VSD & EEM - RI	6	1	6	1	-4,542	0.11	154.2
Motors	PMTR-29	DGR - 00308	PMPMTR	EEM - ROF	0	0	1	2	45	1.10	15.6
Motors	PMTR-29	DGR - 00308	PMPMTR	EEM - RI	1	4	1	4	219	1.43	12.1
Motors	MTR-255	DGR - 00404	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-255	DGR - 00404	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-256	DGR - 00404	EVAP	EEM - ROF	0	0	1	1	407	3.12	5.5
Motors	MTR-256	DGR - 00404	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-257	DGR - 00430	EVAP	EEM - ROF	0	0	6	8	2,066	2.91	5.9
Motors	MTR-257	DGR - 00430	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5
Motors	PMTR-28	DGR - 00430	PMPMTR	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	PMTR-28	DGR - 00430	PMPMTR	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - ROF	0	0	1	2	325	2.94	5.9
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - RI	1	3	1	3	544	3.83	4.5
Motors	MTR-258	DGR - 00909	EVAP	EEM - ROF	0	0	1	1	557	3.77	4.6
Motors	MTR-258	DGR - 00909	EVAP	EEM - RI	1	2	1	2	591	3.86	4.5
Motors	MTR-259	DGR - 00909	EVAP	EEM - ROF	0	0	2	3	974	3.58	4.8
Motors	MTR-259	DGR - 00909	EVAP	EEM - RI	2	3	2	3	1,175	3.84	4.5
Motors	MTR-83	DINING - 00222	COOL	EEM - ROF	0	0	1	2	63	1.23	14.0
Motors	MTR-83	DINING - 00222	COOL	EEM - RI	1	2	1	2	161	1.43	12.0
Motors	MTR-84	DINING - 00222	COOL	EEM - ROF	0	0	1	2	63	1.23	14.0
Motors	MTR-84	DINING - 00222	COOL	EEM - RI	1	2	1	2	161	1.43	12.0
Motors	MTR-260	DINING - 00254	EVAP	EEM - ROF	0	0	1	1	375	3.02	5.7
Motors	MTR-260	DINING - 00254	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-261	DINING - 00254	EVAP	EEM - ROF	0	0	1	1	375	3.02	5.7
Motors	MTR-261	DINING - 00254	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - ROF	0	0	10	14	3,204	4.19	4.1
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - RI	11	16	11	16	5,308	5 61	3.1
Motors	MTR-443a	DINING - 00254	Fan Motor	EEM - ROF	0	0	4	6	-823	0.67	25.7
Motors	MTR-443a	DINING - 00254	Fan Motor	EEM - RI	7	9	7	9	-782	0.74	23.4
Motors	MTR-443b	DINING - 00254	Fan Motor	VSD to Std - ROF	0	0	63	-3	-17,324	0.43	39.7
Motors	MTR-443b	DINING - 00254	Fan Motor	VSD to Std - RI	66	0	66	0	-26,035	0.31	56.0
Motors	MTR-443c	DINING - 00254	Fan Motor	VSD & EEM - ROF	0	0	65	6	-16,822	0.47	36.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-443c	DINING - 00254	Fan Motor	VSD & EEM - RI	67	9	67	9	-24,857	0.36	48.3
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - ROF	0	0	5	8	672	1.43	12.1
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - RI	8	11	8	11	1,588	1.87	9.2
Motors	MTR-444b	DINING - 00254	Fan Motor	VSD to Std - ROF	0	0	62	-3	-15,517	0.46	37.3
Motors	MTR-444b	DINING - 00254	Fan Motor	VSD to Std - RI	64	0	64	0	-23,333	0.34	50.5
Motors	MTR-444c	DINING - 00254	Fan Motor	VSD & EEM - ROF	0	0	64	8	-14,279	0.51	33.6
Motors	MTR-444c	DINING - 00254	Fan Motor	VSD & EEM - RI	67	11	67	11	-21,151	0.41	42.0
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - ROF	0	0	2	2	534	4.19	4.1
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - ROF	0	0	2	3	638	4.54	3.8
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - RI	2	3	2	3	1,050	6.12	2.8
Motors	MTR-85	DINING - 00254	COOL	EEM - ROF	0	0	0	1	67	1.43	12.1
Motors	MTR-85	DINING - 00254	COOL	EEM - RI	0	1	0	1	97	1.52	11.3
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - ROF	0	0	1	7	-141	0.88	19.6
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - RI	2	11	2	11	109	1.08	15.9
Motors	PMTR-31b	DINING - 00254	PMPMTR	VSD to Std - ROF	0	0	19	-4	-6,625	0.39	44.2
Motors	PMTR-31b	DINING - 00254	PMPMTR	VSD to Std - RI	19	0	19	0	-9,776	0.27	64.2
Motors	PMTR-31c	DINING - 00254	PMPMTR	VSD & EEM - ROF	0	0	19	7	-5,622	0.49	35.1
Motors	PMTR-31c	DINING - 00254	PMPMTR	VSD & EEM - RI	20	11	20	11	-8,047	0.40	42.8
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - ROF	0	0	0	2	189	2.13	8.1
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - RI	0	3	0	3	323	2.68	6.4
Motors	PMTR-33	DINING - 00254	PMPMTR	EEM - ROF	0	0	0	1	-262	0.27	63.3
Motors	PMTR-33	DINING - 00254	PMPMTR	EEM - RI	0	1	0	1	-379	0.11	154.6
Motors	MTR-262	DINING - 00431	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-262	DINING - 00431	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-263	DINING - 00431	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-263	DINING - 00431	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-264	DINING - 00447	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-264	DINING - 00447	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-265	DINING - 00447	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-266	DINING - 00449	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-266	DINING - 00449	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-267	DINING - 00449	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-267	DINING - 00449	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-268	DINING - 00468	EVAP	EEM - ROF	0	0	6	8	2,066	2.91	5.9
Motors	MTR-268	DINING - 00468	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5
Motors	MTR-269	DINING - 00535	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-269	DINING - 00535	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-270	DINING - 00560	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-270	DINING - 00560	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-526	Fam Housing	Heat System Fan	EEM - ROF	0	0	1,558	3,755	630,116	3.47	5.0
Motors	MTR-526	Fam Housing	Heat System Fan	EEM - RI	1,739	1,467	1,739	1,467	662,338	3.16	5.4
Motors	MTR-527	Fam Housing	Cool System Fan	EEM - ROF	0	0	671	1,314	142,913	1.58	10.9
Motors	MTR-527	Fam Housing	Cool System Fan	EEM - RI	748	1,467	748	1,467	230,320	1.75	9.8
Motors	MTR-271	FUELDSP - 00836	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-271	FUELDSP - 00836	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM - ROF	0	0	3	4	377	1.64	10.5
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM - RI	5	5	5	5	877	2.31	7.4
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM - ROF	0	0	6	7	754	1.64	10.5
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM - RI	9	11	9	11	1,755	2.31	7.4
Motors	MTR-20	GROCERY - 00920	COMPMTR	EEM - ROF	0	0	3	4	377	1.64	10.5
Motors	MTR-20	GROCERY - 00920	COMPMTR	EEM - RI	5	5	5	5	877	2.31	7.4
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM - ROF	0	0	41	46	5,114	1.67	10.3
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM - RI	60	68	60	68	11,354	2.30	7.5
Motors	MTR-273	GROCERY - 00920	EVAP	EEM - ROF	0	0	2	3	-169	0.85	20.3
Motors	MTR-273	GROCERY - 00920	EVAP	EEM - RI	3	4	3	4	69	1.05	16.4
Motors	MTR-274	GROCERY - 00920	EVAP	EEM - ROF	0	0	2	3	-114	0.90	19.1
Motors	MTR-274	GROCERY - 00920	EVAP	EEM - RI	3	4	3	4	93	1.07	16.1
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM - ROF	0	0	6	6	712	1.61	10.7
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM - RI	9	9	9	9	1,678	2.26	7.6
Motors	MTR-447	GROCERY - 00920	Fan Motor	EEM - ROF	0	0	5	7	871	1.74	9.9
Motors	MTR-447	GROCERY - 00920	Fan Motor	EEM - RI	7	11	7	11	1,970	2.47	7.0
Motors	MTR-448	GROCERY - 00920	Fan Motor	EEM - ROF	0	0	1	1	-153	0.57	30.0
Motors	MTR-448	GROCERY - 00920	Fan Motor	EEM - RI	1	1	1	1	-179	0.58	29.6
Motors	MTR-449	GROCERY - 00920	Fan Motor	EEM - ROF	0	0	5	7	859	1.76	9.8
Motors	MTR-449	GROCERY - 00920	Fan Motor	EEM - RI	8	11	8	11	2,101	2.65	6.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM - ROF	0	0	2	4	435	1.74	9.9
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM - RI	4	5	4	5	985	2.47	7.0
Motors	PMTR-34	GROCERY - 00920	power vents	EEM - ROF	0	0	2	5	217	1.24	13.9
Motors	PMTR-34	GROCERY - 00920	power vents	EEM - RI	3	8	3	8	639	1.62	10.6
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM - ROF	0	0	1	1	282	2.69	6.4
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM - RI	1	1	1	1	475	3.47	5.0
Motors	PMTR-36a	GROCERY - 00920	PMPMTR	EEM - ROF	0	0	0	1	-586	0.20	84.7
Motors	PMTR-36a	GROCERY - 00920	PMPMTR	EEM - RI	1	1	1	1	-871	0.01	1,387.3
Motors	PMTR-36b	GROCERY - 00920	PMPMTR	VSD to Std - ROF	0	0	5	-0	-1,080	0.54	32.0
Motors	PMTR-36b	GROCERY - 00920	PMPMTR	VSD to Std - RI	5	0	5	0	-1,510	0.47	36.3
Motors	PMTR-36c	GROCERY - 00920	PMPMTR	VSD & EEM - ROF	0	0	5	1	-1,185	0.55	31.5
Motors	PMTR-36c	GROCERY - 00920	PMPMTR	VSD & EEM - RI	6	1	6	1	-1,560	0.51	33.8
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - ROF	0	0	1	1	282	2.69	6.4
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - RI	1	1	1	1	475	3.47	5.0
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - ROF	0	0	3	3	353	1.89	9.1
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - RI	4	3	4	3	693	2.53	6.8
Motors	MTR-275	HOSPITL - 00166	EVAP	EEM - ROF	0	0	0	0	-247	0.33	52.4
Motors	MTR-275	HOSPITL - 00166	EVAP	EEM - RI	1	0	1	0	-350	0.21	83.4
Motors	MTR-451a	HOSPITL - 00166	Fan Motor	EEM - ROF	0	0	18	7	3,299	4.56	3.8
Motors	MTR-451a	HOSPITL - 00166	Fan Motor	EEM - RI	27	11	27	11	6,277	6.94	2.5
Motors	MTR-451b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	0	0	266	-4	14,489	1.45	11.9
Motors	MTR-451b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	275	0	275	0	24,762	1.64	10.5
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	0	0	274	7	16,909	1.52	11.3
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	282	11	282	11	28,576	1.74	9.9
Motors	MTR-452a	HOSPITL - 00166	Fan Motor	EEM - ROF	0	0	12	5	1,979	3.84	4.5
Motors	MTR-452a	HOSPITL - 00166	Fan Motor	EEM - RI	18	7	18	7	3,873	5.88	2.9
Motors	MTR-452b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	0	0	179	-2	9,750	1.45	11.9
Motors	MTR-452b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	185	-0	185	-0	16,662	1.64	10.5
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	0	0	184	5	11,198	1.51	11.4
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	190	7	190	7	18,999	1.72	10.0
Motors	MTR-453a	HOSPITL - 00166	Fan Motor	EEM - ROF	0	0	17	7	3,279	6.58	2.6
Motors	MTR-453a	HOSPITL - 00166	Fan Motor	EEM - RI	22	9	22	9	5,743	9.60	1.8
Motors	MTR-453b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	0	0	140	-2	8,254	1.51	11.4
Motors	MTR-453b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	145	-0	145	-0	14,069	1.72	10.0
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	0	0	146	7	10,199	1.62	10.6
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	151	9	151	9	17,118	1.87	9.2
Motors	MTR-454a	HOSPITL - 00166	Fan Motor	EEM - ROF	0	0	17	7	2,786	3.47	5.0
Motors	MTR-454a	HOSPITL - 00166	Fan Motor	EEM - RI	28	11	28	11	5,808	5.55	3.1
Motors	MTR-454b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	0	0	348	-5	18,333	1.43	12.0
Motors	MTR-454b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	359	-0	359	-0	31,383	1.61	10.7
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	0	0	356	7	20,866	1.49	11.6
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	367	11	367	11	35,397	1.69	10.2
Motors	MTR-455a	HOSPITL - 00166	Fan Motor	EEM - ROF	0	0	5	2	308	1.37	12.6
Motors	MTR-455a	HOSPITL - 00166	Fan Motor	EEM - RI	8	3	8	3	815	1.82	9.5
Motors	MTR-455b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	0	0	76	-1	2,866	1.28	13.4
Motors	MTR-455b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	79	0	79	0	5,179	1.42	12.1
Motors	MTR-455c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	0	0	78	2	3,291	1.31	13.1
Motors	MTR-455c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	81	3	81	3	5,955	1.47	11.7
Motors	MTR-5	HOSPITL - 00166	AIRCOMP	EEM - ROF	0	0	2	2	-244	0.66	26.1
Motors	MTR-5	HOSPITL - 00166	AIRCOMP	EEM - RI	3	2	3	2	-242	0.72	24.0
Motors	MTR-6	HOSPITL - 00166	AIRCOMP	EEM - ROF	0	0	17	13	3,311	3.82	4.5
Motors	MTR-6	HOSPITL - 00166	AIRCOMP	EEM - RI	22	17	22	17	5,907	5.42	3.2
Motors	MTR-7	HOSPITL - 00166	AIRCOMP	EEM - ROF	0	0	1	1	-122	0.66	26.1
Motors	MTR-7	HOSPITL - 00166	AIRCOMP	EEM - RI	1	1	1	1	-121	0.72	24.0
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-87	HOSPITL - 00166	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-87	HOSPITL - 00166	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	PMTR-38	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	4	2	120	1.17	14.8
Motors	PMTR-38	HOSPITL - 00166	PMPMTR	EEM - RI	6	2	6	2	434	1.51	11.4
Motors	PMTR-39	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	10	4	1,449	2.83	6.1
Motors	PMTR-39	HOSPITL - 00166	PMPMTR	EEM - RI	14	5	14	5	2,772	4.05	4.2
Motors	PMTR-40	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	10	4	1,449	2.83	6.1
Motors	PMTR-40	HOSPITL - 00166	PMPMTR	EEM - RI	14	5	14	5	2,772	4.05	4.2
Motors	PMTR-41	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	5	2	725	2.83	6.1
Motors	PMTR-41	HOSPITL - 00166	PMPMTR	EEM - RI	7	3	7	3	1,386	4.05	4.2
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	26	10	5,131	6.75	2.5
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - RI	33	13	33	13	8,882	9.67	1.8
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	23	9	4,697	8.99	1.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - RI	28	11	28	11	7,988	12.96	1.3
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - ROF	0	0	46	18	9,394	8.99	1.9
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - RI	56	22	56	22	15,977	12.96	1.3
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - ROF	0	0	7	6	1,304	3.16	5.5
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-88	HOTEL - 00900	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-88	HOTEL - 00900	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - ROF	0	0	7	6	1,304	3.16	5.5
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-89	HOTEL - 00901	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-89	HOTEL - 00901	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - ROF	0	0	7	6	1,304	3.16	5.5
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-90	HOTEL - 00902	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-90	HOTEL - 00902	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - ROF	0	0	7	6	1,304	3.16	5.5
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-91	HOTEL - 00903	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-91	HOTEL - 00903	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - ROF	0	0	5	5	978	3.16	5.5
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - RI	6	5	6	5	1,583	3.82	4.5
Motors	MTR-92	HOTEL - 00904	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-92	HOTEL - 00904	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-28	HOTEL - 00906	COMPMTR	EEM - ROF	0	0	7	6	1,304	3.16	5.5
Motors	MTR-28	HOTEL - 00906	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-93	HOTEL - 00906	COOL	EEM - ROF	0	0	1	1	103	1.73	10.0
Motors	MTR-93	HOTEL - 00906	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-276	KITCHEN - 00819	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-276	KITCHEN - 00819	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-277	LAB-MED - 00144	EVAP	EEM - ROF	0	0	1	1	-503	0.36	47.7
Motors	MTR-277	LAB-MED - 00144	EVAP	EEM - RI	1	1	1	1	-600	0.30	58.0
Motors	MTR-278	LAB-MED - 00144	EVAP	EEM - ROF	0	0	1	2	-1,007	0.36	47.7
Motors	MTR-278	LAB-MED - 00144	EVAP	EEM - RI	2	2	2	2	-1,201	0.30	58.0
Motors	MTR-279	LAB-MED - 00228	EVAP	EEM - ROF	0	0	1	1	-696	0.35	48.6
Motors	MTR-279	LAB-MED - 00228	EVAP	EEM - RI	1	2	1	2	-975	0.24	72.0
Motors	MTR-280	MTRPOOL - 00600	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-280	MTRPOOL - 00600	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-281	MTRPOOL - 00600	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-281	MTRPOOL - 00600	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-282	MTRPOOL - 00600	EVAP	EEM - ROF	0	0	1	1	73	1.18	14.5
Motors	MTR-282	MTRPOOL - 00600	EVAP	EEM - RI	1	2	1	2	206	1.45	11.8
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-284	MTRPOOL - 00605	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-284	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-285	MTRPOOL - 00605	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-285	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-286	MTRPOOL - 00605	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-286	MTRPOOL - 00605	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-289	MTRPOOL - 00608	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-289	MTRPOOL - 00608	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-291	MTRPOOL - 00612	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-291	MTRPOOL - 00612	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-292	MTRPOOL - 00614	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-292	MTRPOOL - 00614	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-293	MTRPOOL - 00620	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-293	MTRPOOL - 00620	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-294	MTRPOOL - 00621	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-294	MTRPOOL - 00621	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-296	MTRPOOL - 00623	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-296	MTRPOOL - 00623	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-297	MTRPOOL - 00626	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-297	MTRPOOL - 00626	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-298	MTRPOOL - 00639	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-298	MTRPOOL - 00639	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-299	MTRPOOL - 00642	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-299	MTRPOOL - 00642	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-300	MTRPOOL - 00646	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-300	MTRPOOL - 00646	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - ROF	0	0	2	2	565	2.69	6.4
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - RI	2	3	2	3	950	3.47	5.0
Motors	MTR-8	MTRPOOL - 00646	AIRCOMP	EEM - ROF	0	0	1	3	113	1.27	13.6
Motors	MTR-8	MTRPOOL - 00646	AIRCOMP	EEM - RI	1	4	1	4	235	1.47	11.7
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-303	MTRPOOL - 00680	EVAP	EEM - ROF	0	0	1	1	-1,583	0.19	91.0
Motors	MTR-303	MTRPOOL - 00680	EVAP	EEM - RI	1	2	1	2	-2,091	0.05	332.4
Motors	MTR-304	MTRPOOL - 00680	EVAP	EEM - ROF	0	0	2	3	813	3.12	5.5
Motors	MTR-304	MTRPOOL - 00680	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM - ROF	0	0	0	1	76	1.47	11.7
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM - RI	0	1	0	1	101	1.54	11.2
Motors	MTR-305	MTRPOOL - 00681	EVAP	EEM - ROF	0	0	1	1	-1,267	0.19	91.0
Motors	MTR-305	MTRPOOL - 00681	EVAP	EEM - RI	1	2	1	2	-1,673	0.05	332.4
Motors	MTR-306	MTRPOOL - 00681	EVAP	EEM - ROF	0	0	2	3	813	3.12	5.5
Motors	MTR-306	MTRPOOL - 00681	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-521	MTRPOOL - 00681	HEAT	EEM - ROF	0	0	1	1	50	1.31	13.2
Motors	MTR-521	MTRPOOL - 00681	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-307	MTRPOOL - 00830	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-307	MTRPOOL - 00830	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-308	MTRPOOL - 00832	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-308	MTRPOOL - 00832	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-309	MTRPOOL - 00832	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-309	MTRPOOL - 00832	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-310	MTRPOOL - 00837	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-310	MTRPOOL - 00837	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - ROF	0	0	3	4	1,033	2.91	5.9
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-313	MTRPOOL - 00840	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-313	MTRPOOL - 00840	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-314	MTRPOOL - 00847	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-314	MTRPOOL - 00847	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-315	MTRPOOL - 00847	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-315	MTRPOOL - 00847	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - ROF	0	0	9	7	486	1.22	14.2
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - RI	15	11	15	11	1,831	1.72	10.0
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - ROF	0	0	9	12	633	1.27	13.6
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - RI	14	18	14	18	1,900	1.71	10.1
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - ROF	0	0	7	7	1,380	2.22	7.7
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - RI	11	11	11	11	3,103	3.43	5.0
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - ROF	0	0	0	1	58	1.38	12.5
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - RI	0	1	0	1	93	1.50	11.5
Motors	PMTR-47a	MTRPOOL - 00857	PMPMTR	EEM - ROF	0	0	0	0	-355	0.15	115.8
Motors	PMTR-47a	MTRPOOL - 00857	PMPMTR	EEM - RI	0	1	0	1	-519	-0.05	NA
Motors	PMTR-47b	MTRPOOL - 00857	PMPMTR	VSD to Std - ROF	0	0	3	-0	-1,741	0.20	84.0
Motors	PMTR-47b	MTRPOOL - 00857	PMPMTR	VSD to Std - RI	3	0	3	0	-2,616	0.03	547.4
Motors	PMTR-47c	MTRPOOL - 00857	PMPMTR	VSD & EEM - ROF	0	0	3	0	-1,788	0.24	72.5
Motors	PMTR-47c	MTRPOOL - 00857	PMPMTR	VSD & EEM - RI	3	1	3	1	-2,620	0.09	195.7
Motors	MTR-318	MTRPOOL - 00873	EVAP	EEM - ROF	0	0	3	4	-2,450	0.36	48.0
Motors	MTR-318	MTRPOOL - 00873	EVAP	EEM - RI	4	6	4	6	-3,087	0.28	62.2
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM - ROF	0	0	3	10	866	1.94	8.9
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM - RI	4	14	4	14	1,730	2.64	6.5
Motors	PMTR-45a	MTRPOOL - 00873	PMPMTR	EEM - ROF	0	0	0	1	-825	0.24	73.2
Motors	PMTR-45a	MTRPOOL - 00873	PMPMTR	EEM - RI	1	2	1	2	-1,212	0.05	321.3
Motors	PMTR-45b	MTRPOOL - 00873	PMPMTR	VSD to Std - ROF	0	0	6	-1	-4,770	0.16	108.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-45b	MTRPOOL - 00873	PMPMTR	VSD to Std - RI	6	-0	6	-0	-7,172	-0.03	NA
Motors	PMTR-45c	MTRPOOL - 00873	PMPMTR	VSD & EEM - ROF	0	0	6	1	-4,762	0.20	84.3
Motors	PMTR-45c	MTRPOOL - 00873	PMPMTR	VSD & EEM - RI	6	2	6	2	-7,007	0.04	389.2
Motors	PMTR-46a	MTRPOOL - 00873	PMPMTR	EEM - ROF	0	0	1	2	-1,099	0.24	73.2
Motors	PMTR-46a	MTRPOOL - 00873	PMPMTR	EEM - RI	1	2	1	2	-1,616	0.05	321.3
Motors	PMTR-46b	MTRPOOL - 00873	PMPMTR	VSD to Std - ROF	0	0	8	1	-6,360	0.16	108.5
Motors	PMTR-46b	MTRPOOL - 00873	PMPMTR	VSD to Std - RI	8	-0	8	-0	-9,563	-0.03	NA
Motors	PMTR-46c	MTRPOOL - 00873	PMPMTR	VSD & EEM - ROF	0	0	8	2	-6,349	0.20	84.3
Motors	PMTR-46c	MTRPOOL - 00873	PMPMTR	VSD & EEM - RI	8	2	8	2	-9,343	0.04	389.2
Motors	MTR-319	MTRPOOL - 00879	EVAP	EEM - ROF	0	0	3	4	-2,450	0.36	48.0
Motors	MTR-319	MTRPOOL - 00879	EVAP	EEM - RI	4	6	4	6	-3,087	0.28	62.2
Motors	MTR-320	MTRPOOL - 00941	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-320	MTRPOOL - 00941	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-321	MWR - 00312	EVAP	EEM - ROF	0	0	0	1	-586	0.20	84.7
Motors	MTR-321	MWR - 00312	EVAP	EEM - RI	1	1	1	1	-871	0.01	1,387.3
Motors	MTR-322	MWR - 00312	EVAP	EEM - ROF	0	0	0	0	-293	0.20	84.7
Motors	MTR-322	MWR - 00312	EVAP	EEM - RI	0	0	0	0	-436	0.01	1,387.3
Motors	MTR-323	MWR - 00340	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-323	MWR - 00340	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-324	MWR - 00410	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-324	MWR - 00410	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-325	MWR - 00480	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-325	MWR - 00480	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-326	MWR - 00556	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-326	MWR - 00556	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-327	MWR - 00910	EVAP	EEM - ROF	0	0	0	1	-259	0.42	41.5
Motors	MTR-327	MWR - 00910	EVAP	EEM - RI	1	1	1	1	-316	0.36	47.5
Motors	MTR-457	MWR - 01313	Fan Motor	EEM - ROF	0	0	3	3	881	3.92	4.4
Motors	MTR-457	MWR - 01313	Fan Motor	EEM - RI	4	4	4	4	1,426	4.81	3.6
Motors	MTR-458a	MWR - 01313	Fan Motor	EEM - ROF	0	0	1	1	-96	0.73	23.5
Motors	MTR-458a	MWR - 01313	Fan Motor	EEM - RI	1	1	1	1	-72	0.83	20.7
Motors	MTR-458b	MWR - 01313	Fan Motor	VSD to Std - ROF	0	0	12	-0	-1,585	0.61	28.2
Motors	MTR-458b	MWR - 01313	Fan Motor	VSD to Std - RI	12	-0	12	-0	-2,305	0.54	32.0
Motors	MTR-458c	MWR - 01313	Fan Motor	VSD & EEM - ROF	0	0	12	1	-1,488	0.64	26.8
Motors	MTR-458c	MWR - 01313	Fan Motor	VSD & EEM - RI	12	1	12	1	-2,106	0.59	29.3
Motors	MTR-459a	MWR - 01313	Fan Motor	EEM - ROF	0	0	1	1	-202	0.45	38.2
Motors	MTR-459a	MWR - 01313	Fan Motor	EEM - RI	1	1	1	1	-267	0.40	43.6
Motors	MTR-459b	MWR - 01313	Fan Motor	VSD to Std - ROF	0	0	8	-0	-1,434	0.53	32.7
Motors	MTR-459b	MWR - 01313	Fan Motor	VSD to Std - RI	8	0	8	0	-2,112	0.43	40.0
Motors	MTR-459c	MWR - 01313	Fan Motor	VSD & EEM - ROF	0	0	8	1	-1,436	0.55	31.5
Motors	MTR-459c	MWR - 01313	Fan Motor	VSD & EEM - RI	8	1	8	1	-2,061	0.47	36.8
Motors	MTR-460	MWR - 01313	Fan Motor	EEM - ROF	0	0	2	2	440	3.92	4.4
Motors	MTR-460	MWR - 01313	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-30	MWR - 01322	COMPMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-30	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-31	MWR - 01322	COMPMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-31	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-32	MWR - 01322	COMPMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-32	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-328	MWR - 01322	EVAP	EEM - ROF	0	0	0	1	-586	0.20	84.7
Motors	MTR-328	MWR - 01322	EVAP	EEM - RI	1	1	1	1	-871	0.01	1,387.3
Motors	MTR-329	MWR - 01322	EVAP	EEM - ROF	0	0	1	1	149	1.99	8.7
Motors	MTR-329	MWR - 01322	EVAP	EEM - RI	1	1	1	1	240	2.29	7.5
Motors	MTR-33	MWR - 01322	COMPMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-33	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-330	MWR - 01322	EVAP	EEM - ROF	0	0	0	0	-293	0.20	84.7
Motors	MTR-330	MWR - 01322	EVAP	EEM - RI	0	0	0	0	-436	0.01	1,387.3
Motors	MTR-331	MWR - 01322	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-331	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-332	MWR - 01322	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-332	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-333	MWR - 01322	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-333	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-45a	MWR - 01322	CONDMTR	EEM - ROF	0	0	0	0	-241	0.33	52.4
Motors	MTR-45a	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	-342	0.20	86.3
Motors	MTR-45b	MWR - 01322	CONDMTR	VSD to Std - ROF	0	0	5	-0	-691	0.44	38.8
Motors	MTR-45b	MWR - 01322	CONDMTR	VSD to Std - RI	5	-0	5	-0	-950	0.37	46.7
Motors	MTR-45c	MWR - 01322	CONDMTR	VSD & EEM - ROF	0	0	5	0	-649	0.52	33.2
Motors	MTR-45c	MWR - 01322	CONDMTR	VSD & EEM - RI	5	1	5	1	-835	0.48	35.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	440	3.92	4.4
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-462	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	440	3.92	4.4
Motors	MTR-462	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-463b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-463b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-463c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-463c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	440	3.92	4.4
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-465b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-465b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-465c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-465c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	440	3.92	4.4
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-467a	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	318	1.81	9.5
Motors	MTR-467a	MWR - 01322	Fan Motor	EEM - RI	3	3	3	3	664	2.46	7.0
Motors	MTR-467b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	23	-1	-2,160	0.70	24.6
Motors	MTR-467b	MWR - 01322	Fan Motor	VSD to Std - RI	24	-0	24	-0	-3,092	0.65	26.5
Motors	MTR-467c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	24	2	-1,789	0.76	22.8
Motors	MTR-467c	MWR - 01322	Fan Motor	VSD & EEM - RI	24	3	24	3	-2,455	0.73	23.7
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-468b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-468b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-468c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-468c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - ROF	0	0	2	2	718	5.29	3.3
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - RI	3	3	3	3	1,183	7.16	2.4
Motors	MTR-47	MWR - 01322	CONDMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-47	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-470b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-470b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-470c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-470c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-471b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-471b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-471c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-471c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-472b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-472b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-472c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-472c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - ROF	0	0	1	1	-58	0.86	20.0
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-473b	MWR - 01322	Fan Motor	VSD to Std - ROF	0	0	15	-1	-1,720	0.66	26.0
Motors	MTR-473b	MWR - 01322	Fan Motor	VSD to Std - RI	16	0	16	0	-2,479	0.60	28.6
Motors	MTR-473c	MWR - 01322	Fan Motor	VSD & EEM - ROF	0	0	16	1	-1,602	0.70	24.8
Motors	MTR-473c	MWR - 01322	Fan Motor	VSD & EEM - RI	16	2	16	2	-2,230	0.65	26.4
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - ROF	0	0	7	7	2,153	5.29	3.3
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - RI	8	8	8	8	3,550	7.16	2.4
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - ROF	0	0	1	1	35	1.23	14.0
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-334	OTHER - 00992	EVAP	EEM - ROF	0	0	1	1	285	2.68	6.4
Motors	MTR-334	OTHER - 00992	EVAP	EEM - RI	1	2	1	2	577	3.79	4.5
Motors	PMTR-51a	PLT-BLDG - 00109	PMPMTR	EEM - ROF	0	0	0	1	-149	0.62	27.7

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-51a	PLT-BLDG - 00109	PMPMTR	EEM - RI	0	1	0	1	-167	0 63	27.2
Motors	PMTR-51b	PLT-BLDG - 00109	PMPMTR	VSD to Std - ROF	0	0	4	-0	-2,082	0 27	64.2
Motors	PMTR-51b	PLT-BLDG - 00109	PMPMTR	VSD to Std - RI	4	-0	4	-0	-3,120	0.11	156.8
Motors	PMTR-51c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - ROF	0	0	4	1	-1,935	0.34	50.0
Motors	PMTR-51c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	4	1	4	1	-2,824	0.22	79.4
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - ROF	0	0	0	1	146	1.88	9.2
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - RI	0	1	0	1	254	2.32	7.4
Motors	PMTR-61a	PLT-BLDG - 00109	PMPMTR	EEM - ROF	0	0	1	3	-189	0.79	21.9
Motors	PMTR-61a	PLT-BLDG - 00109	PMPMTR	EEM - RI	1	4	1	4	-97	0.91	19.0
Motors	PMTR-61b	PLT-BLDG - 00109	PMPMTR	VSD to Std - ROF	0	0	13	-1	419	1.14	15.2
Motors	PMTR-61b	PLT-BLDG - 00109	PMPMTR	VSD to Std - RI	13	0	13	0	1,042	1.28	13.5
Motors	PMTR-61c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - ROF	0	0	13	3	995	1.30	13.2
Motors	PMTR-61c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	14	4	14	4	2,066	1.53	11.3
Motors	PMTR-68	PLT-BLDG - 00109	PMPMTR	EEM - ROF	0	0	0	1	-245	0.41	41.7
Motors	PMTR-68	PLT-BLDG - 00109	PMPMTR	EEM - RI	0	2	0	2	-340	0.31	54.7
Motors	MTR-335	PLT-BLDG - 00253	EVAP	EEM - ROF	0	0	1	1	375	3.02	5.7
Motors	MTR-335	PLT-BLDG - 00253	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-336	PLT-BLDG - 00253	EVAP	EEM - ROF	0	0	1	1	375	3.02	5.7
Motors	MTR-336	PLT-BLDG - 00253	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-337	PLT-BLDG - 00253	EVAP	EEM - ROF	0	0	0	0	-305	0.20	87.8
Motors	MTR-337	PLT-BLDG - 00253	EVAP	EEM - RI	0	0	0	0	-427	0.03	541.9
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - ROF	0	0	4	6	1,275	4 54	3.8
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - RI	4	6	4	6	2,118	6.12	2.8
Motors	PMTR-54a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	1	4	-265	0.77	22.2
Motors	PMTR-54a	PLT-BLDG - 00253	PMPMTR	EEM - RI	2	5	2	5	-120	0.91	18.9
Motors	PMTR-54b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	0	0	19	-2	-6,561	0.40	43.5
Motors	PMTR-54b	PLT-BLDG - 00253	PMPMTR	VSD to Std - RI	19	0	19	0	-9,713	0.27	63.1
Motors	PMTR-54c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	0	0	19	4	-5,746	0.48	36.0
Motors	PMTR-54c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	20	5	20	5	-8,275	0.39	44.7
Motors	PMTR-55a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	4	11	538	1.24	13.9
Motors	PMTR-55a	PLT-BLDG - 00253	PMPMTR	EEM - RI	5	15	5	15	1,582	1.62	10.6
Motors	PMTR-55b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	0	0	49	-5	-15,278	0.43	39.6
Motors	PMTR-55b	PLT-BLDG - 00253	PMPMTR	VSD to Std - RI	51	-0	51	-0	-22,607	0.32	53.8
Motors	PMTR-55c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	0	0	51	11	-12,671	0.54	32.2
Motors	PMTR-55c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	52	15	52	15	-18,250	0.45	38.1
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	4	11	538	1.24	13.9
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - RI	5	15	5	15	1,582	1.62	10.6
Motors	PMTR-56b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	0	0	49	-5	-15,278	0.43	39.6
Motors	PMTR-56b	PLT-BLDG - 00253	PMPMTR	VSD to Std - RI	51	-0	51	-0	-22,607	0.32	53.8
Motors	PMTR-56c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	0	0	51	11	-12,671	0.54	32.2
Motors	PMTR-56c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	52	15	52	15	-18,250	0.45	38.1
Motors	PMTR-57a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	1	4	-265	0.77	22.2
Motors	PMTR-57a	PLT-BLDG - 00253	PMPMTR	EEM - RI	2	5	2	5	-120	0.91	18.9
Motors	PMTR-57b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	0	0	19	-2	-6,561	0.40	43.5
Motors	PMTR-57b	PLT-BLDG - 00253	PMPMTR	VSD to Std - RI	19	0	19	0	-9,713	0.27	63.1
Motors	PMTR-57c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	0	0	19	4	-5,746	0.48	36.0
Motors	PMTR-57c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	20	5	20	5	-8,275	0.39	44.7
Motors	PMTR-59a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	3	7	67	1.04	16.6
Motors	PMTR-59a	PLT-BLDG - 00253	PMPMTR	EEM - RI	4	11	4	11	655	1.31	13.1
Motors	PMTR-59b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	0	0	37	-4	4,658	1.75	9.9
Motors	PMTR-59b	PLT-BLDG - 00253	PMPMTR	VSD to Std - RI	38	0	38	0	8,266	2.09	8.2
Motors	PMTR-59c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	0	0	38	7	6,427	1.99	8.7
Motors	PMTR-59c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	39	11	39	11	11,266	2.46	7.0
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	6	5	1,110	2.24	7.7
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - RI	8	8	8	8	2,257	3.20	5.4
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	9	9	2,594	4.72	3.7
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM - RI	12	12	12	12	4,597	6.79	2.5
Motors	PMTR-67	PLT-BLDG - 00253	PMPMTR	EEM - ROF	0	0	5	5	1,011	2.45	7.0
Motors	PMTR-67	PLT-BLDG - 00253	PMPMTR	EEM - RI	7	7	7	7	2,090	3.63	4.7
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - ROF	0	0	1	1	256	2.56	6.7
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - RI	1	2	1	2	575	3.78	4.6
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - ROF	0	0	2	3	512	2.56	6.7
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - RI	2	3	2	3	1,151	3.78	4.6
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - ROF	0	0	1	1	18	1.04	16.5
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - RI	2	1	2	1	130	1.29	13.4
Motors	PMTR-48a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	1	4	-265	0.77	22 2
Motors	PMTR-48a	PLT-BLDG - 00263	PMPMTR	EEM - RI	2	5	2	5	-120	0.91	18.9
Motors	PMTR-48b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	19	-2	-6,561	0.40	43.5
Motors	PMTR-48b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	19	0	19	0	-9,713	0.27	63.1

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-48c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	19	4	-5,746	0.48	36.0
Motors	PMTR-48c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	20	5	20	5	-8,275	0.39	44.7
Motors	PMTR-49a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	0	1	-149	0.62	27.7
Motors	PMTR-49a	PLT-BLDG - 00263	PMPMTR	EEM - RI	0	1	0	1	-167	0.63	27.2
Motors	PMTR-49b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	4	-0	-2,082	0.27	64.2
Motors	PMTR-49b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	4	-0	4	-0	-3,120	0.11	156.8
Motors	PMTR-49c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	4	1	-1,935	0.34	50.0
Motors	PMTR-49c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	4	1	4	1	-2,824	0.22	79.4
Motors	PMTR-50a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	1	2	-132	0.77	22.2
Motors	PMTR-50a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1	3	1	3	-60	0.91	18.9
Motors	PMTR-50b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	9	-1	-3,281	0.40	43.5
Motors	PMTR-50b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	10	-0	10	-0	-4,856	0.27	63.1
Motors	PMTR-50c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	10	2	-2,873	0.48	36.0
Motors	PMTR-50c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	10	3	10	3	-4,138	0.39	44.7
Motors	PMTR-52a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	1	3	294	1.50	11.5
Motors	PMTR-52a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1	4	1	4	615	1.92	9.0
Motors	PMTR-52b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	10	-1	-3,166	0.42	41 3
Motors	PMTR-52b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	10	-0	10	-0	-4,665	0.30	57.1
Motors	PMTR-52c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	10	3	-2,447	0.56	31.0
Motors	PMTR-52c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	10	4	10	4	-3,463	0.49	35.5
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	3	9	905	1.62	10.6
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM - RI	4	12	4	12	1,874	2.13	8.1
Motors	PMTR-53b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	31	-3	-9,426	0.44	39.0
Motors	PMTR-53b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	32	0	32	0	-13,943	0.33	52.4
Motors	PMTR-53c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	32	9	-7,453	0.56	30.5
Motors	PMTR-53c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	33	12	33	12	-10,669	0.49	35.1
Motors	PMTR-60a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	3	9	905	1.62	10 6
Motors	PMTR-60a	PLT-BLDG - 00263	PMPMTR	EEM - RI	4	12	4	12	1,874	2.13	8.1
Motors	PMTR-60b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	31	-3	4,420	1.91	9.0
Motors	PMTR-60b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	32	0	32	0	7,707	2.31	7.4
Motors	PMTR-60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	32	9	6,393	2.25	7.6
Motors	PMTR-60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	33	12	33	12	10,980	2.81	6.1
Motors	PMTR-62a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	0	1	-303	0.27	63.2
Motors	PMTR-62a	PLT-BLDG - 00263	PMPMTR	EEM - RI	0	1	0	1	-437	0.12	145.2
Motors	PMTR-62b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	3	-0	-1,727	0.21	81.5
Motors	PMTR-62b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	3	0	3	0	-2,593	0.04	431.0
Motors	PMTR-62c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	3	1	-1,737	0.26	66.4
Motors	PMTR-62c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	3	1	3	1	-2,539	0.12	147.8
Motors	PMTR-63a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	0	1	-95	0.79	21.9
Motors	PMTR-63a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1	2	1	2	-48	0.91	19.0
Motors	PMTR-63b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	6	-1	-2,486	0.36	47.7
Motors	PMTR-63b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	7	0	7	0	-3,693	0.23	75 2
Motors	PMTR-63c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	7	1	-2,198	0.45	38.5
Motors	PMTR-63c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	7	2	7	2	-3,180	0.34	49.9
Motors	PMTR-64a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	0	1	-95	0.79	21.9
Motors	PMTR-64a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1	2	1	2	-48	0.91	19.0
Motors	PMTR-64b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	0	0	6	-1	-2,486	0.36	47.7
Motors	PMTR-64b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	7	0	7	0	-3,693	0.23	75.2
Motors	PMTR-64c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	0	0	7	1	-2,198	0.45	38.5
Motors	PMTR-64c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	7	2	7	2	-3,180	0.34	49.9
Motors	PMTR-69	PLT-BLDG - 00263	PMPMTR	EEM - ROF	0	0	6	5	1,110	2.24	7.7
Motors	PMTR-69	PLT-BLDG - 00263	PMPMTR	EEM - RI	8	8	8	8	2,257	3.20	5.4
Motors	PMTR-70	POOL-OT - 00328	PMPMTR	EEM - ROF	0	0	4	2	772	6.12	2.8
Motors	PMTR-70	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
Motors	PMTR-71	POOL-OT - 00328	PMPMTR	EEM - ROF	0	0	6	2	1,214	8.26	2.1
Motors	PMTR-71	POOL-OT - 00328	PMPMTR	EEM - RI	7	3	7	3	1,991	11.37	1.5
Motors	PMTR-72	POOL-OT - 00328	PMPMTR	EEM - ROF	0	0	4	2	772	6.12	2.8
Motors	PMTR-72	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
Motors	PMTR-73	POOL-OT - 00328	PMPMTR	EEM - ROF	0	0	4	2	772	6.12	2.8
Motors	PMTR-73	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
Motors	PMTR-74	PUMP - 00042	PMPMTR	EEM - ROF	0	0	3	4	199	1.25	13.8
Motors	PMTR-74	PUMP - 00042	PMPMTR	EEM - RI	5	5	5	5	551	1.61	10.7
Motors	PMTR-91	PUMP - 00042	PMPMTR	EEM - ROF	0	0	8	7	1,370	2.48	6.9
Motors	PMTR-91	PUMP - 00042	PMPMTR	EEM - RI	12	11	12	11	2,762	3.61	4.8
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - ROF	0	0	20	23	2,983	2.03	8.5
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - RI	34	39	34	39	7,036	3.12	5.5
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - ROF	0	0	7	23	607	1.21	14.2
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - RI	13	39	13	39	2,410	1.73	10.0
Motors	MTR-10	PUMP - 00044	AIRCOMP	EEM - ROF	0	0	0	1	-253	0.39	43.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-10	PUMP - 00044	AIRCOMP	EEM - RI	0	2	0	2	-345	0.30	56.5
Motors	MTR-340	PUMP - 00044	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-340	PUMP - 00044	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - ROF	0	0	2	2	100	1.25	13.8
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - RI	2	3	2	3	276	1.61	10.7
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - ROF	0	0	11	12	2,291	3.47	5.0
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - RI	14	16	14	16	4,141	4.92	3.5
Motors	PMTR-88	PUMP - 00044	PMPMTR	EEM - ROF	0	0	22	9	3,888	4.31	4.0
Motors	PMTR-88	PUMP - 00044	PMPMTR	EEM - RI	31	12	31	12	7,257	6.43	2.7
Motors	PMTR-89	PUMP - 00044	PMPMTR	EEM - ROF	0	0	18	7	2,862	3.43	5.0
Motors	PMTR-89	PUMP - 00044	PMPMTR	EEM - RI	26	11	26	11	5,634	5.22	3.3
Motors	PMTR-90	PUMP - 00044	PMPMTR	EEM - ROF	0	0	8	7	1,370	2.48	6.9
Motors	PMTR-90	PUMP - 00044	PMPMTR	EEM - RI	12	11	12	11	2,762	3.61	4.8
Motors	PMTR-92	PUMP - 00044	PMPMTR	EEM - ROF	0	0	19	23	2,949	2.02	8.5
Motors	PMTR-92	PUMP - 00044	PMPMTR	EEM - RI	33	39	33	39	6,970	3.10	5.6
Motors	PMTR-93	PUMP - 00044	PMPMTR	EEM - ROF	0	0	57	23	10,217	4.53	3.8
Motors	PMTR-93	PUMP - 00044	PMPMTR	EEM - RI	97	39	97	39	21,124	7.37	2.3
Motors	PMTR-94	PUMP - 00044	PMPMTR	EEM - ROF	0	0	57	23	10,217	4.53	3.8
Motors	PMTR-94	PUMP - 00044	PMPMTR	EEM - RI	97	39	97	39	21,124	7.37	2.3
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - ROF	0	0	31	34	5,687	2.64	6.5
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - RI	51	56	51	56	12,170	4.05	4.2
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - ROF	0	0	32	34	5,802	2.67	6.5
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - RI	52	56	52	56	12,387	4.11	4.2
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - ROF	0	0	2	3	346	1.78	9.7
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - RI	3	4	3	4	750	2.47	7.0
Motors	PMTR-76	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-117	0.67	25.5
Motors	PMTR-76	PUMP - 00324	PMPMTR	EEM - RI	1	1	1	1	-126	0.71	24.4
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - ROF	0	0	5	4	658	1.71	10.1
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - RI	8	5	8	5	1,464	2.39	7.2
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - ROF	0	0	2	1	350	3.10	5.6
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - RI	2	1	2	1	586	4.05	4.3
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - ROF	0	0	15	16	3,326	3.95	4.4
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - RI	20	21	20	21	5,949	5.66	3.0
Motors	PMTR-87	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-162	0.61	28.1
Motors	PMTR-87	PUMP - 00324	PMPMTR	EEM - RI	1	2	1	2	-176	0.65	26.7
Motors	PMTR-95	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-171	0.52	32.9
Motors	PMTR-95	PUMP - 00324	PMPMTR	EEM - RI	1	1	1	1	-212	0.50	34.2
Motors	PMTR-96	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-162	0.61	28.1
Motors	PMTR-96	PUMP - 00324	PMPMTR	EEM - RI	1	2	1	2	-176	0.65	26.7
Motors	PMTR-97	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-162	0.61	28.1
Motors	PMTR-97	PUMP - 00324	PMPMTR	EEM - RI	1	2	1	2	-176	0.65	26.7
Motors	PMTR-98	PUMP - 00324	PMPMTR	EEM - ROF	0	0	1	1	-162	0.61	28.1
Motors	PMTR-98	PUMP - 00324	PMPMTR	EEM - RI	1	2	1	2	-176	0.65	26.7
Motors	PMTR-99	PUMP - 00324	PMPMTR	EEM - ROF	0	0	7	7	1,045	2.13	8.1
Motors	PMTR-99	PUMP - 00324	PMPMTR	EEM - RI	10	11	10	11	2,171	3.05	5.6
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - ROF	0	0	37	42	8,031	3.77	4.6
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - RI	49	56	49	56	14,628	5.41	3.2
Motors	PMTR-107	PUMP - 00636	PMPMTR	EEM - ROF	0	0	4	42	1,718	1.59	10.8
Motors	PMTR-107	PUMP - 00636	PMPMTR	EEM - RI	6	56	6	56	3,619	2.09	8.2
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - ROF	0	0	40	42	8,758	4.02	4.3
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - RI	54	56	54	56	15,897	5.79	3.0
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - ROF	0	0	3	10	866	1.94	8.9
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - RI	4	14	4	14	1,730	2.64	6.5
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM - ROF	0	0	2	3	318	1.80	9.5
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM - RI	3	4	3	4	623	2.37	7.3
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM - ROF	0	0	21	42	5,086	2.76	6.3
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM - RI	29	56	29	56	9,492	3.86	4.5
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM - ROF	0	0	66	77	12,412	2.68	6.4
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM - RI	103	119	103	119	25,521	3.96	4.3
Motors	MTR-341	PUMP - 00700	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-341	PUMP - 00700	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	PMTR-100	PUMP - 00700	PMPMTR	EEM - ROF	0	0	29	12	4,396	2.98	5.8
Motors	PMTR-100	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM - ROF	0	0	29	12	4,396	2.98	5.8
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-102	PUMP - 00700	PMPMTR	EEM - ROF	0	0	29	12	4,396	2.98	5.8
Motors	PMTR-102	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-103	PUMP - 00700	PMPMTR	EEM - ROF	0	0	29	12	4,396	2.98	5.8
Motors	PMTR-103	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - ROF	0	0	18	16	2,136	1.74	9.9
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - RI	31	27	31	27	5,308	2.60	6.6
Motors	MTR-342	PUMP - 00838	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-342	PUMP - 00838	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM - ROF	0	0	24	77	8,106	1.94	8.9
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM - RI	38	119	38	119	9,759	2.13	8.1
Motors	PMTR-79	PUMP - 05590	PMPMTR	EEM - ROF	0	0	19	77	3,307	1.45	11.9
Motors	PMTR-79	PUMP - 05590	PMPMTR	EEM - RI	30	119	30	119	8,516	1.99	8.7
Motors	PMTR-80	PUMP - 05590	PMPMTR	EEM - ROF	0	0	34	77	6,150	1.83	9.4
Motors	PMTR-80	PUMP - 05590	PMPMTR	EEM - RI	52	119	52	119	13,826	2.60	6.6
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM - ROF	0	0	46	45	8,195	2.75	6.3
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM - RI	72	72	72	72	17,228	4.22	4.1
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - ROF	0	0	32	45	5,461	2.17	7.9
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - RI	50	72	50	72	12,077	3.26	5.3
Motors	PMTR-83	PUMP - 18005	PMPMTR	EEM - ROF	0	0	42	57	7,389	2.26	7.6
Motors	PMTR-83	PUMP - 18005	PMPMTR	EEM - RI	66	90	66	90	15,910	3.35	5.1
Motors	PMTR-84	PUMP - 18005	PMPMTR	EEM - ROF	0	0	50	57	8,849	2.51	6.9
Motors	PMTR-84	PUMP - 18005	PMPMTR	EEM - RI	78	90	78	90	18,636	3.75	4.6
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - ROF	0	0	25	57	3,943	1.67	10.3
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - RI	38	90	38	90	9,474	2.40	7.2
Motors	MTR-343	REC - 00322	EVAP	EEM - ROF	0	0	2	3	-2,928	0.20	84.7
Motors	MTR-343	REC - 00322	EVAP	EEM - RI	3	4	3	4	-4,355	0.01	1,387.3
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - ROF	0	0	2	2	534	4.19	4.1
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-344	REC - 00338	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-344	REC - 00338	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - ROF	0	0	2	2	534	4.19	4.1
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-345	REC - 00905	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-345	REC - 00905	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-34a	REC - 00905	COMPMTR	EEM - ROF	0	0	8	10	821	1.48	11.6
Motors	MTR-34a	REC - 00905	COMPMTR	EEM - RI	14	16	14	16	2,308	2.19	7.9
Motors	MTR-34b	REC - 00905	COMPMTR	VSD to Std - ROF	0	0	119	-7	18,452	4.58	3.8
Motors	MTR-34b	REC - 00905	COMPMTR	VSD to Std - RI	125	-0	125	-0	30,884	6.65	2.6
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - ROF	0	0	126	10	21,011	4.80	3.6
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - RI	132	16	132	16	35,113	7.04	2.4
Motors	MTR-35a	REC - 00905	COMPMTR	EEM - ROF	0	0	9	11	1,252	1.73	9.9
Motors	MTR-35a	REC - 00905	COMPMTR	EEM - RI	16	19	16	19	3,141	2.62	6.6
Motors	MTR-35b	REC - 00905	COMPMTR	VSD to Std - ROF	0	0	139	-8	22,468	5.36	3.2
Motors	MTR-35b	REC - 00905	COMPMTR	VSD to Std - RI	146	0	146	0	37,448	8.05	2.1
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - ROF	0	0	147	11	25,517	5.61	3.1
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - RI	153	19	153	19	42,432	8.48	2.0
Motors	MTR-36	REC - 00905	COMPMTR	EEM - ROF	0	0	2	2	-1,019	0.31	56.2
Motors	MTR-36	REC - 00905	COMPMTR	EEM - RI	3	3	3	3	-1,461	0.17	100.2
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - ROF	0	0	1	1	133	1.34	12.9
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-478b	REC - 00905	Fan Motor	VSD to Std - ROF	0	0	16	-0	-3,865	0.46	37.2
Motors	MTR-478b	REC - 00905	Fan Motor	VSD to Std - RI	16	-0	16	-0	-5,819	0.34	50.2
Motors	MTR-478c	REC - 00905	Fan Motor	VSD & EEM - ROF	0	0	16	1	-3,605	0.51	34.0
Motors	MTR-478c	REC - 00905	Fan Motor	VSD & EEM - RI	17	1	17	1	-5,350	0.40	42.7
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - ROF	0	0	1	1	133	1.34	12.9
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-479b	REC - 00905	Fan Motor	VSD to Std - ROF	0	0	16	-0	-3,865	0.46	37.2
Motors	MTR-479b	REC - 00905	Fan Motor	VSD to Std - RI	16	-0	16	-0	-5,819	0.34	50.2
Motors	MTR-479c	REC - 00905	Fan Motor	VSD & EEM - ROF	0	0	16	1	-3,605	0.51	34.0
Motors	MTR-479c	REC - 00905	Fan Motor	VSD & EEM - RI	17	1	17	1	-5,350	0.40	42.7
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - ROF	0	0	1	1	133	1.34	12.9
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-480b	REC - 00905	Fan Motor	VSD to Std - ROF	0	0	16	-0	-3,865	0.46	37.2
Motors	MTR-480b	REC - 00905	Fan Motor	VSD to Std - RI	16	-0	16	-0	-5,819	0.34	50.2
Motors	MTR-480c	REC - 00905	Fan Motor	VSD & EEM - ROF	0	0	16	1	-3,605	0.51	34.0
Motors	MTR-480c	REC - 00905	Fan Motor	VSD & EEM - RI	17	1	17	1	-5,350	0.40	42.7
Motors	MTR-481	REC - 00905	Fan Motor	EEM - ROF	0	0	2	3	346	1.78	9.7
Motors	MTR-481	REC - 00905	Fan Motor	EEM - RI	3	4	3	4	750	2.47	7.0
Motors	PMTR-117	REC - 00905	PMPMTR	EEM - ROF	0	0	2	3	638	4.54	3.8
Motors	PMTR-117	REC - 00905	PMPMTR	EEM - RI	2	3	2	3	1,059	6.12	2.8
Motors	MTR-346	SECURTY - 00326	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-346	SECURTY - 00326	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-347	SECURTY - 00326	EVAP	EEM - ROF	0	0	1	1	439	3.23	5.3

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-347	SECURTY - 00326	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-348	SECURTY - 00326	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-348	SECURTY - 00326	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-349	SECURTY - 00427	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-349	SECURTY - 00427	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-350	SHOP - 00356	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-350	SHOP - 00356	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-351	SHOP - 00357	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-351	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-352	SHOP - 00357	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-352	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-353	SHOP - 00357	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-353	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - ROF	0	0	2	7	91	1.08	15.9
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - RI	3	11	3	11	623	1.49	11.6
Motors	MTR-354	SHOP - 00367	EVAP	EEM - ROF	0	0	5	7	1,722	2.91	5.9
Motors	MTR-354	SHOP - 00367	EVAP	EEM - RI	6	8	6	8	2,900	3.80	4.5
Motors	MTR-355	SHOP - 00367	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-355	SHOP - 00367	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-356	SHOP - 00384	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-356	SHOP - 00384	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-357	SHOP - 00384	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-357	SHOP - 00384	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-358	SHOP - 00842	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-358	SHOP - 00842	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-359	SHOP - 00842	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-359	SHOP - 00842	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-360	SHOP-ELC - 00581	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-360	SHOP-ELC - 00581	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-361	SHOP-ELC - 00581	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-361	SHOP-ELC - 00581	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-362	SHOP-ELC - 00616	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-362	SHOP-ELC - 00616	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-363	SHOP-WPN - 07602	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-363	SHOP-WPN - 07602	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-364	STOR-UH - 00148	EVAP	EEM - ROF	0	0	0	0	-317	0.19	91.0
Motors	MTR-364	STOR-UH - 00148	EVAP	EEM - RI	0	0	0	0	-418	0.05	332.4
Motors	MTR-365	TRAING - 00490	EVAP	EEM - ROF	0	0	1	1	-1,171	0.20	84.7
Motors	MTR-365	TRAING - 00490	EVAP	EEM - RI	1	2	1	2	-1,742	0.01	1,387.3
Motors	MTR-366	TRAING - 00492	EVAP	EEM - ROF	0	0	1	1	-1,171	0.20	84.7
Motors	MTR-366	TRAING - 00492	EVAP	EEM - RI	1	2	1	2	-1,742	0.01	1,387.3
Motors	MTR-367	TRAING - 00496	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-367	TRAING - 00496	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-368	TRAING - 00496	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-368	TRAING - 00496	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-369	TRAING - 00547	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-369	TRAING - 00547	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - ROF	0	0	2	2	534	4.19	4.1
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - ROF	0	0	1	2	475	4.14	4.2
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - RI	2	2	2	2	768	5.11	3.4
Motors	MTR-370	WHS - 00024	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-370	WHS - 00024	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-371	WHS - 00234	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-371	WHS - 00234	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-372	WHS - 00277	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-372	WHS - 00277	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-373	WHS - 00306	EVAP	EEM - ROF	0	0	1	1	-464	0.35	48.6
Motors	MTR-373	WHS - 00306	EVAP	EEM - RI	1	1	1	1	-650	0.24	72.0
Motors	MTR-374	WHS - 00318	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-374	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-375	WHS - 00318	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-375	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-376	WHS - 00318	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-376	WHS - 00318	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-377	WHS - 00318	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-377	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-378	WHS - 00333	EVAP	EEM - ROF	0	0	0	0	-293	0.20	84.7
Motors	MTR-378	WHS - 00333	EVAP	EEM - RI	0	0	0	0	-436	0.01	1,387.3

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-379	WHS - 00333	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-379·	WHS - 00333	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-380	WHS - 00333	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-380	WHS - 00333	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-381	WHS - 00342	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-381	WHS - 00342	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-382	WHS - 00342	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-382	WHS - 00342	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-383	WHS - 00344	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-383	WHS - 00344	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-384	WHS - 00352	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-384	WHS - 00352	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-385	WHS - 00360	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-385	WHS - 00360	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-386	WHS - 00364	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-386	WHS - 00364	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-387	WHS - 00364	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-387	WHS - 00364	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-388	WHS - 00364	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-388	WHS - 00364	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-389	WHS - 00435	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-389	WHS - 00435	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-390	WHS - 00456	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-390	WHS - 00456	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-391	WHS - 00460	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-391	WHS - 00460	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-392	WHS - 00462	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-392	WHS - 00462	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-393	WHS - 00462	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-393	WHS - 00462	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-394	WHS - 00470	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-394	WHS - 00470	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-395	WHS - 00470	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-395	WHS - 00470	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-396	WHS - 00470	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-396	WHS - 00470	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-397	WHS - 00472	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-397	WHS - 00472	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-398	WHS - 00474	EVAP	EEM - ROF	0	0	0	0	-252	0.36	47.7
Motors	MTR-398	WHS - 00474	EVAP	EEM - RI	0	1	0	1	-300	0.30	58.0
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - ROF	0	0	3	5	1,068	4.19	4.1
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - RI	4	5	4	5	1,769	5.61	3.1
Motors	MTR-399	WHS - 00486	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-399	WHS - 00486	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-400	WHS - 00486	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-400	WHS - 00486	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-401	WHS - 00517	EVAP	EEM - ROF	0	0	4	6	1,378	2.91	5.9
Motors	MTR-401	WHS - 00517	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-402	WHS - 00531	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-402	WHS - 00531	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-403	WHS - 00531	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-403	WHS - 00531	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-404	WHS - 00537	EVAP	EEM - ROF	0	0	0	0	-232	0.35	48.6
Motors	MTR-404	WHS - 00537	EVAP	EEM - RI	0	1	0	1	-325	0.24	72.0
Motors	MTR-405	WHS - 00545	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-405	WHS - 00545	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - ROF	0	0	1	5	526	2.57	6.7
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - RI	2	5	2	5	887	3.31	5.2
Motors	MTR-406	WHS - 00558	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-406	WHS - 00558	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-407	WHS - 00584	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-407	WHS - 00584	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-408	WHS - 00585	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-408	WHS - 00585	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-409	WHS - 00818	EVAP	EEM - ROF	0	0	2	3	146	1.13	15.2
Motors	MTR-409	WHS - 00818	EVAP	EEM - RI	4	6	4	6	729	1.57	11.0
Motors	MTR-410	WHS - 00827	EVAP	EEM - ROF	0	0	1	1	407	3.12	5.5
Motors	MTR-410	WHS - 00827	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-411	WHS - 00827	EVAP	EEM - ROF	0	0	3	4	1,220	3.12	5.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-411	WHS - 00827	EVAP	EEM - RI	3	5	3	5	1,751	3.82	4.5
Motors	MTR-412	WHS - 00827	EVAP	EEM - ROF	0	0	1	1	407	3.12	5.5
Motors	MTR-412	WHS - 00827	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-413	WHS - 00844	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-413	WHS - 00844	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-414	WHS - 00860	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-414	WHS - 00860	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-415	WHS - 00860	EVAP	EEM - ROF	0	0	2	3	689	2.91	5.9
Motors	MTR-415	WHS - 00860	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-416	WHS - 00860	EVAP	EEM - ROF	0	0	1	1	344	2.91	5.9
Motors	MTR-416	WHS - 00860	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-417	WHS - 00934	EVAP	EEM - ROF	0	0	3	4	1,564	3.68	4.7
Motors	MTR-417	WHS - 00934	EVAP	EEM - RI	3	5	3	5	1,768	3.85	4.5
Motors	MTR-96	WHS - 20001	COOL	EEM - ROF	0	0	1	3	195	1.33	12.9
Motors	MTR-96	WHS - 20001	COOL	EEM - RI	1	4	1	4	354	1.47	11.7
Motors	MTR-37	WHS-CLD - 00862	COMPMTR	EEM - ROF	0	0	1	2	270	2.79	6.2
Motors	MTR-37	WHS-CLD - 00862	COMPMTR	EEM - RI	1	2	1	2	437	3.34	5.2
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - ROF	0	0	12	5	2,428	8.26	2.1
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - RI	13	5	13	5	3,981	11.37	1.5
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - ROF	0	0	3	4	336	1.43	12.1
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - RI	4	5	4	5	704	1.87	9.2
Motors	MTR-49	WHS-CLD - 00862	CONDMTR	EEM - ROF	0	0	1	1	148	1.98	8.7
Motors	MTR-49	WHS-CLD - 00862	CONDMTR	EEM - RI	1	1	1	1	240	2.28	7.5
Motors	MTR-50a	WHS-CLD - 00862	CONDMTR	EEM - ROF	0	0	3	3	54	1.06	16.2
Motors	MTR-50a	WHS-CLD - 00862	CONDMTR	EEM - RI	5	4	5	4	344	1.34	12.9
Motors	MTR-50b	WHS-CLD - 00862	CONDMTR	VSD to Std - ROF	0	0	30	-1	-20,696	0.07	236.9
Motors	MTR-50b	WHS-CLD - 00862	CONDMTR	VSD to Std - RI	31	0	31	0	-31,747	-0.16	NA
Motors	MTR-50c	WHS-CLD - 00862	CONDMTR	VSD & EEM - ROF	0	0	32	3	-19,848	0.12	146.9
Mofors	MTR-50c	WHS-CLD - 00862	CONDMTR	VSD & EEM - RI	33	4	33	4	-30,311	-0.10	NA
Motors	PMTR-120	WHS-CLD - 00862	refrigeration unit	EEM - ROF	0	0	70	28	11,876	3.84	4.5
Motors	PMTR-120	WHS-CLD - 00862	refrigeration unit	EEM - RI	106	42	106	42	23,238	5.88	2.9
Motors	PMTR-121	WHS-CLD - 00862	refrigeration unit	EEM - ROF	0	0	35	14	5,938	3.84	4.5
Motors	PMTR-121	WHS-CLD - 00862	refrigeration unit	EEM - RI	53	21	53	21	11,619	5.88	2.9
Motors	PMTR-122	WHS-CLD - 00862	PMPMTR	EEM - ROF	0	0	4	5	908	3.71	4.6
Motors	PMTR-122	WHS-CLD - 00862	PMPMTR	EEM - RI	5	5	5	5	1,508	4.93	3.5
Refrigeration		Commercial	Refrigerators	Efficient Refrigerators - RI	872	479	872	479	-35,461	0.88	19.6
Refrigeration		HSG-FAM	Refrigerators	Efficient Refrigerators - RI	3,822	2,099	3,822	2,099	-155,403	0.88	19.6
T&D	10a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9	5	9	5	-19,223	0.34	50.1
T&D	10b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	9	5	134	1.01	17.1
T&D	10c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	26	14	26	14	-15,522	0.52	33.3
T&D	10d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	26	14	666	1.04	16.6
T&D	10e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	12	13	12	13	-18,629	0.39	43.8
T&D	10f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	12	13	219	1.01	17.0
T&D	10g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	29	22	29	22	-14,927	0.55	31.0
T&D	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	29	22	751	1.04	16.5
T&D	11a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-5,690	0.64	27.1
T&D	11b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	255	1.02	16.8
T&D	11c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	14	8	14	8	-3,716	0.78	22.0
T&D	11d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	14	8	1,259	1.10	15.7
T&D	11e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	7	6	7	-5,373	0.67	25.6
T&D	11f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	7	417	1.03	16.6
T&D	11g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	15	12	15	12	-3,399	0.81	21.3
T&D	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	15	12	1,421	1.11	15.5
T&D	12a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	-336	0.99	17.5
T&D	12b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	770	1.03	16.7
T&D	12c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23	12	23	12	2,872	1.10	15.6
T&D	12d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	23	12	3,801	1.14	15.1
T&D	12e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	11	10	11	179	1.01	17.1
T&D	12f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	11	1,257	1.05	16.4
T&D	12g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	25	19	25	19	3,387	1.12	15.4
T&D	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	25	19	4,289	1.15	14.9
T&D	13a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	6	12	6	-9,765	0.67	25.8
T&D	13b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	6	938	1.04	16.5
T&D	13c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33	18	33	18	-4,435	0.86	20.0
T&D	13d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	33	18	3,648	1.15	14.9
T&D	13e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	15	17	15	17	-8,403	0.73	23.7
T&D	13f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	15	17	1,631	1.07	16.1
T&D	13g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	37	29	37	29	-3,073	0.91	19.0
T&D	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	37	29	4,341	1.18	14.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	14a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	207	1.02	16.9
T&D	14b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	697	1.06	16.2
T&D	14c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	13	7	13	7	2,338	1.18	14.6
T&D	14d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	13	7	2,711	1.22	14.1
T&D	14e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	7	6	7	751	1.06	16.2
T&D	14f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	7	1,212	1.10	15.6
T&D	14g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	15	12	15	12	2,883	1.21	14.2
T&D	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	15	12	3,226	1.25	13.8
T&D	15a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-7,327	0.37	46.0
T&D	15b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	106	1.02	16.9
T&D	15c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	13	7	13	7	-5,195	0.60	28.9
T&D	15d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	13	7	412	1.06	16.3
T&D	15e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	7	6	7	-6,783	0.45	38.5
T&D	15f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	7	184	1.03	16.8
T&D	15g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	15	12	15	12	-4,651	0.65	26.4
T&D	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	15	12	490	1.07	16.1
T&D	16a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-285	0.99	17.5
T&D	16b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	651	1.03	16.7
T&D	16c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	19	10	19	10	2,430	1.10	15.6
T&D	16d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	19	10	3,216	1.14	15.1
T&D	16e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	9	9	9	151	1.01	17.1
T&D	16f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	9	9	1,064	1.05	16.4
T&D	16g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	21	16	21	16	2,866	1.12	15.4
T&D	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	21	16	3,629	1.15	14.9
T&D	17a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	6	12	6	-12,655	0.64	26.9
T&D	17b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	6	650	1.03	16.8
T&D	17c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33	18	33	18	-7,947	0.79	21.7
T&D	17d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	33	18	3,044	1.11	15.6
T&D	17e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14	16	14	16	-11,942	0.68	25.5
T&D	17f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	14	16	1,014	1.04	16.6
T&D	17g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	36	27	36	27	-7,233	0.82	21.0
T&D	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	36	27	3,408	1.11	15.4
T&D	18a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-87	0.99	17.4
T&D	18b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	358	1.04	16.6
T&D	18c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10	5	10	5	1,327	1.12	15.4
T&D	18d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	10	5	1,694	1.15	14.9
T&D	18e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4	5	4	5	214	1.02	16.9
T&D	18f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	4	5	643	1.06	16.2
T&D	18g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11	8	11	8	1,627	1.14	15.1
T&D	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	11	8	1,979	1.17	14.7
T&D	19a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-5,547	0.64	26.8
T&D	19b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	290	1.03	16.8
T&D	19c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	-3,426	0.80	21.6
T&D	19d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	1,368	1.11	15.5
T&D	19e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	8	7	8	-5,096	0.69	25.1
T&D	19f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	8	520	1.04	16.5
T&D	19g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16	13	16	13	-2,975	0.83	20.7
T&D	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	16	13	1,598	1.12	15.4
T&D	1a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	1	0	1	0	-808	0.63	27.5
T&D	1b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	1	0	27	1.02	16.9
T&D	1c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	2	1	2	1	-575	0.76	22.8
T&D	1d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	2	1	145	1.08	15.9
T&D	1e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	1	1	1	1	-765	0.66	26.1
T&D	1f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	1	1	49	1.03	16.7
T&D	1g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	2	1	2	1	-532	0.78	22.0
T&D	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	2	1	167	1.09	15.8
T&D	20a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-6,702	0.35	49.1
T&D	20b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	54	1.01	17.1
T&D	20c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10	5	10	5	-5,288	0.53	32.2
T&D	20d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	10	5	257	1.04	16.5
T&D	20e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4	5	4	5	-6,401	0.41	42.1
T&D	20f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	4	5	97	1.02	16.9
T&D	20g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11	8	11	8	-4,988	0.58	29.7
T&D	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	11	8	300	1.05	16.5
T&D	21a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	35	18	35	18	1,959	1.02	16.8
T&D	21b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	35	18	5,266	1.07	16.1
T&D	21c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	97	52	97	52	17,657	1.20	14.3
T&D	21d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	97	52	20,097	1.24	13.9
T&D	21e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	45	54	45	54	6,726	1.08	15.9

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	21f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	45	54	9,770	1.12	15.4
T&D	21g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	107	87	107	87	22,424	1.24	13.8
T&D	21h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	107	87	24,602	1.28	13.5
T&D	22a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	20	11	20	11	-15,111	0.67	25.5
T&D	22b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	20	11	1,646	1.05	16.4
T&D	22c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	56	30	56	30	-5,996	0.88	19.5
T&D	22d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	56	30	6,281	1.17	14.8
T&D	22e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	26	31	26	31	-12,343	0.75	23.1
T&D	22f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	26	31	3,054	1.08	15.9
T&D	22g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	62	50	62	50	-3,228	0.94	18.3
T&D	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	62	50	7,688	1.20	14.4
T&D	23a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-9,543	0.38	44.9
T&D	23b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	155	1.02	16.9
T&D	23c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	19	10	19	10	-6,505	0.62	27.9
T&D	23d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	19	10	591	1.06	16.2
T&D	23e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	10	9	10	-8,621	0.47	36.7
T&D	23f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	9	10	287	1.03	16.7
T&D	23g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	21	17	21	17	-5,582	0.69	25.1
T&D	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	21	17	724	1.07	16.0
T&D	24a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	3	1	3	1	-65	0.99	17.4
T&D	24b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	3	1	269	1.04	16.6
T&D	24c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	7	4	7	4	995	1.12	15.4
T&D	24d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	7	4	1,271	1.15	14.9
T&D	24e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	3	4	3	4	160	1.02	16.9
T&D	24f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	3	4	482	1.06	16.2
T&D	24g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8	6	8	6	1,221	1.14	15.1
T&D	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	8	6	1,484	1.17	14.7
T&D	25a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	3	1	3	1	-2,773	0.64	26.8
T&D	25b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	3	1	145	1.03	16.8
T&D	25c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	7	4	7	4	1,713	0.80	21.6
T&D	25d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	7	4	684	1.11	15.5
T&D	25e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	3	4	3	4	-2,548	0.69	25.1
T&D	25f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	3	4	260	1.04	16.5
T&D	25g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8	6	8	6	-1,488	0.83	20.7
T&D	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	8	6	799	1.12	15.4
T&D	26a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-10,053	0.35	49.1
T&D	26b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	81	1.01	17.1
T&D	26c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	-7,932	0.53	32.2
T&D	26d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	386	1.04	16.5
T&D	26e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	8	7	8	-9,602	0.41	42.1
T&D	26f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	8	146	1.02	16.9
T&D	26g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16	13	16	13	-7,481	0.58	29.7
T&D	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	16	13	451	1.05	16.5
T&D	27a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16	8	16	8	-16,641	0.64	26.8
T&D	27b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	16	8	869	1.03	16.8
T&D	27c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	44	24	44	24	-10,279	0.80	21.6
T&D	27d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	44	24	4,105	1.11	15.5
T&D	27e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	20	23	20	23	-15,287	0.69	25.1
T&D	27f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	20	23	1,559	1.04	16.5
T&D	27g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	49	38	49	38	-8,925	0.83	20.7
T&D	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	49	38	4,794	1.12	15.4
T&D	28a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-10,053	0.35	49.1
T&D	28b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	81	1.01	17.1
T&D	28c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	-7,932	0.53	32.2
T&D	28d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	386	1.04	16.5
T&D	28e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	8	7	8	-9,602	0.41	42.1
T&D	28f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	8	146	1.02	16.9
T&D	28g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16	13	16	13	-7,481	0.58	29.7
T&D	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	16	13	451	1.05	16.5
T&D	29a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15	8	15	8	207	1.01	17.1
T&D	29b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	15	8	1,842	1.05	16.4
T&D	29c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	42	22	42	22	6,523	1.15	14.9
T&D	29d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	42	22	7,810	1.19	14.5
T&D	29e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	19	21	19	21	1,474	1.04	16.6
T&D	29f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	19	21	3,040	1.08	16.0
T&D	29g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	45	35	45	35	7,789	1.17	14.7
T&D	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	45	35	9,008	1.21	14.3
T&D	2a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-205	0.99	17.4
T&D	2b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	681	1.03	16.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	2c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	19	10	19	10	2,453	1.11	15.5
T&D	2d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	19	10	3,192	1.15	15.0
T&D	2e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8	8	8	8	45	1.00	17.2
T&D	2f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	8	8	918	1.04	16.5
T&D	2g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	20	15	20	15	2,703	1.12	15.4
T&D	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	20	15	3,430	1.15	14.9
T&D	30a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	22	12	22	12	-19,929	0.66	26.2
T&D	30b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	22	12	1,489	1.03	16.6
T&D	30c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	63	33	63	33	-10,455	0.84	20.6
T&D	30d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	63	33	6,306	1.13	15.2
T&D	30e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	28	31	28	31	-18,029	0.70	24.4
T&D	30f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	28	31	2,456	1.05	16.3
T&D	30g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	68	53	68	53	-8,555	0.87	19.7
T&D	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	68	53	7,274	1.15	15.0
T&D	31a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	6	3	6	3	-10,213	0.37	47.0
T&D	31b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	0	0	6	3	116	1.01	17.0
T&D	31c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17	9	17	9	-7,582	0.57	30.0
T&D	31d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	17	9	404	1.05	16.4
T&D	31e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8	9	8	9	-9,686	0.43	40.2
T&D	31f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	8	9	192	1.02	16.9
T&D	31g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	19	15	19	15	-7,054	0.62	27.8
T&D	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	19	15	570	1.06	16.3
T&D	32a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9	5	9	5	630	1.03	16.7
T&D	32b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	9	5	1,418	1.08	16.0
T&D	32c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	25	13	25	13	4,735	1.22	14.1
T&D	32d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	25	13	5,297	1.26	13.7
T&D	32e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	12	14	12	14	1,940	1.10	15.7
T&D	32f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	12	14	2,657	1.13	15.2
T&D	32g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	28	23	28	23	6,046	1.27	13.5
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	28	23	6,535	1.30	13.2
T&D	33a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-3,058	0.68	25.2
T&D	33b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	382	1.05	16.3
T&D	33c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12	7	12	7	-1,006	0.91	19.0
T&D	33d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	12	7	1,425	1.18	14.6
T&D	33e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	7	6	7	-2,403	0.76	22.6
T&D	33f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	7	715	1.10	15.7
T&D	33g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	14	11	14	11	-350	0.97	17.8
T&D	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	14	11	1,759	1.21	14.2
T&D	34a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-5,865	0.39	43.8
T&D	34b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	108	1.02	16.9
T&D	34c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12	7	12	7	-3,812	0.64	26.8
T&D	34d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	12	7	402	1.07	16.1
T&D	34e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	7	6	7	-5,210	0.49	35.3
T&D	34f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	7	202	1.04	16.6
T&D	34g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	14	11	14	11	-3,157	0.72	24.0
T&D	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	14	11	497	1.08	15.9
T&D	35a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	2	1	2	1	34	1.01	17.1
T&D	35b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	2	1	307	1.05	16.4
T&D	35c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	7	4	7	4	1,087	1.15	14.9
T&D	35d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	7	4	1,302	1.19	14.5
T&D	35e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	3	3	3	3	246	1.04	16.6
T&D	35f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	3	3	507	1.08	16.0
T&D	35g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8	6	8	6	1,298	1.17	14.7
T&D	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	8	6	1,501	1.21	14.3
T&D	36a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-6,128	0.37	47.0
T&D	36b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	70	1.01	17.0
T&D	36c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10	6	10	6	-4,549	0.57	30.0
T&D	36d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	10	6	297	1.05	16.4
T&D	36e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	5	5	5	-5,811	0.43	40.2
T&D	36f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	5	115	1.02	16.9
T&D	36g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11	9	11	9	-4,232	0.62	27.8
T&D	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	11	9	342	1.06	16.3
T&D	37a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	103	1.01	17.1
T&D	37b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	921	1.05	16.4
T&D	37c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	21	11	21	11	3,261	1.15	14.9
T&D	37d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	21	11	3,905	1.19	14.5
T&D	37e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	10	9	10	737	1.04	16.6
T&D	37f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	9	10	1,520	1.08	16.0
T&D	37g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	23	18	23	18	3,895	1.17	14.7

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	23	18	4.504	1.21	14.3
T&D	38a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-12,256	0.37	47.0
T&D	38b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	140	1.01	17.0
T&D	38c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	21	11	21	11	-9,098	0.57	30.0
T&D	38d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	21	11	593	1.05	16.4
T&D	38e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	10	9	10	-11,623	0.43	40.2
T&D	38f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	9	10	230	1.02	16.9
T&D	38g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	23	18	23	18	-8,465	0.62	27.8
T&D	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	23	18	684	1.06	16.3
T&D	39a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	6	12	6	868	1.03	16.6
T&D	39b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	6	1,881	1.08	16.0
T&D	39c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33	17	33	17	6,281	1.23	14.0
T&D	39d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	33	17	6,995	1.26	13.6
T&D	39e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	15	19	15	19	2,705	1.10	15.6
T&D	39f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	15	19	3,617	1.14	15.1
T&D	39g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	36	30	36	30	8.118	1.28	13.4
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	36	30	8,730	1.31	13.1
T&D	3a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	2	5	2	-5,105	0.64	27.0
T&D	3b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	2	254	1.02	16 8
T&D	3c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	13	7	13	7	-3,265	0.79	21.8
T&D	3d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	13	7	1,190	1.10	15.6
T&D	3e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	6	6	6	6	-4,931	0.67	25.9
T&D	3f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	6	6	343	1.03	16.7
T&D	3g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	14	10	14	10	-3,091	0.81	21.3
T&D	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	14	10	1,279	1.11	15.5
T&D	40a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	3	2	3	2	-2,235	0.69	25.1
T&D	40b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	3	2	289	1.06	16.3
T&D	40c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	9	5	9	5	-688	0.91	18.9
T&D	40d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	9	5	1,076	1.19	14.5
T&D	40e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4	5	4	5	-1,710	0.77	22.3
T&D	40f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	4	5	556	1.10	15.6
T&D	40g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	10	9	10	9	-164	0.98	17.6
T&D	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	10	9	1,342	1.22	14.1
T&D	41a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-8,601	0.40	43.4
T&D	41b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	163	1.02	16.9
T&D	41c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	19	10	19	10	-5,508	0.65	26.5
T&D	41d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	19	10	607	1.07	16.1
T&D	41e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	11	9	11	-7,552	0.50	34.7
T&D	41f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	9	11	314	1.04	16.6
T&D	41g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	21	17	21	17	-4,459	0.73	23.6
T&D	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	21	17	758	1.08	15.9
T&D	42a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	51	27	51	27	-415	1.00	17.3
T&D	42b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	51	27	5,546	1.04	16.5
T&D	42c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	143	77	143	77	20,458	1.13	15.2
T&D	42d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	143	77	25,269	1.17	14.7
T&D	42e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	67	79	67	79	5,479	1.04	16.6
T&D	42f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	67	79	11,118	1.08	16.0
T&D	42g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	159	129	159	129	26,352	1.16	14.8
T&D	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	159	129	30,841	1.20	14.4
T&D	43a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11	6	11	6	-10,608	0.65	26.5
T&D	43b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	11	6	646	1.03	16.7
T&D	43c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	31	17	31	17	-6,095	0.82	21.1
T&D	43d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	31	17	2,941	1.12	15.4
T&D	43e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14	17	14	17	-9,333	0.71	24.4
T&D	43f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	14	17	1,295	1.06	16.3
T&D	43g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	34	28	34	28	-4,820	0.86	20.0
T&D	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	34	28	3,590	1.14	15.1
T&D	44a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	24	13	24	13	-41,137	0.36	47.9
T&D	44b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	24	13	386	1.01	17.0
T&D	44c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	66	35	66	35	-31,546	0.55	31.0
T&D	44d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	66	35	1,763	1.05	16.5
T&D	44e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	31	36	31	36	-38,429	0.43	40.0
T&D	44f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	31	36	774	1.02	16.9
T&D	44g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	73	59	73	59	-28,839	0.61	28.2
T&D	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	73	59	2,151	1.05	16.3
T&D	45a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11	6	11	6	936	1.04	16.5
T&D	45b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	11	6	1,847	1.08	15.9
T&D	45c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	31	17	31	17	6,127	1.24	13.8
T&D	45d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	31	17	6,751	1.28	13.5

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	45e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14	17	14	17	2,636	1.11	15.5
T&D	45f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	14	17	3,454	1.15	15.0
T&D	45g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	34	28	34	28	7,827	1.30	13.3
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	34	28	8,357	1.33	13.0
T&D	46a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	6	3	6	3	-3,476	0.69	24.8
T&D	46b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	6	3	497	1.06	16.3
T&D	46c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	-881	0.93	18.5
T&D	46d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	1,817	1.20	14.4
T&D	46e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	9	7	9	-2,626	0.78	22.1
T&D	46f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	9	930	1.11	15.6
T&D	46g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	17	14	17	14	-31	1.00	17.3
T&D	46h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	17	14	2,249	1.23	14.0
T&D	47a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11	6	11	6	-13,516	0.40	42.7
T&D	47b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	11	6	280	1.02	16.8
T&D	47c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	31	17	31	17	-8,325	0.67	25.8
T&D	47d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	31	17	1,026	1.08	16.0
T&D	47e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14	17	14	17	11,815	0.50	34.2
T&D	47f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	14	17	525	1.04	16.5
T&D	47g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	34	28	34	28	-6,625	0.75	23.1
T&D	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	34	28	1,270	1.09	15.8
T&D	48a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	3	1	3	1	-22	1.00	17.3
T&D	48b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	3	1	300	1.04	16.5
T&D	48c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	8	4	8	4	1,106	1.13	15.2
T&D	48d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	8	4	1,366	1.17	14.7
T&D	48e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4	4	4	4	296	1.04	16.6
T&D	48f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	4	4	601	1.08	16.0
T&D	48g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	9	7	9	7	1,424	1.16	14.8
T&D	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	9	7	1,667	1.20	14.4
T&D	49a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-3,978	0.65	26.5
T&D	49b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	242	1.03	16.7
T&D	49c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12	6	12	6	-2,285	0.82	21.1
T&D	49d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	12	6	1,103	1.12	15.4
T&D	49e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	6	5	6	-3,500	0.71	24.4
T&D	49f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	6	486	1.06	16.3
T&D	49g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13	10	13	10	-1,808	0.86	20.0
T&D	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	13	10	1,346	1.14	15.1
T&D	4a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	2	1	2	1	-3,078	0.35	49.9
T&D	4b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	2	1	24	1.01	17.1
T&D	4c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	4	2	4	2	-2,465	0.52	33.1
T&D	4d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	4	2	112	1.04	16.6
T&D	4e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	2	2	2	2	-3,020	0.39	44.6
T&D	4f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	2	2	32	1.01	17.0
T&D	4g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	5	3	5	3	-2,407	0.55	31.2
T&D	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	5	3	120	1.04	16.5
T&D	50a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	7	12	7	862	1.03	16.7
T&D	50b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	7	1,937	1.08	16.0
T&D	50c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	34	18	34	18	6,503	1.22	14.1
T&D	50d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	34	18	7,267	1.26	13.7
T&D	50e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16	20	16	20	2,907	1.10	15.6
T&D	50f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	16	20	3,869	1.14	15.1
T&D	50g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	38	32	38	32	8,548	1.28	13.5
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	38	32	9,199	1.31	13.1
T&D	51a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	-3,575	0.68	25.2
T&D	51b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	447	1.05	16.3
T&D	51c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	-1,157	0.91	19.0
T&D	51d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	1,676	1.18	14.6
T&D	51e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	9	7	9	-2,699	0.77	22.3
T&D	51f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	9	893	1.10	15.6
T&D	51g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16	14	16	14	-281	0.98	17.6
T&D	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	16	14	2,122	1.22	14.1
T&D	52a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	10	6	10	6	-13,713	0.39	43.6
T&D	52b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	10	6	252	1.02	16.9
T&D	52c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	29	16	29	16	-8,878	0.64	26.7
T&D	52d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	29	16	947	1.07	16.1
T&D	52e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14	17	14	17	-11,960	0.50	34.6
T&D	52f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	14	17	504	1.04	16.6
T&D	52g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	33	28	33	28	-7,125	0.73	23.7
T&D	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	33	28	1,198	1.08	15.9
T&D	53a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	28	15	28	15	1,605	1.03	16.8

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	53b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	28	15	4,118	1.07	16.1
T&D	53c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	78	41	78	41	14,085	1.21	14.3
T&D	53d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	78	41	15,910	1.24	13.9
T&D	53e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	35	39	35	39	4,379	1.07	16.1
T&D	53f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	35	39	6,741	1.11	15.5
T&D	53g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	85	65	85	65	16,860	1.24	13.9
T&D	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	85	65	18,533	1.27	13.6
T&D	54a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	34	18	34	18	-24,269	0.68	25.4
T&D	54b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	34	18	2,730	1.05	16.4
T&D	54c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	95	51	95	51	-8,908	0.89	19.3
T&D	54d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	95	51	10,539	1.17	14.7
T&D	54e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	43	48	43	48	-20,853	0.74	23.3
T&D	54f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	43	48	4,468	1.08	16.0
T&D	54g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	104	81	104	81	-5,493	0.94	18.4
T&D	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	104	81	12,277	1.19	14.5
T&D	55a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	49	26	49	26	-66,273	0.39	44.2
T&D	55b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	49	26	1,105	1.02	16.9
T&D	55c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	137	73	137	73	-44,192	0.63	27.2
T&D	55d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	137	73	4,277	1.07	16.2
T&D	55e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	61	69	61	69	-61,364	0.46	37.1
T&D	55f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	61	69	1,810	1.03	16.7
T&D	55g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	150	116	150	116	-39,283	0.69	25.0
T&D	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	150	116	4,982	1.07	16.1
T&D	56a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	27	14	27	14	-13,112	0.72	23.8
T&D	56b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	27	14	2,750	1.08	16.0
T&D	56c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	75	40	75	40	189	1.00	17.2
T&D	56d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	75	40	9,511	1.25	13.8
T&D	56e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	35	40	35	40	-9,169	0.82	21.1
T&D	56f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	35	40	4,755	1.13	15.2
T&D	56g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	83	66	83	66	4,132	1.08	16.0
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	83	66	11,516	1.29	13.4
T&D	57a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	-8,028	0.43	39.7
T&D	57b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	233	1.03	16.7
T&D	57c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23	12	23	12	-4,037	0.74	23.2
T&D	57d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	23	12	806	1.09	15.7
T&D	57e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	12	10	12	-6,845	0.54	31.8
T&D	57f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	12	403	1.05	16.4
T&D	57g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	25	20	25	20	-2,854	0.83	20.8
T&D	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	25	20	976	1.11	15.5
T&D	58a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	-3,934	0.72	23.8
T&D	58b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	825	1.08	16.0
T&D	58c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23	12	23	12	57	1.00	17.2
T&D	58d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	23	12	2,853	1.25	13.8
T&D	58e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	12	10	12	-2,751	0.82	21.1
T&D	58f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	12	1,427	1.13	15.2
T&D	58g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	25	20	25	20	1,240	1.08	16.0
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	25	20	3,455	1.29	13.4
T&D	59a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	32	17	32	17	2,327	1.04	16.6
T&D	59b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	32	17	5,011	1.08	16.0
T&D	59c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	89	48	89	48	16,969	1.23	14.0
T&D	59d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	89	48	18,844	1.26	13.6
T&D	59e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	40	46	40	46	6,023	1.09	15.9
T&D	59f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	40	46	8,504	1.13	15.3
T&D	59g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	98	77	98	77	20,665	1.27	13.6
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	98	77	22,337	1.30	13.3
T&D	5a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	1	1	1	1	-1,134	0.64	27.0
T&D	5b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	1	1	56	1.02	16.8
T&D	5c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	3	2	3	2	-726	0.79	21.8
T&D	5d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	3	2	264	1.10	15.6
T&D	5e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	1	1	1	1	-1,096	0.67	25.9
T&D	5f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	1	1	76	1.03	16.7
T&D	5g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	3	2	3	2	-687	0.81	21.3
T&D	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	3	2	284	1.11	15.5
T&D	60a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16	9	16	9	-10,356	0.69	25.0
T&D	60b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	16	9	1,349	1.06	16.3
T&D	60c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	45	24	45	24	-3,035	0.92	18.8
T&D	60d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	45	24	5,071	1.19	14.5
T&D	60e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	20	23	20	23	-8,508	0.76	22.7
T&D	60f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	20	23	2,289	1.09	15.8

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	60g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	49	38	49	38	-1,187	0.97	17.8
T&D	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	49	38	6,011	1.21	14.2
T&D	61a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	29	16	29	16	-36,558	0.40	43.0
T&D	61b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	29	16	697	1.02	16.9
T&D	61c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	82	44	82	44	-23,136	0.66	26.2
T&D	61d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	82	44	2,625	1.07	16.1
T&D	61e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	37	42	37	42	-33,170	0.48	35.6
T&D	61f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	37	42	1,183	1.03	16.7
T&D	61g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	90	70	90	70	-19,748	0.72	23.9
T&D	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	90	70	3,111	1.08	15.9
T&D	62a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	10	5	10	5	1,322	1.08	16.0
T&D	62b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	10	5	1,952	1.12	15.4
T&D	62c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	28	15	28	15	6,315	1.34	12.8
T&D	62d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	28	15	6,668	1.37	12.5
T&D	62e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	13	14	13	14	2,639	1.15	15.0
T&D	62f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	13	14	3,196	1.19	14.5
T&D	62g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	31	24	31	24	7,631	1.40	12.3
T&D	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	31	24	7,912	1.42	12.1
T&D	63a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	10	5	10	5	-4,438	0.73	23.5
T&D	63b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	10	5	1,050	1.09	15.9
T&D	63c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	28	15	28	15	555	1.03	16.7
T&D	63d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	28	15	3,588	1.26	13.6
T&D	63e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	13	14	13	14	-3,121	0.82	21.0
T&D	63f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	13	14	1,720	1.13	15.2
T&D	63g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	31	24	31	24	1,871	1.10	15.7
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	31	24	4,258	1.30	13.3
T&D	64a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	10	5	10	5	-9,230	0.44	38.7
T&D	64b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	10	5	296	1.03	16.7
T&D	64c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	28	15	28	15	-4,238	0.77	22.4
T&D	64d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	28	15	1,014	1.10	15.6
T&D	64e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	13	14	13	14	-7,913	0.55	31.4
T&D	64f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	13	14	486	1.05	16.4
T&D	64g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	31	24	31	24	-2,921	0.85	20.3
T&D	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	31	24	1,203	1.11	15.4
T&D	65a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	5	3	5	3	388	1.04	16.6
T&D	65b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	5	3	835	1.08	16.0
T&D	65c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15	8	15	8	2,828	1.23	14.0
T&D	65d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	15	8	3,141	1.26	13.6
T&D	65e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7	8	7	8	1,004	1.09	15.9
T&D	65f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	7	8	1,417	1.13	15.3
T&D	65g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16	13	16	13	3,444	1.27	13.6
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	16	13	3,723	1.30	13.3
T&D	66a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11	6	11	6	-9,000	0.46	37.6
T&D	66b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	11	6	330	1.04	16.6
T&D	66c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	30	16	30	16	-3,593	0.80	21.4
T&D	66d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	30	16	1,106	1.11	15.5
T&D	66e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	36	93	36	93	11,025	1.63	10.6
T&D	66f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	36	93	3,208	1.34	12.9
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	56	104	56	104	16,432	1.85	9.3
T&D	66h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	56	104	3,985	1.38	12.5
T&D	67a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9	5	9	5	1,083	1.07	16.2
T&D	67b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	9	5	1,726	1.11	15.6
T&D	67c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	26	14	26	14	5,647	1.31	13.2
T&D	67d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	26	14	6,037	1.34	12.9
T&D	67e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11	11	11	11	1,779	1.10	15.6
T&D	67f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	11	11	2,384	1.14	15.1
T&D	67g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	28	20	28	20	6,343	1.33	13.0
T&D	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	28	20	6,695	1.36	12.7
T&D	68a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	-12,097	0.37	46.3
T&D	68b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	94	1.01	17.1
T&D	68c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	22	12	22	12	-9,113	0.58	29.6
T&D	68d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	22	12	523	1.04	16.5
T&D	68e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	11	10	11	-11,636	0.43	39.7
T&D	68f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	11	160	1.01	17.0
T&D	68g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	24	19	24	19	-8,652	0.62	27.6
T&D	68h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	24	19	589	1.05	16.4
T&D	69a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-90	0.99	17.4
T&D	69b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	313	1.03	16.7
T&D	69c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	11	6	11	6	1,403	1.13	15.3

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	69d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	11	6	1,723	1.16	14.8
T&D	69e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	5	5	5	141	1.01	17.0
T&D	69f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	5	531	1.05	16.3
T&D	69g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	12	9	12	9	1,633	1.14	15.1
T&D	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	12	9	1,941	1.17	14.7
T&D	6a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	6	12	6	-9,223	0.67	25.6
T&D	6b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	6	1,009	1.05	16.4
T&D	6c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33	18	33	18	-3,767	0.88	19.6
T&D	6d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	33	18	3,783	1.17	14.8
T&D	6e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	15	18	15	18	-7,630	0.74	23.2
T&D	6f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	15	18	1,820	1.08	15.9
T&D	6g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	37	29	37	29	-2,174	0.93	18.5
T&D	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	37	29	4,594	1.19	14.4
T&D	70a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-6,049	0.37	46.3
T&D	70b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	47	1.01	17.1
T&D	70c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	11	6	11	6	-4,556	0.58	29.6
T&D	70d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	11	6	261	1.04	16.5
T&D	70e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	5	5	5	-5,818	0.43	39.7
T&D	70f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	5	80	1.01	17.0
T&D	70g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	12	9	12	9	-4,326	0.62	27.6
T&D	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	12	9	294	1.05	16.4
T&D	71a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	-467	0.98	17.6
T&D	71b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	469	1.02	16.9
T&D	71c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23	13	23	13	2,483	1.10	15.7
T&D	71d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	23	13	3,257	1.13	15.2
T&D	71e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11	13	11	13	352	1.01	17.0
T&D	71f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	11	13	1,244	1.05	16.3
T&D	71g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	26	21	26	21	3,303	1.13	15.3
T&D	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	26	21	4,032	1.16	14.9
T&D	72a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-7,059	0.36	47.8
T&D	72b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	35	1.01	17.1
T&D	72c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12	6	12	6	-5,584	0.55	31.2
T&D	72d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	12	6	247	1.04	16.6
T&D	72e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	7	5	7	-6,649	0.43	39.6
T&D	72f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	7	94	1.01	17.0
T&D	72g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13	11	13	11	-5,174	0.61	28.3
T&D	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	13	11	306	1.04	16.5
T&D	73a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	30	16	30	16	-61,371	0.34	50.7
T&D	73b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	30	16	15	1.00	17.2
T&D	73c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	84	45	84	45	-52,480	0.50	34.4
T&D	73d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	84	45	1,290	1.02	16.8
T&D	73e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	40	50	40	50	-58,812	0.41	42.4
T&D	73f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	40	50	381	1.01	17.1
T&D	73g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	94	78	94	78	-49,921	0.55	31.3
T&D	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	94	78	1,657	1.03	16.8
T&D	74a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4	2	4	2	-491	0.96	18.0
T&D	74b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	4	2	15	1.00	17.2
T&D	74c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10	6	10	6	621	1.05	16.4
T&D	74d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	10	6	1,066	1.08	15.9
T&D	74e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	5	6	5	6	-171	0.99	17.5
T&D	74f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	5	6	318	1.03	16.8
T&D	74g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	12	10	12	10	941	1.07	16.1
T&D	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	12	10	1,369	1.10	15.6
T&D	75a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	14	8	14	8	-21,921	0.37	46.4
T&D	75b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	14	8	163	1.01	17.1
T&D	75c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	40	21	40	21	-16,618	0.58	29.8
T&D	75d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	40	21	924	1.04	16.5
T&D	75e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	22	33	22	33	-17,945	0.52	33.3
T&D	75f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	22	33	734	1.04	16.6
T&D	75g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	47	47	47	47	-12,642	0.70	24.7
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	47	47	1,495	1.07	16.2
T&D	76a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	20	11	20	11	-23,996	0.40	42.9
T&D	76b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	20	11	365	1.02	16.9
T&D	76c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	55	30	55	30	-15,658	0.65	26.3
T&D	76d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	55	30	1,563	1.06	16.2
T&D	76e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	25	30	25	30	-21,812	0.49	35.2
T&D	76f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	25	30	678	1.03	16.7
T&D	76g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	61	49	61	49	-13,475	0.72	23.9
T&D	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	61	49	1,876	1.07	16.1

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	77a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-4,245	0.68	25.2
T&D	77b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	433	1.04	16.5
T&D	77c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18	10	18	10	-1,465	0.90	19.1
T&D	77d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	18	10	1,846	1.17	14.8
T&D	77e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8	10	8	10	-3,517	0.75	22.9
T&D	77f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	8	10	803	1.08	16.0
T&D	77g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	20	16	20	16	-738	0.95	18.1
T&D	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	20	16	2,216	1.19	14.5
T&D	78a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	31	17	31	17	-36,198	0.41	42.1
T&D	78b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	31	17	622	1.02	16.9
T&D	78c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	88	47	88	47	-22,646	0.67	25.6
T&D	78d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	88	47	2,569	1.07	16.1
T&D	78e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	41	51	41	51	-31,677	0.51	33.4
T&D	78f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	41	51	1,272	1.04	16.6
T&D	78g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	98	81	98	81	-18,124	0.75	22.9
T&D	78h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	98	81	3,218	1.08	15.9
T&D	79a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	6	3	6	3	-9,875	0.36	48.5
T&D	79b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	6	3	37	1.00	17.1
T&D	79c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	16	8	16	8	-7,972	0.54	31.9
T&D	79d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	16	8	310	1.03	16.7
T&D	79e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8	11	8	11	-8,774	0.46	37.2
T&D	79f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	8	11	195	1.02	16.9
T&D	79g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	18	17	18	17	-6,871	0.63	27.5
T&D	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	18	17	468	1.05	16.4
T&D	7a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	468	1.02	16.8
T&D	7b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	1,250	1.07	16.1
T&D	7c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	22	12	22	12	4,106	1.20	14.4
T&D	7d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	22	12	4,687	1.23	13.9
T&D	7e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	12	10	12	1,530	1.08	16.0
T&D	7f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	12	2,253	1.12	15.4
T&D	7g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	24	20	24	20	5,168	1.24	13.9
T&D	7h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	24	20	5,690	1.27	13.5
T&D	80a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16	8	16	8	-18,099	0.41	42.1
T&D	80b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	16	8	311	1.02	16.9
T&D	80c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	44	24	44	24	-11,323	0.67	25.6
T&D	80d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	44	24	1,284	1.07	16.1
T&D	80e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	21	25	21	25	-15,838	0.51	33.4
T&D	80f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	21	25	636	1.04	16.6
T&D	80g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	49	41	49	41	-9,062	0.75	22.9
T&D	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	49	41	1,609	1.08	15.9
T&D	81a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	8	4	8	4	419	1.03	16.8
T&D	81b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	8	4	1,027	1.07	16.1
T&D	81c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	22	12	22	12	3,807	1.22	14.1
T&D	81d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	22	12	4,228	1.25	13.8
T&D	81e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10	13	10	13	1,549	1.09	15.7
T&D	81f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	10	13	2,095	1.13	15.2
T&D	81g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	24	20	24	20	4,937	1.27	13.6
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	24	20	5,296	1.30	13.3
T&D	82a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	12	6	12	6	-10,801	0.45	38.6
T&D	82b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	12	6	301	1.03	16.7
T&D	82c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33	18	33	18	-5,194	0.76	22.5
T&D	82d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	33	18	1,107	1.09	15.8
T&D	82e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16	20	16	20	-8,702	0.58	29.6
T&D	82f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	16	20	603	1.05	16.3
T&D	82g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	38	32	38	32	-3,095	0.87	19.9
T&D	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	38	32	1,408	1.11	15.5
T&D	83a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	48	26	48	26	4,999	1.06	16.2
T&D	83b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	48	26	7,935	1.10	15.6
T&D	83c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	134	72	134	72	27,428	1.31	13.1
T&D	83d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	134	72	29,125	1.34	12.9
T&D	83e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	64	80	64	80	13,396	1.16	14.8
T&D	83f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	64	80	15,868	1.20	14.4
T&D	83g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	150	126	150	126	35,824	1.38	12.4
T&D	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	150	126	37,058	1.41	12.2
T&D	84a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	60	32	60	32	-54,005	0.45	38.6
T&D	84b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	60	32	1,506	1.03	16.7
T&D	84c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	167	90	167	90	-25,969	0.76	22.5
T&D	84d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	167	90	5,533	1.09	15.8
T&D	84e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	80	100	80	100	-43,510	0.58	29.6

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	84f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	80	100	3,013	1.05	16.3
T&D	84g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	188	158	188	158	-15,474	0.87	19.9
T&D	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	188	158	7,041	1.11	15.5
T&D	85a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	13	7	13	7	-7,612	0.70	24.7
T&D	85b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	13	7	985	1.05	16.4
T&D	85c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	38	20	38	20	-1,731	0.94	18.3
T&D	85d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	38	20	3,976	1.19	14.5
T&D	85e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	19	27	19	27	-4,373	0.84	20.6
T&D	85f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	19	27	2,632	1.13	15.2
T&D	85g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	44	40	44	40	1,509	1.05	16.4
T&D	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	44	40	5,623	1.25	13.7
T&D	86a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	13	7	13	7	-14,647	0.42	41.3
T&D	86b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	13	7	277	1.02	16.9
T&D	86c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	38	20	38	20	-8,766	0.69	24.9
T&D	86d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	38	20	1,122	1.07	16.1
T&D	86e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	19	27	19	27	-11,408	0.57	30.0
T&D	86f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	19	27	743	1.05	16.4
T&D	86g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	44	40	44	40	-5,526	0.82	21.1
T&D	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	44	40	1,587	1.10	15.7
T&D	87a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	434	232	434	232	-117,172	0.79	21.9
T&D	87b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	434	232	44,855	1.11	15.5
T&D	87e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	630	897	630	897	5,195	1.01	17.1
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	630	897	107,049	1.25	13.8
T&D	8a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7	4	7	4	-221	0.99	17.4
T&D	8b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	7	4	733	1.03	16.6
T&D	8c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	20	11	20	11	2,641	1.11	15.5
T&D	8d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	20	11	3,438	1.15	15.0
T&D	8e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	9	9	9	9	49	1.00	17.2
T&D	8f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	-9	9	989	1.04	16.5
T&D	8g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	21	16	21	16	2,911	1.12	15.4
T&D	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	21	16	3,694	1.15	14.9
T&D	9a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	2	1	2	1	-47	0.99	17.4
T&D	9b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	0	0	2	1	157	1.03	16.6
T&D	9c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	4	2	4	2	566	1.11	15.5
T&D	9d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	0	0	4	2	737	1.15	15.0
T&D	9e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	2	2	2	2	10	1.00	17.2
T&D	9f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	2	2	212	1.04	16.5
T&D	9g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	5	3	5	3	624	1.12	15.4
T&D	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R	0	0	5	3	792	1.15	14.9
T&D		Substation	Sub. Transformers	Conservation Voltage Reduction - RI	2,094	2,128	2,094	2,128	966,624	967.62	0.0
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity - RI	53	1,476	53	1,476	375,744	12.89	1.3
Vehicles	C-CNG-1		Sedan compact/Midsize	CNG Conversion - RI	323	NA	323	NA	263,511	9.23	1.9
Vehicles	C-CNG-1		Sedan compact/Midsize	CNG Conversion - ROF	0	NA	323	NA	206,160	8.28	2.1
Vehicles	C-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - RI	4,779	NA	4,779	NA	3,152,193	15.59	1.1
Vehicles	C-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - ROF	0	NA	4,779	NA	2,334,658	13.59	1.3
Vehicles	C-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - RI	349	NA	349	NA	225,307	13.52	1.3
Vehicles	C-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - ROF	0	NA	349	NA	166,622	11.78	1.5
Vehicles	C-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	214	NA	214	NA	216,209	5.00	3.4
Vehicles	C-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	0	NA	214	NA	154,212	4.33	4.0
Vehicles	C-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	63	NA	63	NA	37,188	7.20	2.4
Vehicles	C-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	0	NA	63	NA	25,281	6.06	2.8
Vehicles	C-CNG-6		Van multipurpose	CNG Conversion - RI	1,406	NA	1,406	NA	1,290,550	14.44	1.2
Vehicles	C-CNG-6		Van multipurpose	CNG Conversion - ROF	0	NA	1,406	NA	949,708	12.52	1.4
Vehicles	C-CNG-7		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	12	NA	12	NA	7,493	3.50	4.9
Vehicles	C-CNG-7		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	0	NA	12	NA	5,654	3.13	5.5
Vehicles	C-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	229	NA	229	NA	70,381	5.69	3.0
Vehicles	C-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	0	NA	229	NA	48,036	4.85	3.6
Vehicles	G-CNG-1		Sedan Compact/Midsize	CNG Conversion - RI	1,171	NA	1,171	NA	955,229	9.23	1.9
Vehicles	G-CNG-1		Sedan Compact/Midsize	CNG Conversion - ROF	0	NA	1,171	NA	900,924	9.01	1.9
Vehicles	G-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - RI	664	NA	664	NA	437,805	15.59	1.1
Vehicles	G-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - ROF	0	NA	664	NA	368,016	14.44	1.2
Vehicles	G-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - RI	1,220	NA	1,220	NA	788,575	13.52	1.3
Vehicles	G-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - ROF	0	NA	1,220	NA	662,345	12.52	1.4
Vehicles	G-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	570	NA	570	NA	576,875	5.01	3.4
Vehicles	G-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	0	NA	570	NA	442,792	4.47	3.8
Vehicles	G-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	344	NA	344	NA	161,416	5.89	2.9
Vehicles	G-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	0	NA	344	NA	126,123	5.32	3.2
Vehicles	G-CNG-6		Van multipurpose	CNG Conversion - RI	2,592	NA	2,592	NA	2,379,452	14.44	1.2
Vehicles	G-CNG-6		Van multipurpose	CNG Conversion - ROF	0	NA	2,592	NA	2,246,415	14.09	1.2

Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Vehicles	G-CNG-7		Bus multipurpose	CNG Conversion - RI	1,061	NA	1,061	NA	480,166	17.01	1.0
Vehicles	G-CNG-7		Bus multipurpose	CNG Conversion - ROF	0	NA	1,061	NA	359,130	14.95	1.2
Vehicles	G-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	512	NA	512	NA	337,922	9.05	1.9
Vehicles	G-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	0	NA	512	NA	264,299	8.11	2.1
Vehicles	G-CNG-9		Ambulance patient Transport	CNG Conversion - RI	70	NA	70	NA	20,213	3.25	5.3
Vehicles	G-CNG-9		Ambulance patient Transport	CNG Conversion - ROF	0	NA	70	NA	13,149	2.75	6.3
Vehicles	Option 1			Refueling Station - Option 1	-939	-180	-939	-180	-1,468,303	-0.36	NA
Vehicles	Option 2			Refueling Station - Option 2	-939	-180	-939	-180	-1,308,835	-0.36	NA
Wells	1		Well Pumps	Add New 500 kgal. Tank - RI	0	1,097	0	1,097	554,481	3.63	4.7

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Heating	ADMINISTRATION 01	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 01	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 01	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2,240	NA	2,240	7,249	339	7,588	5,348	3.40	5.3	2,240
Lights	ADMINISTRATION 01	ADMINISTRATION	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12T8 ELC2 REF	5,264	NA	5,264	12,916	-27	12,889	7,625	2.40	7.4	5,264
Lights	ADMINISTRATION 01	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	5,119	NA	5,119	16,732	775	17,507	12,388	3.40	5.3	5,119
Lights	ADMINISTRATION 01	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	6,040	NA	6,040	24,267	1,460	25,727	19,687	4.30	4.2	6,040
Lights	ADMINISTRATION 01	ADMINISTRATION	IN11: INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	135	NA	135	690	115	805	670	6.00	3.0	135
Lights	ADMINISTRATION 01	ADMINISTRATION	IN28. INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 01	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1,238	NA	1,238	6,866	1,877	8,743	7,506	7.10	2.5	1,238
Lights	ADMINISTRATION 01	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,746	NA	1,746	5,938	3,630	9,568	7,822	5.50	3.2	1,746
Hot Water	ADMINISTRATION 01	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	99	NA	99	268	0	268	169	2.70	1.0	99
Hot Water	ADMINISTRATION 01	ADMINISTRATION	Electric SHW Heater	0.76 LPG WH (COND), Ins Pipe, LFSHs, Aerators, Lower Tank Temp.	222	NA	222	808	0	808	586	3.60	1.5	349
Roof	ADMINISTRATION 01	ADMINISTRATION	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	4,031	NA	4,031	7,043	0	7,043	3,012	1.70	11.9	4,031
Wall	ADMINISTRATION 01	ADMINISTRATION	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 02	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 02	ADMINISTRATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 02	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	77,591	NA	77,591	430,821	18,078	448,899	371,308	5.80	3.1	77,591
Lights	ADMINISTRATION 02	ADMINISTRATION	FL4· FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2,621	NA	2,621	11,042	349	11,391	8,770	4.30	4.2	2,621
Lights	ADMINISTRATION 02	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	5,237	NA	5,237	23,269	10,891	34,160	28,923	6.50	2.7	5,237
Hot Water	ADMINISTRATION 02	ADMINISTRATION	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	ADMINISTRATION 02	ADMINISTRATION	Roof Insulation R Value 30.00	Attic Ceiling: Increase Insulation by R 19	14,427	NA	14,427	17,438	0	17,438	3,011	1.20	15.3	14,427
Wall	ADMINISTRATION 02	ADMINISTRATION	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	18,375	NA	18,375	26,784	0	26,784	8,409	1.50	12.9	18,375
Heating	ADMINISTRATION 03	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 03	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 03	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	10,009	NA	10,009	39,605	5,941	45,546	35,536	4.60	4.0	10,009
Lights	ADMINISTRATION 03	ADMINISTRATION	FL82· FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	33,272	NA	33,272	81,220	26,547	107,767	74,494	3.20	5.6	33,272
Lights	ADMINISTRATION 03	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEP1 REF	54,419	NA	54,419	57,561	17,091	74,652	20,233	1.40	13.1	54,419
Lights	ADMINISTRATION 03	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	32,112	NA	32,112	113,918	19,060	132,978	100,866	4.10	4.4	32,112
Lights	ADMINISTRATION 03	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	100,504	NA	100,504	437,189	52,184	489,373	388,869	4.90	3.7	100,504
Lights	ADMINISTRATION 03	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEP2	FL237: FL 2X4 3F32T8 ELC3 REF	30,151	NA	30,151	104,355	16,955	121,310	91,159	4.00	4.5	30,151
Lights	ADMINISTRATION 03	ADMINISTRATION	IN37: INC 75 FLD	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 03	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	1,945	NA	1,945	22,622	5,039	27,661	25,715	14.20	1.3	1,945
Lights	ADMINISTRATION 03	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	2,547	NA	2,547	22,622	4,510	27,132	24,584	10.70	1.7	2,547
Lights	ADMINISTRATION 03	ADMINISTRATION	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	1,735	NA	1,735	36,131	10,631	46,762	45,027	26.90	0.7	1,735
Lights	ADMINISTRATION 03	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	54,987	NA	54,987	184,475	114,359	298,834	243,847	5.40	3.3	54,987
Hot Water	ADMINISTRATION 03	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	675	NA	675	2,893	0	2,893	2,217	4.30	1.1	675
Roof	ADMINISTRATION 03	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling Increase Insulation by R 11	19,934	NA	19,934	73,396	0	73,396	53,462	3.70	5.5	19,934
Wall	ADMINISTRATION 03	ADMINISTRATION	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 03a	ADMINISTRATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	76	NA	76	229	0	229	153	3.00	7.0	76
Cooling	ADMINISTRATION 03a	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	234	NA	234	812	139	951	717	4.10	4.4	234
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	776	NA	776	1,731	619	2,350	1,574	3.00	5.9	776
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEP1 REF	1,270	NA	1,270	1,321	399	1,720	451	1.40	13.2	1,270
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	749	NA	749	2,600	445	3,045	2,296	4.10	4.4	749
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	2,345	NA	2,345	10,067	1,218	11,285	8,940	4.80	3.7	2,345
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEP2	FL237: FL 2X4 3F32T8 ELC3 REF	703	NA	703	2,371	396	2,767	2,063	3.90	4.6	703
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN37: INC 75 FLD	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	45	NA	45	383	118	501	455	11.00	1.6	45
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	59	NA	59	383	105	488	429	8.20	2.2	59
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	40	NA	40	734	248	982	941	24.30	0.7	40
Lights	ADMINISTRATION 03a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	1,515	908	2,423	1,987	5.60	3.2	436
Hot Water	ADMINISTRATION 03a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	16	NA	16	52	0	52	36	3.20	1.4	16
Roof	ADMINISTRATION 03a	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	735	NA	735	2,428	0	2,428	1,693	3.30	6.2	735
Wall	ADMINISTRATION 03a	ADMINISTRATION	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 04	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 04	ADMINISTRATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 04	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1,589	NA	1,589	7,253	211	7,464	5,875	4.70	3.9	1,589
Lights	ADMINISTRATION 04	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	5,283	NA	5,283	15,201	1,220	16,421	11,138	3.10	5.8	5,283
Lights	ADMINISTRATION 04	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEP1 REF	8,641	NA	8,641	11,216	491	11,707	3,066	1.40	13.3	8,641
Lights	ADMINISTRATION 04	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	5,099	NA	5,099	22,856	678	23,534	18,435	4.60	3.9	5,099
Lights	ADMINISTRATION 04	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	15,959	NA	15,959	89,837	3,718	93,555	77,596	5.90	3.1	15,959
Lights	ADMINISTRATION 04	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEP2	FL237: FL 2X4 3F32T8 ELC3 REF	4,788	NA	4,788	20,739	1,243	21,982	17,195	4.60	3.9	4,788
Lights	ADMINISTRATION 04	ADMINISTRATION	IN37: INC 75 FLD	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 04	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	309	NA	309	3,360	745	4,105	3,796	13.30	1.4	309
Lights	ADMINISTRATION 04	ADMINISTRATION	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	404	NA	404	3,360	661	4,021	3,616	9.90	1.8	404
Lights	ADMINISTRATION 04	ADMINISTRATION	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	276	NA	276	6,728	1,564	8,292	8,016	30.10	0.6	276
Lights	ADMINISTRATION 04	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2,618	NA	2,618	12,248	5,446	17,694	15,075	6.80	2.6	2,618
Hot Water	ADMINISTRATION 04	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	39	NA	39	141	0	141	103	3.70	1.3	39
Roof	ADMINISTRATION 04	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase Insulation by R 38	8,466	NA	8,466	23,482	0	23,482	15,017	2.80	6.7	8,466
Wall	ADMINISTRATION 04	ADMINISTRATION	Wall Insulation R Value 0.00	Blow in Insulation: Increase Insulation by R 6.5	9,235	NA	9,235	25,952	0	25,952	16,717	2.80	6.6	9,235
Heating	ADMINISTRATION 05	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 05	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 05	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	25,601	NA	25,601	89,146	3,874	93,020	67,420	3.60	5.0	25,601
Lights	ADMINISTRATION 05	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	6,381	NA	6,381	42,658	5,435	48,093	41,711	7.50	2.4	6,381
Lights	ADMINISTRATION 05	ADMINISTRATION	IN28: INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 05	ADMINISTRATION	IN29: INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 05	ADMINISTRATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 05	ADMINISTRATION	IN7: INC 3 60 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 05	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,983	NA	6,983	28,990	14,522	43,512	36,529	6.20	2.9	6,983
Hot Water	ADMINISTRATION 05	ADMINISTRATION	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	ADMINISTRATION 05	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase Insulation by R 19	40,100	NA	40,100	133,166	0	133,166	93,066	3.30	6.2	40,100
Wall	ADMINISTRATION 05	ADMINISTRATION	Wall Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 06	ADMINISTRATION	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 06	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	7,819	NA	7,819	26,693	5,485	32,178	24,359	4.10	4.4	7,819
Lights	ADMINISTRATION 06	ADMINISTRATION	IN11: INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	1,949	NA	1,949	11,708	1,987	13,695	11,746	7.00	2.6	1,949
Lights	ADMINISTRATION 06	ADMINISTRATION	IN28: INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06	ADMINISTRATION	IN29. INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06	ADMINISTRATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06	ADMINISTRATION	IN7: INC 3 60 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	5,237	NA	5,237	18,214	10,891	29,105	23,868	5.60	3.2	5,237
Hot Water	ADMINISTRATION 06	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	65	NA	65	241	0	241	176	3.70	1.3	65
Roof	ADMINISTRATION 06	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling Increase Insulation by R 8	3,358	NA	3,358	5,062	0	5,062	1,704	1.50	13.9	3,358

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Wall	ADMINISTRATION 06	ADMINISTRATION	Wall Insulation R Value 0.00	Interior Masonry Surface Increase Insulation by R 4.3	16,023	NA	16,023	16,148	0	16,148	125	1.00	20.9	16,023
Heating	ADMINISTRATION 06a	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 06a	ADMINISTRATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	2,206	NA	2,206	8,587	1,547	10,134	7,928	4.60	3.9	2,206
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	550	NA	550	4,054	560	4,614	4,065	8.40	2.2	550
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN28: INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN29: INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN7: INC 3 60 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 06a	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT LED	873	NA	873	3,872	1,815	5,687	4,815	6.50	2.8	873
Hot Water	ADMINISTRATION 06a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	41	NA	41	141	0	141	100	3.40	1.3	41
Roof	ADMINISTRATION 06a	ADMINISTRATION	Roof Insulation R Value 20.05	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	ADMINISTRATION 06a	ADMINISTRATION	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 07	ADMINISTRATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 07	ADMINISTRATION	Electric Conv Chiller	Air Cooled Reciprocating Chiller (75 to 200 tons cooling)	71,588	NA	71,588	95,029	0	95,029	23,441	1.30	7.7	106,648
Lights	ADMINISTRATION 07	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	14,419	NA	14,419	37,547	3,330	40,877	26,459	2.80	6.4	14,419
Lights	ADMINISTRATION 07	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	11,486	NA	11,486	29,726	2,653	32,379	20,893	2.80	6.4	11,486
Lights	ADMINISTRATION 07	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	2,693	NA	2,693	12,043	5,600	17,643	14,950	6.60	2.7	2,693
Lights	ADMINISTRATION 07	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	1,120	NA	1,120	10,991	2,702	13,693	12,573	12.20	1.5	1,120
Hot Water	ADMINISTRATION 07	ADMINISTRATION	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	ADMINISTRATION 07	ADMINISTRATION	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 30	30,033	NA	30,033	75,364	0	75,364	45,331	2.50	7.4	30,033
Wall	ADMINISTRATION 07	ADMINISTRATION	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 07a	ADMINISTRATION	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 07a	ADMINISTRATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 07a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	3,506	NA	3,506	9,809	810	10,619	7,113	3.00	6.0	3,506
Lights	ADMINISTRATION 07a	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	2,793	NA	2,793	7,561	645	8,206	5,413	2.90	6.1	2,793
Lights	ADMINISTRATION 07a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	655	NA	655	2,661	1,362	4,023	3,368	6.10	2.9	655
Lights	ADMINISTRATION 07a	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	272	NA	272	2,553	657	3,210	2,938	11.80	1.5	272
Hot Water	ADMINISTRATION 07a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	109	NA	109	196	0	196	87	1.80	2.6	109
Roof	ADMINISTRATION 07a	ADMINISTRATION	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 38	9,330	NA	9,330	39,978	0	39,978	30,648	4.30	4.3	9,330
Wall	ADMINISTRATION 07a	ADMINISTRATION	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 08	ADMINISTRATION	Hot Water (Generated) Forced Air Furnace	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 08	ADMINISTRATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 08	ADMINISTRATION	Chilled Water Chill Water Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 08	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	3,998	NA	3,998	10,052	924	10,976	6,977	2.70	6.6	3,998
Lights	ADMINISTRATION 08	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	9,330	NA	9,330	24,889	2,155	27,044	17,714	2.90	6.2	9,330
Lights	ADMINISTRATION 08	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	178,528	NA	178,528	578,554	50,725	629,279	450,751	3.50	5.1	178,528
Lights	ADMINISTRATION 08	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	918	NA	918	3,174	1,909	5,083	4,165	5.50	3.2	918
Lights	ADMINISTRATION 08	ADMINISTRATION	IN6: INC 2 60 CEIL	FL182: CFL 2 13 + BLST UNIT	1,145	NA	1,145	10,917	2,763	13,680	12,535	11.90	1.5	1,145
Hot Water	ADMINISTRATION 08	ADMINISTRATION	Hot Water (Generated) Steam Central Heat	LPG Pulse Condens Boiler, Wrap Tank w/insulation, LPSHs, Aerators	1,375	NA	1,375	48,893	0	48,893	47,518	35.60	0.6	1,375
Hot Water	ADMINISTRATION 08	ADMINISTRATION	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	ADMINISTRATION 08	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 19	28,208	NA	28,208	43,336	0	43,336	15,128	1.50	12.1	28,208
Wall	ADMINISTRATION 08	ADMINISTRATION	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ADMINISTRATION 09	ADMINISTRATION	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ADMINISTRATION 09	ADMINISTRATION	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ADMINISTRATION 09	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	647,663	NA	647,663	2,267,804	184,020	2,451,824	1,804,162	3.80	4.8	647,663
Lights	ADMINISTRATION 09	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	15,968	NA	15,968	73,195	33,208	106,403	90,435	6.70	2.7	15,968
Hot Water	ADMINISTRATION 09	ADMINISTRATION	Electric SHW Heater	Wrap Old Ele Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	418	NA	418	7,564	0	7,564	7,146	18.10	0.3	418
Roof	ADMINISTRATION 09	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	88,158	NA	88,158	120,120	0	120,120	31,962	1.40	13.4	88,158
Wall	ADMINISTRATION 09	ADMINISTRATION	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	BARRACKS 01	BARRACKS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	BARRACKS 01	BARRACKS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 01	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1,280	NA	1,280	2,910	188	3,098	1,818	2.40	7.4	1,280
Lights	BARRACKS 01	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	918	NA	918	1,282	225	1,507	589	1.60	10.8	918
Lights	BARRACKS 01	BARRACKS	FL94: FL 1X4 2F40T12ES EEP2	FL106: FL 1X4 2F40T12ES ELC2	471	NA	471	426	134	560	88	1.20	15.0	471
Lights	BARRACKS 01	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	1,280	NA	1,280	2,910	188	3,098	1,818	2.40	7.4	1,280
Lights	BARRACKS 01	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	283	NA	283	1,066	219	1,285	1,002	4.50	3.9	283
Lights	BARRACKS 01	BARRACKS	IN28: INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 01	BARRACKS	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 01	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1,135	NA	1,135	4,537	1,605	6,142	5,006	5.40	3.3	1,135
Lights	BARRACKS 01	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	2,719	1,815	4,534	3,662	5.20	3.4	873
Hot Water	BARRACKS 01	BARRACKS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins Pipe, LPSHs, Aerators	102	NA	102	426	0	426	324	4.20	1.1	102
Roof	BARRACKS 01	BARRACKS	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 11	2,439	NA	2,439	3,366	0	3,366	926	1.40	14.9	2,439
Wall	BARRACKS 01	BARRACKS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	BARRACKS 02	BARRACKS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	BARRACKS 02	BARRACKS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 02	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	40,652	NA	40,652	100,080	5,967	106,047	65,396	2.60	6.9	40,652
Lights	BARRACKS 02	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	29,155	NA	29,155	42,389	7,152	49,541	20,386	1.70	10.5	29,155
Lights	BARRACKS 02	BARRACKS	FL94: FL 1X4 2F40T12ES EEP2	FL106: FL 1X4 2F40T12ES ELC2	14,971	NA	14,971	14,224	4,247	18,471	3,500	1.20	14.5	14,971
Lights	BARRACKS 02	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	40,652	NA	40,652	100,080	5,967	106,047	65,395	2.60	6.9	40,652
Lights	BARRACKS 02	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	8,982	NA	8,982	35,236	6,949	42,235	33,252	4.70	3.8	8,982
Lights	BARRACKS 02	BARRACKS	IN28: INC 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 02	BARRACKS	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 02	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	36,057	NA	36,057	154,232	50,957	205,189	169,131	5.70	3.1	36,057
Lights	BARRACKS 02	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	27,930	NA	27,930	98,704	58,087	156,791	128,861	5.60	3.2	27,930
Hot Water	BARRACKS 02	BARRACKS	Other Fuels Central Boiler	LPG Pulse Condens Boiler, Wrap Tank w/insulation, LPSHs, Aerators	9,749	NA	9,749	172,520	0	172,520	162,771	17.70	1.0	11,389
Roof	BARRACKS 02	BARRACKS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	73,163	NA	73,163	109,732	0	109,732	36,568	1.50	13.4	73,163
Wall	BARRACKS 02	BARRACKS	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	108,268	NA	108,268	115,934	0	115,934	7,666	1.10	19.3	108,268
Heating	BARRACKS 03	BARRACKS	Other Fuels Conv Boiler	Add Automatic Electric Damper	192	NA	192	916	0	916	724	4.80	2.3	192
Cooling	BARRACKS 03	BARRACKS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 03	BARRACKS	FL194: CFL 2 15 WALL FIXT	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 03	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	214	NA	214	935	166	1,101	886	5.10	3.5	214
Lights	BARRACKS 03	BARRACKS	IN15: INC 60 TABLE LAMP	FL181: CFL 13 + BLST UNIT	3,568	NA	3,568	14,319	5,042	19,361	15,793	5.40	3.3	3,568
Lights	BARRACKS 03	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	17,713	10,891	28,604	23,368	5.50	3.2	5,237
Hot Water	BARRACKS 03	BARRACKS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LPSHs, Aerators	1,563	NA	1,563	10,991	0	10,991	9,427	7.00	1.5	1,563
Roof	BARRACKS 03	BARRACKS	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	9,600	NA	9,600	80,133	0	80,133	70,533	8.30	2.5	9,600
Wall	BARRACKS 03	BARRACKS	Wall Insulation R Value 7.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	BARRACKS 04	BARRACKS	Hot Water (Generated) Fan Coil	New Conventional Individual Building LPG Boiler	11,149	NA	11,149	40,539	0	40,539	29,390	3.60	3.4	17,112
Cooling	BARRACKS 04	BARRACKS	Chilled Water Chill Water Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS 04	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	10,114	NA	10,114	17,083	2,481	19,569	9,456	1.90	9.3	10,114
Lights	BARRACKS 04	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	621	NA	621	1,609	91	1,700	1,079	2.70	6.6	621
Lights	BARRACKS 04	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT LED	5,572	NA	5,572	21,607	11,558	33,195	27,623	6.00	3.0	5,572
Hot Water	BARRACKS 04	BARRACKS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation LPSHs, Aerators	3,940	NA	3,940	34,423	0	34,423	30,483	8.70	2.4	3,940

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Hot Water	BARRACKS04	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condns, Boiler, Wrap Tank w/insulation, LPSHs, Aerators	2,227	NA	2,227	35,894	0	35,894	33,667	16.10	0.8	3,418
Roof	BARRACKS04	BARRACKS	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 19	28,540	NA	28,540	374,291	0	374,291	345,751	13.10	1.5	28,540
Wall	BARRACKS04	BARRACKS	Wall Insulation R Value 7.00	Blow-in Insulation: Increase insulation by R-2.4	31,169	NA	31,169	62,676	0	62,676	31,507	2.00	9.6	31,169
Heating	BARRACKS05	BARRACKS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	BARRACKS05	BARRACKS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS05	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	319	NA	319	468	78	546	227	1.70	10.4	319
Lights	BARRACKS05	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	20	NA	20	39	3	42	22	2.10	8.4	20
Lights	BARRACKS05	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	176	NA	176	552	366	918	742	5.20	3.4	176
Hot Water	BARRACKS05	BARRACKS	Other Fuels Central Boiler	LPG Pulse Condns, Boiler, Wrap Tank w/insulation, LPSHs, Aerators	482	NA	482	4,236	0	4,236	3,754	8.80	2.4	482
Roof	BARRACKS05	BARRACKS	Roof Insulation R-Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	BARRACKS05	BARRACKS	Wall Insulation R-Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	BARRACKS06	BARRACKS	Hot Water (Generated) Fan Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	BARRACKS06	BARRACKS	Chilled Water Chill Water Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS06	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,450	NA	3,450	6,104	846	6,950	3,500	2.00	9.0	3,450
Lights	BARRACKS06	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL28: PL 1X4 2F40T12 ELC2	173	NA	173	400	42	442	270	2.60	7.0	173
Lights	BARRACKS06	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,901	NA	1,901	7,227	3,954	11,181	9,280	5.90	3.0	1,901
Hot Water	BARRACKS06	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	4,450	NA	4,450	32,845	0	32,845	28,395	7.40	2.8	4,450
Roof	BARRACKS06	BARRACKS	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	BARRACKS06	BARRACKS	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	BARRACKS07	BARRACKS	Hot Water (Generated) Fan Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	BARRACKS07	BARRACKS	Chilled Water Chill Water Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	BARRACKS07	BARRACKS	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	8,670	NA	8,670	11,253	963	12,216	3,545	1.40	12.7	8,670
Lights	BARRACKS07	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	2,367	NA	2,367	6,904	347	7,251	4,885	3.10	5.9	2,367
Lights	BARRACKS07	BARRACKS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 RFP	2,852	NA	2,852	10,445	669	11,114	8,262	3.90	4.6	2,852
Lights	BARRACKS07	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	21,230	NA	21,230	81,185	44,153	125,338	104,108	5.90	3.0	21,230
Lights	BARRACKS07	BARRACKS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	8,672	NA	8,672	38,817	12,256	51,073	42,401	5.90	3.0	8,672
Lights	BARRACKS07	BARRACKS	IN6: INC 2-60 CEIL	PL182: CFL 2-13 + BLST UNIT	15,453	NA	15,453	88,954	32,552	121,506	106,053	7.90	2.3	15,453
Hot Water	BARRACKS07	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condns, Boiler, Wrap Tank w/insulation, LPSHs, Aerators	19,960	NA	19,960	384,533	0	384,533	364,573	19.30	1.1	19,960
Roof	BARRACKS07	BARRACKS	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 19	54,371	NA	54,371	154,238	0	154,238	99,867	2.80	6.9	54,371
Wall	BARRACKS07	BARRACKS	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	CHAPEL01	CHAPEL	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	CHAPEL01	CHAPEL	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CHAPEL01	CHAPEL	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	1,185	NA	1,185	20,384	4,843	25,227	24,042	21.30	0.8	1,185
Lights	CHAPEL01	CHAPEL	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,156	NA	1,156	3,688	799	4,487	3,331	3.90	4.6	1,156
Lights	CHAPEL01	CHAPEL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,824	1,815	5,639	4,766	6.50	2.7	873
Hot Water	CHAPEL01	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	66	NA	66	211	0	211	146	3.20	1.4	66
Roof	CHAPEL01	CHAPEL	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 38	3,576	NA	3,576	39,906	0	39,906	36,330	11.20	1.7	3,576
Wall	CHAPEL01	CHAPEL	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase insulation by R 4.5	5,158	NA	5,158	23,006	0	23,006	17,848	4.50	4.2	5,158
Heating	CHAPEL02	CHAPEL	Other Fuels Conv Boiler	Add Automatic Electric Damper	144	NA	144	488	0	488	345	3.40	3.9	144
Cooling	CHAPEL02	CHAPEL	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CHAPEL02	CHAPEL	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	5,482	NA	5,482	62,869	22,401	85,270	79,788	15.60	1.2	5,482
Lights	CHAPEL02	CHAPEL	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	5,347	NA	5,347	11,369	3,697	15,066	9,719	2.80	6.4	5,347
Lights	CHAPEL02	CHAPEL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,042	1,815	4,857	3,985	5.60	3.2	873
Hot Water	CHAPEL02	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	106	NA	106	409	0	409	304	3.90	1.2	106
Roof	CHAPEL02	CHAPEL	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 8	5,858	NA	5,858	6,514	0	6,514	656	1.10	18.8	5,858
Wall	CHAPEL02	CHAPEL	Wall Insulation R-Value 5.32	Interior Masonry Surface: Increase insulation by R 4.3	9,153	NA	9,153	14,664	0	14,664	5,511	1.60	12.9	9,153
Heating	CLINIC01	CLINIC	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	CLINIC01	CLINIC	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	27,057	NA	27,057	35,674	0	35,674	8,617	1.30	8.8	35,549
Lights	CLINIC01	CLINIC	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	914	NA	914	2,123	559	2,682	1,768	2.90	6.1	914
Lights	CLINIC01	CLINIC	PL4. PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,559	NA	1,559	7,840	942	8,782	7,223	5.60	3.2	1,559
Lights	CLINIC01	CLINIC	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	748	NA	748	3,814	452	4,266	3,518	5.70	3.2	748
Lights	CLINIC01	CLINIC	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	4,135	NA	4,135	26,582	2,698	29,280	25,146	7.10	2.6	4,135
Lights	CLINIC01	CLINIC	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 RFP	7,966	NA	7,966	50,674	4,480	55,154	47,187	6.90	2.6	7,966
Lights	CLINIC01	CLINIC	HS13: HPS 70 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLINIC01	CLINIC	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	979	NA	979	4,079	2,036	6,115	5,136	6.20	2.9	979
Hot Water	CLINIC01	CLINIC	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	CLINIC01	CLINIC	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-19	2,149	NA	2,149	2,307	0	2,307	158	1.10	17.6	2,149
Wall	CLINIC01	CLINIC	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	CLINIC02	CLINIC	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	CLINIC02	CLINIC	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLINIC02	CLINIC	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,651	NA	3,651	10,395	3,132	13,527	9,876	3.70	4.8	3,651
Lights	CLINIC02	CLINIC	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	431	NA	431	1,263	79	1,342	911	3.10	5.8	431
Lights	CLINIC02	CLINIC	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	2,101	NA	2,101	8,782	1,269	10,051	7,950	4.80	3.8	2,101
Lights	CLINIC02	CLINIC	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 RFP	2,045	NA	2,045	6,907	1,288	8,195	6,151	4.00	4.5	2,045
Lights	CLINIC02	CLINIC	IN1: INC 40 CEIL	PL178: CFL 9 + BLST UNIT	88	NA	88	421	143	564	476	6.40	2.8	88
Lights	CLINIC02	CLINIC	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	469	NA	469	3,295	1,013	4,308	3,840	9.20	1.9	469
Lights	CLINIC02	CLINIC	IN6: INC 2-60 CEIL	PL182: CFL 2-13 + BLST UNIT	151	NA	151	1,315	472	1,787	1,636	11.90	1.5	151
Lights	CLINIC02	CLINIC	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13,092	NA	13,092	43,012	27,228	70,240	57,148	5.40	3.3	13,092
Hot Water	CLINIC02	CLINIC	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LPSHs, Aerators	223	NA	223	644	0	644	421	2.90	1.6	223
Roof	CLINIC02	CLINIC	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 19	1,114	NA	1,114	7,677	0	7,677	6,563	6.90	3.0	1,114
Wall	CLINIC02	CLINIC	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase insulation by R 4.5	25,381	NA	25,381	30,430	0	30,430	5,049	1.20	17.4	25,381
Heating	COMMISSARIES	COMMISSARIES	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	COMMISSARIES	COMMISSARIES	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	COMMISSARIES	COMMISSARIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	2,462	NA	2,462	8,004	1,489	9,493	7,031	3.90	4.7	2,462
Lights	COMMISSARIES	COMMISSARIES	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEF1 REF	14,842	NA	14,842	27,777	719	27,058	12,217	1.80	10.0	14,842
Lights	COMMISSARIES	COMMISSARIES	PL61: PL 1X8 4F96T12 STD2	PL130: PL 1X8 4F96T12ES ELC2 REF	1,044	NA	1,044	6,568	90	6,658	5,614	6.40	2.9	1,044
Lights	COMMISSARIES	COMMISSARIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,119	NA	1,119	3,226	677	3,903	2,784	3.50	5.2	1,119
Lights	COMMISSARIES	COMMISSARIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	550	NA	550	1,325	370	3,695	3,145	6.70	2.7	550
Lights	COMMISSARIES	COMMISSARIES	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	224	NA	224	556	194	750	527	3.40	5.3	224
Lights	COMMISSARIES	COMMISSARIES	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	9,274	NA	9,274	47,971	7,078	55,049	45,775	5.90	3.0	9,274
Lights	COMMISSARIES	COMMISSARIES	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	8,800	NA	8,800	41,969	1,367	43,336	34,536	4.90	3.7	8,800
Lights	COMMISSARIES	COMMISSARIES	EX2: EXIT - INC (2x15)	EX6: EXIT - LED	1,233	NA	1,233	3,854	9,035	12,889	11,656	10.50	1.7	1,233
Lights	COMMISSARIES	COMMISSARIES	HS15: HPS 150 PEND	LS4: LPS 90 PEND	6,351	NA	6,351	12,567	-1,100	11,467	5,116	1.80	10.1	6,351
Lights	COMMISSARIES	COMMISSARIES	IN11: INC 100 CEIL	PL189: CFL 2-15 CEIL FIXT	232	NA	232	2,416	221	2,637	2,405	11.40	1.6	232
Lights	COMMISSARIES	COMMISSARIES	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	336	NA	336	3,514	743	4,257	3,921	12.70	1.4	336
Lights	COMMISSARIES	COMMISSARIES	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	191	NA	191	6,031	1,708	7,739	7,548	40.60	0.4	191
Hot Water	COMMISSARIES	COMMISSARIES	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	231	NA	231	20,605	0	20,605	20,374	89.30	0.2	231
Roof	COMMISSARIES	COMMISSARIES	Roof Insulation R Value 8.90	Suspended Ceiling. Increase insulation by R 38	70,277	NA	70,277	249,226	0	249,226	178,949	3.50	5.1	70,277
Wall	COMMISSARIES	COMMISSARIES	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ELECTRONICS01	ELECTRONICS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ELECTRONICS01	ELECTRONICS	IN5: INC 60 CEIL	PL181. CFL 13 + BLST UNIT	149	NA	149	644	202	846	697	5.70	3.2	149
Roof	ELECTRONICS01	ELECTRONICS	Roof Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	ELECTRONICS01	ELECTRONICS	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Cooling	ELECTRONICS 02	ELECTRONICS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ELECTRONICS 02	ELECTRONICS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 RBP	4,240	NA	4,240	17,361	1,025	18,386	14,146	4.30	4.2	4,240
Lights	ELECTRONICS 02	ELECTRONICS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,839	2,723	7,562	6,252	5.80	3.1	1,309
Roof	ELECTRONICS 02	ELECTRONICS	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	ELECTRONICS 02	ELECTRONICS	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	ELECTRONICS 03	ELECTRONICS	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	ELECTRONICS 03	ELECTRONICS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	ELECTRONICS 03	ELECTRONICS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 RBP	5,426	NA	5,426	40,085	3,813	43,898	38,473	8.10	2.2	5,426
Lights	ELECTRONICS 03	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	1,720	908	2,628	2,191	6.00	3.0	436
Hot Water	ELECTRONICS 03	ELECTRONICS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	33	NA	33	186	0	186	153	5.70	0.8	33
Roof	ELECTRONICS 03	ELECTRONICS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1,755	NA	1,755	2,706	0	2,706	952	1.50	12.4	1,755
Wall	ELECTRONICS 03	ELECTRONICS	Wall Insulation R Value 0.00	Interior Masonry Surface: Increase Insulation by R 4.5	4,364	NA	4,364	7,341	0	7,341	2,977	1.70	11.5	4,364
Heating	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	5,165	NA	5,165	15,445	5,189	20,634	15,468	4.00	4.5	5,165
Lights	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	39,467	NA	39,467	96,396	51,980	148,376	108,909	3.80	4.7	39,467
Lights	PH-3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	8,177	NA	8,177	58,004	26,215	84,219	76,042	10.30	1.7	8,177
Hot Water	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	13,034	NA	13,034	43,113	0	43,113	30,079	3.30	1.4	13,034
Roof	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 19	50,557	NA	50,557	59,468	0	59,468	8,910	1.20	17.2	50,557
Wall	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Wall Insulation R Value 7.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	24,123	NA	24,123	80,122	24,232	104,354	80,231	4.30	4.1	24,123
Lights	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	184,318	NA	184,318	518,933	249,411	768,344	584,026	4.20	4.2	184,318
Lights	PH-3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	38,187	NA	38,187	356,042	122,427	478,469	440,282	12.50	1.4	38,187
Hot Water	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp	18,926	NA	18,926	38,194	0	38,194	19,267	2.00	0.5	165,604
Roof	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PH-3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	Wall Insulation R-Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	14,261	NA	14,261	37,844	14,326	52,170	37,909	3.70	4.9	14,261
Lights	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN5. INC 60 CEIL	PL181: CPL 13 + BLST UNIT	108,968	NA	108,968	353,613	147,451	501,064	392,096	4.60	3.9	108,968
Lights	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	22,576	NA	22,576	227,440	72,378	299,818	277,242	13.30	1.3	22,576
Hot Water	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	20,856	NA	20,856	115,251	0	115,251	94,395	5.50	1.2	20,856
Roof	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	139,587	NA	139,587	160,259	0	160,259	20,672	1.10	16.3	139,587
Wall	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	5,626	NA	5,626	11,654	5,651	17,305	11,679	3.10	5.6	5,626
Lights	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	42,984	NA	42,984	118,279	56,612	174,891	131,907	4.10	4.3	42,984
Lights	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	8,905	NA	8,905	75,580	28,551	104,131	95,225	11.70	1.5	8,905
Hot Water	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	15,098	NA	15,098	39,816	0	39,816	24,718	2.60	1.8	15,098
Roof	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 30	158,833	NA	158,833	1,072,696	0	1,072,696	913,862	6.80	2.9	158,833
Wall	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	209,504	NA	209,504	276,790	0	276,790	67,286	1.30	14.8	209,504
Heating	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,419	NA	4,419	7,730	3,280	11,010	6,591	2.50	7.2	4,419
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	1,874	NA	1,874	4,257	2,063	6,320	4,446	3.40	5.3	1,874
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	9,446	NA	9,446	31,252	12,781	44,033	34,587	4.70	3.8	9,446
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN6: INC 2-60 CEIL	PL182 CPL 2 13 + BLST UNIT	6,412	NA	6,412	28,498	11,364	39,862	33,450	6.20	2.9	6,412
Hot Water	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,048	NA	4,048	6,716	3,005	9,721	5,673	2.40	7.4	4,048
Lights	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,296	NA	3,296	3,542	2,557	6,099	2,803	1.90	9.6	3,296
Lights	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	48,552	NA	48,552	134,123	65,698	199,821	151,270	4.10	4.3	48,552
Lights	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	2,001	NA	2,001	13,098	6,417	19,515	17,513	9.80	1.8	2,001
Hot Water	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	9,477	NA	9,477	21,272	0	21,272	11,795	2.20	2.9	9,477
Roof	PH-DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH DUPLEX 01	DUPLEX	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DUPLEX 01	DUPLEX	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	9,293	NA	9,293	31,585	9,334	40,919	31,627	4.40	4.1	9,293
Lights	PH DUPLEX 01	DUPLEX	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	71,003	NA	71,003	234,747	93,514	328,261	257,258	4.60	3.8	71,003
Lights	PH DUPLEX 01	DUPLEX	IN8. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	14,710	NA	14,710	171,180	47,161	218,341	203,631	14.80	1.2	14,710
Hot Water	PH DUPLEX 01	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	17,038	NA	17,038	143,436	0	143,436	126,398	8.40	0.5	17,038
Roof	PH DUPLEX 01	DUPLEX	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 30	262,367	NA	262,367	753,863	0	753,863	491,496	2.90	6.6	262,367
Wall	PH DUPLEX 01	DUPLEX	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	227,405	NA	227,405	591,832	0	591,832	364,427	2.60	7.3	227,405
Heating	PH DUPLEX 02	DUPLEX	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DUPLEX 02	DUPLEX	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	1,999	NA	1,999	4,482	1,483	5,965	3,967	3.00	6.1	1,999
Lights	PH DUPLEX 02	DUPLEX	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	847	NA	847	2,774	933	3,707	2,859	4.40	4.2	847
Lights	PH DUPLEX 02	DUPLEX	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	4,272	NA	4,272	14,412	5,780	20,192	15,920	4.70	3.8	4,272
Lights	PH DUPLEX 02	DUPLEX	IN6: INC 2-60 CEIL	PL182: CPL 2 13 + BLST UNIT	2,900	NA	2,900	12,894	5,139	18,033	15,134	6.20	2.9	2,900
Hot Water	PH DUPLEX 02	DUPLEX	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp	5,654	NA	5,654	26,040	0	26,040	20,386	4.60	1.0	10,507
Roof	PH DUPLEX 02	DUPLEX	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PH DUPLEX 02	DUPLEX	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	PH DUPLEX 03	DUPLEX	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	PH DUPLEX 03	DUPLEX	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PH DUPLEX 03	DUPLEX	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	10,877	NA	10,877	23,708	8,074	31,782	20,904	2.90	6.1	10,877
Lights	PH DUPLEX 03	DUPLEX	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	8,855	NA	8,855	13,434	6,871	20,305	11,450	2.30	7.8	8,855
Lights	PH DUPLEX 03	DUPLEX	IN5. INC 60 CEIL	PL181: CPL 13 + BLST UNIT	130,459	NA	130,459	474,983	176,532	651,515	521,056	5.00	3.6	130,460
Lights	PH DUPLEX 03	DUPLEX	IN8 INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	5,378	NA	5,378	67,011	17,242	84,253	78,875	15.70	1.2	5,378
Hot Water	PH DUPLEX 03	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	18,797	NA	18,797	328,507	0	328,507	309,710	17.50	0.4	18,797
Roof	PH DUPLEX 03	DUPLEX	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 19	314,380	NA	314,380	382,884	0	382,884	68,504	1.20	15.5	314,380
Wall	PH DUPLEX 03	DUPLEX	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	CLUBS 01	CLUBS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	CLUBS 01	CLUBS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 01	CLUBS	PL117: PL 1X8 1F96T12ES STD1	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 01	CLUBS	PL62. PL 1X8 2F96T12 STD2	PL131 PL 1X8 2F96T12ES ELC2 RBP	736	NA	736	1,493	298	1,791	1,055	2.40	7.6	736
Lights	CLUBS 01	CLUBS	PL205. PL 2X4 2F40T12HO STD2	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 01	CLUBS	PL79: PL 2X4 4F40T12ES STD2	PL232 PL 2X4 3F40T12 ELC1	1,908	NA	1,908	5,304	2,530	7,834	5,926	4.10	4.4	1,908
Lights	CLUBS 01	CLUBS	EX1: EXIT INC (2x20)	EX6 EXIT LED	344	NA	344	1,248	715	1,963	1,619	5.70	3.1	344
Lights	CLUBS 01	CLUBS	IN5 INC 60 CEIL	PL181 CPL 13 + BLST UNIT	318	NA	318	1,522	462	1,984	1,644	6.20	2.9	318

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Hot Water	CLUBS 01	CLUBS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	7	NA	7	23	0	23	16	3.30	1.4	7
Roof	CLUBS 01	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R 8	2,317	NA	2,317	5,486	0	5,486	3,170	2.40	8.6	2,317
Wall	CLUBS 01	CLUBS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	CLUBS 02	CLUBS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	CLUBS 02	CLUBS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 02	CLUBS	PL117: PL 1X8 1F96T12ES STD1	PL123: PL 1X8 1F96T12ES EEP1	1,582	NA	1,582	1,958	1,102	3,060	1,477	1.90	9.2	1,582
Lights	CLUBS 02	CLUBS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	1,882	NA	1,882	6,838	466	7,304	5,422	3.90	4.7	1,882
Lights	CLUBS 02	CLUBS	PL205: PL 2X4 2F40T12HO STD2	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 02	CLUBS	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	9,254	NA	9,254	39,495	5,735	45,230	35,976	4.90	3.7	9,254
Lights	CLUBS 02	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	879	NA	879	3,587	1,828	5,415	4,536	6.20	2.9	879
Lights	CLUBS 02	CLUBS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	814	NA	814	7,150	1,671	8,821	8,007	10.80	1.7	814
Hot Water	CLUBS 02	CLUBS	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	CLUBS 02	CLUBS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 30	15,681	NA	15,681	70,012	0	70,012	54,331	4.50	4.1	15,681
Wall	CLUBS 02	CLUBS	Wall Insulation R Value 0.00	Interior Masonry Surface: Increase Insulation by R 10.9	26,717	NA	26,717	52,319	0	52,319	25,602	2.00	9.4	26,717
Heating	CLUBS 03	CLUBS	Other Fuels Conv Boiler	Add Automatic Electric Damper	113	NA	113	143	0	143	30	1.30	16.5	113
Cooling	CLUBS 03	CLUBS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 03	CLUBS	PL117: PL 1X8 1F96T12ES STD1	PL123: PL 1X8 1F96T12ES EEP1	2,461	NA	2,461	2,978	1,616	4,594	2,132	1.90	9.5	2,461
Lights	CLUBS 03	CLUBS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	2,927	NA	2,927	10,297	547	10,844	7,916	3.70	4.9	2,927
Lights	CLUBS 03	CLUBS	PL205: PL 2X4 2F40T12HO STD2	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	CLUBS 03	CLUBS	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	14,398	NA	14,398	54,181	9,802	63,983	49,586	4.40	4.0	14,398
Lights	CLUBS 03	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	1,367	NA	1,367	6,651	2,843	9,494	8,127	6.90	2.6	1,367
Lights	CLUBS 03	CLUBS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	1,266	NA	1,266	9,871	2,362	12,233	10,967	9.70	1.8	1,266
Hot Water	CLUBS 03	CLUBS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	508	NA	508	38,578	0	38,578	38,070	75.90	0.3	508
Roof	CLUBS 03	CLUBS	Roof Insulation R Value 8.90	Suspended Ceiling: Increase Insulation by R 38	31,173	NA	31,173	139,987	0	139,987	108,814	4.50	4.1	31,173
Wall	CLUBS 03	CLUBS	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	215	NA	215	356	160	516	301	2.40	7.5	215
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	175	NA	175	172	136	308	133	1.80	10.1	175
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	2,578	NA	2,578	8,111	3,395	11,506	8,928	4.50	4.0	2,578
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	106	NA	106	848	341	1,189	1,083	11.20	1.6	106
Hot Water	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	1,493	NA	1,493	8,349	0	8,349	6,855	5.60	1.0	2,347
Roof	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	GUEST HOUSES 02	MILITARY MOBILE HOMES	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	GUEST HOUSES 02	MILITARY MOBILE HOMES	Electric Package Unit	Split System Residential AC Unit (1.5 to 5.4167 tons cooling)	3,197	NA	3,197	3,590	0	3,590	394	1.10	0.9	32,613
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	234	NA	234	429	173	602	369	2.60	6.9	234
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	190	NA	190	222	148	370	179	1.90	9.1	190
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	2,801	NA	2,801	9,331	3,790	13,121	10,320	4.70	3.8	2,801
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	115	NA	115	1,116	370	1,486	1,371	12.90	1.4	115
Hot Water	GUEST HOUSES 02	MILITARY MOBILE HOMES	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	279	NA	279	1,704	0	1,704	1,425	6.10	0.2	2,445
Roof	GUEST HOUSES 02	MILITARY MOBILE HOMES	Roof Insulation R Value 8.69	Attic Ceiling: Increase Insulation by R 30	9,734	NA	9,734	41,440	0	41,440	31,705	4.30	4.5	9,734
Wall	GUEST HOUSES 02	MILITARY MOBILE HOMES	Wall Insulation R-Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	HANGER	HANGAR	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	HANGER	HANGAR	H817: HPS 250 PEND	L85: LPS 135 PEND	5,972	NA	5,972	18,391	818	17,573	11,600	2.90	6.2	5,972
Lights	HANGER	HANGAR	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	1,340	908	2,248	1,812	5.20	3.4	436
Roof	HANGER	HANGAR	Roof Insulation R Value 0.00	Attic Ceiling: Increase Insulation by R 30	6,571	NA	-6,571	125,148	0	125,148	118,577	19.00	1.1	6,571
Wall	HANGER	HANGAR	Wall Insulation R-Value 0.00	Blow in Insulation: Increase Insulation by R 13	20,331	NA	20,331	109,631	0	109,631	89,300	5.40	3.8	20,331
Heating	HOSPITAL	HOSPITAL	Other Fuels Conv Boiler	Add Automatic Electric Damper	258	NA	258	346	0	346	89	1.30	9.3	258
Cooling	HOSPITAL	HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling)	41,206	NA	41,206	116,316	0	116,316	75,110	2.80	3.1	71,572
Lights	HOSPITAL	HOSPITAL	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	22,447	NA	22,447	196,304	21,368	217,672	195,225	9.70	1.9	22,447
Lights	HOSPITAL	HOSPITAL	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	14,592	NA	14,592	102,014	13,144	115,158	100,566	7.90	2.3	14,592
Lights	HOSPITAL	HOSPITAL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,546	NA	6,546	25,268	13,614	38,882	32,336	5.90	3.0	6,546
Hot Water	HOSPITAL	HOSPITAL	Other Fuels Central Boiler	LPG Pulse Condns Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	5,716	NA	5,716	37,700	0	37,700	31,984	6.60	2.0	8,305
Roof	HOSPITAL	HOSPITAL	Roof Insulation R-Value 8.90	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	HOSPITAL	HOSPITAL	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R 4.3	42,931	NA	42,931	54,160	0	54,160	11,228	1.30	15.6	42,931
Heating	LABS 01	LABS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	LABS 01	LABS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	LABS 01	LABS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	7,125	NA	7,125	28,349	1,723	30,072	22,946	4.20	4.3	7,125
Lights	LABS 01	LABS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,447	2,723	7,170	5,860	5.50	3.2	1,309
Hot Water	LABS 01	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	20	NA	20	65	0	65	45	3.30	1.4	20
Roof	LABS 01	LABS	Roof Insulation R Value 20.05	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	LABS 01	LABS	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	LABS 02	LABS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	LABS 02	LABS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	LABS 02	LABS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	3,582	NA	3,582	14,209	866	15,075	11,493	4.20	4.3	3,582
Lights	LABS 02	LABS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	1,425	908	2,333	1,896	5.30	3.3	436
Hot Water	LABS 02	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	11	NA	11	36	0	36	26	3.40	1.4	11
Roof	LABS 02	LABS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 19	2,112	NA	2,112	10,122	0	10,122	8,009	4.80	4.3	2,112
Wall	LABS 02	LABS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MILITARY OTHER 01	MILITARY OTHER	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MILITARY OTHER 01	MILITARY OTHER	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MILITARY OTHER 01	MILITARY OTHER	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	10,266	NA	10,266	18,728	9,279	28,007	17,741	2.70	6.5	10,266
Lights	MILITARY OTHER 01	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	16,584	NA	16,584	59,347	34,489	93,836	77,253	5.70	3.1	16,584
Hot Water	MILITARY OTHER 01	MILITARY OTHER	Electric SHW Heater	Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM)	102	NA	102	355	0	355	253	3.50	1.6	161
Roof	MILITARY OTHER 01	MILITARY OTHER	Roof Insulation R Value 0.00	Attic Ceiling: Increase Insulation by R 11	4,852	NA	4,852	9,901	0	9,901	5,048	2.00	10.1	4,852
Wall	MILITARY OTHER 01	MILITARY OTHER	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MILITARY OTHER 02	MILITARY OTHER	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MILITARY OTHER 02	MILITARY OTHER	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	13,098	NA	13,098	24,010	11,839	35,849	22,751	2.70	6.5	13,098
Lights	MILITARY OTHER 02	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	15,711	NA	15,711	55,119	32,674	87,793	72,083	5.60	3.2	15,711
Roof	MILITARY OTHER 02	MILITARY OTHER	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	MILITARY OTHER 02	MILITARY OTHER	Wall Insulation R-Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MILITARY OTHER 03	MILITARY OTHER	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MILITARY OTHER 03	MILITARY OTHER	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MILITARY OTHER 03	MILITARY OTHER	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	1,666	NA	1,666	6,755	487	7,242	5,576	4.30	4.2	1,666
Lights	MILITARY OTHER 03	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	411	NA	411	2,171	854	3,025	2,615	7.40	2.4	411
Hot Water	MILITARY OTHER 03	MILITARY OTHER	Electric SHW Heater	Wrap Old Ele Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	12	NA	12	60	0	60	48	5.10	1.1	12
Roof	MILITARY OTHER 03	MILITARY OTHER	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 30	3,925	NA	3,925	5,829	0	5,829	1,904	1.50	12.3	3,925
Wall	MILITARY OTHER 03	MILITARY OTHER	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MILITARY OTHER 04	MILITARY OTHER	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MILITARY OTHER 04	MILITARY OTHER	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MILITARY OTHER 04	MILITARY OTHER	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	1,134	NA	1,134	16,830	5,275	22,105	20,971	19.50	0.9	1,134
Lights	MILITARY OTHER 04	MILITARY OTHER	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	1,334	NA	1,334	4,811	781	5,592	4,258	4.20	4.3	1,334

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Hot Water	MILITARY OTHER 04	MILITARY OTHER	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	46	NA	46	58	0	58	12	1.30	3.6	46
Roof	MILITARY OTHER 04	MILITARY OTHER	Roof Insulation R Value 7.15	Attic Ceiling: Increase insulation by R 19	1,000	NA	1,000	1,937	0	1,937	937	1.90	10.7	1,000
Wall	MILITARY OTHER 04	MILITARY OTHER	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MILITARY OTHER 05	MILITARY OTHER	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,649	NA	4,649	20,382	3,457	23,839	19,190	5.10	3.5	4,649
Lights	MILITARY OTHER 05	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,746	NA	1,746	6,511	3,630	10,141	8,395	5.80	3.1	1,746
Hot Water	MILITARY OTHER 05	MILITARY OTHER	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	320	NA	320	12,525	0	12,525	12,205	39.20	0.5	320
Roof	MILITARY OTHER 05	MILITARY OTHER	Roof Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	MILITARY OTHER 05	MILITARY OTHER	Wall Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	PL62: PL 1X8 2F96T12 STD2	PL74: PL 1X8 2F96T12 ELC2	80,945	NA	80,945	75,445	42,478	117,923	36,978	1.50	12.2	80,945
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,302	NA	3,302	2,234	2,267	4,501	1,200	1.40	13.0	3,302
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	49,179	NA	49,179	89,846	53,574	143,420	94,241	2.90	6.1	49,179
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	21,820	NA	21,820	80,332	45,381	125,713	103,892	5.80	3.1	21,820
Roof	PROD/PROCESS 01	PRODUCTION and/or PROCESS	Roof Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PROD/PROCESS 01	PRODUCTION and/or PROCESS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	113,513	NA	113,513	116,514	29,524	146,038	32,525	1.30	14.0	113,513
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	2,115	NA	2,115	1,597	1,498	3,095	979	1.50	12.1	2,115
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	31,510	NA	31,510	61,012	34,420	95,432	63,922	3.00	5.9	31,510
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	5,148	2,723	7,871	6,561	6.00	3.0	1,309
Roof	PROD/PROCESS 02	PRODUCTION and/or PROCESS	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	PROD/PROCESS 02	PRODUCTION and/or PROCESS	Wall Insulation R-Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	RECREATION 01	RECREATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 01	RECREATION	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	5,349	NA	5,349	19,739	6,836	26,575	21,227	5.00	3.6	5,349
Lights	RECREATION 01	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,777	2,723	7,500	6,190	5.70	3.1	1,309
Lights	RECREATION 01	RECREATION	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	5,349	NA	5,349	19,739	6,836	26,575	21,227	5.00	3.6	5,349
Lights	RECREATION 01	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,777	2,723	7,500	6,190	5.70	3.1	1,309
Roof	RECREATION 01	RECREATION	Roof Insulation R Value 11.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	RECREATION 01	RECREATION	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	RECREATION 02	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	244	NA	244	330	0	330	86	1.40	8.0	244
Heating	RECREATION 02	RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	RECREATION 02	RECREATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 02	RECREATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	945	NA	945	1,905	754	2,659	1,714	2.80	6.2	945
Lights	RECREATION 02	RECREATION	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	2,361	NA	2,361	5,565	1,884	7,449	5,087	3.20	5.6	2,361
Lights	RECREATION 02	RECREATION	PL79: PL 2X4 4F40T12ES STD2	PL232: PL 2X4 3F40T12 ELC3	737	NA	737	2,898	882	3,780	3,043	5.10	3.4	737
Lights	RECREATION 02	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	434	NA	434	1,283	902	2,185	1,751	5.00	3.4	434
Lights	RECREATION 02	RECREATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 02	RECREATION	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	3,307	NA	3,307	21,449	5,879	27,328	24,021	8.30	2.2	3,307
Lights	RECREATION 02	RECREATION	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	134	NA	134	2,360	824	3,184	3,050	23.70	0.7	134
Lights	RECREATION 02	RECREATION	MV3: MERC 100 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Hot Water	RECREATION 02	RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	114	NA	114	412	0	412	298	3.60	1.3	114
Roof	RECREATION 02	RECREATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 30	38,692	NA	38,692	906,694	0	906,694	868,002	23.40	0.8	38,692
Wall	RECREATION 02	RECREATION	Wall Insulation R-Value 7.00	Blow-in Insulation: Increase insulation by R 2.4	21,108	NA	21,108	48,445	0	48,445	27,337	2.30	8.2	21,108
Heating	RECREATION 03	RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 03	RECREATION	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	3,584	NA	3,584	42,026	18,691	60,717	57,132	16.90	1.1	3,584
Lights	RECREATION 03	RECREATION	MH3: MH 100 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 03	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,186	1,815	5,001	4,129	5.70	3.1	873
Roof	RECREATION 03	RECREATION	Roof Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	RECREATION 03	RECREATION	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	RECREATION 04	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	130	NA	130	345	0	345	215	2.70	7.9	130
Cooling	RECREATION 04	RECREATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	RECREATION 04	RECREATION	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	183	NA	183	412	107	519	336	2.80	6.3	183
Lights	RECREATION 04	RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	3,041	NA	3,041	13,597	2,143	15,740	12,699	5.20	3.5	3,041
Lights	RECREATION 04	RECREATION	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	601	NA	601	2,107	112	2,219	1,618	3.70	4.9	601
Lights	RECREATION 04	RECREATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	1,577	NA	1,577	7,477	1,111	8,588	7,011	5.40	3.3	1,577
Lights	RECREATION 04	RECREATION	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	2,714	NA	2,714	9,712	1,848	11,560	8,845	4.30	4.2	2,714
Lights	RECREATION 04	RECREATION	H814: HPS 100 PEND	L83: LPS 55 PEND	4,980	NA	4,980	7,302	283	7,585	2,605	1.50	11.9	4,980
Lights	RECREATION 04	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	4,097	1,815	5,912	5,040	6.80	2.6	873
Hot Water	RECREATION 04	RECREATION	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	562	NA	562	7,941	0	7,941	7,379	14.10	1.5	562
Roof	RECREATION 04	RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	22,535	NA	22,535	47,558	0	47,558	25,023	2.10	8.8	22,535
Wall	RECREATION 04	RECREATION	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Electric Baseboard	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	1,533	NA	1,533	20,166	6,056	26,222	24,690	17.10	1.0	1,533
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	1,823	NA	1,823	5,575	862	6,437	4,614	3.50	5.1	1,823
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	2,322	1,815	4,137	3,264	4.70	3.7	873
Hot Water	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	49	NA	49	701	0	701	651	14.20	0.4	49
Roof	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 19	850	NA	850	2,090	0	2,090	1,240	2.50	7.4	850
Wall	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Wall Insulation R Value 0.00	Blow-in Insulation: Increase insulation by R 6.5	3,099	NA	3,099	5,395	0	5,395	2,295	1.70	10.5	3,099
Heating	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	26,337	NA	26,337	435,164	104,067	539,231	512,894	20.50	0.9	26,337
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	31,331	NA	31,331	119,978	14,815	134,793	103,462	4.30	4.2	31,331
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,546	NA	6,546	27,115	13,614	40,729	34,183	6.20	2.9	6,546
Hot Water	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	197	NA	197	4,947	0	4,947	4,750	25.10	0.1	197
Roof	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 38	26,977	NA	26,977	114,430	0	114,430	87,453	4.20	4.3	26,977
Wall	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	9,599	NA	9,599	19,857	3,078	22,935	13,336	2.40	7.5	9,599
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL6: PL 2X2 2F40T12U STD2	PL54: PL 2X2 2F32T8U ELC2	11,853	NA	11,853	31,653	6,163	37,816	25,964	3.20	5.7	11,853
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	857	NA	857	2,101	589	2,690	1,833	3.10	5.7	857
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	32,209	NA	32,209	113,594	15,674	129,268	97,060	4.00	4.5	32,209
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	416	NA	416	5,659	1,845	7,504	7,088	18.00	1.0	416
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2,182	NA	2,182	6,631	4,538	11,169	8,987	5.10	3.4	2,182
Hot Water	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	358	NA	358	1,258	0	1,258	900	3.50	1.3	358
Roof	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 8	5,333	NA	5,333	57,838	0	57,838	52,505	10.80	1.9	5,333
Wall	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase insulation by R 6.5	19,441	NA	19,441	24,882	0	24,882	5,440	1.30	16.1	19,441
Heating	SECURITY 01	SECURITY	Electric Baseboard	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SECURITY 01	SECURITY	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SECURITY 01	SECURITY	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	67	NA	67	2,265	605	2,870	2,803	42.60	0.4	67
Roof	SECURITY 01	SECURITY	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 19	228	NA	228	5,504	0	5,504	5,275	24.10	0.8	228
Wall	SECURITY 01	SECURITY	Wall Insulation R Value 5.32	Interior Masonry Surface: Increase insulation by R 10.9	3,735	NA	3,735	5,611	0	5,611	1,876	1.50	12.1	3,735
Heating	SECURITY 02	SECURITY	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SECURITY 02	SECURITY	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SECURITY 02	SECURITY	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	6,467	NA	6,467	222,393	88,229	310,622	304,156	48.00	0.4	6,467

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	SECURITY 02	SECURITY	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	7,605	NA	7,605	61,522	7,240	68,762	61,156	9.00	2.0	7,605
Lights	SECURITY 02	SECURITY	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	18,670	10,891	29,561	24,325	5.60	3.2	5,237
Hot Water	SECURITY 02	SECURITY	Electric SHW Heater	0.76 LPG WH (COND), Ins Pipe, LPSHs, Aerators, Lower Tank Temp	608	NA	608	1,859	0	1,859	1,250	3.10	1.8	956
Roof	SECURITY 02	SECURITY	Roof Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	SECURITY 02	SECURITY	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SECURITY 03	SECURITY	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SECURITY 03	SECURITY	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SECURITY 03	SECURITY	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	5,607	NA	5,607	259,449	76,493	335,942	330,336	59.90	0.3	5,607
Lights	SECURITY 03	SECURITY	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	6,594	NA	6,594	68,556	6,277	74,833	68,239	11.30	1.6	6,594
Lights	SECURITY 03	SECURITY	EX1, EXIT - INC (2x20)	EX6: EXIT - LED	2,618	NA	2,618	12,783	5,446	18,229	15,610	7.00	2.6	2,618
Hot Water	SECURITY 03	SECURITY	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	SECURITY 03	SECURITY	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	3,699	NA	3,699	6,827	0	6,827	3,128	1.80	9.9	3,699
Wall	SECURITY 03	SECURITY	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 02	SHOPS	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 02	SHOPS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 02	SHOPS	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 02	SHOPS	HS13: HPS 70 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 02	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	7,419	NA	7,419	27,204	15,429	42,633	35,215	5.70	3.1	7,419
Hot Water	SHOPS 02	SHOPS	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	39	NA	39	136	0	136	97	3.50	0.8	39
Hot Water	SHOPS 02	SHOPS	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	SHOPS 02	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 19	33,590	NA	33,590	71,995	0	71,995	38,405	2.10	8.9	33,590
Wall	SHOPS 02	SHOPS	Wall Insulation R Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 03	SHOPS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 03	SHOPS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 03	SHOPS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	2,144	NA	2,144	5,609	1,850	7,459	5,315	3.50	5.1	2,144
Lights	SHOPS 03	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	7,571	NA	7,571	31,971	4,626	36,597	29,027	4.80	3.7	7,571
Lights	SHOPS 03	SHOPS	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	33,641	NA	33,641	130,321	2,509	127,812	94,171	3.80	4.8	33,641
Lights	SHOPS 03	SHOPS	PL61: PL 1X8 4F96T12 STD2	L85: LPS 135 PEND	5,457	NA	5,457	34,099	1,521	35,620	30,163	6.50	2.8	5,457
Lights	SHOPS 03	SHOPS	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	1,072	NA	1,072	2,811	925	3,736	2,664	3.50	5.1	1,072
Lights	SHOPS 03	SHOPS	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	1,586	NA	1,586	5,174	994	6,168	4,581	3.90	4.6	1,586
Lights	SHOPS 03	SHOPS	IN1: INC 40 CEIL	PL178: CFL 9 + BLST UNIT	1,256	NA	1,256	6,281	1,924	8,205	6,948	6.50	2.7	1,256
Lights	SHOPS 03	SHOPS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	804	NA	804	5,579	1,648	7,227	6,423	9.00	2.0	804
Lights	SHOPS 03	SHOPS	IN8: INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	533	NA	533	11,353	3,574	14,927	14,394	28.00	0.6	533
Lights	SHOPS 03	SHOPS	IN6: INC 2 60 CEIL	PL182: CFL 2 13 + BLST UNIT	307	NA	307	2,795	916	3,711	3,404	12.10	1.5	307
Lights	SHOPS 03	SHOPS	MH36: MH 250 HB PEND	L84: LPS 90 PEND	36,770	NA	36,770	234,913	37,882	272,795	236,026	7.40	2.4	36,770
Lights	SHOPS 03	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	7,419	NA	7,419	26,894	15,429	42,323	34,905	5.70	3.1	7,419
Hot Water	SHOPS 03	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	3,223	NA	3,223	8,338	0	8,338	5,116	2.60	1.8	3,223
Roof	SHOPS 03	SHOPS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 8	24,881	NA	24,881	104,601	0	104,601	79,720	4.20	4.9	24,881
Wall	SHOPS 03	SHOPS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 04	SHOPS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 04	SHOPS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 04	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	805	NA	805	4,479	577	5,056	4,251	6.30	2.9	805
Lights	SHOPS 04	SHOPS	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REF	7,248	NA	7,248	9,624	2,121	11,745	4,497	1.60	11.1	7,248
Lights	SHOPS 04	SHOPS	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	349	NA	349	2,894	272	3,164	2,817	9.10	2.0	349
Lights	SHOPS 04	SHOPS	PL61: PL 1X8 4F96T12 STD2	L85: LPS 135 PEND	10,682	NA	10,682	73,415	2,018	75,433	64,750	7.10	2.6	10,682
Lights	SHOPS 04	SHOPS	IN12: INC 2 100 CEIL	HS12: HPS 50 PEND	676	NA	676	4,888	1,145	6,033	5,357	8.90	2.0	676
Lights	SHOPS 04	SHOPS	IN6: INC 2 60 CEIL	PL182: CFL 2-13 + BLST UNIT	501	NA	501	5,709	1,320	7,029	6,528	14.00	1.3	501
Lights	SHOPS 04	SHOPS	MV8: MERC 1000 PEND	HS19: HPS 400 PEND	6,612	NA	6,612	102,961	2,506	105,467	98,855	16.00	1.1	6,612
Lights	SHOPS 04	SHOPS	MV5: MERC 250 PEND	L84: LPS 90 PEND	3,722	NA	3,722	17,811	-339	17,472	13,751	4.70	3.9	3,722
Lights	SHOPS 04	SHOPS	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	3,513	NA	3,513	8,263	3,630	11,893	8,381	3.40	5.3	2,418
Hot Water	SHOPS 04	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	109	NA	109	323	0	323	214	3.00	1.6	109
Roof	SHOPS 04	SHOPS	Roof Insulation R-Value 5.00	Attic Ceiling: Increase insulation by R 19	31,037	NA	31,037	830,340	0	830,340	799,303	26.80	0.2	31,037
Wall	SHOPS 04	SHOPS	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase insulation by R 6.5	20,147	NA	20,147	73,797	0	73,797	53,650	3.70	5.9	20,147
Heating	SHOPS 05	SHOPS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 05	SHOPS	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 05	SHOPS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 05	SHOPS	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	22,601	NA	22,601	114,776	17,636	132,412	109,811	5.90	3.1	22,601
Lights	SHOPS 05	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	31,141	NA	31,141	125,056	22,323	147,379	116,238	4.70	3.8	31,141
Lights	SHOPS 05	SHOPS	PL61: PL 1X8 4F96T12 STD2	L85: LPS 135 PEND	52,490	NA	52,490	310,949	9,916	320,865	268,376	6.10	3.0	52,490
Lights	SHOPS 05	SHOPS	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REF	12,844	NA	12,844	14,584	3,758	18,342	5,497	1.40	12.6	12,844
Lights	SHOPS 05	SHOPS	IN28: INC 150 PEND	HS11: HPS 35 PEND	1,959	NA	1,959	7,820	1,394	9,214	7,256	4.70	3.8	1,959
Lights	SHOPS 05	SHOPS	IN29: INC 200 PEND	HS12: HPS 50 PEND	8,489	NA	8,489	45,308	7,346	52,654	44,165	6.20	2.9	8,489
Lights	SHOPS 05	SHOPS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	475	NA	475	3,039	855	3,894	3,418	8.20	2.2	475
Lights	SHOPS 05	SHOPS	IN6: INC 2 60 CEIL	PL182: CFL 2-13 + BLST UNIT	726	NA	726	6,177	1,913	8,090	7,364	11.10	1.6	726
Lights	SHOPS 05	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4,354	NA	4,354	15,203	9,076	24,279	19,915	5.60	3.2	4,354
Hot Water	SHOPS 05	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	281	NA	281	930	0	930	649	3.30	1.4	281
Roof	SHOPS 05	SHOPS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 19	35,771	NA	35,771	51,297	0	51,297	15,526	1.40	14.5	35,771
Wall	SHOPS 05	SHOPS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 06	SHOPS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 06	SHOPS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 06	SHOPS	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	27,643	NA	27,643	88,049	18,869	106,918	79,275	3.90	4.7	27,643
Lights	SHOPS 06	SHOPS	IN5: INC 60 CEIL	PL181: CFL 13 + BLST UNIT	251	NA	251	1,592	451	2,043	1,792	8.10	2.2	251
Lights	SHOPS 06	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	2,976	1,815	4,791	3,919	5.50	3.2	873
Hot Water	SHOPS 06	SHOPS	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	SHOPS 06	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 8	2,326	NA	2,326	3,551	0	3,551	1,225	1.50	13.5	2,326
Wall	SHOPS 06	SHOPS	Wall Insulation R Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	SHOPS 07	SHOPS	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	SHOPS 07	SHOPS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 07	SHOPS	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	3,205	NA	3,205	7,244	1,950	9,194	5,988	2.90	6.3	3,205
Lights	SHOPS 07	SHOPS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	16,027	NA	16,027	47,598	13,486	61,084	45,057	3.80	4.7	16,027
Lights	SHOPS 07	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	656	NA	656	2,544	470	3,014	2,358	4.60	3.9	656
Lights	SHOPS 07	SHOPS	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	9,843	NA	9,843	45,469	7,056	52,525	42,681	5.30	3.4	9,843
Lights	SHOPS 07	SHOPS	HS20. HPS 1000 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	SHOPS 07	SHOPS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	3,491	NA	3,491	13,994	7,261	21,255	17,764	6.10	2.9	3,491
Hot Water	SHOPS 07	SHOPS	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	SHOPS 07	SHOPS	Roof Insulation R Value 20.05	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	SHOPS 07	SHOPS	Wall Insulation R Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	STORAGE 01	STORAGE	IN8· INC 75 CEIL	PL175: CFL 27 INTEGRAL UNIT	14,900	NA	14,900	113,019	50,301	163,320	148,420	11.00	1.6	14,900
Lights	STORAGE 01	STORAGE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	10,037	NA	10,037	37,526	20,875	58,401	48,364	5.80	3.1	10,037
Roof	STORAGE 01	STORAGE	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	STORAGE 01	STORAGE	Wall Insulation R Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	STORAGE 02	STORAGE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	STORAGE 02	STORAGE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0

Table 3.6a. All Building EROs: Present Values of Costs and Savings

Fuel Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	STORAGE 02	STORAGE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	68,373	NA	68,373	515,612	230,818	746,430	678,056	10.90	1.6	68,373
Roof	STORAGE 02	STORAGE	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 8	56,310	NA	56,310	71,665	0	71,665	15,355	1.30	14.7	56,310
Wall	STORAGE 02	STORAGE	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 01	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 01	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 01	WAREHOUSE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	10,564	NA	10,564	155,278	49,156	204,434	193,870	19.40	0.9	10,564
Lights	WAREHOUSE 01	WAREHOUSE	PL1: PL 2X4 4P40T12 STD2	PL237: PL 2X4 3P32T8 ELC3 REP	12,462	NA	12,462	44,231	7,297	51,528	39,066	4.10	4.4	12,462
Lights	WAREHOUSE 01	WAREHOUSE	HS15: HPS 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 01	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT LED	17,020	NA	17,020	62,369	35,397	97,766	80,746	5.70	3.1	17,020
Roof	WAREHOUSE 01	WAREHOUSE	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 8	8,700	NA	8,700	9,020	0	9,020	319	1.00	19.3	8,700
Wall	WAREHOUSE 01	WAREHOUSE	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 02	WAREHOUSE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	4,748	NA	4,748	70,259	22,092	92,351	87,602	19.50	0.9	4,748
Lights	WAREHOUSE 02	WAREHOUSE	PL1: PL 2X4 4P40T12 STD2	PL237: PL 2X4 3P32T8 ELC3 REP	5,601	NA	5,601	19,827	3,220	23,107	17,506	4.10	4.4	5,601
Lights	WAREHOUSE 02	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT LED	3,055	NA	3,055	11,136	6,353	17,489	14,435	5.70	3.1	3,055
Roof	WAREHOUSE 02	WAREHOUSE	Roof Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	WAREHOUSE 02	WAREHOUSE	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 03	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 03	WAREHOUSE	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	1,500	NA	1,500	4,246	1,214	5,460	3,960	3.60	4.9	1,500
Lights	WAREHOUSE 03	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT LED	1,309	NA	1,309	4,705	2,723	7,428	6,118	5.70	3.1	1,309
Roof	WAREHOUSE 03	WAREHOUSE	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	WAREHOUSE 03	WAREHOUSE	Wall Insulation R Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 04	WAREHOUSE	HS15: HPS 150 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 04	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT LED	873	NA	873	3,195	1,815	5,010	4,137	5.70	3.1	873
Roof	WAREHOUSE 04	WAREHOUSE	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	WAREHOUSE 04	WAREHOUSE	Wall Insulation R-Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 05	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 05	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 05	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	75,680	NA	75,680	192,744	4,049	188,695	113,015	2.50	7.3	75,680
Lights	WAREHOUSE 05	WAREHOUSE	PL82: PL 1X4 2P40T12ES STD2	PL106: PL 1X4 2P40T12ES ELC2	7,471	NA	7,471	13,253	6,753	20,006	12,535	2.70	6.6	7,471
Lights	WAREHOUSE 05	WAREHOUSE	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	12,236	NA	12,236	33,282	9,904	43,186	30,951	3.50	5.1	12,236
Lights	WAREHOUSE 05	WAREHOUSE	PL61: PL 1X8 4F96T12 STD2	L85: LPS 135 PEND	4,347	NA	4,347	17,706	757	18,463	14,116	4.20	4.3	4,347
Lights	WAREHOUSE 05	WAREHOUSE	PL81: PL 2X4 2P40T12ES STD2	PL105: PL 2X4 2P40T12ES ELC2	2,490	NA	2,490	4,285	2,251	6,536	4,045	2.60	6.8	2,490
Lights	WAREHOUSE 05	WAREHOUSE	PL79: PL 2X4 4P40T12ES STD2	PL237: PL 2X4 3P32T8 ELC3 REP	17,903	NA	17,903	39,424	11,322	50,746	32,842	2.80	6.3	17,904
Lights	WAREHOUSE 05	WAREHOUSE	PL1: PL 2X4 4P40T12 STD2	PL237: PL 2X4 3P32T8 ELC3 REP	3,159	NA	3,159	10,726	1,850	12,576	9,417	4.00	4.5	3,159
Lights	WAREHOUSE 05	WAREHOUSE	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	20,278	NA	20,278	100,929	11,834	112,763	92,485	5.60	3.2	20,278
Lights	WAREHOUSE 05	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	15,395	NA	15,395	58,394	9,066	67,460	52,066	4.40	4.1	15,395
Lights	WAREHOUSE 05	WAREHOUSE	IN30. INC 300 PEND	L82: LPS 35 PEND	13,195	NA	13,195	86,359	10,616	96,975	83,779	7.30	2.5	13,195
Lights	WAREHOUSE 05	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	11,783	NA	11,783	41,457	24,506	65,963	54,180	5.60	3.2	11,783
Hot Water	WAREHOUSE 05	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	439	NA	439	1,370	0	1,370	931	3.10	1.5	439
Roof	WAREHOUSE 05	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 8	33,033	NA	33,033	131,440	0	131,440	98,407	4.00	5.2	33,033
Wall	WAREHOUSE 05	WAREHOUSE	Wall Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 06	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 06	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 06	WAREHOUSE	PL5: PL 1X4 1P40T12 STD1	PL29: PL 1X4 1P40T12 ELC1	5,079	NA	5,079	6,645	3,929	10,574	5,495	2.10	8.5	5,079
Lights	WAREHOUSE 06	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT LED	873	NA	873	3,053	1,815	4,868	3,995	5.60	3.2	873
Hot Water	WAREHOUSE 06	WAREHOUSE	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	86	NA	86	632	0	632	546	7.40	0.7	86
Roof	WAREHOUSE 06	WAREHOUSE	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 19	4,873	NA	4,873	92,799	0	92,799	87,926	19.00	1.1	4,873
Wall	WAREHOUSE 06	WAREHOUSE	Wall Insulation R Value 0.00	Blow-in Insulation. Increase insulation by R 6.5	12,613	NA	12,613	41,163	0	41,163	28,550	3.30	6.4	12,613
Heating	WAREHOUSE 07	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 07	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 07	WAREHOUSE	PL63: PL 1X8 1F96T12 STD1	PL75: PL 1X8 1F96T12 ELC1	515	NA	515	275	356	631	116	1.20	14.4	515
Lights	WAREHOUSE 07	WAREHOUSE	PL80: PL 2X4 3P40T12ES STD1,2	PL57: PL 2X4 2P32T8 ELC2 REF	5,031	NA	5,031	12,764	3,226	15,990	10,959	3.20	5.6	5,031
Lights	WAREHOUSE 07	WAREHOUSE	PL2: PL 2X4 3P40T12 STD1,2	PL236: PL 2X4 3P32T8 ELC3	517	NA	517	1,804	434	2,238	1,722	4.30	4.1	517
Lights	WAREHOUSE 07	WAREHOUSE	PL158: PL 1X8 4F96T12HO STD2 REP	L86: LPS 180 PEND	18,527	NA	18,527	129,097	7,043	136,140	117,613	7.30	2.5	18,527
Lights	WAREHOUSE 07	WAREHOUSE	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	75,767	NA	75,767	383,336	44,216	427,552	351,785	5.60	3.2	75,767
Lights	WAREHOUSE 07	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	5,999	NA	5,999	25,834	3,533	29,367	23,368	4.90	3.7	5,999
Lights	WAREHOUSE 07	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	2,344	1,815	4,159	3,286	4.80	3.6	873
Hot Water	WAREHOUSE 07	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	72	NA	72	231	0	231	160	3.20	1.4	72
Roof	WAREHOUSE 07	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 8	30,037	NA	30,037	158,192	0	158,192	128,155	5.30	3.8	30,037
Wall	WAREHOUSE 07	WAREHOUSE	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 08	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 08	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 08	WAREHOUSE	PL63: PL 1X8 1F96T12 STD1	PL75: PL 1X8 1F96T12 ELC1	84	NA	84	42	58	100	17	1.20	14.7	84
Lights	WAREHOUSE 08	WAREHOUSE	PL80: PL 2X4 3P40T12ES STD1,2	PL57: PL 2X4 2P32T8 ELC2 REF	816	NA	816	1,915	523	2,438	1,622	3.00	6.0	816
Lights	WAREHOUSE 08	WAREHOUSE	PL2: PL 2X4 3P40T12 STD1,2	PL236: PL 2X4 3P32T8 ELC3	84	NA	84	288	70	358	275	4.30	4.2	84
Lights	WAREHOUSE 08	WAREHOUSE	PL158: PL 1X8 4F96T12HO STD2 REP	L86: LPS 180 PEND	3,005	NA	3,005	19,777	1,142	20,919	17,914	7.00	2.6	3,005
Lights	WAREHOUSE 08	WAREHOUSE	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	12,290	NA	12,290	60,570	7,172	67,742	55,452	5.50	3.3	12,290
Lights	WAREHOUSE 08	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	973	NA	973	3,608	573	4,181	3,208	4.30	4.2	973
Lights	WAREHOUSE 08	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,058	1,815	4,873	4,000	5.60	3.2	873
Hot Water	WAREHOUSE 08	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp.	43	NA	43	132	0	132	90	3.10	1.5	43
Hot Water	WAREHOUSE 08	WAREHOUSE	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	11	NA	11	454	0	454	442	40.50	0.3	11
Roof	WAREHOUSE 08	WAREHOUSE	Roof Insulation R Value 20.05	Suspended Ceiling Increase insulation by R 8	4,872	NA	4,872	22,102	0	22,102	17,230	4.50	4.5	4,872
Wall	WAREHOUSE 08	WAREHOUSE	Wall Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 09	WAREHOUSE	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 09	WAREHOUSE	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 09	WAREHOUSE	PL62. PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	6,331	NA	6,331	16,389	339	16,050	9,719	2.50	7.2	6,331
Lights	WAREHOUSE 09	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,784	2,723	7,507	6,198	5.70	3.1	1,309
Hot Water	WAREHOUSE 09	WAREHOUSE	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Hot Water	WAREHOUSE 09	WAREHOUSE	Electric SHW Heater	0.76 LPG WH (COND), Ins Pipe, LPSHs, Aerators, Lower Tank Temp	32	NA	32	74	0	74	42	2.30	1.6	72
Roof	WAREHOUSE 09	WAREHOUSE	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 8	5,268	NA	5,268	19,445	0	19,445	14,177	3.70	5.5	5,268
Wall	WAREHOUSE 09	WAREHOUSE	Wall Insulation R Value 8.79	Blow-in Insulation Increase insulation by R 2.4	18,813	NA	18,813	19,732	0	19,732	919	1.00	20.1	18,813
Lights	WAREHOUSE 10	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83. LPS 55 PEND	7,614	NA	7,614	19,770	-407	19,343	11,749	2.50	7.2	7,614
Lights	WAREHOUSE 10	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT LED	1,309	NA	1,309	4,794	2,723	7,517	6,207	5.70	3.1	1,309
Roof	WAREHOUSE 10	WAREHOUSE	Roof Insulation R Value 8.69	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	WAREHOUSE 10	WAREHOUSE	Wall Insulation R Value 8.79	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 11	WAREHOUSE	Electric Conv Chiller	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	WAREHOUSE 11	WAREHOUSE	PL62. PL 1X8 2F96T12 STD2	L83 LPS 55 PEND	2,804	NA	2,804	9,903	150	9,753	6,949	3.50	5.2	2,804
Lights	WAREHOUSE 11	WAREHOUSE	EX1. EXIT - INC (2x20)	EX6 EXIT LED	436	NA	436	2,119	908	3,027	2,590	6.90	2.6	436
Hot Water	WAREHOUSE 11	WAREHOUSE	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	WAREHOUSE 11	WAREHOUSE	Roof Insulation R Value 30.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	WAREHOUSE 11	WAREHOUSE	Wall Insulation R Value 25.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	WAREHOUSE 12	WAREHOUSE	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	WAREHOUSE 12	WAREHOUSE	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	WAREHOUSE 12	WAREHOUSE	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	4,652	NA	4,652	94,691	21,645	116,336	111,684	25.00	0.7	4,652
Lights	WAREHOUSE 12	WAREHOUSE	PL1: PL 2X4 4P40T12 STD2	PL237: PL 2X4 3P32T8 ELC3 REF	5,488	NA	5,488	26,524	3,213	29,737	24,250	5.40	3.3	5,488
Lights	WAREHOUSE 12	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	2,109	908	3,017	2,581	6.90	2.6	436
Hot Water	WAREHOUSE 12	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	43	NA	43	134	0	134	91	3.10	1.5	43
Roof	WAREHOUSE 12	WAREHOUSE	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 30	12,314	NA	12,314	166,555	0	166,555	154,241	13.50	1.4	12,314
Wall	WAREHOUSE 12	WAREHOUSE	Wall Insulation R Value 0.00	Blow in Insulation: Increase insulation by R 13	13,336	NA	13,336	43,884	0	43,884	30,547	3.30	5.6	13,336
Heating	DINING HALLS 01	DINING HALLS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	DINING HALLS 01	DINING HALLS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	DINING HALLS 01	DINING HALLS	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12E8 EEP1 REF	7,176	NA	7,176	7,985	2,387	10,372	3,196	1.40	12.4	7,176
Lights	DINING HALLS 01	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	1,746	NA	1,746	6,515	3,630	10,145	8,400	5.80	3.1	1,746
Hot Water	DINING HALLS 01	DINING HALLS	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	676	NA	676	5,037	0	5,037	4,361	7.50	0.7	676
Roof	DINING HALLS 01	DINING HALLS	Roof Insulation R Value 11.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Wall	DINING HALLS 01	DINING HALLS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	DINING HALLS 03	DINING HALLS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	DINING HALLS 03	DINING HALLS	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	DINING HALLS 03	DINING HALLS	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12E8 EEP1 REF	20,853	NA	20,853	24,167	6,936	31,103	10,250	1.50	12.1	20,853
Lights	DINING HALLS 03	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,110	NA	6,110	22,314	12,707	35,021	28,911	5.70	3.1	6,110
Hot Water	DINING HALLS 03	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	1,439	NA	1,439	4,645	0	4,645	3,206	3.20	1.4	1,439
Roof	DINING HALLS 03	DINING HALLS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 8	7,006	NA	7,006	12,745	0	12,745	5,739	1.80	11.4	7,006
Wall	DINING HALLS 03	DINING HALLS	Wall Insulation R Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	DINING HALLS 04	DINING HALLS	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	DINING HALLS 04	DINING HALLS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	DINING HALLS 04	DINING HALLS	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	456	NA	456	2,172	268	2,440	1,984	5.40	3.4	456
Lights	DINING HALLS 04	DINING HALLS	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	1,592	NA	1,592	14,004	1,759	15,763	14,170	9.90	1.8	1,592
Lights	DINING HALLS 04	DINING HALLS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	1,073	NA	1,073	9,593	2,153	11,746	10,673	10.90	1.6	1,073
Lights	DINING HALLS 04	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	4,195	1,815	6,010	5,138	6.90	2.6	873
Hot Water	DINING HALLS 04	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	1,328	NA	1,328	4,283	0	4,283	2,954	3.20	1.4	1,328
Roof	DINING HALLS 04	DINING HALLS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	13,024	NA	13,024	97,760	0	97,760	84,736	7.50	2.5	13,024
Wall	DINING HALLS 04	DINING HALLS	Wall Insulation R Value 0.00	Interior Masonry Surface: Increase insulation by R 10 9	13,468	NA	13,468	80,473	0	80,473	67,005	6.00	3.1	13,468
Heating	DINING HALLS 05	DINING HALLS	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	DINING HALLS 05	DINING HALLS	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	DINING HALLS 05	DINING HALLS	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	890	NA	890	4,201	523	4,724	3,833	5.30	3.4	890
Lights	DINING HALLS 05	DINING HALLS	PL82: PL 1X4 2P40T12E8 STD2	PL106: PL 1X4 2P40T12E8 ELC2	1,394	NA	1,394	4,267	1,167	5,434	4,040	3.90	4.6	1,394
Lights	DINING HALLS 05	DINING HALLS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12E8 ELC2 REF	503	NA	503	1,702	124	1,826	1,324	3.60	5.0	503
Lights	DINING HALLS 05	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	192	NA	192	812	399	1,211	1,020	6.30	2.8	192
Hot Water	DINING HALLS 05	DINING HALLS	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Roof	DINING HALLS 05	DINING HALLS	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 38	3,655	NA	3,655	372,611	0	372,611	368,956	101.90	0.2	3,655
Wall	DINING HALLS 05	DINING HALLS	Wall Insulation R-Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	DINING HALLS 06	DINING HALLS	Hot Water (Generated) Forced Air Furnace	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	DINING HALLS 06	DINING HALLS	Chilled Water Chill Water Coil	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	DINING HALLS 06	DINING HALLS	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	2,747	NA	2,747	12,219	1,614	13,833	11,085	5.00	3.6	2,747
Lights	DINING HALLS 06	DINING HALLS	PL82: PL 1X4 2P40T12E8 STD2	PL106: PL 1X4 2P40T12E8 ELC2	4,301	NA	4,301	12,404	3,601	16,005	11,704	3.70	4.2	4,301
Lights	DINING HALLS 06	DINING HALLS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12E8 ELC2 REF	1,550	NA	1,550	4,725	384	5,109	3,559	3.30	5.5	1,550
Lights	DINING HALLS 06	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	592	NA	592	2,381	1,232	3,613	3,021	6.10	2.9	592
Hot Water	DINING HALLS 06	DINING HALLS	Hot Water (Generated) Steam Central Htxr	LPG Pulse Conden. Boiler, Wrap Tank w/insulation, LFSHs, Aerators	2,305	NA	2,305	53,399	0	53,399	51,093	23.20	0.9	2,305
Roof	DINING HALLS 06	DINING HALLS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-38	13,508	NA	13,508	95,829	0	95,829	82,321	7.10	2.7	13,508
Wall	DINING HALLS 06	DINING HALLS	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 02	MORALE WELFARE RECREATION	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MWR 02	MORALE WELFARE RECREATION	Electric Air Cool Heat Pump	Air to Air Heat Pump with Supplementary Electric Heat Coil	22,852	NA	22,852	23,786	0	23,786	934	1.00	4.4	49,514
Lights	MWR 02	MORALE WELFARE RECREATION	PL79: PL 2X4 4P40T12E8 STD2	PL237: PL 2X4 3P32T8 ELC3 REF	8,963	NA	8,963	25,957	5,670	31,627	22,664	3.50	5.1	8,963
Lights	MWR 02	MORALE WELFARE RECREATION	IN6: INC 2 60 CEIL	PL182: CPL 2-13 + BLST UNIT	385	NA	385	3,161	770	3,931	3,545	10.20	1.2	385
Lights	MWR 02	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,983	NA	6,983	29,114	14,522	43,636	36,653	6.20	2.9	6,983
Hot Water	MWR 02	MORALE WELFARE RECREATION	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	183	NA	183	1,022	0	1,022	839	5.60	0.8	183
Roof	MWR 02	MORALE WELFARE RECREATION	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 11	5,788	NA	5,788	5,904	0	5,904	116	1.00	17.8	5,788
Wall	MWR 02	MORALE WELFARE RECREATION	Wall Insulation R Value 19.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 03	MORALE WELFARE RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MWR 03	MORALE WELFARE RECREATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 03	MORALE WELFARE RECREATION	PL5: PL 1X4 1P40T12 STD1	PL29: PL 1X4 1P40T12 ELC1	301	NA	301	589	233	822	521	2.70	6.5	301
Lights	MWR 03	MORALE WELFARE RECREATION	PL3: PL 2X4 2P40T12 STD2	PL51: PL 2X4 2P32T8 ELC2	5,666	NA	5,666	22,490	4,578	27,068	21,402	4.80	3.8	5,666
Lights	MWR 03	MORALE WELFARE RECREATION	PL2: PL 2X4 3P40T12 STD1,2	PL236: PL 2X4 3P32T8 ELC3	160	NA	160	823	134	957	798	6.00	3.0	160
Lights	MWR 03	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2,210	NA	2,210	10,382	4,596	14,978	12,768	6.80	2.6	2,210
Lights	MWR 03	MORALE WELFARE RECREATION	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	28	NA	28	644	140	784	755	27.50	0.7	28
Lights	MWR 03	MORALE WELFARE RECREATION	IN37: INC 75 FLD	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Hot Water	MWR 03	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	106	NA	106	122	0	122	16	1.20	3.2	106
Roof	MWR 03	MORALE WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	12,324	NA	12,324	28,596	0	28,596	16,272	2.30	8.0	12,324
Wall	MWR 03	MORALE WELFARE RECREATION	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 04	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	304	NA	304	602	0	602	298	2.00	8.7	304
Heating	MWR 04	MORALE WELFARE RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MWR 04	MORALE WELFARE RECREATION	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 04	MORALE WELFARE RECREATION	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	621	NA	621	1,755	499	2,254	1,634	3.60	4.9	621
Lights	MWR 04	MORALE WELFARE RECREATION	IN29: INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 04	MORALE WELFARE RECREATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 04	MORALE WELFARE RECREATION	IN10. INC 3 75 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 04	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4,364	NA	4,364	13,440	9,076	22,516	18,152	5.20	3.4	4,364
Hot Water	MWR 04	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/insulation, LFSHs, Aerators	788	NA	788	8,412	0	8,412	7,624	10.70	1.6	920
Hot Water	MWR 04	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	99	NA	99	361	0	361	262	3.70	1.3	99
Roof	MWR 04	MORALE WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 8	5,864	NA	5,864	61,347	0	61,347	55,483	10.50	2.0	5,864
Wall	MWR 04	MORALE WELFARE RECREATION	Wall Insulation R-Value 0.00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 05	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MWR 05	MORALE WELFARE RECREATION	Electric Conv Chiller	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05	MORALE WELFARE RECREATION	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	361	NA	361	2,119	290	2,409	2,048	6.70	2.8	361
Lights	MWR 05	MORALE WELFARE RECREATION	IN29: INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05	MORALE WELFARE RECREATION	IN30: INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05	MORALE WELFARE RECREATION	IN10: INC 3 75 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	4,276	1,815	6,091	5,218	7.00	2.6	873
Hot Water	MWR 05	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/insulation, LFSHs, Aerators	503	NA	503	6,500	0	6,500	5,997	12.90	0.8	876
Roof	MWR 05	MORALE WELFARE RECREATION	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	9,025	NA	9,025	47,726	0	47,726	38,701	5.30	3.5	9,025
Wall	MWR 05	MORALE WELFARE RECREATION	Wall Insulation R Value 5.32	Interior Masonry Surface: Increase Insulation by R 10 9	11,818	NA	11,818	67,995	0	67,995	56,177	5.80	3.2	11,818
Heating	MWR 05a	MORALE WELFARE RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	MWR 05a	MORALE WELFARE RECREATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05a	MORALE WELFARE RECREATION	PL4: PL 1X4 2P40T12 STD2	PL52: PL 1X4 2P32T8 ELC2	97	NA	97	347	78	425	328	4.40	4.1	97
Lights	MWR 05a	MORALE WELFARE RECREATION	IN29 INC 200 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05a	MORALE WELFARE RECREATION	IN30 INC 300 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0

Table 3.6a. All Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	Net Cost (1994 $)
Lights	MWR 05a	MORALE WELFARE RECREATION	IN10, INC 3 75 CEIL	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 05a	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	873	NA	873	3,754	1,815	5,569	4,697	6.40	2.8	873
Hot Water	MWR 05a	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	43	NA	43	147	0	147	104	3.40	1.3	43
Roof	MWR 05a	MORALE WELFARE RECREATION	Roof Insulation R Value 11 00	Attic Ceiling Increase insulation by R 38	2,582	NA	2,582	10,020	0	10,020	7,438	3.90	4.8	2,582
Wall	MWR 05a	MORALE WELFARE RECREATION	Wall Insulation R Value 5 32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 06	MORALE WELFARE RECREATION	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 06	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	105	NA	105	308	0	308	204	2.90	7.1	105
Cooling	MWR 06	MORALE WELFARE RECREATION	Electric Package Unit	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 06	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52 PL 1X4 2F32T8 ELC2	304	NA	304	1,227	244	1,471	1,167	4.80	3.7	304
Lights	MWR 06	MORALE WELFARE RECREATION	PL1. PL 2X4 4F40T12 STD2	PL237 PL 2X4 3F32T8 ELC3 REF	23,243	NA	23,243	113,627	13,589	127,216	103,973	5.50	3.3	23,243
Lights	MWR 06	MORALE WELFARE RECREATION	PL63. PL 1X8 1F96T12 STD1	PL75 PL 1X8 1F96T12 ELC1	985	NA	985	772	680	1,452	468	1.50	12.0	985
Lights	MWR 06	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	681	NA	681	2,996	1,417	4,413	3,732	6.50	2.7	681
Lights	MWR 06	MORALE WELFARE RECREATION	IN6: INC 2-60 CEIL	PL182 CPL 2 13 + BLST UNIT	567	NA	567	5,274	1,132	6,406	5,839	11.30	1.6	567
Hot Water	MWR 06	MORALE WELFARE RECREATION	Other Fuels SHW Heater	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Hot Water	MWR 06	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Condns Boiler, Wrap Tank w/insulation, LFSHs, Aerators	821	NA	821	6,153	0	6,153	5,332	7.50	2.8	821
Roof	MWR 06	MORALE WELFARE RECREATION	Roof Insulation R Value 30.00	Attic Ceiling Increase insulation by R 19	8,780	NA	8,780	9,298	0	9,298	519	1.10	17.3	8,780
Wall	MWR 06	MORALE WELFARE RECREATION	Wall Insulation R Value 5 32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	MWR 07	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	130	NA	130	659	0	659	529	5.10	4.1	130
Cooling	MWR 07	MORALE WELFARE RECREATION	Electric Conv Chiller	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	MWR 07	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52 PL 1X4 2F32T8 ELC2	461	NA	461	2,004	371	2,375	1,914	5.20	3.5	461
Lights	MWR 07	MORALE WELFARE RECREATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	35,259	NA	35,259	171,655	20,614	192,269	157,010	5.50	3.3	35,259
Lights	MWR 07	MORALE WELFARE RECREATION	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES REFL REF	2,592	NA	2,592	3,331	210	3,541	949	1.40	13.3	2,592
Lights	MWR 07	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	1,033	NA	1,033	4,967	2,149	7,116	6,083	6.90	2.6	1,033
Lights	MWR 07	MORALE WELFARE RECREATION	IN6: INC 2-60 CEIL	PL182 CPL 2 13 + BLST UNIT	860	NA	860	7,680	1,717	9,397	8,537	10.90	1.6	860
Hot Water	MWR 07	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators	32	NA	32	76	0	76	44	2.40	0.8	32
Roof	MWR 07	MORALE WELFARE RECREATION	Roof Insulation R-Value 30 00	Attic Ceiling: Increase insulation by R 19	13,318	NA	13,318	15,772	0	15,772	2,454	1.20	15.7	13,318
Wall	MWR 07	MORALE WELFARE RECREATION	Wall Insulation R-Value 5.32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29 PL 1X4 1F40T12 ELC1	1,480	NA	1,480	4,652	893	5,545	4,065	3.70	4.8	1,480
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	1,074	NA	1,074	7,307	745	8,052	6,978	7.50	2.4	1,074
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL6: PL 2X2 2F40T12U STD2	PL54· PL 2X2 2F32T8U ELC2	33	NA	33	195	18	213	180	6.40	2.8	33
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	HS13: HPS 70 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	240	NA	240	1,967	272	2,239	1,999	9.30	1.9	240
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	83	NA	83	2,879	618	3,497	3,415	42.30	0.4	83
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	MH36: MH 250 HB PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	4,255	1,815	6,070	5,197	7.00	2.6	873
Hot Water	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	18	NA	18	176	0	176	158	9.90	0.6	18
Roof	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Roof Insulation R-Value 8.69	Attic Ceiling Increase insulation by R 38	4,114	NA	4,114	36,678	0	36,678	32,564	8.90	2.0	4,114
Wall	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Wall Insulation R-Value 8.79	Blow-in Insulation· Increase insulation by R 6.5	5,007	NA	5,007	9,369	0	9,369	4,362	1.90	9.7	5,007
Heating	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Other Fuels Conv Furn	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,768	NA	1,768	2,878	1,016	3,894	2,126	2.20	8.1	1,768
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	908	NA	908	1,990	725	2,715	1,807	3.00	6.0	908
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	5,107	NA	5,107	17,700	3,012	20,712	15,606	4.10	4.4	5,107
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	2,547	NA	2,547	7,488	1,446	8,934	6,387	3.50	5.1	2,547
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	892	NA	892	5,413	885	6,298	5,407	7.10	2.5	892
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	574	NA	574	3,369	966	4,335	3,761	7.60	2.4	574
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	244	NA	244	4,318	1,445	5,763	5,518	23.60	0.8	244
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN6: INC 2-60 CEIL	PL182: CPL 2 13 + BLST UNIT	274	NA	274	2,086	678	2,764	2,491	10.10	1.8	274
Hot Water	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	57	NA	57	526	0	526	469	9.20	0.6	57
Roof	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Roof Insulation R-Value 20 05	Suspended Ceiling· Increase insulation by R 8	4,438	NA	4,438	6,592	0	6,592	2,154	1.50	14.0	4,438
Wall	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Wall Insulation R Value 0 00	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Heating	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Conv Boiler	Add Automatic Electric Damper	171	NA	171	461	0	461	289	2.70	7.8	171
Cooling	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Electric Evap Cooler	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	435	NA	435	2,539	225	2,764	2,328	6.30	2.9	435
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,103	NA	1,103	2,483	634	3,117	2,013	2.80	6.4	1,103
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	4,559	NA	4,559	11,630	3,638	15,268	10,708	3.30	5.4	4,559
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	235	NA	235	1,683	150	1,833	1,598	7.80	2.4	235
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	241	NA	241	1,258	61	1,319	1,077	5.50	3.4	241
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	147	NA	147	979	117	1,096	949	7.50	2.5	147
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	6,748	NA	6,748	22,085	3,831	25,916	19,169	3.80	4.7	6,748
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	152	NA	152	1,593	152	1,745	1,592	11.40	1.6	152
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN6: INC 2-60 CEIL	PL182: CPL 2 13 + BLST UNIT	674	NA	674	6,282	1,669	7,951	7,277	11.80	1.5	674
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	1,756	NA	1,756	4,499	1,815	6,314	4,557	3.60	5.0	1,209
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	27	NA	27	150	0	150	123	5.50	1.0	27
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	52	NA	52	2,021	0	2,021	1,969	38.80	0.2	52
Roof	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Roof Insulation R-Value 20.05	Suspended Ceiling· Increase insulation by R 8	6,828	NA	6,828	23,692	0	23,692	16,864	3.50	5.9	6,828
Wall	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Wall Insulation R-Value 0.00	Interior Masonry Surface. Increase insulation by R 4.3	10,662	NA	10,662	12,474	0	12,474	1,812	1.20	18.0	10,662
Heating	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Air Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Cooling	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Air Cool Heat Pump	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	11,229	NA	11,229	29,114	6,778	35,892	24,663	3.20	5.6	11,229
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	8,150	NA	8,150	40,579	5,653	46,232	38,082	5.70	3.2	8,150
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL6: PL 2X2 2F40T12U STD2	PL54 PL 2X2 2F32T8U ELC2	251	NA	251	1,066	138	1,204	953	4.80	3.8	251
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	HS13: HPS 70 PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	1,823	NA	1,823	11,382	2,067	13,449	11,626	7.40	2.4	1,823
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	IN8: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	628	NA	628	16,845	4,693	21,538	20,910	34.30	0.5	628
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	MH36: MH 250 HB PEND	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	873	NA	873	3,960	1,815	5,775	4,902	6.60	2.7	873
Hot Water	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Central Boiler	Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators	119	NA	119	6,268	0	6,268	6,150	52.70	0.3	119
Roof	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Roof Insulation R-Value 8.90	Suspended Ceiling Increase insulation by R 8	11,058	NA	11,058	22,822	0	22,822	11,764	2.10	8.8	11,058
Wall	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Wall Insulation R Value 5 32	none	NA	NA	NA	NA	NA	0	NA	NA	NA	0

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	1	Bldg. 253	250 ton chiller	Reset chilled and condenser water temps - RI	30	0	30	116,678	85,052	517	0	201,213	201,183	6,707 11	0 0
AC	2	Bldg. 263	554 ton chiller	Reset chilled and condenser water temps RI	30	0	30	103,828	94,238	517	0	197,549	197,519	6,584 96	0 0
AC	3	Bldg. 273	200 ton chiller	Reset chilled and condenser water temps - RI	30	0	30	105,613	34,021	517	0	139,117	139,087	4,617 24	0 0
Central Chillers	1		Existing Chillers	Connect B/253 & B/263, Add 100 ton chiller - RI	153,700	0	153,700	331,320	54,502	12,916	0	372,907	219,207	2 43	7 1
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES RI	432,000	78,000	354,000	748,165	524,852	25,831	0	1,247,186	893,186	3.52	4 9
Controls	MT-1		Thermostat	Night Setback - RI	150,400	0	150,400	427,670	104,982	0	-68,127	464,525	314,125	3 09	5 6
DHW & A/C	1	00013	CHILLER-air cooled	Install Desuperheater RI	3,319	0	3,319	1,410	11,907	861	-1,503	10,953	7,635	3 30	5 2
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater - RI	1,852	0	1,852	10,429	5,103	861	839	13,832	11,980	7.47	2 3
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	1,852	0	1,852	10.429	5,103	-861	-839	13,832	11,980	7 47	2 3
DHW & A/C	4	00034	PKG UNIT	Install Desuperheater - RI	1,119	0	1,119	612	1,701	861	-507	945	174	0 84	20 4
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	1,852	0	1,852	8,326	5,103	861	-839	11,730	9,877	6 33	2 7
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	1,119	0	1,119	2,775	1,701	861	-507	3,109	1,990	2 78	6 2
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	1,486	0	1,486	5,551	3,402	-861	-673	7,419	5,933	4 99	3 4
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	2,585	0	2,585	13,877	8,505	861	1,171	20,330	17,765	7 87	2 2
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	3,685	0	3,685	22,204	13,608	861	1,669	33,282	29,597	9 03	1 9
DHW & A/C	10	00037	PKG A/C	Install Desuperheater - RI	1,852	0	1,852	8,326	5,103	861	-839	11,730	9,877	6 33	2 7
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	2,219	0	2,219	6,104	6,804	861	-1,005	11,042	8,823	4 98	3.5
DHW & A/C	12	00152	PKG UNIT	Install Desuperheater RI	1,119	0	1,119	246	1,701	861	-507	580	539	0 52	33 2
DHW & A/C	13	00166	CHILLER-air cooled	Install Desuperheater RI	26,415	0	26,415	285,655	119,073	861	-11,965	391,901	365,486	14 84	1 2
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	3,832	0	3,832	28,609	14,289	861	-1,736	40,301	36,469	10.52	1 6
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater RI	1,486	0	1,486	6,568	3,402	861	673	8,436	6,950	5 68	3 0
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	2 072	0	2,072	11,822	6,124	861	939	16,146	14,074	7 79	2 2
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	4,272	0	4,272	10,588	16,330	861	-1,935	24,122	19,850	5 65	3 0
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater RI	8,085	0	8,085	22,058	34,021	861	-3,662	51,556	43,471	6 38	2 7
DHW & A/C	19	00237	AIR CONDITIONER	Install Desuperheater - RI	1,852	0	1,852	3,462	5,103	861	839	6,865	5,013	3 71	4 6
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater - RI	2,512	0	2,512	4,248	8,165	861	1,138	10,414	7,902	4 15	4 2
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	3,099	0	3,099	26,499	10,887	861	-1,404	35,121	32,023	11 33	1.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	1,632	0	1,632	816	4,082	861	-739	3,298	1,666	2 02	8.5
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater RI	1,691	0	1,691	871	4,355	861	-766	3,598	1,907	2 13	8 1
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater RI	1,632	0	1,632	816	4,082	861	739	3,298	1,666	2 02	8 5
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	1,691	0	1,691	871	4,355	861	-766	3,598	1,907	2 13	8 1
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	2,402	0	2,402	6,609	7,655	861	-1,088	12,314	9,912	5 13	3.4
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater - RI	1,119	0	1,119	1,469	1,701	-861	-507	1,802	683	1.61	10 7
DHW & A/C	28	00488	PKG A/C	Install Desuperheater - RI	3,685	0	3,685	1,593	13,608	-861	-1,669	12,671	8,986	3.44	3 0
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	1,376	0	1,376	1,851	2,892	-861	623	3,259	1,883	2 37	7.3
DHW & A/C	30	00857	Chiller-air cooled	Install Desuperheater RI	3,685	0	3,685	2,320	13,608	-861	-1,669	13,398	9,712	3 64	4 7
DHW & A/C	31	00905	CHILLER-air cooled	Install Desuperheater - RI	3,685	0	3,685	16,488	13,608	861	1,669	27,566	23,881	7 48	2 3
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	1,302	0	1,302	3,092	2,552	861	590	4,192	2,890	3 22	5.3
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater RI	4,492	0	4,492	32,231	17,351	-861	-2,035	46,686	42,194	10.39	1.7
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	1,852	0	1,852	1,053	5,103	-861	-839	4,456	2,604	2.41	7.2
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	3,685	0	3,685	6,104	13,608	861	-1,669	17,181	13,496	4.66	3.7
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	1,632	0	1,632	1,720	4,082	-861	-739	4,202	2,570	2.57	6 7
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater - RI	1,339	0	1,339	885	2,722	861	-607	2,139	801	1 60	10 8
DHW & A/C	38	01322	AIR CONDITIONER	Install Desuperheater - RI	1,119	0	1,119	553	1,701	-861	-507	886	-233	0.79	21 7
DHW & A/C	39	01322	AIR CONDITIONER	Install Desuperheater - RI	1,119	0	1,119	553	1,701	-861	-507	886	-233	0.79	21.7
DHW & A/C	40	01322	PKG UNIT	Install Desuperheater - RI	1,119	0	1,119	553	1,701	-861	-507	886	-233	0.79	21 7
DHW & A/C	41	01322	PKG UNIT	Install Desuperheater - RI	1,119	0	1,119	553	1,701	861	-507	886	233	0 79	21 7
DHW & A/C	42	01322	PKG UNIT	Install Desuperheater - RI	1,119	0	1,119	553	1,701	-861	-507	886	-233	0 79	21 7
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater - RI	1,339	0	1,339	885	2,722	861	-607	2,139	801	1 60	10 8
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	2,952	0	2,952	2,282	10,206	-861	-1,337	10,290	7,338	3 49	4 9
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater RI	1,486	0	1,486	15,349	3,402	-861	-673	17,217	15,732	11 59	1 5
Envelope	MT-10		Single pane window	Shade Screens - NW side - RI	6,138	0	6,138	15,377	14,439	0	-6,317	23,500	17,362	3.83	4.5
Envelope	MT-11a		None	Crawl Space Insulation: R-19 - RI	124,770	0	124,770	421,228	246,263	0	0	667,491	542,721	5.35	3 2
Envelope	MT-11b		None	Crawl Space Insulation: R-30 - RI	178,915	0	178,915	440,852	257,736	0	0	698,587	519,672	3 90	4 4
Envelope	MT-12		Leaky	Weatherization - RI	8,967	0	8,967	453,986	203,198	0	0	657,185	648,218	73 29	0 2
Envelope	MT-5		Black EDPM	Reflective roof - RI	223,920	0	223,920	275,786	225,782	0	0	501,567	277,647	2.24	7 7
Envelope	MT 6		Single pane window	Double pane windows - RI	83,479	0	83,479	25,126	11,895	0	0	37,020	-46,458	0 44	38 8
Envelope	MT-7		Single pane window	Shade Screens - NE side - RI	6,138	0	6,138	8,414	3,872	0	-6,317	5,970	-168	0 97	17.7
Envelope	MT-8		Single pane window	Shade Screens - SE side - RI	6,138	982	5,156	12,000	4,493	0	-6,317	10,177	5,021	1.97	8 7
Envelope	MT-9		Single pane window	Shade Screens - SW side - RI	6,138	982	5,156	22,675	21,425	0	-6,317	37,783	32,627	7 33	2 4
Envelope	Family Housing	1961 Vintage		Double-paned windows - RI	311,196	0	311,196	57,271	7,316	0	0	64,586	-246,610	0 21	83 0
Envelope	Family Housing	1963 Vintage		Double-paned windows - RI	340,215	0	340,215	62,611	7,998	0	0	70,609	269,606	0 21	83 0
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	31,502	0	31,502	347,758	192,201	0	0	539,959	508,458	17.14	1.0
Envelope	Family Housing	1964, 1965, 1966 Vintage		Double-paned windows - RI	207,627	0	207,627	38,211	4,881	0	0	43,091	-164,535	0.21	83 0
Envelope	Family Housing	1983 Vintage		Double-paned windows - RI	321,835	0	321,835	59,229	7,566	0	0	66,795	-255,041	0 21	83 0
Envelope	Family Housing	1984 Vintage		Double-paned windows - RI	239,079	0	239,079	43,999	5,620	0	0	49,619	-189,460	0 21	83 0
Envelope	Admin	ADMIN: MISC post 1964		Weatherization - RI	2,732	0	2,732	19,553	10,807	0	0	30,359	27,627	11 11	1.5
Envelope	Admin	ADMIN: MISC post 1964		Window Screen- NE side - RI	4,872	0	4,872	6,679	3,074	0	-5,014	4,739	-134	0 97	17 7
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - SE side - RI	1,218	195	1,023	2,381	892	0	-1,254	2,020	996	1.97	8 7
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - SW side - RI	4,872	780	4,093	17,999	17,006	0	-5,014	29,991	25,898	7.33	2 4
Envelope	Admin	ADMIN: MISC post 1964		Window Screen - NW Side - RI	1,218	0	1,218	3,052	2,865	0	1,254	4,663	3,445	3.83	4.5
Envelope	Family Housing	ADMIN: MISC post 1964		Double Paned Window - RI	41,415	0	41,415	7,992	5,024	0	0	13,015	28,399	0 31	54 8
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization RI	8,931	0	8,931	161,013	88,990	0	0	250,003	241,072	27.99	0 6
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen NE side - RI	2,761	0	2,761	3,785	1,742	0	2,841	2,685	-76	0 97	17 7
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - SE side - RI	690	110	580	1,350	505	0	-710	1,144	565	1.97	8 7
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - SW side - RI	2,761	442	2,319	10,200	9,637	0	-2,841	16,996	14,676	7 33	2 4
Envelope	Admin	ADMIN: MISC pre 1964		Window Screen - NW Side - RI	690	0	690	1,729	1,624	0	710	2,643	1,952	3.83	4 5
Envelope	Family Housing	ADMIN; MISC pre 1964		Double Paned Window - RI	23,470	0	23,470	4,529	2,847	0	0	7,376	16,094	0 31	54 8
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	2,318	0	2,318	13,448	7,433	0	0	20,831	18,563	9 01	1 9
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen- NE side - RI	2,648	0	2,648	3,631	1,671	0	2,726	2,576	-73	0 97	17 7
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen - SE side - RI	662	106	556	1,294	485	0	-681	1,098	542	1 97	8 7

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen SW side RI	2,648	424	2,225	9,784	9,244	0	2,726	16,302	14,078	7.33	2.4
Envelope	Brk/Adm	BRK/ADM MISC		Window Screen NW Side RI	662	0	662	1,659	1,558	0	681	2,535	1,873	3.83	4.5
Envelope	Family Housing	BRK/ADM MISC		Double Paned Window RI	22,512	0	22,512	4,344	2,731	0	0	7,075	15,437	0.31	54.8
Envelope	Barracks	Concrete Block. Barracks		Weatherization RI	10,378	0	10,378	118,282	65,373	0	0	183,655	173,276	17.70	1.0
Envelope	Barracks	Concrete Block: Barracks		Window Screen NE side RI	6,421	0	6,421	8,803	4,051	0	6,608	6,246	176	0.97	17.7
Envelope	Barracks	Concrete Block: Barracks		Window Screen SE side RI	4,774	764	4,010	9,333	3,494	0	4,912	7,914	3,905	1.97	8.7
Envelope	Barracks	Concrete Block: Barracks		Window Screen SW side - RI	6,417	1,027	5,391	23,707	22,400	0	6,604	39,502	34,111	7.33	2.4
Envelope	Barracks	Concrete Block. Barracks		Window Screen NW Side RI	4,778	0	4,778	11,969	11,238	0	-4,917	18,290	13,513	3.83	4.5
Envelope	Family Housing	Concrete Block. Barracks		Double Paned Window RI	76,126	0	76,126	14,690	9,234	0	0	23,924	52,202	0.31	54.8
Envelope	Family Housing	Concrete Block: Misc post 1980		Double Paned Window RI	23,574	0	23,574	4,549	2,860	0	0	7,409	16,165	0.31	54.8
Envelope	Misc	Concrete Block: Misc post 1980		Weatherization RI	9,621	0	9,621	86,535	47,827	0	0	134,362	124,741	13.97	1.2
Envelope	Misc	Concrete Block: Misc post 1980		Window Screen - NE side - RI	1,733	0	1,733	2,376	1,094	0	1,784	1,686	-48	0.97	17.7
Envelope	Misc	Concrete Block: Misc post 1980		Window Screen - SE side - RI	1,733	277	1,456	3,389	1,269	0	1,784	2,874	1,418	1.97	8.7
Envelope	Misc	Concrete Block: Misc post 1980		Window Screen - SW side - RI	1,733	277	1,456	6,403	6,050	0	1,784	10,670	9,214	7.33	2.4
Envelope	Misc	Concrete Block: Misc post 1980		Window Screen NW Side - RI	1,733	0	1,733	4,342	4,078	0	1,784	6,636	4,903	3.83	4.5
Envelope	Family Housing	Concrete Block: Misc pre 1980		Double Paned Window RI	27,030	0	27,030	5,216	3,279	0	0	8,495	18,535	0.31	54.8
Envelope	Misc	Concrete Block: Misc pre 1980		Weatherization RI	5,088	0	5,088	62,604	34,601	0	0	97,205	92,117	19.11	0.9
Envelope	Misc	Concrete Block: Misc pre 1980		Window Screen - NE side - RI	1,987	0	1,987	2,725	1,254	0	2,045	1,933	-54	0.97	17.7
Envelope	Misc	Concrete Block: Misc pre 1980		Window Screen - SE side - RI	1,987	318	1,669	3,886	1,455	0	2,045	3,295	1,626	1.97	8.7
Envelope	Misc	Concrete Block: Misc pre 1980		Window Screen - SW side - RI	1,987	318	1,669	7,342	6,937	0	2,045	12,234	10,564	7.33	2.4
Envelope	Misc	Concrete Block: Misc pre 1980		Window Screen - NW Side - RI	1,987	0	1,987	4,979	4,675	0	2,045	7,609	5,622	3.83	4.5
Envelope		Concrete Block. w/ SE win only		Weatherization - RI	4,195	0	4,195	6,871	3,798	0	0	10,669	6,474	2.54	6.8
Envelope		Concrete Block: w/ SE win only		Window Screen - NE side - RI	0	0	0	0	0	0	0	0	0	NA	NA
Envelope		Concrete Block: w/ SE win only		Window Screen SE side RI	3,040	486	2,554	5,943	2,225	0	3,128	5,040	2,487	1.97	8.7
Envelope		Concrete Block: w/ SE win only		Window Screen - SW side - RI	0	0	0	0	0	0	0	0	0	NA	NA
Envelope		Concrete Block: w/ SE win only		Window Screen - NW Side - RI	0	0	0	0	0	0	0	0	0	NA	NA
Envelope	Family Housing	Concrete Block: w/ SE win only		Double Paned Window RI	10,336	0	10,336	1,995	1,254	0	0	3,248	7,088	0.31	54.8
Envelope	Dining	DINING: MSIC		Weatherization - RI	5,777	0	5,777	58,674	32,428	0	0	91,102	85,324	15.77	1.1
Envelope	Dining	DINING· MSIC		Window Screen - NE side - RI	2,960	0	2,960	4,058	1,867	0	3,046	2,879	81	0.97	17.7
Envelope	Dining	DINING: MSIC		Window Screen - SE side - RI	740	118	622	1,447	542	0	762	1,227	605	1.97	8.7
Envelope	Dining	DINING: MSIC		Window Screen - SW side RI	2,960	474	2,486	10,935	10,332	0	3,046	18,220	15,734	7.33	2.4
Envelope	Dining	DINING· MSIC		Window Screen - NW Side - RI	740	0	740	1,854	1,741	0	762	2,833	2,093	3.83	4.5
Envelope	Family Housing	DINING: MSIC		Double Paned Window - RI	25,160	0	25,160	4,786	3,031	0	0	7,818	-17,342	0.31	55.4
Envelope		Masonite Siding: post 1950		Weatherization - RI	7,336	0	7,336	218,137	120,561	0	0	338,699	331,363	46.17	0.4
Envelope		Masonite Siding: post 1950		Window Screen - NE side - RI	7,147	0	7,147	9,798	4,509	0	7,355	6,951	-196	0.97	17.7
Envelope		Masonite Siding: post 1950		Window Screen - SE side RI	1,871	299	1,572	3,658	1,370	0	1,926	3,102	1,531	1.97	8.7
Envelope		Masonite Siding: post 1950		Window Screen - SW side RI	7,215	1,154	6,060	26,651	25,182	0	-7,425	44,409	38,348	7.33	2.4
Envelope		Masonite Siding· post 1950		Window Screen - NW Side - RI	1,804	0	1,804	4,519	4,243	0	-1,856	6,905	5,102	3.83	4.5
Envelope	Family Housing	Masonite Siding· post 1950		Double Paned Window - RI	61,324	0	61,324	11,834	7,439	0	0	19,273	-42,052	0.31	54.8
Envelope		Masonite Siding: pre 1950		Weatherization - RI	25,617	0	25,617	528,129	291,890	0	0	820,019	794,401	32.01	0.5
Envelope		Masonite Siding· pre 1950		Window Screen - NE side RI	17,113	0	17,113	23,460	10,796	0	17,611	16,644	-469	0.97	17.7
Envelope		Masonite Siding· pre 1950		Window Screen - SE side RI	5,659	905	4,754	11,064	4,143	0	-5,824	9,383	4,629	1.97	8.7
Envelope		Masonite Siding: pre 1950		Window Screen - SW side - RI	18,002	2,880	15,121	66,499	62,832	0	-18,525	110,806	95,684	7.33	2.4
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side - RI	4,771	0	4,771	11,952	11,223	0	-4,910	18,266	13,495	3.83	4.5
Envelope	Family Housing	Masonite Siding· pre 1950		Double Paned Window RI	154,853	0	154,853	29,882	18,784	0	0	48,666	-106,187	0.31	54.8
Envelope		Metal Siding		Weatherization - RI	13,638	0	13,638	295,925	163,554	0	0	459,479	445,841	33.69	0.5
Envelope		Metal Siding		Window Screen NE side - RI	13,120	0	13,120	17,986	8,277	0	13,502	12,761	-360	0.97	17.7
Envelope		Metal Siding		Window Screen - SE side RI	12,640	2,022	10,618	24,712	9,253	0	13,008	20,957	10,339	1.97	8.7
Envelope		Metal Siding		Window Screen - SW side RI	12,640	2,022	10,618	46,694	44,119	0	13,008	77,805	67,187	7.33	2.4
Envelope		Metal Siding		Window Screen - NW Side - RI	13,120	0	13,120	32,869	30,864	0	13,502	50,230	37,110	3.83	4.5
Envelope	Family Housing	Metal Siding		Double Paned Window - RI	175,171	0	175,171	33,803	21,249	0	0	55,052	-120,120	0.31	54.8
Envelope	Family Housing	MOTORPOOL		Double Paned Window - RI	42,221	0	42,221	8,147	5,122	0	0	13,269	28,952	0.31	54.8
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	1,806	0	1,806	17,981	9,938	0	0	27,920	26,113	15.46	1.1
Envelope	Motorpool	MOTORPOOL		Window Screen - NE side - RI	4,967	0	4,967	6,809	3,134	0	-5,112	4,831	-136	0.97	17.7
Envelope	Motorpool	MOTORPOOL		Window Screen - SE side RI	1,242	199	1,043	2,428	909	0	1,278	2,059	1,016	1.97	8.7
Envelope	Motorpool	MOTORPOOL		Window Screen - SW side RI	4,967	795	4,172	18,349	17,338	0	-5,112	30,575	26,403	7.33	2.4
Envelope	Motorpool	MOTORPOOL		Window Screen - NW Side RI	1,242	0	1,242	3,111	2,921	0	1,278	4,754	3,512	3.83	4.5
Envelope	Family Housing	MWR		Double Paned Window - RI	9,786	0	9,786	1,888	1,187	0	0	3,075	-6,711	0.31	54.8
Envelope	MWR	MWR		Weatherization - RI	1,366	0	1,366	2,786	1,540	0	0	4,326	2,960	3.17	5.4
Envelope	MWR	MWR		Window Screen - NE side - RI	1,151	0	1,151	1,578	726	0	-1,185	1,120	-32	0.97	17.7
Envelope	MWR	MWR		Window Screen - SE side RI	288	46	242	563	211	0	-296	477	235	1.97	8.7
Envelope	MWR	MWR		Window Screen - SW side RI	1,151	184	967	4,253	4,018	0	1,185	7,087	6,120	7.33	2.4
Envelope	MWR	MWR		Window Screen - NW Side - RI	288	0	288	721	677	0	-296	1,102	814	3.83	4.5
Envelope	Family Housing	Northeast, 1961 Vintage		Window Screen - RI	61,683	0	61,683	84,557	38,913	0	63,478	59,992	-1,690	0.97	17.7
Envelope	Family Housing	Northeast, 1963 Vintage		Window Screen - RI	67,503	0	67,503	92,536	42,585	0	-69,468	65,653	-1,850	0.97	17.7
Envelope	Family Housing	Northeast, 1964, 1965, 1966 Vintage		Window Screen RI	41,196	0	41,196	56,473	25,989	0	-42,395	40,067	-1,129	0.97	17.7
Envelope	Family Housing	Northeast, 1983 Vintage		Window Screen - RI	63,078	0	63,078	86,470	39,793	0	64,914	61,349	-1,729	0.97	17.7
Envelope	Family Housing	Northeast, 1984 Vintage		Window Screen RI	47,436	0	47,436	65,028	29,925	0	-48,817	46,136	-1,300	0.97	17.7
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen RI	24,679	0	24,679	61,826	58,054	0	-25,397	94,482	69,803	3.83	4.5
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	27,001	0	27,001	67,643	63,517	0	27,787	103,373	76,372	3.83	4.5
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen RI	16,478	0	16,478	41,281	38,763	0	16,958	63,086	46,608	3.83	4.5
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen - RI	25,231	0	25,231	63,209	59,353	0	25,965	96,596	71,365	3.83	4.5
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen RI	18,975	0	18,975	47,535	44,635	0	19,527	72,643	53,668	3.83	4.5
Envelope	Family Housing	SECURTY		Double Paned Window RI	2,005	0	2,005	387	243	0	0	630	1,375	0.31	54.8
Envelope	Security	SECURTY		Window Screen - NE side - RI	236	0	236	323	149	0	243	229	-6	0.97	17.7
Envelope	Security	SECURTY		Window Screen SE side - RI	59	9	50	115	43	0	61	98	48	1.97	8.7
Envelope	Security	SECURTY		Window Screen SW side RI	236	38	198	871	823	0	-243	1,452	1,254	7.33	2.4
Envelope	Security	SECURTY		Window Screen - NW Side RI	59	0	59	148	139	0	61	226	167	3.83	4.5
Envelope	Family Housing	SHOP		Double Paned Window RI	41,357	0	41,357	7,981	5,017	0	0	12,997	28,359	0.31	54.8
Envelope	Shop	SHOP		Weatherization RI	4,780	0	4,780	57,472	31,764	0	0	89,236	84,456	18.67	0.9
Envelope	Shop	SHOP		Window Screen NE side RI	4,865	0	4,865	6,670	3,069	0	5,007	4,732	133	0.97	17.7

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Shop	SHOP		Window Screen - SE side RI	1,216	195	1,022	2,378	890	0	-1,252	2,017	995	1.97	8.7
Envelope	Shop	SHOP		Window Screen - SW side - RI	4,865	778	4,087	17,973	16,982	0	5,007	29,949	25,862	7.33	2.4
Envelope	Shop	SHOP		Window Screen - NW Side RI	1,216	0	1,216	3,047	2,861	0	-1,252	4,657	3,440	3.83	4.5
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	61,671	9,867	51,804	120,571	45,144	0	63,466	102,249	50,445	1.97	8.7
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen - RI	67,503	10,800	56,703	131,973	49,413	0	69,468	111,918	55,215	1.97	8.7
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	41,196	6,591	34,604	80,540	30,156	0	-42,395	68,301	33,697	1.97	8.7
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	63,078	10,092	52,985	123,321	46,173	0	64,914	104,581	51,595	1.97	8.7
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	47,436	7,590	39,846	92,741	34,724	0	-48,817	78,648	38,801	1.97	8.7
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen - RI	24,854	3,977	20,877	91,813	86,750	0	-25,577	152,985	132,108	7.33	2.4
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	27,001	4,320	22,681	99,744	94,245	0	27,787	166,202	143,521	7.33	2.4
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen - RI	16,478	2,637	13,842	60,872	57,516	0	16,958	101,430	87,588	7.33	2.4
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	25,231	4,037	21,194	93,205	88,066	0	-25,965	155,306	134,112	7.33	2.4
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen - RI	18,975	3,036	15,939	70,093	66,228	0	19,527	116,795	100,856	7.33	2.4
Envelope	Family Housing	TRAINING		Double Paned Window - RI	13,701	0	13,701	2,644	1,662	0	0	4,306	9,395	0.31	54.8
Envelope	Training	TRAINING		Weatherization - RI	4,080	0	4,080	23,799	13,154	0	0	36,953	32,873	9.06	1.9
Envelope	Training	TRAINING		Window Screen- NE side - RI	1,612	0	1,612	2,210	1,017	0	1,659	1,568	-44	0.97	17.7
Envelope	Training	TRAINING		Window Screen - SE side RI	403	64	338	788	295	0	-415	668	330	1.97	8.7
Envelope	Training	TRAINING		Window Screen - SW side RI	1,612	258	1,354	5,954	5,626	0	-1,659	9,922	8,568	7.33	2.4
Envelope	Training	TRAINING		Window Screen - NW Side - RI	403	0	403	1,010	948	0	-415	1,543	1,140	3.83	4.5
Envelope	Barracks	U Shaped Bldgs: Barracks		Weatherization - RI	28,505	0	28,505	413,900	228,756	0	0	642,656	614,151	22.55	0.8
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen- NE side - RI	14,183	0	14,183	19,443	8,948	0	14,596	13,795	389	0.97	17.7
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - SE side - RI	32,879	5,261	27,619	64,281	24,068	0	33,836	54,513	26,894	1.97	8.7
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - SW side - RI	32,879	5,261	27,619	121,459	114,762	0	33,836	202,384	174,765	7.33	2.4
Envelope	Barracks	U Shaped Bldgs: Barracks		Window Screen - NW Side - RI	14,183	0	14,183	35,532	33,364	0	14,596	54,300	40,117	3.83	4.5
Envelope	Family Housing	U Shaped Bldgs: Barracks		Double Paned Window - RI	320,025	0	320,025	61,755	38,820	0	0	100,575	219,450	0.31	54.8
Envelope	Family Housing	U Shaped Bldgs: Other		Double Paned Window - RI	45,696	0	45,696	8,818	5,543	0	0	14,361	31,335	0.31	54.8
Envelope	Other	U Shaped Bldgs: Other		Weatherization RI	5,330	0	5,330	110,373	61,002	0	0	171,375	166,045	32.15	0.5
Envelope	Other	U Shaped Bldgs: Other		Window Screen- NE side RI	2,025	0	2,025	2,776	1,278	0	2,084	1,970	56	0.97	17.7
Envelope	Other	U Shaped Bldgs: Other		Window Screen - SE side - RI	4,695	751	3,944	9,179	3,437	0	-4,831	7,784	3,840	1.97	8.7
Envelope	Other	U Shaped Bldgs: Other		Window Screen - SW side - RI	4,695	751	3,944	17,343	16,387	0	-4,831	28,898	24,953	7.33	2.4
Envelope	Other	U Shaped Bldgs: Other		Window Screen - NW Side RI	2,025	0	2,025	5,074	4,764	0	-2,084	7,753	5,728	3.83	4.5
Envelope	Family Housing	WHS		Double Paned Window - RI	8,639	0	8,639	1,851	1,048	0	0	2,898	5,741	0.34	51.3
Envelope	WHS	WHS		Weatherization - RI	2,480	0	2,480	30,013	16,588	0	0	46,601	44,122	18.79	0.9
Envelope	WHS	WHS		Window Screen- NE side - RI	1,016	0	1,016	1,393	641	0	1,046	988	28	0.97	17.7
Envelope	WHS	WHS		Window Screen - SE side - RI	254	41	213	497	186	0	261	421	208	1.97	8.7
Envelope	WHS	WHS		Window Screen - SW side - RI	1,016	163	854	3,754	3,547	0	-1,046	6,256	5,402	7.33	2.4
Envelope	WHS	WHS		Window Screen - NW Side - RI	254	0	254	637	598	0	-261	973	719	3.83	4.5
Envelope		Wood Siding		Weatherization - RI	1,811	0	1,811	25,017	13,827	0	0	38,844	37,033	21.45	0.8
Envelope		Wood Siding		Window Screen- NE side - RI	2,203	0	2,203	3,019	1,390	0	-2,267	2,142	60	0.97	17.7
Envelope		Wood Siding		Window Screen - SE side - RI	551	88	463	1,077	403	0	567	913	450	1.97	8.7
Envelope		Wood Siding		Window Screen - SW side - RI	2,203	352	1,850	8,137	7,688	0	-2,267	13,558	11,708	7.33	2.4
Envelope		Wood Siding		Window Screen - NW Side - RI	551	0	551	1,380	1,295	0	-567	2,108	1,558	3.83	4.5
Envelope	Family Housing	Wood Siding		Double Paned Window - RI	18,722	0	18,722	3,613	2,271	0	0	5,884	-12,838	0.31	54.8
Envelope	Family Housing	1961		Weatherization - RI	59,959	0	59,959	521,228	288,075	0	0	809,304	749,345	13.50	1.3
Envelope	Family Housing	1963		Weatherization - RI	54,608	0	54,608	569,833	314,939	0	0	884,771	830,164	16.20	1.1
Envelope	Family Housing	1983		Weatherization - RI	45,070	0	45,070	215,619	119,170	0	0	334,789	289,719	7.43	2.3
Envelope	Family Housing	1984		Weatherization - RI	34,480	0	34,480	160,175	88,526	0	0	248,702	214,222	7.21	2.4
Fam Hsg HVAC	1a	Family Housing	Residential HVAC	Std. Eff. Air Source HP - RI	4,483,820	0	4,483,820	2,190,332	2,021,043	281,903	937,140	5,430,418	946,598	1.21	14.2
Fam. Hsg HVAC	1a	Family Housing	Residential HVAC	Std. Eff. Air Source HP - ROF	3,621,075	0	3,621,075	1,625,445	1,298,746	180,296	2,422,554	5,527,041	1,905,966	1.53	11.3
Fam. Hsg HVAC	1b	Family Housing	Residential HVAC	High Eff. Air Source HP - RI	9,387,147	0	9,387,147	6,190,656	4,192,740	281,903	-1,283,936	9,381,362	-5,785	1.00	17.2
Fam. Hsg. HVAC	1b	Family Housing	Residential HVAC	High Eff. Air Source HP - ROF	7,580,939	0	7,580,939	4,196,100	2,694,303	180,296	1,825,868	8,896,568	1,315,629	1.17	14.7
Fam. Hsg HVAC	2a	Family Housing	Residential HVAC	Std. Eff. Grnd Source HP - RI	5,826,672	0	5,826,672	6,155,208	3,294,375	281,903	328,863	10,060,350	4,233,677	1.73	10.0
Fam. Hsg HVAC	2a	Family Housing	Residential HVAC	Std. Eff. Grnd Source HP - ROF	4,705,545	0	4,705,545	4,173,321	2,117,004	180,296	2,259,142	8,729,763	4,024,218	1.86	9.3
Fam. Hsg. HVAC	2b	Family Housing	Residential HVAC	High Eff. Grnd Source HP - RI	7,086,917	0	7,086,917	8,254,166	4,037,704	281,903	-241,994	12,331,780	5,244,863	1.74	9.9
Fam. Hsg HVAC	2b	Family Housing	Residential HVAC	High Eff. Gnd Source HP - ROF	5,723,302	0	5,723,302	5,522,136	2,594,676	180,296	2,105,763	10,402,691	4,679,569	1.82	9.5
Fam. Hsg. HVAC	3a	Family Housing	Residential HVAC	Std. Eff. NG Furnace & DX RI	3,194,085	0	3,194,085	4,095,746	1,928,323	0	1,521,355	7,545,424	4,351,339	2.36	7.3
Fam Hsg HVAC	3a	Family Housing	Residential HVAC	Std. Eff. NG Furnace & DX ROF	2,579,502	0	2,579,502	2,582,050	1,239,163	-0	2,579,502	6,400,714	3,821,213	2.48	6.9
Fam. Hsg. HVAC	3b	Family Housing	Residential HVAC	High Eff. NG Furnace & DX - RI	8,501,098	0	8,501,098	7,904,570	4,010,390	0	-882,580	11,032,381	2,531,283	1.30	13.3
Fam. Hsg. HVAC	3b	Family Housing	Residential HVAC	High Eff. NG Furnace & DX - ROF	6,865,377	0	6,865,377	5,071,874	2,577,124	-0	1,933,691	9,582,689	2,717,312	1.40	12.3
Fam. Hsg HVAC	4a	Family Housing	Residential HVAC	Std. Eff LPG Furnace & DX - RI	3,194,085	0	3,194,085	2,753,818	1,928,323	0	1,521,355	6,203,496	3,009,411	1.94	8.9
Fam. Hsg HVAC	4a	Family Housing	Residential HVAC	Std. Eff. LPG Furnace & DX - ROF	2,579,502	0	2,579,502	1,790,589	1,239,163	-0	2,579,502	5,609,253	3,029,752	2.17	7.9
Fam. Hsg. HVAC	4b	Family Housing	Residential HVAC	High Eff. LPG Furnace & DX - RI	8,501,098	0	8,501,098	6,774,221	4,010,390	0	-882,580	9,902,031	1,400,933	1.16	14.8
Fam Hsg. HVAC	4b	Family Housing	Residential HVAC	High Eff. LPG Furnace & DX - ROF	6,865,377	0	6,865,377	4,405,201	2,577,124	-0	1,933,691	8,916,015	2,050,639	1.30	13.3
Fam. Hsg HVAC	5	Family Housing	Residential HVAC	Gas Heat Pump - RI	9,412,750	0	9,412,750	9,658,520	8,557,808	-563,806	-1,295,534	16,356,988	6,944,238	-1.74	9.9
Fam. Hsg. HVAC	5	Family Housing	Residential HVAC	Gas Heat Pump - ROF	7,601,615	0	7,601,615	6,834,364	5,499,347	-360,593	1,822,752	13,795,871	6,194,256	1.81	9.5
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	3,820	0	3,820	13,115	887	0	3,699	17,702	13,882	4.63	3.7
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - ROF	3,705	0	3,705	12,431	838	0	3,897	17,167	13,461	4.63	3.7
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - RI	12,240	0	12,240	41,450	2,839	0	947	45,236	32,996	3.70	4.7
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - ROF	9,588	0	9,588	25,547	1,693	0	5,513	32,753	23,165	3.42	5.0
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - RI	9,180	0	9,180	31,865	2,129	0	710	34,705	25,525	3.78	4.6
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - ROF	7,191	0	7,191	19,639	1,270	0	4,135	25,044	17,853	3.48	4.9
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - RI	12,240	0	12,240	41,450	2,839	0	947	45,236	32,996	3.70	4.7
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - ROF	9,588	0	9,588	25,547	1,693	0	5,513	32,753	23,165	3.42	5.0
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,612	311	0	1,192	7,115	4,055	2.33	7.4
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - ROF	2,968	0	2,968	5,317	294	0	1,350	6,961	3,993	2.35	7.3
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - RI	2,560	0	2,560	3,858	260	0	2,460	6,578	4,018	2.57	6.7
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - ROF	2,483	0	2,483	3,656	245	0	2,593	6,493	4,010	2.62	6.6
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - RI	1,700	0	1,700	9,996	692	0	1,643	12,331	10,631	7.25	2.4
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - ROF	1,649	0	1,649	9,471	654	0	1,731	11,856	10,207	7.19	2.4
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	4,600	0	4,600	36,512	2,803	0	1,783	41,098	36,498	8.93	1.9
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - ROF	4,462	0	4,462	34,596	2,647	0	2,021	39,264	34,802	8.80	2.0

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,480	311	0	671	6,462	3,402	2.11	8.2
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - ROF	2,968	0	2,968	5,193	294	0	829	6,316	3,348	2.13	8.1
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,480	311	0	1,192	6,983	3,923	2.28	7.5
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - ROF	2,968	0	2,968	5,193	294	0	1,350	6,837	3,869	2.30	7.5
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	1,700	0	1,700	4,209	346	0	101	4,655	2,955	2.74	6.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - ROF	1,649	0	1,649	3,988	327	0	189	4,503	2,854	2.73	6.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	1,700	0	1,700	4,209	346	0	101	4,655	2,955	2.74	6.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - ROF	1,649	0	1,649	3,988	327	0	189	4,503	2,854	2.73	6.3
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	5,480	467	0	591	6,539	4,999	4.25	4.1
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - ROF	1,494	0	1,494	5,193	441	0	671	6,305	4,811	4.22	4.1
Heating	9	MTRPOOL - 00642	Unit Heaters	Radiant Heat - RI	7,660	0	7,660	4,428	0	0	973	5,401	2,259	0.71	24.4
Heating	9	MTRPOOL - 00642	Unit Heaters	Radiant Heat - ROF	7,430	0	7,430	4,196	0	0	1,369	5,565	1,865	0.75	23.0
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	1,020	0	1,020	4,209	311	0	745	5,265	4,245	5.16	3.3
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - ROF	989	0	989	3,988	294	0	797	5,079	4,090	5.13	3.4
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - RI	2,120	0	2,120	5,480	433	0	2,056	7,969	5,849	3.76	4.6
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - ROF	2,056	0	2,056	5,193	409	0	2,166	7,767	5,711	3.78	4.6
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - RI	10,830	0	10,830	29,182	2,205	0	975	30,412	19,582	2.81	6.1
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - ROF	8,746	0	8,746	19,247	1,417	0	2,613	23,277	14,531	2.66	6.5
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	10,830	0	10,830	32,881	2,205	0	975	34,111	23,281	3.15	5.5
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - ROF	8,746	0	8,746	21,687	1,417	0	2,613	25,717	16,971	2.94	5.9
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	9,180	0	9,180	16,572	934	0	710	18,217	9,037	1.98	8.7
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - ROF	7,191	0	7,191	10,180	557	0	4,135	14,872	7,681	2.07	8.3
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	4,600	0	4,600	8,768	467	0	6	9,230	4,630	2.01	8.6
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - ROF	3,390	0	3,390	4,622	237	0	2,078	6,938	3,548	2.05	8.4
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	2,300	0	2,300	11,285	934	0	891	13,111	10,811	5.70	3.0
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - ROF	2,231	0	2,231	10,693	882	0	1,011	12,586	10,355	5.64	3.1
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	6,720	467	0	591	7,779	6,239	5.05	3.4
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - ROF	1,494	0	1,494	6,367	441	0	671	7,480	5,986	5.01	3.4
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - RI	5,360	0	5,360	10,193	545	0	-581	10,157	4,797	1.89	9.1
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - ROF	3,604	0	3,604	4,122	210	0	2,442	6,774	3,170	1.88	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,042	311	0	361	5,714	2,654	1.87	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - ROF	2,471	0	2,471	3,325	200	0	1,375	4,900	2,429	1.98	8.7
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - RI	6,120	0	6,120	39,093	3,114	0	1,341	43,549	37,429	7.12	2.4
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - ROF	5,936	0	5,936	37,041	2,941	0	1,658	41,641	35,705	7.01	2.5
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	15,345	1,246	0	1,192	17,782	14,722	5.81	3.0
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - ROF	2,968	0	2,968	14,539	1,176	0	1,350	17,066	14,098	5.75	3.0
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,480	311	0	671	6,462	3,402	2.11	8.2
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - ROF	2,968	0	2,968	5,193	294	0	829	6,316	3,348	2.13	8.1
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	27,480	0	27,480	60,819	3,730	0	6,928	57,622	30,142	2.10	8.2
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - ROF	22,192	0	22,192	40,113	2,397	0	2,176	44,686	22,494	2.01	8.6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - RI	32,490	0	32,490	61,921	4,408	0	8,194	58,136	25,646	1.79	9.6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - ROF	26,239	0	26,239	40,840	2,833	0	2,570	46,243	20,004	1.76	9.8
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	6,120	0	6,120	10,851	623	0	473	11,947	5,827	1.95	8.8
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - ROF	4,794	0	4,794	6,665	371	0	2,757	9,793	5,000	2.04	8.4
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - RI	3,060	0	3,060	5,919	311	0	237	6,467	3,407	2.11	8.1
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - ROF	2,397	0	2,397	3,636	186	0	1,378	5,200	2,803	2.17	7.9
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	2,560	0	2,560	4,428	260	0	1,857	6,544	3,984	2.56	6.7
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - ROF	2,483	0	2,483	4,196	245	0	1,989	6,430	3,947	2.59	6.6
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	4,209	311	0	591	5,112	3,572	3.32	5.2
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - ROF	1,494	0	1,494	3,988	294	0	671	4,953	3,459	3.32	5.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	520	0	520	1,076	0	0	368	1,444	924	2.78	6.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - ROF	504	0	504	1,017	0	0	395	1,411	907	2.80	6.2
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	1,700	0	1,700	7,681	0	0	1,643	9,324	7,624	5.48	3.1
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - ROF	1,649	0	1,649	7,258	0	0	1,731	8,989	7,340	5.45	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	420	0	420	1,835	0	0	413	2,248	1,828	5.35	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - ROF	407	0	407	1,734	0	0	435	2,169	1,762	5.32	3.2
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	760	0	760	3,587	1,125	0	-26	4,686	3,926	6.17	2.8
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - ROF	543	0	543	1,682	525	0	347	2,554	2,011	4.70	3.7
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - RI	1,200	0	1,200	3,766	1,180	0	101	5,047	3,847	4.21	4.1
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - ROF	1,164	0	1,164	3,559	1,115	0	163	4,836	3,672	4.16	4.1
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - RI	11,480	0	11,480	37,912	0	0	4,466	42,379	30,899	3.69	4.7
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - ROF	11,135	0	11,135	35,823	0	0	5,061	40,884	29,749	3.67	4.7
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	19,120	0	19,120	54,595	0	0	2,445	57,041	37,921	2.98	5.8
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - ROF	18,545	0	18,545	51,587	0	0	3,435	55,022	36,477	2.97	5.8
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	1,822	316	0	442	2,580	1,040	1.68	10.3
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - ROF	1,206	0	1,206	1,109	189	0	1,016	2,314	1,108	1.92	9.0
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - RI	2,560	0	2,560	2,914	327	0	739	4,181	1,621	1.63	10.5
Heating	39	SHOP HVY - BD005	Unit Heaters	Radiant Heat - ROF	2,005	0	2,005	1,774	314	0	1,695	3,783	1,778	1.89	9.1
HVAC	MT-3		Heat pump	2 speed compressor - RI	240,507	0	240,507	342,991	334,687	0	-108,943	568,735	328,228	2.36	7.3
HVAC	MT-4		Heat pump	Economizer cooling - RI	553,800	0	553,800	522,317	150,147	0	250,857	421,607	132,193	0.76	22.6
HVAC	1	Admin	Programmable T-Stat	Night Setback - RI	20,079	0	20,079	933,750	4,672	0	-9,095	929,327	909,248	46.28	0.4
HVAC	2	Chapel	Programmable T-Stat	Night Setback - RI	1,039	0	1,039	37,246	231	0	-470	37,007	35,968	35.63	0.5
HVAC	3	Clinic	Programmable T-Stat	Night Setback - RI	2,077	0	2,077	114,249	1,313	0	941	114,621	112,544	55.18	0.3
HVAC	4	Comcatn	Programmable T-Stat	Night Setback - RI	2,077	0	2,077	138,333	1,089	0	941	138,501	136,424	66.68	0.3
HVAC	5	DGR	Programmable T-Stat	Night Setback - RI	3,808	0	3,808	95,978	922	0	-1,725	95,175	91,366	24.99	0.7
HVAC	6	MtrPool	Programmable T-Stat	Night Setback - RI	2,770	0	2,770	421,830	2,121	0	1,255	422,746	419,976	152.64	0.1
HVAC	7	Shop Elc	Programmable T-Stat	Night Setback - RI	1,385	0	1,385	12,782	176	0	627	12,331	10,946	8.90	1.9
HVAC	8	Trang	Programmable T-Stat	Night Setback - RI	5,885	0	5,885	120,531	2,054	0	2,245	120,339	114,454	20.45	0.8
Lighting	DLC-3a	Conference	Existing Lighting	Existing + Daylighting Controls RI	1,394	81	1,313	39,747	NA	7,010	NA	46,756	45,443	35.62	0.5
Lighting	DLC-3b	Conference	T8 Lighting	T8 + Daylighting Controls - RI	1,394	54	1,340	26,630	NA	6,920	NA	33,550	32,210	25.04	0.7
Lighting	OS-3a	Conference	Existing Lighting	Existing + Occupancy Controls RI	5,904	1,771	4,133	155,278	NA	27,151	NA	182,429	178,297	44.14	0.4

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lighting	OS 3b	Conference	T8 Lighting	T8 + Occupancy Controls RI	5,904	1,771	4,133	104,037	NA	26,704	NA	130,741	126,608	31.63	0.5
Lighting	DLC-5a	Copy Room	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-5b	Copy Room	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS-5a	Copy Room	Existing Lighting	Existing + Occupancy Controls - RI	4,536	654	3,882	31,185	NA	5,445	NA	36,631	32,748	9.44	1.8
Lighting	OS-5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	4,536	438	4,098	20,894	NA	5,353	NA	26,247	22,149	6.40	2.7
Lighting	DLC-7a	Hallway	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-7b	Hallway	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS-7a	Hallway	Existing Lighting	Existing + Occupancy Controls - RI	16,416	4,925	11,491	572,726	NA	99,520	NA	672,246	660,755	58.50	0.3
Lighting	OS-7b	Hallway	T8 Lighting	T8 + Occupancy Controls RI	16,416	4,925	11,491	383,726	NA	97,662	NA	481,389	469,897	41.89	0.4
Lighting	DLC-8a	Highbay	Existing Lighting	Existing + Daylighting Controls - RI	7,820	2,346	5,474	709,990	NA	129,046	NA	839,037	833,563	153.28	0.1
Lighting	DLC-8b	Highbay	T8 Lighting	T8 + Daylighting Controls - RI	7,820	2,346	5,474	475,693	NA	128,881	NA	604,575	599,101	110.44	0.2
Lighting	OS 8a	Highbay	Existing Lighting	Existing + Occupancy Controls - RI	16,560	4,968	11,592	1,290,565	NA	231,903	NA	1,522,468	1,510,876	131.34	0.1
Lighting	OS-8b	Highbay	T8 Lighting	T8 + Occupancy Controls - RI	16,560	4,968	11,592	864,678	NA	229,102	NA	1,093,780	1,082,188	94.36	0.2
Lighting	DLC-2a	Large Office/Room	Existing Lighting	Existing + Daylighting Controls - RI	25,500	7,650	17,850	605,660	NA	122,119	NA	727,779	709,929	40.77	0.4
Lighting	DLC-2b	Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	25,500	7,650	17,850	405,792	NA	126,512	NA	532,304	514,454	29.82	0.6
Lighting	OS 2a	Large Office/Room	Existing Lighting	Existing + Occupancy Controls - RI	45,000	13,500	31,500	688,694	NA	127,374	NA	816,068	784,568	25.91	0.7
Lighting	OS 2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	45,000	9,671	35,329	461,425	NA	127,909	NA	589,334	554,005	16.68	1.0
Lighting	DLC-4a	Lunchroom	Existing Lighting	Existing + Daylighting Controls - RI	1,360	220	1,140	41,010	NA	7,405	NA	48,415	47,274	42.45	0.4
Lighting	DLC-4b	Lunchroom	T8 Lighting	T8 + Daylighting Controls - RI	1,360	147	1,213	27,477	NA	7,377	NA	34,853	33,641	28.74	0.6
Lighting	OS-4a	Lunchroom	Existing Lighting	Existing + Occupancy Controls - RI	14,400	4,320	10,080	385,025	NA	68,046	NA	453,071	442,991	44.95	0.4
Lighting	OS-4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	14,400	4,320	10,080	257,967	NA	67,184	NA	325,151	315,071	32.26	0.5
Lighting	DLC-MT-3a	MT Conference	Existing Lighting	Existing + Daylighting Controls - RI	1,394	81	1,313	23,941	NA	4,263	NA	28,205	26,892	21.48	0.8
Lighting	DLC-MT-3b	MT Conference	T8 Lighting	T8 + Daylighting Controls - RI	1,394	54	1,340	16,041	NA	4,224	NA	20,265	18,925	15.13	1.1
Lighting	OS MT-3a	MT Conference	Existing Lighting	Existing + Occupancy Controls - RI	5,904	1,771	4,133	92,058	NA	16,165	NA	108,223	104,090	26.19	0.7
Lighting	OS-MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	5,904	1,293	4,611	61,679	NA	15,924	NA	77,602	72,991	16.83	1.0
Lighting	DLC-MT-5a	MT Copy Room	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-MT-5b	MT Copy Room	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS MT-5a	MT Copy Room	Existing Lighting	Existing + Occupancy Controls - RI	4,536	395	4,141	18,858	NA	3,303	NA	22,161	18,021	5.35	3.2
Lighting	OS-MT-5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	4,536	265	4,271	12,635	NA	3,251	NA	15,886	11,615	3.72	4.6
Lighting	DLC-MT-7a	MT Hallway	Existing Lighting	Existing + Daylighting Controls RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-MT-7b	MT Hallway	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS MT-7a	MT Hallway	Existing Lighting	Existing + Occupancy Controls - RI	16,416	3,557	19,973	169,697	NA	-29,487	NA	199,184	-219,157	9.97	NA
Lighting	OS-MT-7b	MT Hallway	T8 Lighting	T8 + Occupancy Controls - RI	16,416	-2,383	18,799	-113,697	NA	28,937	NA	142,634	-161,433	-7.59	NA
Lighting	DLC-MT-8a	MT Highbay	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-MT-8b	MT Highbay	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS-MT-8a	MT Highbay	Existing Lighting	Existing + Occupancy Controls RI	16,560	6,588	23,148	-314,296	NA	-46,967	NA	361,262	-384,410	15.61	NA
Lighting	OS-MT-8b	MT Highbay	T8 Lighting	T8 + Occupancy Controls - RI	16,560	-4,414	20,974	-210,578	NA	-44,562	NA	255,140	-276,114	-12.16	NA
Lighting	DLC-MT-2a	MT Large Office/Room	Existing Lighting	Existing + Daylighting Controls - RI	17,000	5,100	11,900	124,157	NA	32,825	NA	156,982	145,082	13.19	1.3
Lighting	DLC-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	17,000	5,100	11,900	83,185	NA	36,661	NA	119,846	107,946	10.07	1.7
Lighting	OS-MT-2a	MT Large Office/Room	Existing Lighting	Existing + Occupancy Controls RI	45,000	-217	45,217	-10,347	NA	5,904	NA	-4,443	-49,660	-0.10	NA
Lighting	OS-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	45,000	-145	45,145	-6,933	NA	8,707	NA	1,774	-43,371	0.04	438.2
Lighting	DLC-MT-4a	MT Lunchroom	Existing Lighting	Existing + Daylighting Controls - RI	1,360	220	1,140	5,708	NA	1,271	NA	6,978	5,838	6.12	2.8
Lighting	DLC-MT-4b	MT Lunchroom	T8 Lighting	T8 + Daylighting Controls - RI	1,360	147	1,213	3,824	NA	1,357	NA	5,181	3,968	4.27	4.0
Lighting	OS-MT-4a	MT Lunchroom	Existing Lighting	Existing + Occupancy Controls - RI	14,400	671	13,729	32,002	NA	6,702	NA	38,705	24,976	2.82	6.1
Lighting	OS-MT-4b	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	14,400	449	13,951	21,442	NA	6,986	NA	28,427	14,477	2.04	8.5
Lighting	DLC-MT-6a	MT Restroom	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-MT-6b	MT Restroom	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS-MT-6a	MT Restroom	Existing Lighting	Existing + Occupancy Controls - RI	27,072	79	26,993	3,789	NA	1,925	NA	5,714	-21,279	0.21	81.4
Lighting	OS MT-6b	MT Restroom	T8 Lighting	T8 + Occupancy Controls - RI	27,072	53	27,019	2,539	NA	2,342	NA	4,881	-22,138	0.18	95.3
Lighting	DLC-MT-1a	MT Small Office	Existing Lighting	Existing + Daylighting Controls - RI	40,093	12,028	28,065	-4,132	NA	18,408	NA	14,275	-13,790	0.51	33.9
Lighting	DLC-MT-1b	MT Small Office	T8 Lighting	T8 + Daylighting Controls - RI	40,093	10,097	29,996	-2,769	NA	25,626	NA	22,858	-7,138	0.76	22.6
Lighting	OS-MT-1a	MT Small Office	Existing Lighting	Existing + Occupancy Controls - RI	106,128	-9,886	116,014	-471,686	NA	64,321	NA	-536,007	-652,022	-4.62	NA
Lighting	OS-MT-1b	MT Small Office	T8 Lighting	T8 + Occupancy Controls - RI	106,128	-6,624	112,752	-316,030	NA	-56,683	NA	372,712	-485,464	-3.31	NA
Lighting	DLC-6a	Restroom	Existing Lighting	Existing + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	DLC-6b	Restroom	T8 Lighting	T8 + Daylighting Controls - RI	0	0	0	0	NA	0	NA	0	0	NA	NA
Lighting	OS-6a	Restroom	Existing Lighting	Existing + Occupancy Controls - RI	27,072	4,021	23,051	191,862	NA	34,605	NA	226,467	203,416	9.82	1.8
Lighting	OS-6b	Restroom	T8 Lighting	T8 + Occupancy Controls - RI	27,072	2,694	24,378	128,547	NA	34,413	NA	162,960	138,582	6.68	2.6
Lighting	DLC-1a	Small Office	Existing Lighting	Existing + Daylighting Controls - RI	60,139	18,042	42,097	167,852	NA	57,855	NA	225,708	183,610	5.36	3.2
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls - RI	60,139	15,146	44,994	112,461	NA	68,119	NA	180,580	135,586	4.01	4.3
Lighting	OS-1a	Small Office	Existing Lighting	Existing + Occupancy Controls - RI	106,128	-3,806	109,934	-181,602	NA	-13,914	NA	195,516	305,450	1.78	NA
Lighting	OS-1b	Small Office	T8 Lighting	T8 + Occupancy Controls - RI	106,128	-2,550	108,678	-121,673	NA	7,217	NA	128,890	-237,568	-1.19	NA
Motors	MT-2		Fan motor	2-speed fan motor - RI	71,530	0	71,530	75,029	0	0	32,401	42,628	-28,902	0.60	28.9
Motors	MTR-97	01315	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-97	01315	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - ROF	1,017	0	1,017	1,635	1,103	0	-14	2,724	1,707	2.68	6.4
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - RI	1,338	96	1,242	3,147	2,124	0	567	4,704	3,462	3.79	4.5
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - ROF	446	0	446	310	209	0	12	506	60	1.14	15.2
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - RI	552	40	512	561	378	0	195	744	232	1.45	11.9
Motors	MTR-100	ADMIN - 00157	EVAP	EEM - ROF	367	0	367	57	38	0	-21	75	293	0.20	84.7
Motors	MTR-100	ADMIN - 00157	EVAP	EEM - RI	455	14	441	106	71	0	171	5	-436	0.01	1,387.3
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-102	ADMIN - 00236	EVAP	EEM - ROF	1,102	0	1,102	171	115	0	-62	224	-878	0.20	84.7
Motors	MTR-102	ADMIN - 00236	EVAP	EEM RI	1,365	42	1,323	317	214	0	514	16	1,307	0.01	1,387.3
Motors	MTR-103	ADMIN - 00237	EVAP	EEM ROF	1,531	0	1,531	2,915	1,967	0	-99	4,784	3,252	3.12	5.5
Motors	MTR-103	ADMIN - 00237	EVAP	EEM RI	1,784	128	1,656	4,095	2,763	0	534	6,325	4,669	3.82	4.5
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - ROF	574	0	574	1,093	738	0	37	1,794	1,220	3.12	5.5
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - RI	669	48	621	1,536	1,036	0	200	2,372	1,751	3.82	4.5
Motors	MTR-51a	ADMIN - 00243	COOL	EEM ROF	367	0	367	28	38	0	21	46	321	0.13	136.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-51a	ADMIN 00243	COOL	EEM RI	455	14	441	53	71	0	171	-47	488	0.11	NA
Motors	MTR 51b	ADMIN 00243	COOL	VSD to Std ROF	3,025	0	3,025	433	21	110	386	85	3,110	0.03	NA
Motors	MTR 51b	ADMIN 00243	COOL	VSD to Std RI	3,746	6	3,740	682	21	172	1,533	1,044	-4,784	0.28	NA
Motors	MTR 51c	ADMIN 00243	COOL	VSD & EEM ROF	3,163	0	3,163	445	38	110	386	13	3,175	0.00	NA
Motors	MTR-51c	ADMIN 00243	COOL	VSD & EEM - RI	3,916	19	3,897	702	71	172	1,533	932	-4,829	0.24	NA
Motors	MTR 106	ADMIN 00248	EVAP	EEM - ROF	1,250	0	1,250	350	236	0	70	516	734	0.41	41.7
Motors	MTR 106	ADMIN 00248	EVAP	EEM RI	1,548	60	1,488	646	436	0	583	500	988	0.34	51.3
Motors	MTR 107	ADMIN 00256	EVAP	EEM ROF	1,894	0	1,894	306	206	0	140	372	1,523	0.20	87.8
Motors	MTR 107	ADMIN 00256	EVAP	EEM RI	2,275	70	2,205	517	349	0	796	70	2,135	0.03	541.9
Motors	MTR 108	ADMIN - 00257	EVAP	EEM ROF	1,894	0	1,894	306	206	0	140	372	1,523	0.20	87.8
Motors	MTR-108	ADMIN 00257	EVAP	EEM RI	2,275	70	2,205	517	349	0	796	70	-2,135	0.03	541.9
Motors	MTR 109	ADMIN - 00279	EVAP	EEM - ROF	2,148	0	2,148	626	422	0	158	890	1,259	0.41	41.6
Motors	MTR-109	ADMIN - 00279	EVAP	EEM - RI	2,580	100	2,480	1,055	712	0	902	865	1,615	0.35	49.4
Motors	MTR-110	ADMIN - 00281	EVAP	EEM - ROF	443	0	443	134	90	0	-40	184	259	0.42	41.5
Motors	MTR-110	ADMIN - 00281	EVAP	EEM RI	516	20	496	206	139	0	166	180	316	0.36	47.5
Motors	MTR-111	ADMIN 00281	EVAP	EEM - ROF	446	0	446	241	163	0	12	391	55	0.88	19.6
Motors	MTR-111	ADMIN - 00281	EVAP	EEM - RI	552	40	512	452	305	0	-195	562	50	1.10	15.7
Motors	MTR-418a	ADMIN - 00281	Fan Motor	EEM - ROF	359	0	359	85	71	0	16	141	219	0.39	44.0
Motors	MTR-418a	ADMIN - 00281	Fan Motor	EEM - RI	445	18	427	158	132	0	163	127	300	0.30	58.0
Motors	MTR-418b	ADMIN - 00281	Fan Motor	VSD to Std ROF	4,070	0	4,070	1,298	38	110	537	613	3,457	0.15	114.3
Motors	MTR-418b	ADMIN - 00281	Fan Motor	VSD to Std - RI	5,040	17	5,023	2,045	38	172	2,102	267	5,289	0.05	NA
Motors	MTR-418c	ADMIN - 00281	Fan Motor	VSD & EEM - ROF	4,175	0	4,175	1,336	71	110	537	760	3,415	0.18	94.6
Motors	MTR-418c	ADMIN - 00281	Fan Motor	VSD & EEM - RI	5,170	34	5,136	2,105	132	172	2,102	38	5,174	0.01	NA
Motors	PMTR 8a	ADMIN - 00281	PMPMTR	EEM ROF	367	0	367	57	47	0	21	84	284	0.23	75.7
Motors	PMTR-8a	ADMIN - 00281	PMPMTR	EEM - RI	455	14	441	106	88	0	171	22	-419	0.05	346.4
Motors	PMTR-8b	ADMIN - 00281	PMPMTR	VSD to Std - ROF	1,168	0	1,168	865	25	110	107	623	545	0.53	32.3
Motors	PMTR-8b	ADMIN - 00281	PMPMTR	VSD to Std - RI	1,446	12	1,434	1,364	-25	172	491	675	-760	0.47	36.6
Motors	PMTR-8c	ADMIN - 00281	PMPMTR	VSD & EEM - ROF	1,305	0	1,305	891	47	110	107	721	-584	0.55	31.2
Motors	PMTR-8c	ADMIN - 00281	PMPMTR	VSD & EEM - RI	1,616	25	1,591	1,403	88	172	-491	827	764	0.52	33.1
Motors	PMTR 9a	ADMIN - 00281	PMPMTR	EEM - ROF	367	0	367	57	47	0	-21	84	284	0.23	75.7
Motors	PMTR 9a	ADMIN - 00281	PMPMTR	EEM - RI	455	14	441	106	88	0	171	22	-419	0.05	346.4
Motors	PMTR-9b	ADMIN - 00281	PMPMTR	VSD to Std - ROF	1,168	0	1,168	865	25	-110	107	623	545	0.53	32.3
Motors	PMTR-9b	ADMIN - 00281	PMPMTR	VSD to Std - RI	1,446	12	1,434	1,364	25	172	-491	675	-760	0.47	36.6
Motors	PMTR-9c	ADMIN - 00281	PMPMTR	VSD & EEM - ROF	1,305	0	1,305	891	47	110	107	721	-584	0.55	31.2
Motors	PMTR-9c	ADMIN - 00281	PMPMTR	VSD & EEM - RI	1,616	25	1,591	1,403	88	172	-491	827	-764	0.52	33.1
Motors	MTR 112	ADMIN - 00320	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-112	ADMIN - 00320	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors·	MTR-113	ADMIN - 00372	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-116	ADMIN - 00408	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR 116	ADMIN - 00408	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-117	ADMIN - 00411	EVAP	EEM - ROF	719	0	719	171	115	0	32	254	-464	0.35	48.6
Motors	MTR-117	ADMIN - 00411	EVAP	EEM - RI	890	36	854	317	214	0	-326	204	650	0.24	72.0
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - RI	669	48	621	1,555	1,049	0	243	2,361	1,740	3.80	4.5
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-122	ADMIN - 00429	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	-232	0.35	48.6
Motors	MTR-122	ADMIN - 00429	EVAP	EEM - RI	445	18	427	158	107	0	163	102	-325	0.24	72.0
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - ROF	151	0	151	322	151	0	-5	468	317	3.10	5.6
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - RI	187	0	187	523	245	0	67	701	514	3.75	4.6
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - ROF	592	0	592	1,167	788	0	-45	1,910	1,317	3.23	5.3
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - RI	669	48	621	1,525	1,029	0	178	2,377	1,756	3.83	4.5
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-126	ADMIN - 00437	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	-232	0.35	48.6
Motors	MTR-126	ADMIN - 00437	EVAP	EEM - RI	445	18	427	158	107	0	163	102	-325	0.24	72.0
Motors	MTR-127	ADMIN - 00439	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR 127	ADMIN - 00439	EVAP	EEM - RI	669	48	621	1,555	1,049	0	243	2,361	1,740	3.80	4.5
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - ROF	151	0	151	322	151	0	-5	468	317	3.10	5.6
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - RI	187	0	187	523	245	0	-67	701	514	3.75	4.6
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - ROF	395	0	395	778	525	0	-30	1,273	878	3.23	5.3
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR-129	ADMIN 00442	EVAP	EEM - ROF	788	0	788	209	141	0	-66	284	503	0.36	47.7
Motors	MTR 129	ADMIN - 00442	EVAP	EEM - RI	890	36	854	296	200	0	242	254	600	0.30	58.0
Motors	MTR 130	ADMIN - 00443	EVAP	EEM - ROF	197	0	197	389	263	0	15	637	439	3.23	5.3
Motors	MTR-130	ADMIN 00443	EVAP	EEM - RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 131	ADMIN - 00443	EVAP	EEM ROF	197	0	197	389	263	0	15	637	439	3.23	5.3
Motors	MTR 131	ADMIN - 00443	EVAP	EEM - RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 132	ADMIN 00444	EVAP	EEM ROF	395	0	395	778	525	0	30	1,273	878	3.23	5.3
Motors	MTR-132	ADMIN 00444	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-134	ADMIN - 00451	EVAP	EEM - ROF	394	0	394	105	71	0	33	142	252	0.36	47.7
Motors	MTR-134	ADMIN - 00451	EVAP	EEM - RI	445	18	427	148	100	0	-121	127	300	0.30	58.0
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - ROF	1,081	0	1,081	1,905	1,285	0	-43	3,147	2,066	2.91	5.9
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - RI	1,338	96	1,242	3,110	2,099	0	-486	4,723	3,481	3.80	4.5
Motors	MTR-136	ADMIN - 00452	EVAP	EEM - ROF	367	0	367	57	38	0	21	75	293	0.20	84.7
Motors	MTR-136	ADMIN - 00452	EVAP	EEM - RI	455	14	441	106	71	0	171	5	436	0.01	1,387.3
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - RI	669	48	621	1,555	1,049	0	243	2,361	1,740	3.80	4.5
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-143	ADMIN - 00466	EVAP	EEM - ROF	735	0	735	114	77	0	41	149	586	0.20	84.7
Motors	MTR-143	ADMIN - 00466	EVAP	EEM - RI	910	28	882	211	143	0	343	11	871	0.01	1,387.3
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - ROF	197	0	197	389	263	0	-15	637	439	3.23	5.3
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - ROF	395	0	395	778	525	0	-30	1,273	878	3.23	5.3
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - ROF	395	0	395	778	525	0	-30	1,273	878	3.23	5.3
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - RI	446	32	414	1,017	686	0	-118	1,585	1,171	3.83	4.5
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - ROF	720	0	720	1,270	857	0	-29	2,098	1,378	2.91	5.9
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - RI	892	64	828	2,073	1,399	0	-324	3,148	2,320	3.80	4.5
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-155	ADMIN - 00521	EVAP	EEM - ROF	197	0	197	389	263	0	-15	637	439	3.23	5.3
Motors	MTR-155	ADMIN - 00521	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - ROF	1,184	0	1,184	2,334	1,575	0	-90	3,819	2,635	3.23	5.3
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - RI	1,338	96	1,242	3,051	2,059	0	-355	4,755	3,513	3.83	4.5
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - ROF	197	0	197	389	263	0	-15	637	439	3.23	5.3
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - ROF	197	0	197	389	263	0	-15	637	439	3.23	5.3
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - ROF	395	0	395	778	525	0	30	1,273	878	3.23	5.3
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - RI	446	32	414	1,017	686	0	-118	1,585	1,171	3.83	4.5
Motors	MTR-167	ADMIN - 00549	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-167	ADMIN - 00549	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR-168	ADMIN - 00551	EVAP	EEM - ROF	394	0	394	105	71	0	-33	142	252	0.36	47.7
Motors	MTR-168	ADMIN - 00551	EVAP	EEM - RI	445	18	427	148	100	0	-121	127	300	0.30	58.0
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - ROF	540	0	540	952	643	0	-22	1,573	1,033	2.91	5.9
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - ROF	720	0	720	1,270	857	0	-29	2,098	1,378	2.91	5.9
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - RI	892	64	828	2,073	1,399	0	-324	3,148	2,320	3.80	4.5
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-173	ADMIN - 00579	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 173	ADMIN 00579	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 174	ADMIN 00580	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 174	ADMIN - 00580	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-175	ADMIN 00583	EVAP	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-175	ADMIN 00583	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 176	ADMIN - 00604	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-176	ADMIN - 00604	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-177	ADMIN 00604	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-177	ADMIN - 00604	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 178	ADMIN - 00813	EVAP	EEM ROF	735	0	735	114	77	0	-41	149	586	0.20	84.7
Motors	MTR-178	ADMIN 00813	EVAP	EEM RI	910	28	882	211	143	0	343	11	871	0.01	1,387.3
Motors	MTR-52a	ADMIN - 00828	COOL	EEM ROF	367	0	367	28	38	0	21	46	321	0.13	136.9
Motors	MTR 52a	ADMIN - 00828	COOL	EEM - RI	455	14	441	53	71	0	171	-47	-488	0.11	NA
Motors	MTR-52b	ADMIN - 00828	COOL	VSD to Std ROF	3,025	0	3,025	433	-21	110	386	85	3,110	0.03	NA
Motors	MTR-52b	ADMIN - 00828	COOL	VSD to Std RI	3,746	6	3,740	682	21	172	1,533	1,044	-4,784	0.28	NA
Motors	MTR-52c	ADMIN 00828	COOL	VSD & EEM ROF	3,163	0	3,163	445	38	-110	386	-13	-3,175	0.00	NA
Motors	MTR-52c	ADMIN - 00828	COOL	VSD & EEM RI	3,916	19	3,897	702	71	172	1,533	932	-4,829	0.24	NA
Motors	MTR 179	ADMIN - 00930	EVAP	EEM ROF	1,256	51	1,205	355	240	0	137	458	747	0.38	45.3
Motors	MTR-179	ADMIN - 00930	EVAP	EEM RI	1,335	54	1,281	422	285	0	273	434	847	0.34	50.8
Motors	MTR 180	ADMIN - 00930	EVAP	EEM ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-180	ADMIN - 00930	EVAP	EEM RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM ROF	180	0	180	284	264	0	7	540	360	3.00	5.7
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM RI	223	16	207	463	431	0	81	812	605	3.92	4.4
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM ROF	360	0	360	567	527	0	-14	1,080	720	3.00	5.7
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM RI	446	32	414	926	861	0	162	1,625	1,211	3.92	4.4
Motors	PMTR-7a	ADMIN - 00985	PMPMTR	EEM ROF	892	0	892	619	418	0	25	1,012	120	1.14	15.2
Motors	PMTR-7a	ADMIN - 00985	PMPMTR	EEM RI	1,104	80	1,024	1,122	757	0	391	1,488	464	1.45	11.9
Motors	PMTR-7b	ADMIN - 00985	PMPMTR	VSD to Std ROF	3,098	0	3,098	8,353	-192	220	-248	7,693	4,595	2.48	6.9
Motors	PMTR-7b	ADMIN - 00985	PMPMTR	VSD to Std - RI	3,836	112	3,724	13,157	192	344	1,220	11,400	7,676	3.06	5.6
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM ROF	3,263	0	3,263	8,615	418	220	248	8,565	5,302	2.63	6.6
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM - RI	4,040	184	3,856	13,565	757	344	1,220	12,757	8,900	3.31	5.2
Motors	MTR-1	ADMIN - 00988	AIRCOMP	EEM - ROF	359	0	359	66	71	0	16	121	238	0.34	51.1
Motors	MTR-1	ADMIN - 00988	AIRCOMP	EEM - RI	445	18	427	122	132	0	-163	91	-336	0.21	81.0
Motors	MTR 181	ADMIN - 00988	EVAP	EEM - ROF	167	0	167	272	184	0	6	450	282	2.69	6.4
Motors	MTR-181	ADMIN - 00988	EVAP	EEM RI	207	15	192	443	299	0	75	667	475	3.47	5.0
Motors	MTR 182	ADMIN - 00988	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 182	ADMIN - 00988	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 183	ADMIN - 00988	EVAP	EEM ROF	207	15	192	399	270	0	24	645	453	3.36	5.1
Motors	MTR-183	ADMIN - 00988	EVAP	EEM - RI	207	15	192	427	288	0	24	691	499	3.60	4.8
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - ROF	334	0	334	545	368	0	13	899	565	2.69	6.4
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - RI	414	30	384	886	598	0	150	1,334	950	3.47	5.0
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM ROF	395	0	395	223	185	0	16	392	3	0.99	17.4
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR-421b	ADMIN - 00988	Fan Motor	VSD to Std ROF	7,205	0	7,205	2,550	73	-110	1,000	1,367	5,838	0.19	90.8
Motors	MTR-421b	ADMIN - 00988	Fan Motor	VSD to Std RI	8,922	34	8,888	4,018	73	172	3,838	-66	8,954	0.01	NA
Motors	MTR-421c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	7,314	0	7,314	2,641	185	110	1,000	1,716	-5,598	0.23	73.4
Motors	MTR-421c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	9,057	66	8,991	4,158	329	172	3,838	477	8,514	0.05	324.5
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - ROF	395	0	395	223	185	0	16	392	3	0.99	17.4
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR-422b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	7,205	0	7,205	2,550	73	110	1,000	1,367	-5,838	0.19	90.8
Motors	MTR-422b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8,922	34	8,888	4,018	73	172	3,838	-66	8,954	-0.01	NA
Motors	MTR-422c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	7,314	0	7,314	2,641	185	-110	1,000	1,716	-5,598	0.23	73.4
Motors	MTR-422c	ADMIN - 00988	Fan Motor	VSD & EEM RI	9,057	66	8,991	4,158	329	172	-3,838	477	-8,514	0.05	324.5
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - ROF	1,176	0	1,176	798	662	0	-26	1,434	258	1.22	14.1
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - RI	1,456	120	1,336	1,468	1,219	0	508	2,178	842	1.63	10.6
Motors	MTR-423b	ADMIN - 00988	Fan Motor	VSD to Std ROF	32,660	0	32,660	12,246	338	220	-4,619	7,068	-25,592	0.22	79.6
Motors	MTR-423b	ADMIN - 00988	Fan Motor	VSD to Std - RI	40,442	164	40,278	19,283	338	-344	17,605	995	39,283	0.02	697.0
Motors	MTR-423c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	32,833	0	32,833	12,596	662	-220	-4,619	8,419	-24,415	0.26	67.2
Motors	MTR-423c	ADMIN - 00988	Fan Motor	VSD & EEM RI	40,656	273	40,383	19,827	1,219	-344	17,605	3,096	-37,287	0.08	224.6
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - ROF	167	0	167	272	226	0	6	492	325	2.94	5.9
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - RI	207	15	192	443	368	0	-75	736	544	3.83	4.5
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - ROF	395	0	395	223	185	0	-16	392	3	0.99	17.4
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR-425b	ADMIN - 00988	Fan Motor	VSD to Std ROF	7,205	0	7,205	2,550	73	110	-1,000	1,367	5,838	0.19	90.8
Motors	MTR-425b	ADMIN - 00988	Fan Motor	VSD to Std RI	8,922	34	8,888	4,018	-73	172	-3,838	-66	-8,954	-0.01	NA
Motors	MTR-425c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	2,641	185	-110	1,000	1,716	5,598	0.23	73.4
Motors	MTR-425c	ADMIN - 00988	Fan Motor	VSD & EEM RI	9,057	66	8,991	4,158	329	172	-3,838	477	-8,514	0.05	324.5
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - ROF	395	0	395	223	185	0	16	392	3	0.99	17.4
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	-178	547	93	1.20	14.3
Motors	MTR-426b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	7,205	0	7,205	2,550	-73	-110	-1,000	1,367	-5,838	0.19	90.8
Motors	MTR-426b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8,922	34	8,888	4,018	-73	172	-3,838	-66	-8,954	-0.01	NA
Motors	MTR-426c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	7,314	0	7,314	2,641	185	110	-1,000	1,716	-5,598	0.23	73.4
Motors	MTR-426c	ADMIN - 00988	Fan Motor	VSD & EEM RI	9,057	66	8,991	4,158	329	172	3,838	477	-8,514	0.05	324.5
Motors	MTR-427a	ADMIN - 00988	Fan Motor	EEM - ROF	359	0	359	85	71	0	16	141	-219	0.39	44.0
Motors	MTR-427a	ADMIN - 00988	Fan Motor	EEM - RI	445	18	427	158	132	0	163	127	300	0.30	58.0
Motors	MTR-427b	ADMIN - 00988	Fan Motor	VSD to Std ROF	4,070	0	4,070	1,298	38	110	537	613	3,457	0.15	114.3
Motors	MTR-427b	ADMIN 00988	Fan Motor	VSD to Std RI	5,040	17	5,023	2,045	38	172	2,102	-267	5,289	0.05	NA
Motors	MTR-427c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	4,175	0	4,175	1,336	71	110	537	760	3,415	0.18	94.6
Motors	MTR-427c	ADMIN 00988	Fan Motor	VSD & EEM RI	5,170	34	5,136	2,105	132	172	2,102	38	-5,174	-0.01	NA
Motors	MTR-428	ADMIN 00988	Fan Motor	EEM - ROF	1,975	0	1,975	4,754	926	0	82	5,597	3,623	2.83	6.1
Motors	MTR-428	ADMIN 00988	Fan Motor	EEM - RI	2,445	175	2,270	8,447	1,645	0	892	9,200	6,930	4.05	4.2

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - ROF	395	0	395	223	185	0	16	392	3	0.99	17.4
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR-429b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	7,205	0	7,205	2,550	-73	-110	1,000	1,367	5,838	0.19	90.8
Motors	MTR-429b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8,922	34	8,888	4,018	-73	172	3,838	66	8,954	0.01	NA
Motors	MTR-429c	ADMIN - 00988	Fan Motor	VSD & EEM ROF	7,314	0	7,314	2,641	185	-110	1,000	1,716	5,598	0.23	73.4
Motors	MTR-429c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	9,057	66	8,991	4,158	329	-172	-3,838	477	8,514	0.05	324.5
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - ROF	395	0	395	223	185	0	16	392	3	0.99	17.4
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR-430b	ADMIN - 00988	Fan Motor	VSD to Std - ROF	7,205	0	7,205	2,550	-73	-110	-1,000	1,367	5,838	0.19	90.8
Motors	MTR-430b	ADMIN - 00988	Fan Motor	VSD to Std - RI	8,922	34	8,888	4,018	-73	-172	-3,838	66	8,954	0.01	NA
Motors	MTR-430c	ADMIN - 00988	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	2,641	185	-110	-1,000	1,716	5,598	0.23	73.4
Motors	MTR-430c	ADMIN - 00988	Fan Motor	VSD & EEM - RI	9,057	66	8,991	4,158	329	-172	-3,838	477	8,514	0.05	324.5
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - ROF	1,003	0	1,003	1,634	1,357	0	-39	2,952	1,949	2.94	5.9
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - RI	1,242	90	1,152	2,659	2,208	0	-450	4,417	3,265	3.83	4.5
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - ROF	419	0	419	266	179	0	-4	441	22	1.05	16.4
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - RI	552	40	512	581	392	0	232	741	229	1.45	11.9
Motors	MTR-53b	ADMIN - 00988	COOL	VSD to Std ROF	10,498	0	10,498	3,585	-82	-95	-508	2,899	7,599	0.28	62.4
Motors	MTR-53b	ADMIN - 00988	COOL	VSD to Std RI	13,818	56	13,762	6,599	-82	-172	6,038	306	13,456	0.02	773.6
Motors	MTR-53c	ADMIN - 00988	COOL	VSD & EEM - ROF	10,576	0	10,576	3,697	179	-95	-508	3,274	7,302	0.31	55.6
Motors	MTR-53c	ADMIN - 00988	COOL	VSD & EEM - RI	13,920	92	13,828	6,803	392	-172	-6,038	985	12,843	0.07	241.8
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - ROF	419	0	419	266	179	0	-4	441	22	1.05	16.4
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - RI	552	40	512	581	392	0	232	741	229	1.45	11.9
Motors	MTR-54b	ADMIN - 00988	COOL	VSD to Std ROF	10,498	0	10,498	3,585	-82	-95	508	2,899	7,599	0.28	62.4
Motors	MTR-54b	ADMIN - 00988	COOL	VSD to Std - RI	13,818	56	13,762	6,599	-82	-172	6,038	306	13,456	0.02	773.6
Motors	MTR-54c	ADMIN - 00988	COOL	VSD & EEM - ROF	10,576	0	10,576	3,697	179	-95	-508	3,274	7,302	0.31	55.6
Motors	MTR-54c	ADMIN - 00988	COOL	VSD & EEM - RI	13,920	92	13,828	6,803	392	-172	6,038	985	12,843	0.07	241.8
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - ROF	419	0	419	266	179	0	-4	441	22	1.05	16.4
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - RI	552	40	512	581	392	0	-232	741	229	1.45	11.9
Motors	MTR-55b	ADMIN - 00988	COOL	VSD to Std - ROF	10,498	0	10,498	3,585	-82	-95	508	2,899	-7,599	0.28	62.4
Motors	MTR-55b	ADMIN - 00988	COOL	VSD to Std - RI	13,818	56	13,762	6,599	-82	-172	-6,038	306	13,456	0.02	773.6
Motors	MTR-55c	ADMIN - 00988	COOL	VSD & EEM - ROF	10,576	0	10,576	3,697	179	-95	-508	3,274	7,302	0.31	55.6
Motors	MTR-55c	ADMIN - 00988	COOL	VSD & EEM - RI	13,920	92	13,828	6,803	392	-172	6,038	985	12,843	0.07	241.8
Motors	PMTR-1a	ADMIN - 00988	PMPMTR	EEM - ROF	367	0	367	57	38	0	21	75	-293	0.20	84.7
Motors	PMTR-1a	ADMIN - 00988	PMPMTR	EEM - RI	455	14	441	106	71	0	-171	5	-436	0.01	1,387.3
Motors	PMTR-1b	ADMIN - 00988	PMPMTR	VSD to Std ROF	1,572	0	1,572	865	-21	-110	-167	567	1,004	0.36	47.7
Motors	PMTR-1b	ADMIN - 00988	PMPMTR	VSD to Std - RI	1,946	12	1,934	1,364	-21	-172	-718	453	1,481	0.23	73.5
Motors	PMTR-1c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	1,709	0	1,709	891	38	-110	-167	652	1,057	0.38	45.2
Motors	PMTR-1c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	2,116	25	2,091	1,403	71	-172	-718	585	1,507	0.28	61.6
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - ROF	395	0	395	558	376	0	-16	918	523	2.32	7.4
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - RI	489	35	454	927	626	0	178	1,374	920	3.03	5.7
Motors	PMTR-2b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	2,844	0	2,844	2,783	-71	-110	-342	2,259	585	0.79	21.7
Motors	PMTR-2b	ADMIN - 00988	PMPMTR	VSD to Std - RI	3,522	37	3,485	4,390	-71	-172	-1,392	2,754	-730	0.79	21.8
Motors	PMTR-2c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	2,953	0	2,953	2,975	376	-110	342	2,899	54	0.98	17.5
Motors	PMTR-2c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	3,657	66	3,591	4,689	626	-172	-1,392	3,751	160	1.04	16.5
Motors	PMTR-3a	ADMIN - 00988	PMPMTR	EEM ROF	446	0	446	640	432	0	-12	1,059	613	2.38	7.3
Motors	PMTR-3a	ADMIN - 00988	PMPMTR	EEM - RI	552	40	512	1,084	731	0	193	1,619	1,107	3.16	5.4
Motors	PMTR 3b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	3,891	0	3,891	4,406	-107	-110	-477	3,712	-179	0.95	18.1
Motors	PMTR-3b	ADMIN - 00988	PMPMTR	VSD to Std - RI	4,818	59	4,759	6,945	-107	-172	-1,924	4,742	-17	1.00	17.3
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	3,973	0	3,973	4,638	432	-110	-477	4,482	509	1.13	15.3
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	4,920	92	4,828	7,305	731	-172	1,924	5,940	1,112	1.23	14.0
Motors	PMTR-4a	ADMIN - 00988	PMPMTR	EEM - ROF	395	0	395	558	376	0	-16	918	523	2.32	7.4
Motors	PMTR-4a	ADMIN - 00988	PMPMTR	EEM - RI	489	35	454	927	626	0	-178	1,374	920	3.03	5.7
Motors	PMTR-4b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	1,471	0	1,471	2,783	-71	-110	-136	2,466	994	1.68	10.3
Motors	PMTR-4b	ADMIN - 00988	PMPMTR	VSD to Std - RI	1,822	37	1,785	4,390	-71	-172	622	3,524	1,740	1.97	8.7
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	1,580	0	1,580	2,975	376	-110	136	3,106	1,526	1.97	8.8
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	1,957	66	1,891	4,689	626	-172	622	4,521	2,630	2.39	7.2
Motors	PMTR-5a	ADMIN - 00988	PMPMTR	EEM - ROF	698	0	698	532	359	0	-32	858	161	1.23	14.0
Motors	PMTR 5a	ADMIN - 00988	PMPMTR	EEM - RI	864	70	794	978	660	0	318	1,320	526	1.66	10.4
Motors	PMTR-5b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	2,316	0	2,316	8,164	-183	-110	203	7,668	5,352	3.31	5.2
Motors	PMTR-5b	ADMIN - 00988	PMPMTR	VSD to Std - RI	2,868	109	2,759	12,856	-183	-172	-954	11,546	8,787	4.19	4.1
Motors	PMTR-5c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	2,529	0	2,529	8,397	359	-110	-203	8,443	5,913	3.34	5.2
Motors	PMTR-5c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	3,132	172	2,960	13,218	660	-172	-954	12,752	9,792	4.31	4.0
Motors	PMTR-6a	ADMIN - 00988	PMPMTR	EEM - ROF	1,128	0	1,128	1,467	990	0	-18	2,439	1,310	2.16	8.0
Motors	PMTR-6a	ADMIN - 00988	PMPMTR	EEM - RI	1,397	120	1,277	2,585	1,744	0	-481	3,848	2,571	3.01	5.7
Motors	PMTR-6b	ADMIN - 00988	PMPMTR	VSD to Std - ROF	3,901	0	3,901	16,328	-367	-110	-284	15,568	11,666	3.99	4.3
Motors	PMTR-6b	ADMIN - 00988	PMPMTR	VSD to Std - RI	4,831	219	4,612	25,711	-367	-172	1,470	23,702	19,090	5.14	3.4
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - ROF	4,020	0	4,020	16,911	990	-110	284	17,507	13,487	4.35	4.0
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	4,978	320	4,658	26,618	1,744	-172	-1,470	26,720	22,062	5.74	3.0
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - ROF	339	0	339	545	368	0	-5	908	569	2.68	6.4
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - RI	446	32	414	1,049	708	0	-189	1,568	1,154	3.79	4.5
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM ROF	175	0	175	390	199	0	-5	584	410	3.35	5.1
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM - RI	223	16	207	691	352	0	88	955	748	4.61	3.7
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM - ROF	180	0	180	421	214	0	7	628	448	3.49	4.9
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM RI	223	16	207	687	350	0	-81	956	749	4.62	3.7
Motors	PMTR-11a	BRK/ADM - 00099	PMPMTR	EEM ROF	430	0	430	83	84	0	32	136	294	0.32	54.5
Motors	PMTR 11a	BRK/ADM - 00099	PMPMTR	EEM RI	516	20	496	140	142	0	180	102	-394	0.21	83.9
Motors	PMTR-11b	BRK/ADM - 00099	PMPMTR	VSD to Std - ROF	2,258	0	2,258	1,231	-44	118	340	728	-1,530	0.32	53.4

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-11b	BRK/ADM 00099	PMPMTR	VSD to Std - RI	2,712	17	2,695	1,814	-44	172	1,028	559	2,136	0 21	83 0
Motors	PMTR-11o	BRK/ADM 00099	PMPMTR	VSD & EEM - ROF	2,418	0	2,418	1,267	84	118	340	893	1,525	0 37	46 6
Motors	PMTR-11o	BRK/ADM - 00099	PMPMTR	VSD & EEM - RI	2,904	36	2,868	1,857	142	172	1,028	799	2,069	0 28	61 8
Motors	PMTR 14a	BRK/ADM 00099	PMPMTR	EEM - ROF	417	0	417	77	79	0	23	133	284	0 32	54 1
Motors	PMTR 14a	BRK/ADM 00099	PMPMTR	EEM - RI	516	20	496	143	145	0	194	94	-402	0 19	91 0
Motors	PMTR 14b	BRK'ADM 00099	PMPMTR	VSD to Std - ROF	2,190	0	2,190	1,147	-41	110	251	744	1,446	0 34	50 7
Motors	PMTR-14b	BRK/ADM - 00099	PMPMTR	VSD to Std - RI	2,712	17	2,695	1,807	-41	172	1,042	551	2,144	0 20	84 2
Motors	PMTR 14o	BRK/ADM - 00099	PMPMTR	VSD & EEM ROF	2,345	0	2,345	1,181	79	110	251	898	1,447	0 38	45 0
Motors	PMTR-14o	BRK/ADM - 00099	PMPMTR	VSD & EEM - RI	2,904	36	2,868	1,860	145	172	1,042	791	2,077	0 28	62 4
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - ROF	151	0	151	222	202	0	5	418	267	2 77	6 2
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - RI	187	0	187	359	327	0	67	619	432	3 31	5 2
Motors	MTR 190	BRK/ADM - 00102	EVAP	EEM ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3 49	4 9
Motors	MTR-190	BRK/ADM - 00102	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4 62	3 7
Motors	MTR 191	BRK/ADM - 00103	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3 49	4 9
Motors	MTR 191	BRK/ADM - 00103	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4 62	3 7
Motors	MTR 192	BRK/ADM - 00104	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3 49	4 9
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4 62	3 7
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - ROF	2,416	0	2,416	2,658	454	0	88	3,025	609	1 25	13 8
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1 33	13 0
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM - ROF	2,416	0	2,416	1,933	1,969	0	88	3,814	1,398	1 58	10 9
Motors	MTR 56	BRK/ADM - 00105	COOL	EEM RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1 75	9 8
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM ROF	2,416	0	2,416	2,658	454	0	88	3,025	609	1 25	13 8
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1 33	13 0
Motors	MTR 57	BRK/ADM 00106	COOL	EEM ROF	2,416	0	2,416	1,933	1,969	0	88	3,814	1,398	1 58	10 9
Motors	MTR 57	BRK/ADM - 00106	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1 75	9 8
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - ROF	2,416	0	2,416	2,658	454	0	88	3,025	609	1 25	13 8
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1 33	13 0
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM ROF	2,416	0	2,416	1,933	1,969	0	88	3,814	1,398	1 58	10 9
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1 75	9 8
Motors	MTR-490	BRK/ADM 00108	HEAT	EEM - ROF	2,416	0	2,416	2,658	454	0	88	3,025	609	1 25	13 8
Motors	MTR-490	BRK/ADM - 00108	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1 33	13 0
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - ROF	2,416	0	2,416	1,933	1,969	0	88	3,814	1,398	1 58	10 9
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1 75	9 8
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM ROF	3,020	0	3,020	3,323	568	0	110	3,781	761	1 25	13 8
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM - RI	3,740	0	3,740	5,386	920	0	1,349	4,957	1,217	1 33	13 0
Motors	MTR 60	BRK/ADM - 00110	COOL	EEM ROF	3,020	0	3,020	2,416	2,461	0	110	4,767	1,747	1 58	10 9
Motors	MTR-60	BRK/ADM - 00110	COOL	EEM - RI	3,740	0	3,740	3,916	3,988	0	1,349	6,556	2,816	1 75	9 8
Motors	PMTR 10a	BRK/ADM - 00110	PMPMTR	EEM - ROF	367	0	367	38	38	0	-21	55	-312	0 15	114 1
Motors	PMTR 10a	BRK/ADM - 00110	PMPMTR	EEM RI	455	14	441	70	71	0	171	-30	-471	-0 07	NA
Motors	PMTR 10b	BRK/ADM - 00110	PMPMTR	VSD to Std - ROF	1,572	0	1,572	573	-21	110	167	275	1,296	0 18	98 4
Motors	PMTR-10b	BRK/ADM - 00110	PMPMTR	VSD to Std - RI	1,946	9	1,937	904	21	172	718	7	1,944	-0 00	NA
Motors	PMTR-10o	BRK/ADM - 00110	PMPMTR	VSD & EEM - ROF	1,709	0	1,709	590	38	110	167	351	1,358	0 21	83 8
Motors	PMTR-10o	BRK/ADM - 00110	PMPMTR	VSD & EEM - RI	2,116	22	2,094	930	71	172	718	111	1,983	0 05	324 7
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - ROF	151	0	151	219	200	0	5	414	263	2 74	6 3
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM RI	187	0	187	355	324	0	67	612	425	3 27	5 3
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - ROF	2,416	0	2,416	2,658	454	0	-88	3,025	609	1 25	13 8
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1 33	13 0
Motors	MTR 61	BRK/ADM - 00111	COOL	EEM - ROF	2,416	0	2,416	1,933	1,969	0	88	3,814	1,398	1 58	10 9
Motors	MTR-61	BRK/ADM - 00111	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1 75	9 8
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - ROF	11,326	0	11,326	9,061	9,228	0	-411	17,878	6,552	1 58	10 9
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - RI	14,025	0	14,025	14,685	14,956	0	5,057	24,584	10,559	1 75	9 8
Motors	MTR 63	BRK/ADM - 00226	COOL	EEM - ROF	1,025	0	1,025	785	799	0	-25	1,559	533	1 52	11 3
Motors	MTR-63	BRK/ADM - 00226	COOL	EEM - RI	1,309	0	1,309	1,378	1,403	0	514	2,267	958	1 73	9 9
Motors	MTR-64	BRK/ADM - 00226	COOL	EEM - ROF	293	0	293	224	228	0	7	445	152	1 52	11 3
Motors	MTR 64	BRK/ADM - 00226	COOL	EEM - RI	374	0	374	394	401	0	147	648	274	1 73	9 9
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4 8
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4 62	3 7
Motors	MTR-194	BRK/ADM - 00249	EVAP	EEM - ROF	180	0	180	421	214	0	7	628	448	3 49	4 9
Motors	MTR 194	BRK/ADM - 00249	EVAP	EEM - RI	223	16	207	687	350	0	81	956	749	4 62	3 7
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13 3
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1 35	12 8
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - ROF	4,380	0	4,380	4,818	823	0	159	5,483	1,103	1.25	13 8
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - RI	5,423	0	5,423	7,809	1,335	0	1,955	7,188	1,765	1 33	13 0
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1 29	13 3
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - RI	187	0	187	268	46	0	-61	252	65	1 35	12 8
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1 29	13 3
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1 35	12 8
Motors	MTR-497	BRK/ADM 00249	HEAT	EEM ROF	156	0	156	178	30	0	-7	201	46	1 29	13 3
Motors	MTR-497	BRK/ADM - 00249	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1 35	12 8
Motors	MTR-498	BRK/ADM - 00249	HEAT	EEM - ROF	623	0	623	713	122	0	30	805	183	1 29	13 3
Motors	MTR-498	BRK'ADM - 00249	HEAT	EEM - RI	748	0	748	1,071	183	0	-245	1,009	261	1 35	12 8
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - ROF	2,491	0	2,491	2,853	488	0	119	3,221	730	1 29	13 3
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1 35	12 8
Motors	MTR-195	BRK'ADM - 00250	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3 62	4 8
Motors	MTR 195	BRK/ADM - 00250	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4 62	3 7
Motors	MTR-196	BRK/ADM 00250	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3 62	4 8
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4 62	3 7
Motors	MTR-500	BRK'ADM 00250	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1 29	13 3
Motors	MTR 500	BRK'ADM 00250	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1 35	12 8
Motors	MTR 501	BRK'ADM - 00250	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1 29	13 3
Motors	MTR 501	BRK/ADM 00250	HEAT	EEM RI	187	0	187	268	46	0	61	252	65	1 35	12 8

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 502	BRK/ADM - 00250	HEAT	EEM - ROF	2,491	0	2,491	2,853	488	0	-119	3,221	730	1.29	13.3
Motors	MTR 502	BRK/ADM - 00250	HEAT	EEM - RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR-503	BRK/ADM - 00250	HEAT	EEM - ROF	4,515	0	4,515	5,170	884	0	-215	5,839	1,324	1.29	13.3
Motors	MTR 503	BRK/ADM - 00250	HEAT	EEM - RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - ROF	623	0	623	713	122	0	-30	805	183	1.29	13.3
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR-505	BRK/ADM - 00250	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1.29	13.3
Motors	MTR 505	BRK/ADM - 00250	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-506	BRK/ADM - 00250	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1.29	13.3
Motors	MTR 506	BRK/ADM - 00250	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR 197	BRK/ADM - 00251	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4.8
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4.8
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - RI	223	16	207	683	348	0	-74	956	749	4.62	3.7
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - ROF	2,491	0	2,491	2,853	488	0	119	3,221	730	1.29	13.3
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13.3
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR 509	BRK/ADM - 00251	HEAT	EEM - ROF	4,515	0	4,515	5,170	884	0	-215	5,839	1,324	1.29	13.3
Motors	MTR 509	BRK/ADM - 00251	HEAT	EEM - RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR 510	BRK/ADM - 00251	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1.29	13.3
Motors	MTR-510	BRK/ADM - 00251	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-511	BRK/ADM - 00251	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1.29	13.3
Motors	MTR 511	BRK/ADM - 00251	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-512	BRK/ADM - 00251	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13.3
Motors	MTR 512	BRK/ADM - 00251	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - ROF	623	0	623	713	122	0	30	805	183	1.29	13.3
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4.8
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13.3
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - ROF	2,491	0	2,491	2,853	488	0	119	3,221	730	1.29	13.3
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13.3
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-517	BRK/ADM - 00252	HEAT	EEM - ROF	156	0	156	178	30	0	7	201	46	1.29	13.3
Motors	MTR 517	BRK/ADM - 00252	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - ROF	4,515	0	4,515	5,170	884	0	-215	5,839	1,324	1.29	13.3
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - ROF	156	0	156	178	30	0	-7	201	46	1.29	13.3
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - RI	187	0	187	268	46	0	61	252	65	1.35	12.8
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - ROF	623	0	623	713	122	0	-30	805	183	1.29	13.3
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR 202	BRK/ADM - 00261	EVAP	EEM - ROF	186	0	186	451	230	0	10	672	486	3.62	4.8
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - RI	223	16	207	683	348	0	-74	956	749	4.62	3.7
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - ROF	9,784	0	9,784	6,781	6,906	0	0	13,687	3,903	1.40	12.3
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - ROF	146	0	146	112	114	0	-4	223	76	1.52	11.3
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - RI	187	0	187	197	200	0	-73	324	137	1.73	9.9
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR-67	BRK/ADM - 00262	COOL	EEM - ROF	9,784	0	9,784	6,781	6,906	0	0	13,687	3,903	1.40	12.3
Motors	MTR 67	BRK/ADM - 00262	COOL	EEM - RI	13,277	0	13,277	14,110	14,371	0	6,014	22,467	9,190	1.69	10.2
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - ROF	138	0	138	96	97	0	0	193	55	1.40	12.3
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR-206	BRK/ADM - 00264	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR 206	BRK/ADM - 00264	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - ROF	138	0	138	96	97	0	0	193	55	1.40	12.3
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - ROF	9,784	0	9,784	6,781	6,906	0	0	13,687	3,903	1.40	12.3
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - ROF	9,784	0	9,784	6,781	6,906	0	0	13,687	3,903	1.40	12.3
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - RI	13,277	0	13,277	14,110	14,371	0	6,014	22,467	9,190	1.69	10.2
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - ROF	138	0	138	96	97	0	0	193	55	1.40	12.3
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR-210	BRK/ADM - 00267	EVAP	EEM - ROF	164	0	164	333	169	0	0	502	338	3.05	5.6

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 210	BRK/ADM 00267	EVAP	EEM RI	223	16	207	699	356	0	-101	954	747	4.61	3.7
Motors	MTR 73	BRK/ADM - 00267	COOL	EEM - ROF	9,784	0	9,784	6,781	6,906	0	0	13,687	3,903	1.40	12.3
Motors	MTR-73	BRK/ADM 00267	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	6,014	22,467	9,190	1.69	10.2
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM ROF	138	0	138	96	97	0	0	193	55	1.40	12.3
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM - RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR-432a	BRK/ADM 00273	Fan Motor	EEM - ROF	395	0	395	295	185	0	16	464	69	1.18	14.7
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - RI	489	35	454	525	329	0	-178	676	222	1.49	11.6
Motors	MTR-432b	BRK/ADM 00273	Fan Motor	VSD to Std ROF	7,205	0	7,205	3,379	73	110	1,000	2,196	5,009	0.30	56.5
Motors	MTR-432b	BRK/ADM - 00273	Fan Motor	VSD to Std - RI	8,922	50	8,872	5,324	73	172	3,838	1,240	7,631	0.14	123.2
Motors	MTR-432c	BRK/ADM - 00273	Fan Motor	VSD & EEM ROF	7,314	0	7,314	3,499	185	110	1,000	2,575	-4,740	0.35	48.9
Motors	MTR-432c	BRK/ADM - 00273	Fan Motor	VSD & EEM RI	9,057	81	8,976	5,510	329	172	3,838	1,829	7,147	0.20	84.5
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - ROF	395	0	395	295	185	0	16	464	69	1.18	14.7
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM RI	489	35	454	525	329	0	178	676	222	1.49	11.6
Motors	MTR-433b	BRK/ADM - 00273	Fan Motor	VSD to Std ROF	7,205	0	7,205	3,379	73	110	1,000	2,196	5,009	0.30	56.5
Motors	MTR-433b	BRK/ADM - 00273	Fan Motor	VSD to Std RI	8,922	50	8,872	5,324	73	172	3,838	1,240	7,631	0.14	123.2
Motors	MTR-433c	BRK/ADM - 00273	Fan Motor	VSD & EEM ROF	7,314	0	7,314	3,499	185	110	1,000	2,575	-4,740	0.35	48.9
Motors	MTR-433c	BRK/ADM - 00273	Fan Motor	VSD & EEM RI	9,057	81	8,976	5,510	329	172	3,838	1,829	7,147	0.20	84.5
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - ROF	965	0	965	669	681	0	0	1,349	385	1.40	12.3
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM RI	1,309	0	1,309	1,391	1,417	0	593	2,215	906	1.69	10.2
Motors	MTR 76	BRK/ADM - 00273	COOL	EEM ROF	293	0	293	224	228	0	-7	445	152	1.52	11.3
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - RI	374	0	374	394	401	0	147	648	274	1.73	9.9
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM ROF	10,986	0	10,986	8,407	8,562	0	-270	16,699	5,713	1.52	11.3
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - RI	14,025	0	14,025	14,761	15,033	0	5,502	24,292	10,267	1.73	9.9
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM - ROF	588	0	588	264	269	0	-13	520	68	0.89	19.5
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM RI	728	60	668	486	495	0	254	727	59	1.09	15.8
Motors	PMTR-12b	BRK/ADM - 00273	PMPMTR	VSD to Std ROF	5,428	0	5,428	4,057	137	110	667	3,143	2,285	0.58	29.7
Motors	PMTR-12b	BRK/ADM - 00273	PMPMTR	VSD to Std RI	6,721	60	6,661	6,388	137	172	-2,688	3,391	3,269	0.51	33.8
Motors	PMTR-12c	BRK/ADM - 00273	PMPMTR	VSD & EEM ROF	5,514	0	5,514	4,173	269	110	667	3,665	1,849	0.66	25.9
Motors	PMTR-12c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	6,828	116	6,712	6,569	495	172	2,688	4,204	2,508	0.63	27.5
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - ROF	588	0	588	297	303	0	-13	587	1	1.00	17.2
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - RI	728	60	668	539	549	0	254	833	165	1.25	13.8
Motors	PMTR-13b	BRK/ADM - 00273	PMPMTR	VSD to Std ROF	5,428	0	5,428	4,080	139	110	667	3,164	2,264	0.58	29.5
Motors	PMTR-13b	BRK/ADM - 00273	PMPMTR	VSD to Std RI	6,721	61	6,660	6,425	139	172	-2,688	3,426	3,234	0.51	33.5
Motors	PMTR-13c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	5,514	0	5,514	4,206	303	110	667	3,732	1,782	0.68	25.4
Motors	PMTR 13c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	6,828	116	6,712	6,621	549	172	-2,688	4,310	2,402	0.64	26.8
Motors	PMTR-15a	BRK/ADM - 00273	PMPMTR	EEM - ROF	926	0	926	552	562	0	-19	1,095	169	1.18	14.6
Motors	PMTR-15a	BRK/ADM - 00273	PMPMTR	EEM - RI	1,147	90	1,057	1,006	1,024	0	399	1,631	574	1.54	11.2
Motors	PMTR-15b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	3,118	0	3,118	8,023	-269	-110	-228	7,416	4,298	2.38	7.2
Motors	PMTR-15b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	3,861	119	3,742	12,632	269	-172	1,179	11,012	7,271	2.94	5.9
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	3,243	0	3,243	8,260	562	-110	-228	8,484	5,240	2.62	6.6
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	4,016	201	3,815	13,000	1,024	-172	-1,179	12,673	8,859	3.32	5.2
Motors	PMTR-16a	BRK/ADM - 00273	PMPMTR	EEM - ROF	1,853	0	1,853	1,104	1,124	0	38	2,191	338	1.18	14.6
Motors	PMTR-16a	BRK/ADM - 00273	PMPMTR	EEM RI	2,294	180	2,114	2,011	2,049	0	-798	3,262	1,148	1.54	11.2
Motors	PMTR-16b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	6,236	0	6,236	16,047	-537	-220	-457	14,832	8,596	2.38	7.2
Motors	PMTR-16b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	7,722	239	7,483	25,264	537	-344	-2,358	22,025	14,542	2.94	5.9
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	6,487	0	6,487	16,520	1,124	-220	-457	16,967	10,481	2.62	6.6
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	8,032	402	7,630	26,001	2,049	-344	2,358	25,347	17,717	3.32	5.2
Motors	PMTR-17a	BRK/ADM - 00273	PMPMTR	EEM - ROF	1,853	0	1,853	1,104	1,124	0	-38	2,191	338	1.18	14.6
Motors	PMTR-17a	BRK/ADM - 00273	PMPMTR	EEM - RI	2,294	180	2,114	2,011	2,049	0	-798	3,262	1,148	1.54	11.2
Motors	PMTR-17b	BRK/ADM - 00273	PMPMTR	VSD to Std - ROF	6,236	0	6,236	16,047	537	220	-457	14,832	8,596	2.38	7.2
Motors	PMTR-17b	BRK/ADM - 00273	PMPMTR	VSD to Std - RI	7,722	239	7,483	25,264	537	-344	-2,358	22,025	14,542	2.94	5.9
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - ROF	6,487	0	6,487	16,520	1,124	-220	-457	16,967	10,481	2.62	6.6
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	8,032	402	7,630	26,001	2,049	-344	-2,358	25,347	17,717	3.32	5.2
Motors	PMTR-20	BRK/ADM - 00273	PMPMTR	EEM - ROF	359	0	359	78	71	0	-16	133	226	0.37	46.6
Motors	PMTR-20	BRK/ADM - 00273	PMPMTR	EEM - RI	445	18	427	144	132	0	163	113	314	0.26	65.2
Motors	PMTR-21	BRK/ADM - 00273	PMPMTR	EEM - ROF	367	0	367	52	47	0	-21	78	-289	0.21	80.6
Motors	PMTR-21	BRK/ADM - 00273	PMPMTR	EEM - RI	455	14	441	96	88	0	-171	13	-428	0.03	605.2
Motors	PMTR-23	BRK/ADM - 00273	PMPMTR	EEM - ROF	359	0	359	78	71	0	-16	133	226	0.37	46.6
Motors	PMTR-23	BRK/ADM - 00273	PMPMTR	EEM - RI	445	18	427	144	132	0	-163	113	314	0.26	65.2
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - ROF	167	0	167	82	292	0	-6	367	200	2.20	7.8
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - RI	207	15	192	133	385	0	-75	443	251	2.31	7.5
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - ROF	167	0	167	82	148	0	-6	224	56	1.34	12.9
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - RI	207	15	192	133	242	0	-75	299	107	1.56	11.0
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - ROF	360	0	360	234	146	0	0	380	20	1.05	16.3
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - RI	489	35	454	550	344	0	-222	672	218	1.48	11.6
Motors	MTR-434b	BRK/ADM - 00275	Fan Motor	VSD to Std - ROF	6,575	0	6,575	2,672	58	-87	0	2,526	4,048	0.38	44.8
Motors	MTR-434b	BRK/ADM - 00275	Fan Motor	VSD to Std - RI	8,922	50	8,872	5,349	58	-172	-3,881	1,237	-7,634	0.14	123.5
Motors	MTR-434c	BRK/ADM - 00275	Fan Motor	VSD & EEM - ROF	6,674	0	6,674	2,766	146	-87	0	2,825	3,849	0.42	40.7
Motors	MTR-434c	BRK/ADM - 00275	Fan Motor	VSD & EEM - RI	9,057	81	8,976	5,535	344	-172	3,881	1,826	7,150	0.20	84.6
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - ROF	360	0	360	234	146	0	0	380	20	1.05	16.3
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - RI	489	35	454	550	344	0	222	672	218	1.48	11.6
Motors	MTR-435b	BRK/ADM - 00275	Fan Motor	VSD to Std ROF	6,575	0	6,575	2,672	58	-87	0	2,526	-4,048	0.38	44.8
Motors	MTR-435b	BRK/ADM - 00275	Fan Motor	VSD to Std RI	8,922	50	8,872	5,349	58	172	-3,881	1,237	7,634	0.14	123.5
Motors	MTR-435c	BRK/ADM - 00275	Fan Motor	VSD & EEM ROF	6,674	0	6,674	2,766	146	87	0	2,825	3,849	0.42	40.7
Motors	MTR-435c	BRK/ADM 00275	Fan Motor	VSD & EEM RI	9,057	81	8,976	5,535	344	-172	3,881	1,826	7,150	0.20	84.6
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - ROF	10,986	0	10,986	8,407	8,562	0	270	16,699	5,713	1.52	11.3
Motors	MTR 78	BRK/ADM 00275	COOL	EEM - RI	14,025	0	14,025	14,761	15,033	0	5,502	24,292	10,267	1.73	9.9
Motors	MTR 79	BRK/ADM 00275	COOL	EEM - ROF	1,025	0	1,025	785	799	0	-25	1,559	533	1.52	11.3
Motors	MTR 79	BRK/ADM 00275	COOL	EEM - RI	1,309	0	1,309	1,378	1,403	0	-514	2,267	958	1.73	9.9
Motors	MTR 80	BRK/ADM - 00275	COOL	EEM - ROF	293	0	293	224	228	0	7	445	152	1.52	11.3
Motors	MTR 80	BRK/ADM 00275	COOL	EEM RI	374	0	374	394	401	0	147	648	274	1.73	9.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - ROF	3,615	0	3,615	7,316	3,726	0	0	11,042	7,427	3.05	5.6
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - RI	4,906	352	4,554	15,379	7,832	0	-2,222	20,989	16,435	4.61	3.7
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - ROF	720	0	720	1,683	857	0	-29	2,511	1,791	3.49	4.9
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - RI	892	64	828	2,748	1,399	0	-324	3,823	2,995	4.62	3.7
Motors	MTR-213	BRK/ADM - 00414	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	818	0.43	39.9
Motors	MTR-213	BRK/ADM - 00414	EVAP	EEM - RI	1,780	72	1,708	840	428	0	653	614	1,094	0.36	47.9
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-215	BRK/ADM - 00417	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	-818	0.43	39.9
Motors	MTR-215	BRK/ADM - 00417	EVAP	EEM - RI	1,780	72	1,708	840	428	0	-653	614	1,094	0.36	47.9
Motors	MTR-216	BRK/ADM - 00418	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	818	0.43	39.9
Motors	MTR-216	BRK/ADM - 00418	EVAP	EEM - RI	1,780	72	1,708	840	428	0	653	614	1,094	0.36	47.9
Motors	MTR-217	BRK/ADM - 00419	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	-818	0.43	39.9
Motors	MTR-217	BRK/ADM - 00419	EVAP	EEM - RI	1,780	72	1,708	840	428	0	653	614	1,094	0.36	47.9
Motors	MTR-218	BRK/ADM - 00420	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	818	0.43	39.9
Motors	MTR-218	BRK/ADM - 00420	EVAP	EEM - RI	1,780	72	1,708	840	428	0	-653	614	1,094	0.36	47.9
Motors	MTR-219	BRK/ADM - 00421	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	818	0.43	39.9
Motors	MTR-219	BRK/ADM - 00421	EVAP	EEM - RI	1,780	72	1,708	840	428	0	653	614	1,094	0.36	47.9
Motors	MTR-220	BRK/ADM - 00422	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	818	0.43	39.9
Motors	MTR-220	BRK/ADM - 00422	EVAP	EEM - RI	1,780	72	1,708	840	428	0	653	614	-1,094	0.36	47.9
Motors	MTR-221	BRK/ADM - 00423	EVAP	EEM - ROF	1,438	0	1,438	453	231	0	-63	620	-818	0.43	39.9
Motors	MTR-221	BRK/ADM - 00423	EVAP	EEM - RI	1,780	72	1,708	840	428	0	-653	614	1,094	0.36	47.9
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-225	BRK/ADM - 00487	EVAP	EEM - ROF	359	0	359	113	58	0	-16	155	-204	0.43	39.9
Motors	MTR-225	BRK/ADM - 00487	EVAP	EEM - RI	445	18	427	210	107	0	-163	154	273	0.36	47.9
Motors	MTR-226	BRK/ADM - 00489	EVAP	EEM - ROF	338	0	338	97	49	0	-5	141	197	0.42	41.1
Motors	MTR-226	BRK/ADM - 00489	EVAP	EEM - RI	445	18	427	219	111	0	-189	141	286	0.33	52.3
Motors	MTR-227	BRK/ADM - 00491	EVAP	EEM - ROF	338	0	338	97	49	0	-5	141	-197	0.42	41.1
Motors	MTR-227	BRK/ADM - 00491	EVAP	EEM - RI	445	18	427	219	111	0	-189	141	-286	0.33	52.3
Motors	MTR-228	BRK/ADM - 00493	EVAP	EEM - ROF	338	0	338	97	49	0	-5	141	-197	0.42	41.1
Motors	MTR-228	BRK/ADM - 00493	EVAP	EEM - RI	445	18	427	219	111	0	-189	141	-286	0.33	52.3
Motors	MTR-229	BRK/ADM - 00494	EVAP	EEM - ROF	338	0	338	97	49	0	-5	141	-197	0.42	41.1
Motors	MTR-229	BRK/ADM - 00494	EVAP	EEM - RI	445	18	427	219	111	0	-189	141	-286	0.33	52.3
Motors	PMTR-22	BRK/ADM - 00494	PMPMTR	EEM - ROF	359	0	359	78	71	0	-16	133	-226	0.37	46.6
Motors	PMTR-22	BRK/ADM - 00494	PMPMTR	EEM - RI	445	18	427	144	132	0	-163	113	-314	0.26	65.2
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - ROF	847	0	847	1,805	919	0	-12	2,715	1,866	3.20	5.4
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - RI	1,115	80	1,035	3,476	1,770	0	-473	4,773	3,738	4.61	3.7
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-235	BRK/ADM - 00519	EVAP	EEM - ROF	359	0	359	113	58	0	-16	155	-204	0.43	39.9
Motors	MTR-235	BRK/ADM - 00519	EVAP	EEM - RI	445	18	427	210	107	0	-163	154	-273	0.36	47.9
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - ROF	1,017	0	1,017	2,166	1,103	0	-14	3,256	2,239	3.20	5.4
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - RI	1,338	96	1,242	4,171	2,124	0	-567	5,727	4,485	4.61	3.7
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - ROF	1,091	0	1,091	2,524	1,285	0	-43	3,765	2,685	3.49	4.9
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - ROF	1,081	0	1,081	2,524	1,285	0	-43	3,766	2,686	3.49	4.9
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-241	CHAPEL - 00212	EVAP	EEM - ROF	719	0	719	171	115	0	-32	254	-464	0.35	48.6
Motors	MTR-241	CHAPEL - 00212	EVAP	EEM - RI	890	36	854	317	214	0	-326	204	-650	0.24	72.0
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-243	CHAPEL - 00315	EVAP	EEM - ROF	417	0	417	117	79	0	-23	172	-245	0.41	41.7
Motors	MTR-243	CHAPEL - 00315	EVAP	EEM - RI	516	20	496	215	145	0	-194	167	329	0.34	51.3
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - ROF	1,396	0	1,396	1,029	1,106	0	-64	2,071	675	1.48	11.6
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - RI	1,728	140	1,588	1,840	1,978	0	-637	3,181	1,593	2.00	8.6
Motors	MTR-3	CLINIC - 00171	AIRCOMP	EEM - ROF	735	0	735	224	241	0	-41	423	312	0.58	29.9
Motors	MTR-3	CLINIC - 00171	AIRCOMP	EEM - RI	910	28	882	379	407	0	-343	443	-439	0.50	34.3
Motors	MTR-40a	CLINIC - 00171	CONDMTR	EEM - ROF	2,156	0	2,156	458	426	0	-95	788	-1,368	0.37	47.1
Motors	MTR-40a	CLINIC - 00171	CONDMTR	EEM - RI	2,670	108	2,562	849	790	0	-979	659	-1,903	0.26	66.9
Motors	MTR-40b	CLINIC - 00171	CONDMTR	VSD to Std - ROF	7,462	0	7,462	4,826	-229	-661	-664	3,272	-4,190	0.44	39.3
Motors	MTR-40b	CLINIC - 00171	CONDMTR	VSD to Std - RI	9,240	212	9,028	7,646	-229	-1,033	-3,099	3,285	-5,743	0.36	47.3
Motors	MTR-40c	CLINIC - 00171	CONDMTR	VSD & EEM - ROF	8,092	0	8,092	5,177	426	-661	664	4,278	-3,814	0.53	32.6
Motors	MTR-40c	CLINIC - 00171	CONDMTR	VSD & EEM - RI	10,020	305	9,715	8,194	790	-1,033	-3,099	4,851	-4,864	0.50	34.5
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - ROF	588	0	588	705	331	0	-13	1,023	435	1.74	9.9
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - RI	728	60	668	1,298	610	0	254	1,653	985	2.47	7.0
Motors	MTR-436b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	16,330	0	16,330	10,827	-169	-110	2,310	8,238	8,092	0.50	34.1

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-436b	CLINIC 00171	Fan Motor	VSD to Std RI	20,221	164	20,057	17,049	169	172	8,803	7,914	12,153	0.39	43.7
Motors	MTR-436c	CLINIC - 00171	Fan Motor	VSD & EEM ROF	16,417	0	16,417	11,136	331	110	2,310	9,047	7,369	0.55	31.2
Motors	MTR-436c	CLINIC - 00171	Fan Motor	VSD & EEM RI	20,328	213	20,115	17,529	610	172	8,803	9,164	10,951	0.46	37.8
Motors	MTR-437a	CLINIC 00171	Fan Motor	EEM ROF	926	0	926	2,505	1,176	0	19	3,662	2,736	3.95	4.4
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM RI	1,147	90	1,057	4,316	2,027	0	399	5,945	4,888	5.62	3.1
Motors	MTR-437b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	32,110	0	32,110	22,130	354	110	-4,597	17,069	15,042	0.53	32.4
Motors	MTR-437b	CLINIC - 00171	Fan Motor	VSD to Std - RI	39,761	335	39,426	34,856	354	172	17,441	16,889	22,537	0.43	40.2
Motors	MTR-437c	CLINIC - 00171	Fan Motor	VSD & EEM ROF	32,236	0	32,236	23,074	1,176	110	4,597	19,543	12,692	0.61	28.4
Motors	MTR-437c	CLINIC - 00171	Fan Motor	VSD & EEM RI	39,916	391	39,525	36,326	2,027	172	17,441	20,740	18,784	0.52	32.8
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM ROF	1,449	0	1,449	1,626	764	0	38	2,351	902	1.62	10.6
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM RI	1,794	135	1,659	3,147	1,478	0	632	3,992	2,333	2.41	7.2
Motors	MTR-438b	CLINIC - 00171	Fan Motor	VSD to Std - ROF	53,222	0	53,222	34,715	521	110	7,659	26,425	26,797	0.50	34.7
Motors	MTR-438b	CLINIC - 00171	Fan Motor	VSD to Std - RI	65,902	525	65,377	54,638	-521	172	29,000	24,945	-40,433	0.38	45.1
Motors	MTR-438c	CLINIC - 00171	Fan Motor	VSD & EEM - ROF	53,474	0	53,474	35,508	764	110	7,659	28,502	24,971	0.53	32.3
Motors	MTR-438c	CLINIC - 00171	Fan Motor	VSD & EEM - RI	66,214	631	65,583	55,872	1,478	172	29,000	28,178	37,405	0.43	40.1
Motors	MTR-81	CLINIC - 00171	COOL	EEM ROF	151	0	151	91	123	0	5	209	58	1.38	12.5
Motors	MTR-81	CLINIC - 00171	COOL	EEM RI	187	0	187	148	199	0	67	280	93	1.50	11.5
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM ROF	1,853	0	1,853	1,666	1,384	0	38	3,012	1,160	1.63	10.6
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM RI	2,294	180	2,114	3,036	2,521	0	798	4,759	2,645	2.25	7.6
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM ROF	1,853	0	1,853	1,666	1,384	0	38	3,012	1,160	1.63	10.6
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM - RI	2,294	180	2,114	3,036	2,521	0	798	4,759	2,645	2.25	7.6
Motors	MTR-244	CLINIC - 00235	EVAP	EEM ROF	1,006	0	1,006	135	91	0	0	226	780	0.22	76.6
Motors	MTR-244	CLINIC - 00235	EVAP	EEM - RI	1,365	42	1,323	336	227	0	618	55	1,378	-0.04	NA
Motors	MTR-245	CLINIC - 00242	EVAP	EEM ROF	395	0	395	778	525	0	30	1,273	878	3.23	5.3
Motors	MTR-245	CLINIC - 00242	EVAP	EEM RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR-246	CLINIC - 00245	EVAP	EEM - ROF	197	0	197	389	263	0	15	637	439	3.23	5.3
Motors	MTR-246	CLINIC - 00245	EVAP	EEM RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR-247	CLINIC - 00245	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-247	CLINIC - 00245	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-248	CLUB - 00021	EVAP	EEM - ROF	349	0	349	781	398	0	9	1,169	819	3.35	5.1
Motors	MTR-248	CLUB - 00021	EVAP	EEM - RI	446	32	414	1,382	704	0	176	1,910	1,496	4.61	3.7
Motors	MTR-249	CLUB - 00037	EVAP	EEM - ROF	359	0	359	113	58	0	16	155	-204	0.43	39.9
Motors	MTR-249	CLUB - 00037	EVAP	EEM RI	445	18	427	210	107	0	163	154	-273	0.36	47.9
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - ROF	151	0	151	296	151	0	5	442	291	2.92	5.9
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - RI	187	0	187	479	245	0	67	657	470	3.51	4.9
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM - ROF	604	0	604	1,183	606	0	22	1,766	1,162	2.92	5.9
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM RI	748	0	748	1,917	982	0	270	2,629	1,881	3.51	4.9
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - ROF	302	0	302	591	303	0	11	883	581	2.92	5.9
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - RI	374	0	374	958	491	0	135	1,314	940	3.51	4.9
Motors	MTR-17	CLUB 00202	COMPMTR	EEM - ROF	604	0	604	1,183	606	0	22	1,766	1,162	2.92	5.9
Motors	MTR-17	CLUB - 00202	COMPMTR	EEM RI	748	0	748	1,917	982	0	270	2,629	1,881	3.51	4.9
Motors	MTR-250	CLUB - 00202	EVAP	EEM - ROF	180	0	180	421	214	0	7	628	448	3.49	4.9
Motors	MTR-250	CLUB - 00202	EVAP	EEM - RI	223	16	207	687	350	0	81	956	749	4.62	3.7
Motors	MTR-251	CLUB - 00202	EVAP	EEM - ROF	2,205	0	2,205	453	231	0	124	559	-1,646	0.25	67.9
Motors	MTR-251	CLUB - 00202	EVAP	EEM RI	2,730	84	2,646	840	428	0	1,029	239	2,407	0.09	190.7
Motors	MTR-252	CLUB - 00202	EVAP	EEM - ROF	367	0	367	75	38	0	21	93	274	0.25	67.9
Motors	MTR-252	CLUB - 00202	EVAP	EEM RI	455	14	441	140	71	0	171	40	-401	0.09	190.7
Motors	MTR-41	CLUB - 00202	CONDMTR	EEM ROF	719	0	719	274	142	0	32	384	335	0.53	32.2
Motors	MTR-41	CLUB - 00202	CONDMTR	EEM RI	890	36	854	508	263	0	326	445	-409	0.52	33.1
Motors	MTR-42	CLUB - 00202	CONDMTR	EEM - ROF	151	0	151	292	151	0	5	438	287	2.90	5.9
Motors	MTR-42	CLUB 00202	CONDMTR	EEM - RI	187	0	187	474	245	0	67	652	465	3.49	4.9
Motors	MTR-82	CLUB - 20018	COOL	EEM - ROF	151	0	151	121	123	0	5	238	87	1.58	10.9
Motors	MTR-82	CLUB - 20018	COOL	EEM RI	187	0	187	196	199	0	67	328	141	1.75	9.8
Motors	MTR-253	DGR - 00308	EVAP	EEM ROF	1,438	0	1,438	342	231	0	63	509	929	0.35	48.6
Motors	MTR-253	DGR - 00308	EVAP	EEM - RI	1,780	72	1,708	634	428	0	-653	408	-1,300	0.24	72.0
Motors	MTR-254	DGR - 00308	EVAP	EEM - ROF	383	0	383	729	492	0	25	1,196	813	3.12	5.5
Motors	MTR-254	DGR - 00308	EVAP	EEM RI	446	32	414	1,024	691	0	-133	1,581	1,167	3.82	4.5
Motors	MTR-4	DGR - 00308	AIRCOMP	EEM - ROF	367	0	367	44	47	0	21	71	297	0.19	89.6
Motors	MTR-4	DGR - 00308	AIRCOMP	EEM RI	455	14	441	82	88	0	171	2	-443	-0.00	NA
Motors	MTR-439	DGR - 00308	Fan Motor	EEM - ROF	540	0	540	1,684	791	0	22	2,453	1,913	4.54	3.8
Motors	MTR-439	DGR - 00308	Fan Motor	EEM RI	669	48	621	2,750	1,292	0	243	3,798	3,177	6.12	2.8
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - ROF	446	32	414	1,647	774	0	53	2,367	1,953	5.72	3.0
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - RI	446	32	414	1,761	827	0	-53	2,534	2,120	6.12	2.8
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - ROF	167	0	167	482	226	0	-6	701	534	4.19	4.1
Motors	MTR-441	DGR - 00308	Fan Motor	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - ROF	420	0	420	453	213	0	-28	637	217	1.52	11.4
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - RI	489	35	454	677	318	0	147	848	394	1.87	9.2
Motors	MTR-522b	DGR - 00308	VENTLTR	VSD to Std ROF	7,659	0	7,659	3,592	84	127	-1,719	1,663	5,996	0.22	79.3
Motors	MTR 522b	DGR - 00308	VENTLTR	VSD to Std - RI	8,922	83	8,839	4,934	-84	172	3,807	870	-7,969	0.10	175.0
Motors	MTR 522c	DGR - 00308	VENTLTR	VSD & EEM ROF	7,775	0	7,775	3,908	213	127	1,719	2,276	5,499	0.29	58.8
Motors	MTR-522c	DGR 00308	VENTLTR	VSD & EEM - RI	9,057	111	8,946	5,362	318	172	3,807	1,701	-7,245	0.19	90.6
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM ROF	433	0	433	483	227	0	34	676	243	1.56	11.0
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM - RI	489	35	454	665	312	0	131	846	392	1.86	9.2
Motors	MTR-523b	DGR - 00308	VENTLTR	VSD to Std ROF	7,896	0	7,896	3,835	90	135	2,095	1,515	6,382	0.19	89.8
Motors	MTR-523b	DGR - 00308	VENTLTR	VSD to Std - RI	8,922	83	8,839	4,921	90	172	3,791	868	-7,971	0.10	175.3
Motors	MTR-523c	DGR - 00308	VENTLTR	VSD & EEM ROF	8,016	0	8,016	4,172	227	135	2,095	2,169	-5,847	0.27	63.6
Motors	MTR-523c	DGR - 00308	VENTLTR	VSD & EEM RI	9,057	111	8,946	5,350	312	172	3,791	1,699	7,247	0.19	90.7
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM ROF	474	0	474	628	295	0	21	902	428	1.90	9.0
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM - RI	552	40	512	954	448	0	156	1,247	735	2.44	7.1
Motors	MTR-524b	DGR - 00308	VENTLTR	VSD to Std ROF	11,862	0	11,862	5,885	136	127	2,703	2,920	8,942	0.25	70.0
Motors	MTR-524b	DGR - 00308	VENTLTR	VSD to Std RI	13,818	136	13,682	8,090	136	172	5,961	1,811	11,871	0.13	130.1

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 524o	DGR - 00308	VENTLTR	VSD & EEM ROF	11,949	0	11,949	6,343	295	127	2,703	3,809	8,140	0.32	54.0
Motors	MTR 524o	DGR - 00308	VENTLTR	VSD & EEM RI	13,920	166	13,754	8,702	448	172	5,961	3,017	10,738	0.22	78.5
Motors	MTR-525a	DGR - 00308	VENTLTR	EEM - ROF	382	0	382	173	81	0	27	228	154	0.60	28.9
Motors	MTR-525a	DGR - 00308	VENTLTR	EEM - RI	445	18	427	268	126	0	136	258	169	0.61	28.5
Motors	MTR-525b	DGR - 00308	VENTLTR	VSD to Std - ROF	4,327	0	4,327	1,828	-44	127	923	735	3,592	0.17	101.4
Motors	MTR-525b	DGR - 00308	VENTLTR	VSD to Std - RI	5,040	42	4,998	2,511	-44	172	2,074	221	-4,777	0.04	389.9
Motors	MTR-525o	DGR - 00308	VENTLTR	VSD & EEM ROF	4,438	0	4,438	1,961	81	-127	923	993	3,445	0.22	76.9
Motors	MTR-525o	DGR - 00308	VENTLTR	VSD & EEM RI	5,170	57	5,113	2,692	126	172	2,074	571	-4,542	0.11	154.2
Motors	PMTR 29	DGR - 00308	PMPMTR	EEM - ROF	446	0	446	275	228	0	12	491	45	1.10	15.6
Motors	PMTR-29	DGR - 00308	PMPMTR	EEM - RI	552	40	512	506	420	0	195	731	219	1.43	12.1
Motors	MTR 255	DGR - 00404	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-255	DGR - 00404	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 256	DGR - 00404	EVAP	EEM - ROF	191	0	191	364	246	0	-12	598	407	3.12	5.5
Motors	MTR 256	DGR - 00404	EVAP	EEM - RI	223	16	207	512	345	0	-67	791	584	3.82	4.5
Motors	MTR-257	DGR - 00430	EVAP	EEM - ROF	1,081	0	1,081	1,905	1,285	0	-43	3,147	2,066	2.91	5.9
Motors	MTR-257	DGR - 00430	EVAP	EEM - RI	1,338	96	1,242	3,110	2,099	0	486	4,723	3,481	3.80	4.5
Motors	PMTR 28	DGR - 00430	PMPMTR	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	PMTR 28	DGR - 00430	PMPMTR	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - ROF	167	0	167	272	226	0	-6	492	325	2.94	5.9
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - RI	207	15	192	443	368	0	75	736	544	3.83	4.5
Motors	MTR-258	DGR - 00909	EVAP	EEM - ROF	216	16	201	467	315	0	-24	758	557	3.77	4.6
Motors	MTR-258	DGR - 00909	EVAP	EEM - RI	223	16	207	498	336	0	35	798	591	3.86	4.5
Motors	MTR-259	DGR - 00909	EVAP	EEM - ROF	407	29	378	828	559	0	36	1,352	974	3.58	4.8
Motors	MTR-259	DGR - 00909	EVAP	EEM - RI	446	32	414	1,010	682	0	103	1,589	1,175	3.84	4.5
Motors	MTR 83	DINING - 00222	COOL	EEM - ROF	276	0	276	144	195	0	0	339	63	1.23	14.0
Motors	MTR 83	DINING - 00222	COOL	EEM - RI	374	0	374	300	405	0	-169	535	161	1.43	12.0
Motors	MTR-84	DINING - 00222	COOL	EEM - ROF	276	0	276	144	195	0	0	339	63	1.23	14.0
Motors	MTR 84	DINING - 00222	COOL	EEM - RI	374	0	374	300	405	0	-169	535	161	1.43	12.0
Motors	MTR-260	DINING - 00254	EVAP	EEM - ROF	186	0	186	341	230	0	10	561	375	3.02	5.7
Motors	MTR-260	DINING - 00254	EVAP	EEM - RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR-261	DINING - 00254	EVAP	EEM - ROF	186	0	186	341	230	0	10	561	375	3.02	5.7
Motors	MTR-261	DINING - 00254	EVAP	EEM - RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - ROF	1,003	0	1,003	2,889	1,357	0	-39	4,207	3,204	4.19	4.1
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - RI	1,242	90	1,152	4,701	2,208	0	-450	6,460	5,308	5.61	3.1
Motors	MTR-443a	DINING - 00254	Fan Motor	EEM - ROF	2,500	0	2,500	1,237	581	0	140	1,678	823	0.67	25.7
Motors	MTR-443a	DINING - 00254	Fan Motor	EEM - RI	3,096	120	2,976	2,286	1,074	0	-1,166	2,194	782	0.74	23.4
Motors	MTR-443b	DINING - 00254	Fan Motor	VSD to Std - ROF	30,585	0	30,585	18,362	305	-661	-4,136	13,261	17,324	0.43	39.7
Motors	MTR-443b	DINING - 00254	Fan Motor	VSD to Std - RI	37,872	278	37,594	28,935	-305	1,033	-16,038	11,559	26,035	0.31	56.0
Motors	MTR-443o	DINING - 00254	Fan Motor	VSD & EEM - ROF	31,515	0	31,515	18,909	581	-661	-4,136	14,694	16,822	0.47	36.9
Motors	MTR-443o	DINING - 00254	Fan Motor	VSD & EEM - RI	39,024	379	38,645	29,786	1,074	-1,033	-16,038	13,789	24,857	0.36	48.3
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - ROF	1,580	0	1,580	1,577	741	0	-66	2,252	672	1.43	12.1
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - RI	1,956	140	1,816	2,802	1,316	0	714	3,404	1,588	1.87	9.2
Motors	MTR-444b	DINING - 00254	Fan Motor	VSD to Std - ROF	28,821	0	28,821	18,037	-294	-441	-3,998	13,305	15,517	0.46	37.3
Motors	MTR-444b	DINING - 00254	Fan Motor	VSD to Std - RI	35,688	273	35,415	28,417	-294	-689	-15,352	12,082	-23,333	0.34	50.5
Motors	MTR-444o	DINING - 00254	Fan Motor	VSD & EEM - ROF	29,257	0	29,257	18,676	741	-441	-3,998	14,978	14,279	0.51	33.6
Motors	MTR-444o	DINING - 00254	Fan Motor	VSD & EEM - RI	36,228	390	35,838	29,411	1,316	-689	-15,352	14,686	-21,151	0.41	42.0
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - ROF	167	0	167	482	226	0	-6	701	534	4.19	4.1
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - RI	207	15	192	784	368	0	-75	1,077	885	5.61	3.1
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - ROF	180	0	180	561	264	0	-7	818	638	4.54	3.8
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - RI	223	16	207	917	431	0	-81	1,266	1,059	6.12	2.8
Motors	MTR-85	DINING - 00254	COOL	EEM - ROF	156	0	156	98	132	0	-7	222	67	1.43	12.1
Motors	MTR-85	DINING - 00254	COOL	EEM - RI	187	0	187	147	198	0	-61	284	97	1.52	11.3
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - ROF	1,176	0	1,176	399	662	0	-26	1,035	141	0.88	19.6
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - RI	1,456	120	1,336	734	1,219	0	508	1,445	109	1.08	15.9
Motors	PMTR-31b	DINING - 00254	PMPMTR	VSD to Std - ROF	10,856	0	10,856	6,123	-338	-220	-1,333	4,231	6,625	0.39	44.2
Motors	PMTR-31b	DINING - 00254	PMPMTR	VSD to Std - RI	13,442	82	13,360	9,642	-338	-344	-5,375	3,584	9,776	0.27	64.2
Motors	PMTR-31o	DINING - 00254	PMPMTR	VSD & EEM - ROF	11,028	0	11,028	6,298	662	-220	-1,333	5,406	5,622	0.49	35.1
Motors	PMTR-31o	DINING - 00254	PMPMTR	VSD & EEM - RI	13,656	196	13,460	9,914	1,219	-344	-5,375	3,413	8,047	0.40	42.8
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - ROF	167	0	167	136	226	0	-6	356	189	2.13	8.1
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - RI	207	15	192	222	368	0	75	515	323	2.68	6.4
Motors	PMTR-33	DINING - 00254	PMPMTR	EEM - ROF	359	0	359	43	71	0	-16	98	262	0.27	63.3
Motors	PMTR-33	DINING - 00254	PMPMTR	EEM - RI	445	18	427	79	132	0	163	48	379	0.11	154.6
Motors	MTR-262	DINING - 00431	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-262	DINING - 00431	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-263	DINING - 00431	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-263	DINING - 00431	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR-264	DINING - 00447	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-264	DINING - 00447	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR-265	DINING - 00447	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-266	DINING - 00449	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-266	DINING - 00449	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-267	DINING - 00449	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 267	DINING - 00449	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-268	DINING - 00468	EVAP	EEM - ROF	1,081	0	1,081	1,905	1,285	0	-43	3,147	2,066	2.91	5.9
Motors	MTR-268	DINING - 00468	EVAP	EEM - RI	1,338	96	1,242	3,110	2,099	0	486	4,723	3,481	3.80	4.5
Motors	MTR 269	DINING - 00535	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-269	DINING - 00535	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR 270	DINING - 00560	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 270	DINING - 00560	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 526	Fan Housing	Heat System Fan	EEM - ROF	254,726	0	254,726	291,683	605,292	0	12,132	884,842	630,116	3.47	5.0

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 526	Fan Housing	Heat System Fan	EEM RI	305,932	0	305,932	438,229	630,336	0	100,295	968,270	662,338	3.16	5.4
Motors	MTR-527	Fan Housing	Cool System Fan	EEM ROF	247,067	0	247,067	197,644	201,295	0	8,959	389,980	142,913	1.58	10.9
Motors	MTR 527	Fan Housing	Cool System Fan	EEM - RI	305,932	0	305,932	320,322	326,239	0	110,309	536,252	230,320	1.75	9.8
Motors	MTR 271	FUELDSP 00836	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 271	FUELDSP 00836	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-272	FUELDSP 00950	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM - ROF	588	0	588	647	331	0	13	965	377	1.64	10.5
Motors	MTR 18	GROCERY - 00920	COMPMTR	EEM RI	728	60	668	1,190	610	0	254	1,545	877	2.31	7.4
Motors	MTR-19	GROCERY 00920	COMPMTR	EEM ROF	1,176	0	1,176	1,293	662	0	26	1,930	754	1.64	10.5
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM RI	1,456	120	1,336	2,380	1,219	0	508	3,091	1,755	2.31	7.4
Motors	MTR 20	GROCERY - 00920	COMPMTR	EEM - ROF	588	0	588	647	331	0	13	965	377	1.64	10.5
Motors	MTR-20	GROCERY - 00920	COMPMTR	EEM RI	728	60	668	1,190	610	0	254	1,545	877	2.31	7.4
Motors	MTR 21	GROCERY - 00920	COMPMTR	EEM ROF	7,578	0	7,578	8,533	4,371	0	211	12,692	5,114	1.67	10.3
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM RI	9,384	680	8,704	15,460	7,919	0	-3,320	20,058	11,354	2.30	7.5
Motors	MTR-273	GROCERY 00920	EVAP	EEM ROF	1,115	0	1,115	574	387	0	16	946	169	0.85	20.3
Motors	MTR-273	GROCERY 00920	EVAP	EEM RI	1,467	105	1,362	1,226	827	0	623	1,431	69	1.05	16.4
Motors	MTR-274	GROCERY 00920	EVAP	EEM - ROF	1,185	0	1,185	669	451	0	-49	1,071	114	0.90	19.1
Motors	MTR-274	GROCERY - 00920	EVAP	EEM - RI	1,467	105	1,362	1,188	802	0	-535	1,455	93	1.07	16.1
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM ROF	1,176	0	1,176	1,293	621	0	26	1,888	712	1.61	10.7
Motors	MTR-43	GROCERY 00920	CONDMTR	EEM RI	1,456	120	1,336	2,380	1,143	0	508	3,014	1,678	2.26	7.6
Motors	MTR-447	GROCERY 00920	Fan Motor	EEM ROF	1,176	0	1,176	1,410	662	0	-26	2,047	871	1.74	9.9
Motors	MTR-447	GROCERY 00920	Fan Motor	EEM RI	1,456	120	1,336	2,595	1,219	0	508	3,306	1,970	2.47	7.0
Motors	MTR-448	GROCERY - 00920	Fan Motor	EEM - ROF	359	0	359	151	71	0	16	206	153	0.57	30.0
Motors	MTR-448	GROCERY - 00920	Fan Motor	EEM - RI	445	18	427	280	132	0	163	248	179	0.58	29.6
Motors	MTR-449	GROCERY 00920	Fan Motor	EEM ROF	1,128	0	1,128	1,365	641	0	18	1,988	859	1.76	9.8
Motors	MTR-449	GROCERY 00920	Fan Motor	EEM - RI	1,397	120	1,277	2,626	1,233	0	-481	3,378	2,101	2.65	6.5
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM ROF	588	0	588	705	331	0	13	1,023	435	1.74	9.9
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM RI	728	60	668	1,298	610	0	254	1,653	985	2.47	7.0
Motors	PMTR-34	GROCERY - 00920	power vents	EEM ROF	892	0	892	619	514	0	25	1,108	217	1.24	13.9
Motors	PMTR 34	GROCERY 00920	power vents	EEM - RI	1,104	80	1,024	1,122	932	0	-391	1,663	639	1.62	10.6
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM ROF	167	0	167	272	184	0	-6	450	282	2.69	6.4
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM RI	207	15	192	443	299	0	-75	667	475	3.47	5.0
Motors	PMTR-36a	GROCERY - 00920	PMPMTR	EEM - ROF	735	0	735	114	77	0	-41	149	-586	0.20	84.7
Motors	PMTR-36a	GROCERY - 00920	PMPMTR	EEM RI	910	28	882	211	143	0	-343	11	871	0.01	1,387.3
Motors	PMTR-36b	GROCERY - 00920	PMPMTR	VSD to Std - ROF	2,336	0	2,336	1,731	-41	220	-213	1,256	1,080	0.54	32.0
Motors	PMTR 36b	GROCERY - 00920	PMPMTR	VSD to Std - RI	2,892	23	2,869	2,727	-41	-344	-982	1,359	1,510	0.47	36.3
Motors	PMTR-36c	GROCERY - 00920	PMPMTR	VSD & EEM - ROF	2,610	0	2,610	1,781	77	220	213	1,425	1,185	0.55	31.5
Motors	PMTR-36c	GROCERY - 00920	PMPMTR	VSD & EEM - RI	3,232	50	3,182	2,806	143	344	-982	1,622	-1,560	0.51	33.8
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - ROF	167	0	167	272	184	0	-6	450	282	2.69	6.4
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - RI	207	15	192	443	299	0	-75	667	475	3.47	5.0
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - ROF	395	0	395	525	240	0	-16	748	353	1.89	9.1
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - RI	489	35	454	909	416	0	178	1,147	693	2.53	6.8
Motors	MTR-275	HOSPITL - 00166	EVAP	EEM - ROF	367	0	367	103	38	0	-21	121	247	0.33	52.4
Motors	MTR-275	HOSPITL - 00166	EVAP	EEM - RI	455	14	441	191	71	0	171	91	350	0.21	83.4
Motors	MTR-451a	HOSPITL - 00166	Fan Motor	EEM - ROF	926	0	926	3,553	692	0	19	4,226	3,299	4.56	3.8
Motors	MTR-451a	HOSPITL - 00166	Fan Motor	EEM - RI	1,147	90	1,057	6,473	1,261	0	399	7,334	6,277	6.94	2.5
Motors	MTR-451b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	32,110	0	32,110	51,638	-331	110	-4,597	46,600	14,489	1.45	11.9
Motors	MTR-451b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	39,761	1,167	38,594	81,300	-331	172	-17,441	63,357	24,762	1.64	10.5
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	32,236	0	32,236	53,160	692	110	-4,597	49,145	16,909	1.52	11.3
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	39,916	1,175	38,741	83,670	1,261	-172	17,441	67,317	28,576	1.74	9.9
Motors	MTR-452a	HOSPITL - 00166	Fan Motor	EEM - ROF	698	0	698	2,268	442	0	-32	2,677	1,979	3.84	4.5
Motors	MTR-452a	HOSPITL - 00166	Fan Motor	EEM - RI	864	70	794	4,173	813	0	-318	4,667	3,873	5.88	2.9
Motors	MTR-452b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	21,617	0	21,617	34,815	226	110	-3,111	31,368	9,750	1.45	11.9
Motors	MTR-452b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	26,768	787	25,981	54,821	226	172	-11,780	42,643	16,662	1.64	10.5
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	21,831	0	21,831	35,808	442	110	-3,111	33,028	11,198	1.51	11.4
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	27,032	804	26,228	56,367	813	172	-11,780	45,227	18,999	1.72	10.0
Motors	MTR-453a	HOSPITL - 00166	Fan Motor	EEM - ROF	588	0	588	3,248	633	0	13	3,867	3,279	6.58	2.6
Motors	MTR-453a	HOSPITL - 00166	Fan Motor	EEM - RI	728	60	668	5,579	1,087	0	-254	6,411	5,743	9.60	1.8
Motors	MTR-453b	HOSPITL - 00166	Fan Motor	VSD to Std - ROF	16,330	0	16,330	27,188	184	110	-2,310	24,584	8,254	1.51	11.4
Motors	MTR-453b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	20,221	615	19,606	42,833	184	172	8,803	33,674	14,069	1.72	10.0
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	16,417	0	16,417	28,403	633	110	-2,310	26,616	10,199	1.62	10.6
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	20,328	610	19,718	44,724	1,087	172	8,803	36,836	17,118	1.87	9.2
Motors	MTR-454a	HOSPITL 00166	Fan Motor	EEM - ROF	1,128	0	1,128	3,291	641	0	18	3,914	2,786	3.47	5.0
Motors	MTR-454a	HOSPITL - 00166	Fan Motor	EEM - RI	1,397	120	1,277	6,332	1,233	0	-481	7,085	5,808	5.55	3.1
Motors	MTR-454b	HOSPITL - 00166	Fan Motor	VSD to Std ROF	42,585	0	42,585	67,565	-424	110	-6,113	60,918	18,333	1.43	12.0
Motors	MTR-454b	HOSPITL - 00166	Fan Motor	VSD to Std - RI	52,731	1,526	51,205	106,353	-424	-172	-23,167	82,589	31,383	1.61	10.7
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - ROF	42,704	0	42,704	69,151	641	110	-6,113	63,569	20,866	1.49	11.6
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	52,878	1,561	51,317	108,821	1,233	172	23,167	86,714	35,397	1.69	10.2
Motors	MTR-455a	HOSPITL - 00166	Fan Motor	EEM - ROF	833	0	833	994	194	0	-47	1,141	308	1.37	12.6
Motors	MTR-455a	HOSPITL - 00166	Fan Motor	EEM RI	1,032	40	992	1,838	358	0	-389	1,807	815	1.82	9.5
Motors	MTR-455b	HOSPITL - 00166	Fan Motor	VSD to Std ROF	10,195	0	10,195	14,761	102	-220	1,379	13,061	2,866	1.28	13.4
Motors	MTR-455b	HOSPITL 00166	Fan Motor	VSD to Std - RI	12,624	334	12,290	23,261	102	344	-5,346	17,469	5,179	1.42	12.1
Motors	MTR-455c	HOSPITL 00166	Fan Motor	VSD & EEM - ROF	10,505	0	10,505	15,201	194	-220	-1,379	13,796	3,291	1.31	13.1
Motors	MTR-455c	HOSPITL - 00166	Fan Motor	VSD & EEM RI	13,008	351	12,657	23,945	358	344	5,346	18,612	5,955	1.47	11.7
Motors	MTR 5	HOSPITL 00166	AIRCOMP	EEM ROF	719	0	719	364	142	0	32	474	244	0.66	26.1
Motors	MTR 5	HOSPITL - 00166	AIRCOMP	EEM RI	890	36	854	676	263	0	326	612	242	0.72	24.0
Motors	MTR-6	HOSPITL 00166	AIRCOMP	EEM - ROF	1,176	0	1,176	3,248	1,265	0	-26	4,487	3,311	3.82	4.5
Motors	MTR 6	HOSPITL - 00166	AIRCOMP	EEM - RI	1,456	120	1,336	5,579	2,173	0	508	7,243	5,907	5.42	3.2
Motors	MTR 7	HOSPITL 00166	AIRCOMP	EEM ROF	359	0	359	182	71	0	16	237	122	0.66	26.1
Motors	MTR 7	HOSPITL 00166	AIRCOMP	EEM - RI	445	18	427	338	132	0	163	306	121	0.72	24.0

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR 86	HOSPITL 00166	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-87	HOSPITL 00166	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-87	HOSPITL 00166	COOL	EEM RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	PMTR-38	HOSPITL 00166	PMPMTR	EEM - ROF	719	0	719	728	142	0	32	839	120	1.17	14.8
Motors	PMTR-38	HOSPITL - 00166	PMPMTR	EEM - RI	890	36	854	1,351	263	0	326	1,288	434	1.51	11.4
Motors	PMTR 39	HOSPITL - 00166	PMPMTR	EEM - ROF	790	0	790	1,901	370	0	-33	2,239	1,449	2.83	6.1
Motors	PMTR 39	HOSPITL - 00166	PMPMTR	EEM - RI	978	70	908	3,379	658	0	357	3,680	2,772	4.05	4.2
Motors	PMTR-40	HOSPITL 00166	PMPMTR	EEM - ROF	790	0	790	1,901	370	0	-33	2,239	1,449	2.83	6.1
Motors	PMTR-40	HOSPITL 00166	PMPMTR	EEM - RI	978	70	908	3,379	658	0	-357	3 680	2,772	4.05	4.2
Motors	PMTR-41	HOSPITL 00166	PMPMTR	EEM - ROF	395	0	395	951	185	0	-16	1,119	725	2.83	6.1
Motors	PMTR-41	HOSPITL 00166	PMPMTR	EEM - RI	489	35	454	1,689	329	0	-178	1,840	1,386	4.05	4.2
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - ROF	892	0	892	5,062	986	0	-25	6,023	5,131	6.75	2.5
Motors	PMTR-42	HOSPITL 00166	PMPMTR	EEM RI	1,104	80	1,024	8,618	1,679	0	-391	9,906	8,882	9.67	1.8
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - ROF	588	0	588	4,434	864	0	-13	5,285	4,697	8.99	1.9
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - RI	728	60	668	7,458	1,453	0	-254	8,656	7,988	12.96	1.3
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - ROF	1,176	0	1,176	8,868	1,727	0	-26	10,570	9,394	8.99	1.9
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - RI	1,456	120	1,336	14,916	2,905	0	508	17,313	15,977	12.96	1.3
Motors	MTR 23	HOTEL - 00900	COMPMTR	EEM - ROF	604	0	604	1,325	606	0	22	1,908	1,304	3.16	5.5
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - RI	748	0	748	2,147	982	0	270	2,859	2,111	3.82	4.5
Motors	MTR-88	HOTEL - 00900	COOL	EEM ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-88	HOTEL - 00900	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - ROF	604	0	604	1,325	606	0	-22	1,908	1,304	3.16	5.5
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - RI	748	0	748	2,147	982	0	-270	2,859	2,111	3.82	4.5
Motors	MTR-89	HOTEL - 00901	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR 89	HOTEL - 00901	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - ROF	604	0	604	1,325	606	0	-22	1,908	1,304	3.16	5.5
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - RI	748	0	748	2,147	982	0	-270	2,859	2,111	3.82	4.5
Motors	MTR-90	HOTEL - 00902	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-90	HOTEL - 00902	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - ROF	604	0	604	1,325	606	0	22	1,908	1,304	3.16	5.5
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - RI	748	0	748	2,147	982	0	-270	2,859	2,111	3.82	4.5
Motors	MTR-91	HOTEL - 00903	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-91	HOTEL - 00903	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - ROF	453	0	453	993	454	0	-16	1,431	978	3.16	5.5
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - RI	561	0	561	1,610	736	0	-202	2,144	1,583	3.82	4.5
Motors	MTR-92	HOTEL - 00904	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-92	HOTEL - 00904	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-28	HOTEL - 00906	COMPMTR	EEM - ROF	604	0	604	1,325	606	0	-22	1,908	1,304	3.16	5.5
Motors	MTR 28	HOTEL - 00906	COMPMTR	EEM - RI	748	0	748	2,147	982	0	-270	2,859	2,111	3.82	4.5
Motors	MTR-93	HOTEL - 00906	COOL	EEM - ROF	142	0	142	142	106	0	-2	245	103	1.73	10.0
Motors	MTR-93	HOTEL - 00906	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR-276	KITCHEN - 00819	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-276	KITCHEN - 00819	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR-277	LAB MED - 00144	EVAP	EEM - ROF	788	0	788	209	141	0	-66	284	503	0.36	47.7
Motors	MTR-277	LAB-MED - 00144	EVAP	EEM - RI	890	36	854	296	200	0	-242	254	600	0.30	58.0
Motors	MTR-278	LAB-MED - 00144	EVAP	EEM - ROF	1,575	0	1,575	419	283	0	-133	369	1,007	0.36	47.7
Motors	MTR-278	LAB-MED - 00144	EVAP	EEM - RI	1,780	72	1,708	592	400	0	-485	507	-1,201	0.30	58.0
Motors	MTR-279	LAB-MED - 00228	EVAP	EEM - ROF	1,078	0	1,078	256	173	0	-47	382	696	0.35	48.6
Motors	MTR-279	LAB MED - 00228	EVAP	EEM - RI	1,335	54	1,281	475	321	0	-490	306	975	0.24	72.0
Motors	MTR 280	MTRPOOL - 00600	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-280	MTRPOOL - 00600	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-281	MTRPOOL - 00600	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-281	MTRPOOL - 00600	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR 282	MTRPOOL - 00600	EVAP	EEM - ROF	395	0	395	289	195	0	-16	467	73	1.18	14.5
Motors	MTR 282	MTRPOOL - 00600	EVAP	EEM - RI	489	35	454	501	338	0	-178	660	206	1.45	11.8
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 284	MTRPOOL - 00605	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-284	MTRPOOL - 00605	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 285	MTRPOOL - 00605	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-285	MTRPOOL - 00605	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 286	MTRPOOL - 00605	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR 286	MTRPOOL - 00605	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 288	MTRPOOL - 00608	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 289	MTRPOOL - 00608	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 289	MTRPOOL - 00608	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 290	MTRPOOL - 00612	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 291	MTRPOOL - 00612	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR 291	MTRPOOL - 00612	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 292	MTRPOOL - 00614	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-292	MTRPOOL 00614	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-293	MTRPOOL - 00620	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 293	MTRPOOL - 00620	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 294	MTRPOOL 00621	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR 294	MTRPOOL - 00621	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR 295	MTRPOOL - 00621	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 295	MTRPOOL 00621	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 296	MTRPOOL - 00623	EVAP	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-296	MTRPOOL 00623	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 297	MTRPOOL 00626	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-297	MTRPOOL 00626	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 298	MTRPOOL 00639	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 298	MTRPOOL - 00639	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 299	MTRPOOL 00642	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-299	MTRPOOL - 00642	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 300	MTRPOOL 00646	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-300	MTRPOOL 00646	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - ROF	334	0	334	545	368	0	13	899	565	2.69	6.4
Motors	MTR 301	MTRPOOL 00646	EVAP	EEM - RI	414	30	384	886	598	0	150	1,334	950	3.47	5.0
Motors	MTR 8	MTRPOOL 00646	AIRCOMP	EEM - ROF	417	0	417	266	286	0	23	530	113	1.27	13.6
Motors	MTR-8	MTRPOOL 00646	AIRCOMP	EEM - RI	516	20	496	446	480	0	194	731	235	1.47	11.7
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-302	MTRPOOL 00650	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-303	MTRPOOL - 00680	EVAP	EEM - ROF	1,953	0	1,953	327	221	0	178	370	1,583	0.19	91.0
Motors	MTR-303	MTRPOOL 00680	EVAP	EEM RI	2,275	70	2,205	505	341	0	732	114	2,091	0.05	332.4
Motors	MTR 304	MTRPOOL - 00680	EVAP	EEM - ROF	383	0	383	729	492	0	25	1,196	813	3.12	5.5
Motors	MTR-304	MTRPOOL 00680	EVAP	EEM - RI	446	32	414	1,024	691	0	133	1,581	1,167	3.82	4.5
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM ROF	161	0	161	105	141	0	9	236	76	1.47	11.7
Motors	MTR 94	MTRPOOL - 00680	COOL	EEM - RI	187	0	187	146	197	0	55	288	101	1.54	11.2
Motors	MTR 305	MTRPOOL 00681	EVAP	EEM - ROF	1,562	0	1,562	261	176	0	142	296	1,267	0.19	91.0
Motors	MTR-305	MTRPOOL - 00681	EVAP	EEM RI	1,820	56	1,764	404	273	0	586	91	1,673	0.05	332.4
Motors	MTR-306	MTRPOOL - 00681	EVAP	EEM - ROF	383	0	383	729	492	0	25	1,196	813	3.12	5.5
Motors	MTR-306	MTRPOOL 00681	EVAP	EEM - RI	446	32	414	1,024	691	0	133	1,581	1,167	3.82	4.5
Motors	MTR-521	MTRPOOL - 00681	HEAT	EEM - ROF	161	0	161	187	33	0	9	210	50	1.31	13.2
Motors	MTR-521	MTRPOOL 00681	HEAT	EEM - RI	187	0	187	261	46	0	55	252	65	1.35	12.8
Motors	MTR-307	MTRPOOL - 00830	EVAP	EEM - ROF	540	0	540	952	643	0	22	1,573	1,033	2.91	5.9
Motors	MTR 307	MTRPOOL 00830	EVAP	EEM - RI	669	48	621	1,555	1,049	0	243	2,361	1,740	3.80	4.5
Motors	MTR 308	MTRPOOL 00832	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 308	MTRPOOL - 00832	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-309	MTRPOOL 00832	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 309	MTRPOOL - 00832	EVAP	EEM - RI	223	16	207	518	350	0	81	787	380	3.80	4.5
Motors	MTR-310	MTRPOOL 00837	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-310	MTRPOOL - 00837	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - ROF	540	0	540	952	643	0	22	1,573	1,033	2.91	5.9
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - RI	669	48	621	1,555	1,049	0	243	2,361	1,740	3.80	4.5
Motors	MTR-313	MTRPOOL - 00840	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-313	MTRPOOL 00840	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-314	MTRPOOL - 00847	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 314	MTRPOOL - 00847	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-315	MTRPOOL - 00847	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-315	MTRPOOL 00847	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - ROF	2,256	0	2,256	1,737	1,042	0	36	2,743	486	1.22	14.2
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - RI	2,794	240	2,554	3,342	2,004	0	-961	4,385	1,831	1.72	10.0
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - ROF	2,352	0	2,352	1,795	1,242	0	52	2,985	633	1.27	13.6
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - RI	2,912	240	2,672	3,303	2,286	0	1,017	4,572	1,900	1.71	10.1
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - ROF	1,128	0	1,128	1,885	641	0	18	2,508	1,380	2.22	7.7
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - RI	1,397	120	1,277	3,627	1,233	0	-481	4,380	3,103	3.43	5.0
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - ROF	151	0	151	91	123	0	-5	209	58	1.38	12.5
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - RI	187	0	187	148	199	0	67	280	93	1.50	11.5
Motors	PMTR-47a	MTRPOOL - 00857	PMPMTR	EEM - ROF	417	0	417	36	49	0	23	62	355	0.15	115.8
Motors	PMTR-47a	MTRPOOL - 00857	PMPMTR	EEM - RI	516	20	496	73	98	0	194	23	519	0.05	NA
Motors	PMTR-47b	MTRPOOL - 00857	PMPMTR	VSD to Std - ROF	2,190	0	2,190	850	-40	110	251	449	1,741	0.20	84.0
Motors	PMTR-47b	MTRPOOL - 00857	PMPMTR	VSD to Std - RI	2,712	11	2,701	1,339	-40	172	1,042	85	2,616	0.03	547.4
Motors	PMTR-47c	MTRPOOL - 00857	PMPMTR	VSD & EEM - ROF	2,345	0	2,345	869	49	-110	251	557	1,788	0.24	72.5
Motors	PMTR-47c	MTRPOOL - 00857	PMPMTR	VSD & EEM RI	2,904	31	2,873	1,369	98	-172	1,042	253	2,620	0.09	195.7
Motors	MTR-318	MTRPOOL - 00873	EVAP	EEM - ROF	3,820	0	3,820	980	662	0	272	1,370	2,450	0.36	48.0
Motors	MTR-318	MTRPOOL - 00873	EVAP	EEM - RI	4,450	180	4,270	1,516	1,023	0	-1,357	1,183	3,087	0.28	62.2
Motors	MTR 9	MTRPOOL - 00873	AIRCOMP	EEM - ROF	926	0	926	873	938	0	19	1,793	866	1.94	8.9
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM - RI	1,147	90	1,057	1,535	1,651	0	399	2,787	1,730	2.64	6.5
Motors	PMTR-45a	MTRPOOL - 00873	PMPMTR	EEM - ROF	1,078	0	1,078	128	173	0	-47	254	825	0.24	73.2
Motors	PMTR-45a	MTRPOOL - 00873	PMPMTR	EEM - RI	1,335	54	1,281	238	321	0	-490	69	1,212	0.05	321.3
Motors	PMTR-45b	MTRPOOL - 00873	PMPMTR	VSD to Std - ROF	5,669	0	5,669	1,947	-93	-330	624	899	4,770	0.16	108.5
Motors	PMTR-45b	MTRPOOL - 00873	PMPMTR	VSD to Std - RI	7,020	26	6,994	3,068	-93	-517	2,637	178	7,172	0.03	NA
Motors	PMTR-45c	MTRPOOL - 00873	PMPMTR	VSD & EEM ROF	5,984	0	5,984	2,004	173	-330	624	1,222	4,762	0.20	84.3
Motors	PMTR-45c	MTRPOOL - 00873	PMPMTR	VSD & EEM - RI	7,410	78	7,332	3,157	321	-517	2,637	324	7,007	0.04	389.2
Motors	PMTR-46a	MTRPOOL - 00873	PMPMTR	EEM - ROF	1,438	0	1,438	171	231	0	63	338	1,099	0.24	73.2
Motors	PMTR-46a	MTRPOOL - 00873	PMPMTR	EEM - RI	1,780	72	1,708	317	428	0	653	92	1,616	0.05	321.3
Motors	PMTR-46b	MTRPOOL - 00873	PMPMTR	VSD to Std - ROF	7,559	0	7,559	2,596	124	-441	832	1,199	6,360	0.16	108.5
Motors	PMTR-46b	MTRPOOL - 00873	PMPMTR	VSD to Std - RI	9,360	35	9,325	4,091	124	689	3,516	237	9,563	0.03	NA
Motors	PMTR-46c	MTRPOOL 00873	PMPMTR	VSD & EEM ROF	7,979	0	7,979	2,672	231	-441	832	1,630	6,349	0.20	84.3
Motors	PMTR-46c	MTRPOOL 00873	PMPMTR	VSD & EEM RI	9,890	104	9,776	4,209	428	689	3,516	433	9,343	0.04	389.2

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-319	MTRPOOL 00879	EVAP	EEM - ROF	3,820	0	3,820	980	662	0	272	1,370	2,450	0.36	48.0
Motors	MTR 319	MTRPOOL 00879	EVAP	EEM RI	4,450	180	4,270	1,516	1,023	0	1,357	1,183	3,087	0.28	62.2
Motors	MTR-320	MTRPOOL 00941	EVAP	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-320	MTRPOOL 00941	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 321	MWR - 00312	EVAP	EEM ROF	735	0	735	114	77	0	-41	149	586	0.20	84.7
Motors	MTR 321	MWR - 00312	EVAP	EEM RI	910	28	882	211	143	0	343	11	871	0.01	1,387.3
Motors	MTR-322	MWR - 00312	EVAP	EEM ROF	367	0	367	57	38	0	21	75	293	0.20	84.7
Motors	MTR-322	MWR - 00312	EVAP	EEM RI	455	14	441	106	71	0	171	5	436	0.01	1,387.3
Motors	MTR-323	MWR - 00340	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-323	MWR - 00340	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-324	MWR - 00410	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-324	MWR - 00410	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 325	MWR - 00480	EVAP	EEM ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-325	MWR - 00480	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-326	MWR - 00556	EVAP	EEM ROF	180	0	190	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-326	MWR - 00556	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-327	MWR - 00910	EVAP	EEM ROF	443	0	443	134	90	0	-40	184	259	0.42	41.5
Motors	MTR-327	MWR - 00910	EVAP	EEM RI	516	20	496	206	139	0	166	180	316	0.36	47.5
Motors	MTR-457	MWR - 01313	Fan Motor	EEM - ROF	302	0	302	891	303	0	11	1,183	881	3.92	4.4
Motors	MTR-457	MWR - 01313	Fan Motor	EEM RI	374	0	374	1,444	491	0	135	1,800	1,426	4.81	3.6
Motors	MTR-458a	MWR - 01313	Fan Motor	EEM ROF	359	0	359	209	71	0	16	264	96	0.73	23.5
Motors	MTR-458a	MWR - 01313	Fan Motor	EEM RI	445	18	427	387	132	0	163	355	72	0.83	20.7
Motors	MTR-458b	MWR - 01313	Fan Motor	VSD to Std ROF	4,070	0	4,070	3,170	38	110	537	2,486	1,585	0.61	28.2
Motors	MTR-458b	MWR - 01313	Fan Motor	VSD to Std RI	5,040	51	4,989	4,996	-38	172	-2,102	2,684	2,305	0.54	32.0
Motors	MTR-458c	MWR - 01313	Fan Motor	VSD & EEM - ROF	4,175	0	4,175	3,263	71	110	537	2,688	1,488	0.64	26.8
Motors	MTR-458c	MWR - 01313	Fan Motor	VSD & EEM - RI	5,170	65	5,105	5,141	132	172	-2,102	2,998	2,106	0.59	29.3
Motors	MTR-459a	MWR - 01313	Fan Motor	EEM ROF	367	0	367	139	47	0	-21	166	202	0.45	38.2
Motors	MTR-459a	MWR - 01313	Fan Motor	EEM - RI	455	14	441	258	88	0	171	174	267	0.40	43.6
Motors	MTR-459b	MWR - 01313	Fan Motor	VSD to Std ROF	3,025	0	3,025	2,114	-25	-110	386	1,592	1,434	0.53	32.7
Motors	MTR-459b	MWR - 01313	Fan Motor	VSD to Std RI	3,746	34	3,712	3,331	-25	172	1,533	1,600	2,112	0.43	40.0
Motors	MTR-459c	MWR - 01313	Fan Motor	VSD & EEM - ROF	3,163	0	3,163	2,176	47	110	386	1,726	1,436	0.55	31.5
Motors	MTR-459c	MWR - 01313	Fan Motor	VSD & EEM - RI	3,916	46	3,870	3,427	88	172	1,533	1,810	2,061	0.47	36.8
Motors	MTR-460	MWR - 01313	Fan Motor	EEM ROF	151	0	151	445	151	0	-5	591	440	3.92	4.4
Motors	MTR-460	MWR - 01313	Fan Motor	EEM - RI	187	0	187	722	245	0	67	900	713	4.81	3.6
Motors	MTR-30	MWR - 01322	COMPMTR	EEM ROF	151	0	151	163	28	0	-5	186	35	1.23	14.0
Motors	MTR-30	MWR - 01322	COMPMTR	EEM RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-31	MWR - 01322	COMPMTR	EEM - ROF	151	0	151	163	28	0	5	186	35	1.23	14.0
Motors	MTR-31	MWR - 01322	COMPMTR	EEM RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-32	MWR - 01322	COMPMTR	EEM ROF	151	0	151	163	28	0	5	186	35	1.23	14.0
Motors	MTR-32	MWR - 01322	COMPMTR	EEM RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-328	MWR - 01322	EVAP	EEM - ROF	735	0	735	114	77	0	-41	149	586	0.20	84.7
Motors	MTR-328	MWR - 01322	EVAP	EEM - RI	910	28	882	211	143	0	343	11	871	0.01	1,387.3
Motors	MTR-329	MWR - 01322	EVAP	EEM - ROF	151	0	151	182	123	0	5	300	149	1.99	8.7
Motors	MTR-329	MWR - 01322	EVAP	EEM - RI	187	0	187	296	199	0	67	427	240	2.29	7.5
Motors	MTR 33	MWR - 01322	COMPMTR	EEM - ROF	151	0	151	163	28	0	5	186	35	1.23	14.0
Motors	MTR-33	MWR - 01322	COMPMTR	EEM RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-330	MWR - 01322	EVAP	EEM - ROF	367	0	367	57	38	0	21	75	293	0.20	84.7
Motors	MTR 330	MWR - 01322	EVAP	EEM - RI	455	14	441	106	71	0	171	5	436	0.01	1,387.3
Motors	MTR-331	MWR - 01322	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-331	MWR - 01322	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-332	MWR - 01322	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-332	MWR - 01322	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-333	MWR - 01322	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-333	MWR - 01322	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-45a	MWR - 01322	CONDMTR	EEM - ROF	359	0	359	76	58	0	-16	118	241	0.33	52.4
Motors	MTR-45a	MWR - 01322	CONDMTR	EEM RI	445	18	427	141	107	0	163	85	342	0.20	86.3
Motors	MTR-45b	MWR - 01322	CONDMTR	VSD to Std - ROF	1,244	0	1,244	804	-31	-110	111	552	691	0.44	38.8
Motors	MTR-45b	MWR - 01322	CONDMTR	VSD to Std - RI	1,540	35	1,505	1,274	-31	-172	517	555	950	0.37	46.7
Motors	MTR-45c	MWR - 01322	CONDMTR	VSD & EEM - ROF	1,349	0	1,349	863	58	110	111	700	649	0.52	33.2
Motors	MTR-45c	MWR - 01322	CONDMTR	VSD & EEM - RI	1,670	51	1,619	1,366	107	172	517	784	835	0.48	35.6
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - ROF	151	0	151	163	28	0	-5	186	35	1.23	14.0
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - ROF	151	0	151	445	151	0	-5	591	440	3.92	4.4
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - RI	187	0	187	722	245	0	67	900	713	4.81	3.6
Motors	MTR-462	MWR - 01322	Fan Motor	EEM ROF	151	0	151	445	151	0	5	591	440	3.92	4.4
Motors	MTR-462	MWR - 01322	Fan Motor	EEM RI	187	0	187	722	245	0	67	900	713	4.81	3.6
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	-23	358	58	0.86	20.0
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR-463b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	51	110	689	3,377	-1,720	0.66	26.0
Motors	MTR-463b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	-51	172	2,673	3,765	2,479	0.60	28.6
Motors	MTR-463c	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	110	689	3,651	1,602	0.70	24.8
Motors	MTR-463c	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	172	2,673	4,191	2,230	0.65	26.4
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - ROF	151	0	151	445	151	0	-5	591	440	3.92	4.4
Motors	MTR-464	MWR - 01322	Fan Motor	EEM RI	187	0	187	722	245	0	67	900	713	4.81	3.6
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM ROF	417	0	417	285	97	0	23	358	58	0.86	20.0
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR-465b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	51	110	689	3,377	1,720	0.66	26.0
Motors	MTR-465b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	51	172	2,673	3,765	2,479	0.60	28.6
Motors	MTR-465c	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	110	689	3,651	1,602	0.70	24.8
Motors	MTR-465c	MWR - 01322	Fan Motor	VSD & FEM - RI	6,504	83	6,421	6,857	179	172	2,673	4,191	2,230	0.65	26.4
Motors	MTR-466	MWR - 01322	Fan Motor	EEM ROF	151	0	151	445	151	0	5	591	440	3.92	4.4

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - RI	187	0	187	722	245	0	67	900	713	4.81	3.6
Motors	MTR-467a	MWR 01322	Fan Motor	EEM - ROF	395	0	395	545	185	0	16	713	318	1.81	9.5
Motors	MTR-467a	MWR - 01322	Fan Motor	EEM RI	489	35	454	968	329	0	178	1,118	664	2.46	7.0
Motors	MTR-467b	MWR 01322	Fan Motor	VSD to Std ROF	7,205	0	7,205	6,229	-73	110	1,000	5,046	2,160	0.70	24.6
Motors	MTR-467b	MWR 01322	Fan Motor	VSD to Std - RI	8,922	100	8,822	9,813	-73	-172	3,818	5,730	3,092	0.65	26.5
Motors	MTR-467o	MWR 01322	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	6,450	185	-110	1,000	5,525	1,789	0.76	22.8
Motors	MTR-467o	MWR 01322	Fan Motor	VSD & EEM - RI	9,057	127	8,930	10,157	329	-172	3,838	6,475	2,455	0.73	23.7
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	23	358	58	0.86	20.0
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR-468b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	51	110	689	3,377	1,720	0.66	26.0
Motors	MTR-468b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	51	172	2,673	3,765	2,479	0.60	28.6
Motors	MTR-468o	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	110	689	3,651	1,602	0.70	24.8
Motors	MTR-468o	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	172	2,673	4,191	2,230	0.65	26.4
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - ROF	167	0	167	665	226	0	6	885	718	5.29	3.3
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - RI	207	15	192	1,082	368	0	75	1,375	1,183	7.16	2.4
Motors	MTR-47	MWR - 01322	CONDMTR	EEM - ROF	151	0	151	163	28	0	5	186	35	1.23	14.0
Motors	MTR-47	MWR - 01322	CONDMTR	FEM - RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	23	358	58	0.86	20.0
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR-470b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	51	-110	689	3,377	1,720	0.66	26.0
Motors	MTR-470b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	-51	172	2,673	3,765	2,479	0.60	28.6
Motors	MTR-470o	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	-110	689	3,651	1,602	0.70	24.8
Motors	MTR 470o	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	172	2,673	4 191	2,230	0.65	26.4
Motors	MTR 471a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	23	358	58	0.86	20.0
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR-471b	MWR - 01322	Fan Motor	VSD to Std ROF	5,097	0	5,097	4,227	51	-110	689	3,377	1,720	0.66	26.0
Motors	MTR-471b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	-51	172	2,673	3,765	2,479	0.60	28.6
Motors	MTR-471o	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	110	689	3,651	1,602	0.70	24.8
Motors	MTR-471o	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	172	2,673	4,191	2,230	0.65	26.4
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	23	358	58	0.86	20.0
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 472b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	-51	-110	689	3,377	1,720	0.66	26.0
Motors	MTR-472b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	-51	-172	2,673	3,765	2,479	0.60	28.6
Motors	MTR 472o	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	-110	689	3,651	1,602	0.70	24.8
Motors	MTR-472o	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	-172	2,673	4,191	2,230	0.65	26.4
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - ROF	417	0	417	285	97	0	-23	358	58	0.86	20.0
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 473b	MWR - 01322	Fan Motor	VSD to Std - ROF	5,097	0	5,097	4,227	-51	-110	689	3,377	1,720	0.66	26.0
Motors	MTR-473b	MWR - 01322	Fan Motor	VSD to Std - RI	6,312	68	6,244	6,661	-51	-172	2,673	3,765	2,479	0.60	28.6
Motors	MTR 473o	MWR - 01322	Fan Motor	VSD & EEM - ROF	5,253	0	5,253	4,353	97	-110	689	3,651	1,602	0.70	24.8
Motors	MTR-473o	MWR - 01322	Fan Motor	VSD & EEM - RI	6,504	83	6,421	6,857	179	-172	-2,673	4,191	2,230	0.65	26.4
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - ROF	502	0	502	1,995	679	0	19	2,655	2,153	5.29	3.3
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - RI	621	45	576	3,247	1,104	0	-225	4,126	3,550	7.16	2.4
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - ROF	151	0	151	163	28	0	-5	186	35	1.23	14.0
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - RI	187	0	187	264	46	0	67	243	56	1.30	13.3
Motors	MTR-334	OTHER - 00992	EVAP	EEM - ROF	169	0	169	272	184	0	-2	454	285	2.68	6.4
Motors	MTR-334	OTHER - 00992	EVAP	EEM - RI	223	16	207	525	354	0	95	784	577	3.79	4.5
Motors	PMTR-51a	PLT-BLDG - 00109	PMPMTR	EEM - ROF	395	0	395	111	150	0	-16	245	149	0.62	27.7
Motors	PMTR-51a	PLT-BLDG - 00109	PMPMTR	EEM - RI	489	35	454	198	267	0	178	287	167	0.63	27.2
Motors	PMTR-51b	PLT-BLDG - 00109	PMPMTR	VSD to Std - ROF	2,844	0	2,844	1,275	-60	-110	342	763	2,082	0.27	64.2
Motors	PMTR-51b	PLT-BLDG - 00109	PMPMTR	VSD to Std - RI	3,522	17	3,505	2,009	-60	172	1,392	385	3,120	0.11	156.8
Motors	PMTR-51o	PLT-BLDG - 00109	PMPMTR	VSD & EEM - ROF	2,953	0	2,953	1,320	150	-110	342	1,018	1,935	0.34	50.0
Motors	PMTR-51o	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	3,657	51	3,606	2,079	267	-172	1,392	782	-2,824	0.22	79.4
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - ROF	167	0	167	136	184	0	-6	313	146	1.88	9.2
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - RI	207	15	192	222	299	0	75	446	254	2.32	7.4
Motors	PMTR-61a	PLT-BLDG - 00109	PMPMTR	EEM - ROF	892	0	892	310	418	0	-25	702	-189	0.79	21.9
Motors	PMTR-61a	PLT-BLDG - 00109	PMPMTR	EEM - RI	1,104	80	1,024	561	757	0	-391	927	-97	0.91	19.0
Motors	PMTR-61b	PLT-BLDG - 00109	PMPMTR	VSD to Std - ROF	3,098	0	3,098	4,177	-192	220	248	3,516	419	1.14	15.2
Motors	PMTR-61b	PLT-BLDG - 00109	PMPMTR	VSD to Std - RI	3,836	56	3,780	6,578	-192	-344	1,220	4,822	1,042	1.28	13.5
Motors	PMTR-61o	PLT-BLDG - 00109	PMPMTR	VSD & EEM - ROF	3,263	0	3,263	4,308	418	-220	248	4,257	995	1.30	13.2
Motors	PMTR-61o	PLT-BLDG - 00109	PMPMTR	VSD & EEM RI	4,040	132	3,908	6,782	757	-344	1,220	5,974	2,066	1.53	11.3
Motors	PMTR-68	PLT-BLDG - 00109	PMPMTR	EEM - ROF	417	0	417	73	122	0	23	172	245	0.41	41.7
Motors	PMTR-68	PLT BLDG - 00109	PMPMTR	EEM - RI	516	20	496	132	219	0	-194	156	340	0.31	54.7
Motors	MTR 335	PLT-BLDG - 00253	EVAP	EEM - ROF	186	0	186	341	230	0	10	561	375	3.02	5.7
Motors	MTR-335	PLT-BLDG - 00253	EVAP	EEM - RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR-336	PLT-BLDG - 00253	EVAP	EEM - ROF	186	0	186	341	230	0	10	561	375	3.02	5.7
Motors	MTR 336	PLT BLDG 00253	EVAP	EEM - RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR 337	PLT BLDG - 00253	EVAP	EEM - ROF	379	0	379	61	41	0	28	74	305	0.20	87.8
Motors	MTR-337	PLT BLDG - 00253	EVAP	EEM - RI	455	14	441	103	70	0	159	14	-427	0.03	541.9
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - ROF	360	0	360	1,123	527	0	14	1,636	1,275	4.54	3.8
Motors	MTR-475	PLT BLDG - 00253	Fan Motor	EEM - RI	446	32	414	1,833	861	0	162	2,532	2,118	6.12	2.8
Motors	PMTR-54a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	1,176	0	1,176	399	538	0	-26	911	265	0.77	22.2
Motors	PMTR-54a	PLT BLDG - 00253	PMPMTR	EEM - RI	1,456	120	1,336	734	990	0	508	1,216	120	0.91	18.9
Motors	PMTR-54b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	10,856	0	10,856	6,123	-275	-220	1,333	4,294	6,561	0.40	43.5
Motors	PMTR 54b	PLT BLDG - 00253	PMPMTR	VSD to Std - RI	13,442	82	13,360	9,642	-275	-344	-5,375	3,647	9,713	0.27	63.1
Motors	PMTR-54o	PLT BLDG - 00253	PMPMTR	VSD & EEM - ROF	11,028	0	11,028	6,298	538	220	1,333	5,282	5,746	0.48	36.0
Motors	PMTR-54o	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	13,656	196	13,460	9,914	990	-344	5,375	5,184	8,275	0.39	44.7
Motors	PMTR-55a	PLT BLDG - 00253	PMPMTR	EEM - ROF	2,256	0	2,256	1,204	1,625	0	-36	2,794	538	1.24	13.9
Motors	PMTR-55a	PLT BLDG 00253	PMPMTR	EEM - RI	2,794	240	2,554	2,169	2,928	0	961	4,136	1,582	1.62	10.6
Motors	PMTR-35b	PLT-BLDG 00253	PMPMTR	VSD to Std - ROF	27,023	0	27,023	16,145	-716	-220	3,464	11,745	15,278	0.43	39.6
Motors	PMTR 55b	PLT-BLDG 00253	PMPMTR	VSD to Std - RI	33,462	216	33,246	25,420	-716	344	13,721	10,638	22,607	0.32	53.8

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR 55c	PLT BLDG - 00253	PMPMTR	VSD & EEM - ROF	27,261	0	27,261	16,649	1,625	220	-3,464	14,590	12,671	0.54	32.2
Motors	PMTR-55c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	33,756	440	33,316	26,203	2,928	344	13,721	15,066	-18,250	0.45	38.1
Motors	PMTR 56a	PLT-BLDG - 00253	PMPMTR	EEM - ROF	2,256	0	2,256	1,204	1,625	0	36	2,794	538	1.24	13.9
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - RI	2,794	240	2,554	2,169	2,928	0	961	4,136	1,582	1.62	10.6
Motors	PMTR-56b	PLT BLDG - 00253	PMPMTR	VSD to Std - ROF	27,023	0	27,023	16,145	716	220	-3,464	11,745	15,278	0.43	39.6
Motors	PMTR-56b	PLT BLDG - 00253	PMPMTR	VSD to Std - RI	33,462	216	33,246	25,420	716	344	13,721	10,638	22,607	0.32	53.8
Motors	PMTR-56c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	27,261	0	27,261	16 649	1,625	220	-3,464	14,590	12,671	0.54	32.2
Motors	PMTR-56c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	33,756	440	33,316	26,203	2,928	344	13,721	15,066	18,250	0.45	38.1
Motors	PMTR-57a	PLT BLDG - 00253	PMPMTR	EEM ROF	1,176	0	1,176	399	538	0	26	911	265	0.77	22.2
Motors	PMTR-57a	PLT BLDG - 00253	PMPMTR	EEM RI	1,456	120	1,336	734	990	0	508	1,216	120	0.91	18.9
Motors	PMTR-57b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	10,856	0	10,856	6,123	275	-220	-1,333	4,294	6,561	0.40	43.5
Motors	PMTR-57b	PLT BLDG - 00253	PMPMTR	VSD to Std - RI	13,442	82	13,360	9,642	275	-344	5,375	3,647	9,713	0.27	63.1
Motors	PMTR-57c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - ROF	11,028	0	11,028	6,298	538	220	-1,333	5,282	5,746	0.48	36.0
Motors	PMTR-57c	PLT BLDG - 00253	PMPMTR	VSD & EEM - RI	13,656	196	13,460	9,914	990	344	-5,375	5,184	8,275	0.39	44.7
Motors	PMTR-59a	PLT-BLDG - 00253	PMPMTR	EEM ROF	1,853	0	1,853	833	1,124	0	38	1,920	67	1.04	16.6
Motors	PMTR-59a	PLT BLDG - 00253	PMPMTR	EEM - RI	2,294	180	2,114	1,518	2,049	0	798	2,769	655	1.31	13.1
Motors	PMTR-59b	PLT-BLDG - 00253	PMPMTR	VSD to Std - ROF	6,236	0	6,236	12,109	537	-220	457	10,895	4,658	1.75	9.9
Motors	PMTR 59b	PLT BLDG - 00253	PMPMTR	VSD to Std - RI	7,722	162	7,560	19,065	-537	344	-2,358	15,825	8,266	2.09	8.2
Motors	PMTR-59c	PLT BLDG - 00253	PMPMTR	VSD & EEM - ROF	6,487	0	6,487	12,466	1,124	220	457	12,913	6,427	1.99	8.7
Motors	PMTR-59c	PLT BLDG - 00253	PMPMTR	VSD & EEM - RI	8,032	331	7,701	19,621	2,049	344	-2,358	18,967	11,266	2.46	7.0
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - ROF	892	0	892	1,512	514	0	25	2,001	1,110	2.24	7.7
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - RI	1,104	80	1,024	2,740	932	0	-391	3,281	2,257	3.20	5.4
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM ROF	698	0	698	2,480	843	0	32	3,292	2,594	4.72	3.7
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM RI	864	70	794	4,260	1,449	0	-318	5,391	4,597	6.79	2.5
Motors	PMTR-67	PLT-BLDG - 00253	PMPMTR	EEM - ROF	698	0	698	1,299	442	0	32	1,708	1,011	2.45	7.0
Motors	PMTR 67	PLT-BLDG - 00253	PMPMTR	EEM - RI	864	70	794	2,390	813	0	318	2,884	2,090	3.63	4.7
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - ROF	164	0	164	251	169	0	0	420	256	2.56	6.7
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - RI	223	16	207	528	356	0	-101	782	575	3.78	4.6
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - ROF	329	0	329	502	339	0	0	841	512	2.56	6.7
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - RI	446	32	414	1,055	712	0	202	1,565	1,151	3.78	4.6
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - ROF	395	0	395	394	35	0	-16	413	18	1.04	16.5
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - RI	489	35	454	700	62	0	-178	584	130	1.29	13.4
Motors	PMTR-48a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	1,176	0	1,176	399	538	0	-26	911	265	0.77	22.2
Motors	PMTR-48a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1,456	120	1,336	734	990	0	508	1,216	-120	0.91	18.9
Motors	PMTR-48b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	10,856	0	10,856	6,123	-275	-220	-1,333	4,294	-6,561	0.40	43.5
Motors	PMTR-48b	PLT BLDG - 00263	PMPMTR	VSD to Std - RI	13,442	82	13,360	9,642	-275	-344	-5,375	3,647	9,713	0.27	63.1
Motors	PMTR-48c	PLT-BLDG 00263	PMPMTR	VSD & EEM - ROF	11,028	0	11,028	6,298	538	220	-1,333	5,282	-5,746	0.48	36.0
Motors	PMTR-48c	PLT-BLDG 00263	PMPMTR	VSD & EEM - RI	13,656	196	13,460	9,914	990	-344	-5,375	5,184	-8,275	0.39	44.7
Motors	PMTR-49a	PLT-BLDG 00263	PMPMTR	EEM - ROF	395	0	395	111	150	0	-16	245	-149	0.62	27.7
Motors	PMTR-49a	PLT-BLDG - 00263	PMPMTR	EEM - RI	489	35	454	198	267	0	-178	287	167	0.63	27.2
Motors	PMTR-49b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	2,844	0	2,844	1,275	60	-110	-342	763	-2,082	0.27	64.2
Motors	PMTR-49b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	3,522	17	3,505	2,009	60	172	-1,392	385	3,120	0.11	156.8
Motors	PMTR-49c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	2,953	0	2,953	1,320	150	110	-342	1,018	-1,935	0.34	50.0
Motors	PMTR-49c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	3,657	51	3,606	2,079	267	-172	-1,392	782	-2,824	0.22	79.4
Motors	PMTR-50a	PLT-BLDG 00263	PMPMTR	EEM - ROF	588	0	588	199	269	0	-13	456	-132	0.77	22.2
Motors	PMTR-50a	PLT-BLDG - 00263	PMPMTR	EEM - RI	728	60	668	367	495	0	-254	-608	-60	0.91	18.9
Motors	PMTR-50b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	5,428	0	5,428	3,062	,137	-110	667	2,147	-3,281	0.40	43.5
Motors	PMTR-50b	PLT-BLDG 00263	PMPMTR	VSD to Std - RI	6,721	41	6,680	4,821	137	172	-2,688	1,824	-4,856	0.27	63.1
Motors	PMTR-50c	PLT BLDG - 00263	PMPMTR	VSD & EEM - ROF	5,514	0	5,514	3,149	269	110	-667	2,641	-2,873	0.48	36.0
Motors	PMTR 50c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	6,828	98	6,730	4,957	495	172	-2,688	2,592	-4,138	0.39	44.7
Motors	PMTR-52a	PLT-BLDG 00263	PMPMTR	EEM - ROF	588	0	588	381	514	0	13	882	294	1.50	11.5
Motors	PMTR-52a	PLT BLDG - 00263	PMPMTR	EEM - RI	728	60	668	654	883	0	-254	1,283	615	1.92	9.0
Motors	PMTR-52b	PLT-BLDG - 00263	PMPMTR	VSD to Std - ROF	5,428	0	5,428	3,188	149	110	-667	2,262	-3,166	0.42	41.3
Motors	PMTR-52b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	6,721	43	6,678	5,022	149	172	-2,688	2,013	-4,665	0.30	57.1
Motors	PMTR-52c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	5,514	0	5,514	3,330	514	110	-667	3,067	-2,447	0.56	31.0
Motors	PMTR-52c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	6,828	98	6,730	5,244	883	172	-2,688	3,267	-3,463	0.49	35.5
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM ROF	1,449	0	1,449	1,018	1,374	0	-38	2,354	905	1.62	10.6
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1,794	135	1,659	1,773	2,393	0	-632	3,533	1,874	2.13	8.1
Motors	PMTR-53b	PLT BLDG - 00263	PMPMTR	VSD to Std - ROF	16,880	0	16,880	10,205	458	110	-2,183	7,454	-9,426	0.44	39.0
Motors	PMTR-53b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	20,902	137	20,765	16,069	458	-172	-8,616	6,823	-13,943	0.33	52.4
Motors	PMTR-53c	PLT BLDG - 00263	PMPMTR	VSD & EEM - ROF	17,132	0	17,132	10,599	1,374	-110	-2,183	9,679	-7,453	0.56	30.5
Motors	PMTR-53c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	21,214	259	20,955	16,682	2,393	172	8,616	10,286	-10,669	0.49	35.1
Motors	PMTR-60a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	1,449	0	1,449	1,018	1,374	0	-38	2,354	905	1.62	10.6
Motors	PMTR-60a	PLT-BLDG - 00263	PMPMTR	EEM RI	1,794	135	1,659	1,773	2,393	0	632	3,533	1,874	2.13	8.1
Motors	PMTR-60b	PLT BLDG - 00263	PMPMTR	VSD to Std - ROF	4,847	0	4,847	10,205	458	110	370	9,267	4,420	1.91	9.0
Motors	PMTR-60b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	6,002	137	5,865	16,069	458	-172	-1,867	13,572	7,707	2.31	7.4
Motors	PMTR-60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - ROF	5,099	0	5,099	10,599	1,374	110	-370	11,493	6,393	2.25	7.6
Motors	PMTR-60c	PLT BLDG - 00263	PMPMTR	VSD & EEM - RI	6,314	259	6,055	16,682	2,393	172	-1,867	17,035	10,980	2.81	6.1
Motors	PMTR-62a	PLT-BLDG - 00263	PMPMTR	EEM ROF	417	0	417	58	79	0	-23	114	-303	0.27	63.2
Motors	PMTR 62a	PLT-BLDG - 00263	PMPMTR	EEM - RI	516	20	496	108	145	0	194	59	-437	0.12	145.2
Motors	PMTR-62b	PLT BLDG - 00263	PMPMTR	VSD to Std - ROF	2,190	0	2,190	865	-41	-110	-251	463	-1,727	0.21	81.5
Motors	PMTR-62b	PLT-BLDG - 00263	PMPMTR	VSD to Std - RI	2,712	12	2,700	1,364	-41	172	-1,042	108	-2,593	0.04	431.0
Motors	PMTR-62c	PLT BLDG 00263	PMPMTR	VSD & EEM - ROF	2,345	0	2,345	891	79	110	-251	609	-1,737	0.26	66.4
Motors	PMTR-62c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	2,904	31	2,873	1,404	145	172	-1,042	335	-2,539	0.12	147.8
Motors	PMTR 63a	PLT-BLDG - 00263	PMPMTR	EEM - ROF	446	0	446	155	209	0	-12	351	-95	0.79	21.9
Motors	PMTR-63a	PLT-BLDG - 00263	PMPMTR	EEM - RI	552	40	512	280	378	0	195	464	-48	0.91	19.0
Motors	PMTR 63b	PLT BLDG - 00263	PMPMTR	VSD to Std - ROF	3,891	0	3,891	2,088	96	110	-477	1,405	2,486	0.36	47.7
Motors	PMTR 63b	PLT BLDG - 00263	PMPMTR	VSD to Std RI	4,818	28	4,790	3,289	96	172	-1,924	1,097	-3,693	0.23	75.2
Motors	PMTR-63c	PLT BLDG - 00263	PMPMTR	VSD & EEM - ROF	3,973	0	3,973	2,154	209	110	477	1,776	2,198	0.45	38.5
Motors	PMTR 63c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	4,920	66	4,854	3,391	378	172	1.924	1,674	-3,180	0.34	49.9
Motors	PMTR 64a	PLT BLDG - 00263	PMPMTR	EEM ROF	446	0	446	155	209	0	12	351	95	0.79	21.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR 64a	PLT-BLDG 00263	PMPMTR	EEM RI	552	40	512	280	378	0	195	464	-48	0.91	19.0
Motors	PMTR 64b	PLT-BLDG - 00263	PMPMTR	VSD to Std ROF	3,891	0	3,891	2,088	96	110	-477	1,405	2,486	0.36	47.7
Motors	PMTR 64b	PLT-BLDG - 00263	PMPMTR	VSD to Std RI	4,818	28	4,790	3,289	96	172	1,924	1,097	3,693	0.23	75.2
Motors	PMTR 64c	PLT-BLDG - 00263	PMPMTR	VSD & EEM ROF	3,973	0	3,973	2,154	209	110	-477	1,776	2,198	0.45	38.5
Motors	PMTR-64c	PLT BLDG - 00263	PMPMTR	VSD & EEM - RI	4,920	66	4,854	3,391	378	172	-1,924	1,674	3,180	0.34	49.9
Motors	PMTR 69	PLT BLDG - 00263	PMPMTR	EEM ROF	892	0	892	1,512	514	0	25	2,001	1,110	2.24	7.7
Motors	PMTR 69	PLT-BLDG - 00263	PMPMTR	EEM RI	1,104	80	1,024	2,740	932	0	391	3,281	2,257	3.20	5.4
Motors	PMTR 70	POOL-OT - 00328	PMPMTR	EEM - ROF	151	0	151	778	151	0	5	923	772	6.12	2.8
Motors	PMTR 70	POOL-OT 00328	PMPMTR	EEM RI	187	0	187	1,260	245	0	67	1,438	1,251	7.69	2.2
Motors	PMTR 71	POOL-OT - 00328	PMPMTR	EEM ROF	167	0	167	1,161	226	0	6	1,381	1,214	8.26	2.1
Motors	PMTR 71	POOL-OT - 00328	PMPMTR	EEM - RI	207	15	192	1,890	368	0	75	2,183	1,991	11.37	1.5
Motors	PMTR 72	POOL-OT - 00328	PMPMTR	EEM - ROF	151	0	151	778	151	0	-5	923	772	6.12	2.8
Motors	PMTR 72	POOL OT - 00328	PMPMTR	EEM RI	187	0	187	1,260	245	0	-67	1,438	1,251	7.69	2.2
Motors	PMTR 73	POOL-OT - 00328	PMPMTR	EEM ROF	151	0	151	778	151	0	-5	923	772	6.12	2.8
Motors	PMTR 73	POOL-OT - 00328	PMPMTR	EEM - RI	187	0	187	1,260	245	0	-67	1,438	1,251	7.69	2.2
Motors	PMTR 74	PUMP - 00042	PMPMTR	EEM ROF	790	0	790	652	370	0	-33	989	199	1.25	13.8
Motors	PMTR 74	PUMP - 00042	PMPMTR	EEM RI	978	70	908	1,158	658	0	357	1,459	551	1.61	10.7
Motors	PMTR-91	PUMP - 00042	PMPMTR	EEM - ROF	926	0	926	1,623	692	0	-19	2,296	1,370	2.48	6.9
Motors	PMTR 91	PUMP - 00042	PMPMTR	EEM - RI	1,147	90	1,057	2,957	1,261	0	399	3,819	2,762	3.61	4.8
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - ROF	2,898	0	2,898	3,823	2,154	0	-96	5,890	2,983	2.03	8.5
Motors	PMTR 115	PUMP - 00043	PMPMTR	EEM - RI	3,588	270	3,318	7,445	4,194	0	-1,285	10,354	7,036	3.12	5.5
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - ROF	2,898	0	2,898	1,447	2,154	0	96	3,505	607	1.21	14.2
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - RI	3,588	270	3,318	2,819	4,194	0	-1,285	5,728	2,410	1.73	10.0
Motors	MTR-10	PUMP - 00044	AIRCOMP	EEM - ROF	417	0	417	90	97	0	23	164	253	0.39	43.9
Motors	MTR 10	PUMP - 00044	AIRCOMP	EEM RI	516	20	496	166	179	0	194	151	345	0.30	56.5
Motors	MTR-340	PUMP - 00044	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-340	PUMP - 00044	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - ROF	395	0	395	326	185	0	16	495	100	1.25	13.8
Motors	PMTR 75	PUMP - 00044	PMPMTR	EEM - RI	489	35	454	579	329	0	-178	730	276	1.61	10.7
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - ROF	926	0	926	2,111	1,125	0	19	3,217	2,291	3.47	5.0
Motors	PMTR 81	PUMP - 00044	PMPMTR	EEM - RI	1,147	90	1,057	3,652	1,946	0	399	5,198	4,141	4.92	3.5
Motors	PMTR 88	PUMP - 00044	PMPMTR	EEM - ROF	1,176	0	1,176	4,260	830	0	-26	5,063	3,888	4.31	4.0
Motors	PMTR-88	PUMP - 00044	PMPMTR	EEM - RI	1,456	120	1,336	7,618	1,484	0	508	8,593	7,257	6.43	2.7
Motors	PMTR 89	PUMP - 00044	PMPMTR	EEM - ROF	1,176	0	1,176	3,401	662	0	-26	4,038	2,862	3.43	5.0
Motors	PMTR 89	PUMP - 00044	PMPMTR	EEM - RI	1,456	120	1,336	6,259	1,219	0	-508	6,970	5,634	5.22	3.3
Motors	PMTR 90	PUMP - 00044	PMPMTR	EEM - ROF	926	0	926	1,623	692	0	-19	2,296	1,370	2.48	6.9
Motors	PMTR 90	PUMP - 00044	PMPMTR	EEM - RI	1,147	90	1,057	2,957	1,261	0	-399	3,819	2,762	3.61	4.8
Motors	PMTR-92	PUMP - 00044	PMPMTR	EEM - ROF	2,898	0	2,898	3,789	2,154	0	-96	5,846	2,949	2.02	8.5
Motors	PMTR 92	PUMP - 00044	PMPMTR	EEM - RI	3,588	270	3,318	7,379	4,194	0	-1,285	10,288	6,970	3.10	5.6
Motors	PMTR 93	PUMP - 00044	PMPMTR	EEM - ROF	2,898	0	2,898	11,057	2,154	0	-96	13,114	10,217	4.53	3.8
Motors	PMTR 93	PUMP - 00044	PMPMTR	EEM - RI	3,588	270	3,318	21,533	4,194	0	-1,285	24,442	21,124	7.37	2.3
Motors	PMTR 94	PUMP - 00044	PMPMTR	EEM - ROF	2,898	0	2,898	11,057	2,154	0	-96	13,114	10,217	4.53	3.8
Motors	PMTR-94	PUMP 00044	PMPMTR	EEM - RI	3,588	270	3,318	21,533	4,194	0	-1,285	24,442	21,124	7.37	2.3
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - ROF	3,476	0	3,476	6,082	3,241	0	-159	9,163	5,687	2.64	6.5
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - RI	4,304	320	3,984	11,573	6,166	0	-1,585	16,154	12,170	4.05	4.2
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - ROF	3,476	0	3,476	6,196	3,241	0	-159	9,277	5,802	2.67	6.5
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - RI	4,304	320	3,984	11,790	6,166	0	-1,585	16,371	12,387	4.11	4.2
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - ROF	446	0	446	547	257	0	-12	792	346	1.78	9.7
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - RI	552	40	512	992	466	0	195	1,262	750	2.47	7.0
Motors	PMTR-76	PUMP - 00324	PMPMTR	EEM - ROF	359	0	359	168	90	0	16	242	117	0.67	25.5
Motors	PMTR-76	PUMP - 00324	PMPMTR	EEM - RI	445	18	427	303	161	0	-163	301	126	0.71	24.4
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - ROF	926	0	926	1,473	130	0	-19	1,584	658	1.71	10.1
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - RI	1,147	90	1,057	2,684	236	0	399	2,521	1,464	2.39	7.2
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - ROF	167	0	167	482	42	0	-6	517	350	3.10	5.6
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - RI	207	15	192	784	69	0	-75	778	586	4.05	4.3
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - ROF	1,128	0	1,128	2,918	1,555	0	-18	4,454	3,326	3.95	4.4
Motors	PMTR 86	PUMP - 00324	PMPMTR	EEM RI	1,397	120	1,277	5,028	2,679	0	-481	7,226	5,949	5.66	3.0
Motors	PMTR 87	PUMP - 00324	PMPMTR	EEM - ROF	417	0	417	182	97	0	23	255	162	0.61	28.1
Motors	PMTR 87	PUMP - 00324	PMPMTR	EEM - RI	516	20	496	336	179	0	-194	320	176	0.65	26.7
Motors	PMTR 95	PUMP - 00324	PMPMTR	EEM - ROF	359	0	359	133	71	0	16	188	171	0.52	32.9
Motors	PMTR-95	PUMP - 00324	PMPMTR	EEM - RI	445	18	427	247	132	0	-163	215	212	0.50	34.2
Motors	PMTR-96	PUMP - 00324	PMPMTR	EEM - ROF	417	0	417	182	97	0	23	255	162	0.61	28.1
Motors	PMTR-96	PUMP - 00324	PMPMTR	EEM - RI	516	20	496	336	179	0	-194	320	176	0.65	26.7
Motors	PMTR 97	PUMP - 00324	PMPMTR	EEM - ROF	417	0	417	182	97	0	23	255	162	0.61	28.1
Motors	PMTR 97	PUMP - 00324	PMPMTR	EEM - RI	516	20	496	336	179	0	194	320	176	0.65	26.7
Motors	PMTR-98	PUMP - 00324	PMPMTR	EEM ROF	417	0	417	182	97	0	-23	255	162	0.61	28.1
Motors	PMTR 98	PUMP - 00324	PMPMTR	EEM RI	516	20	496	336	179	0	194	320	176	0.65	26.7
Motors	PMTR 99	PUMP - 00324	PMPMTR	EEM - ROF	926	0	926	1,299	692	0	19	1,972	1,045	2.13	8.1
Motors	PMTR 99	PUMP - 00324	PMPMTR	EEM - RI	1,147	90	1,057	2,366	1,261	0	-399	3,228	2,171	3.05	5.6
Motors	PMTR-106	PUMP 00636	PMPMTR	EEM ROF	2,898	0	2,898	7,116	3,914	0	-101	10,928	8,031	3.77	4.6
Motors	PMTR 106	PUMP - 00636	PMPMTR	EEM RI	3,588	270	3,318	12,410	6,826	0	-1,290	17,946	14,628	5.41	3.2
Motors	PMTR 107	PUMP - 00636	PMPMTR	EEM - ROF	2,898	0	2,898	803	3,914	0	-101	4,616	1,718	1.59	10.8
Motors	PMTR-107	PUMP - 00636	PMPMTR	EEM - RI	3,583	270	3,318	1,401	6,826	0	-1,290	6,937	3,619	2.09	8.2
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM ROF	2,898	0	2,898	7,843	3,914	0	-101	11,656	8,758	4.02	4.3
Motors	PMTR 109	PUMP - 00636	PMPMTR	EEM RI	3,588	270	3,318	13,679	6,826	0	-1,290	19,215	15,897	5.79	3.0
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - ROF	926	0	926	873	938	0	-19	1,793	866	1.94	8.9
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - RI	1,147	90	1,057	1,535	1,651	0	399	2,787	1,730	2.64	6.5
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM ROF	395	0	395	470	259	0	16	713	318	1.80	9.5
Motors	PMTR 105	PUMP - 00652	PMPMTR	EEM - RI	489	35	454	810	445	0	-178	1,077	623	2.37	7.3
Motors	PMTR 108	PUMP - 00652	PMPMTR	EEM ROF	2,898	0	2,898	4,171	3,914	0	101	7,983	5,086	2.76	6.3
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM RI	3,588	270	3,318	7,274	6,826	0	1,290	12,810	9,492	3.86	4.5

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM ROF	7,409	0	7,409	12,798	7,214	0	191	19,821	12,412	2.68	6.4
Motors	PMTR 114	PUMP 00663	PMPMTR	EEM RI	9,174	550	8,624	23,902	13,473	0	3,230	34,145	25,521	3.96	4.3
Motors	MTR-341	PUMP - 00700	EVAP	EEM ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-341	PUMP 00700	EVAP	EEM RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	PMTR-100	PUMP 00700	PMPMTR	EEM ROF	2,215	0	2,215	5,599	1,090	0	-78	6,611	4,396	2.98	5.8
Motors	PMTR-100	PUMP - 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR 101	PUMP - 00700	PMPMTR	EEM ROF	2,215	0	2,215	5,599	1,090	0	78	6,611	4,396	2.98	5.8
Motors	PMTR 101	PUMP 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR-102	PUMP - 00700	PMPMTR	EEM ROF	2,215	0	2,215	5,599	1,090	0	78	6,611	4,396	2.98	5.8
Motors	PMTR 102	PUMP - 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR 103	PUMP 00700	PMPMTR	EEM ROF	2,215	0	2,215	5,599	1,090	0	78	6,611	4,396	2.98	5.8
Motors	PMTR-103	PUMP 00700	PMPMTR	EEM - RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR-104	PUMP. 00700	PMPMTR	EEM - ROF	2,898	0	2,898	3,583	1,527	0	76	5,034	2,136	1.74	9.9
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - RI	3,588	270	3,318	6,934	2,956	0	-1,265	8,626	5,308	2.60	6.6
Motors	MTR-342	PUMP 00838	EVAP	EEM ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-342	PUMP - 00838	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM ROF	9,174	550	8,624	6,858	10,583	0	711	16,730	8,106	1.94	8.9
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM RI	9,174	550	8,624	7,508	11,586	0	-711	18,383	9,759	2.13	8.1
Motors	PMTR-79	PUMP 05590	PMPMTR	EEM ROF	7,409	0	7,409	3,693	7,214	0	191	10,716	3,307	1.45	11.9
Motors	PMTR 79	PUMP 05590	PMPMTR	EEM - RI	9,174	550	8,624	6,898	13,473	0	3,230	17,140	8,516	1.99	8.7
Motors	PMTR-80	PUMP - 05590	PMPMTR	EEM ROF	7,409	0	7,409	6,537	7,214	0	191	13,559	6,150	1.83	9.4
Motors	PMTR 80	PUMP - 05590	PMPMTR	EEM RI	9,174	550	8,624	12,208	13,473	0	3,230	22,450	13,826	2.60	6.6
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM ROF	4,690	0	4,680	8,859	4,280	0	-264	12,875	8,195	2.75	6.3
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM RI	5,795	450	5,345	16,692	8,065	0	2,184	22,573	17,228	4.22	4.1
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM ROF	4,680	0	4,680	6,125	4,280	0	264	10,141	5,461	2.17	7.9
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - RI	5,795	450	5,345	11,541	8,065	0	-2,184	17,422	12,077	3.26	5.3
Motors	PMTR 83	PUMP - 18005	PMPMTR	EEM - ROF	5,879	0	5,879	8,228	5,410	0	370	13,269	7,389	2.26	7.6
Motors	PMTR 83	PUMP - 18005	PMPMTR	EEM - RI	7,280	500	6,780	15,367	10,104	0	-2,781	22,690	15,910	3.35	5.1
Motors	PMTR 84	PUMP 18005	PMPMTR	EEM ROF	5,879	0	5,879	9,687	5,410	0	370	14,728	8,849	2.51	6.9
Motors	PMTR-84	PUMP 18005	PMPMTR	EEM - RI	7,280	500	6,780	18,093	10,104	0	2,781	23,416	18,636	3.75	4.6
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - ROF	5,879	0	5,879	4,782	5,410	0	-370	9,823	3,943	1.67	10.3
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - RI	7,280	500	6,780	8,931	10,104	0	2,781	16,254	9,474	2.40	7.2
Motors	MTR-343	REC 00322	EVAP	EEM ROF	3,675	0	3,675	569	384	0	-207	747	2,928	0.20	84.7
Motors	MTR-343	REC 00322	EVAP	EEM - RI	4,550	140	4,410	1,056	713	0	1,714	55	-4,355	0.01	1,387.3
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - ROF	167	0	167	482	226	0	-6	701	534	4.19	4.1
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR-344	REC - 00338	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-344	REC - 00338	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,374	1,160	3.80	4.5
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - ROF	167	0	167	482	226	0	6	701	534	4.19	4.1
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR-345	REC - 00905	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-345	REC - 00905	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-34a	REC - 00905	COMPMTR	EEM - ROF	1,703	0	1,703	1,666	916	0	-58	2,525	821	1.48	11.6
Motors	MTR-34a	REC - 00905	COMPMTR	EEM - RI	2,109	175	1,934	3,225	1,774	0	756	4,242	2,308	2.19	7.9
Motors	MTR 34b	REC - 00905	COMPMTR	VSD to Std ROF	5,152	0	5,152	24,718	-625	-110	379	23,604	18,452	4.58	3.8
Motors	MTR-34b	REC - 00905	COMPMTR	VSD to Std - RI	6,379	914	5,465	39,096	625	-172	-1,951	36,349	30,884	6.65	2.6
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - ROF	5,535	0	5,535	26,119	916	-110	379	26,547	21,011	4.80	3.6
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - RI	6,854	1,039	5,815	41,277	1,774	-172	1,951	40,928	35,113	7.04	2.4
Motors	MTR-35a	REC - 00905	COMPMTR	EEM - ROF	1,703	0	1,703	1,944	1,069	0	-58	2,955	1,252	1.73	9.9
Motors	MTR-35a	REC - 00905	COMPMTR	EEM - RI	2,109	175	1,934	3,762	2,069	0	-756	5,075	3,141	2.62	6.6
Motors	MTR-35b	REC - 00905	COMPMTR	VSD to Std - ROF	5,152	0	5,152	28,837	-729	-110	379	27,619	22,468	5.36	3.2
Motors	MTR-35b	REC - 00905	COMPMTR	VSD to Std - RI	6,379	1,066	5,313	45,613	-729	-172	1,951	42,761	37,448	8.05	2.1
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - ROF	5,535	0	5,535	30,472	1,069	-110	-379	31,052	25,517	5.61	3.1
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - RI	6,854	1,183	5,671	48,156	2,069	-172	1,951	48,103	42,432	8.48	2.0
Motors	MTR-36	REC - 00905	COMPMTR	EEM - ROF	1,470	0	1,470	344	189	0	-83	450	-1,019	0.31	56.2
Motors	MTR-36	REC - 00905	COMPMTR	EEM - RI	1,820	56	1,764	638	351	0	-686	303	1,461	0.17	100.2
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - ROF	395	0	395	394	150	0	-16	528	133	1.34	12.9
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - RI	489	35	454	700	267	0	-178	789	335	1.74	9.9
Motors	MTR-478b	REC - 00905	Fan Motor	VSD to Std - ROF	7,205	0	7,205	4,509	-60	-110	-1,000	3,340	3,865	0.46	37.2
Motors	MTR-478b	REC - 00905	Fan Motor	VSD to Std - RI	8,922	68	8,854	7,104	60	-172	-3,838	3,034	5,819	0.34	50.2
Motors	MTR-478c	REC - 00905	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	4,669	150	-110	-1,000	3,710	3,605	0.51	34.0
Motors	MTR-478c	REC - 00905	Fan Motor	VSD & EEM - RI	9,057	98	8,959	7,353	267	-172	-3,838	3,610	5,350	0.40	42.7
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - ROF	395	0	395	394	150	0	-16	528	133	1.34	12.9
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - RI	489	35	454	700	267	0	-178	789	335	1.74	9.9
Motors	MTR-479b	REC - 00905	Fan Motor	VSD to Std - ROF	7,205	0	7,205	4,509	-60	-110	1,000	3,340	-3,865	0.46	37.2
Motors	MTR-479b	REC 00905	Fan Motor	VSD to Std - RI	8,922	68	8,854	7,104	-60	-172	-3,838	3,034	-5,819	0.34	50.2
Motors	MTR-479c	REC - 00905	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	4,669	150	-110	-1,000	3,710	3,605	0.51	34.0
Motors	MTR-479c	REC - 00905	Fan Motor	VSD & EEM - RI	9,057	98	8,959	7,353	267	-172	-3,838	3,610	-5,350	0.40	42.7
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - ROF	395	0	395	394	150	0	-16	528	133	1.34	12.9
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - RI	489	35	454	700	267	0	-178	789	335	1.74	9.9
Motors	MTR-480b	REC - 00905	Fan Motor	VSD to Std - ROF	7,205	0	7,205	4,509	-60	-110	-1,000	3,340	3,865	0.46	37.2
Motors	MTR-480b	REC - 00905	Fan Motor	VSD to Std RI	8,922	68	8,854	7,104	-60	-172	3,838	3,034	5,819	0.34	50.2
Motors	MTR-480c	REC - 00905	Fan Motor	VSD & EEM - ROF	7,314	0	7,314	4,669	150	-110	1,000	3,710	3,605	0.51	34.0
Motors	MTR-480c	REC - 00905	Fan Motor	VSD & EEM - RI	9,057	98	8,959	7,353	267	-172	-3,838	3,610	5,350	0.40	42.7
Motors	MTR-481	REC - 00905	Fan Motor	EEM ROF	446	0	446	547	257	0	12	792	346	1.78	9.7
Motors	MTR-481	REC - 00905	Fan Motor	EEM - RI	552	40	512	992	466	0	195	1,262	750	2.47	7.0
Motors	PMTR 117	REC 00905	PMPMTR	EEM - ROF	180	0	180	561	264	0	7	818	638	4.54	3.8
Motors	PMTR-117	REC - 00905	PMPMTR	EEM - RI	223	16	207	917	431	0	81	1,266	1,059	6.12	2.8
Motors	MTR-346	SECURTY - 00326	EVAP	EEM - ROF	394	0	394	105	71	0	33	142	252	0.36	47.7
Motors	MTR-346	SECURTY 00326	EVAP	EEM - RI	445	18	427	148	100	0	121	127	300	0.30	58.0
Motors	MTR 347	SECURTY - 00326	EVAP	EEM - ROF	197	0	197	389	263	0	15	637	419	5.23	5.3

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 347	SECURTY 00326	EVAP	EEM - RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 348	SECURTY 00326	EVAP	EEM - ROF	394	0	394	105	71	0	33	142	252	0.36	47.7
Motors	MTR 348	SECURTY 00326	EVAP	EEM - RI	445	18	427	148	100	0	121	127	300	0.30	58.0
Motors	MTR-349	SECURTY - 00427	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-349	SECURTY - 00427	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-350	SHOP 00356	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR 350	SHOP - 00356	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-351	SHOP - 00357	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-351	SHOP - 00357	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 352	SHOP - 00357	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-352	SHOP - 00357	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-353	SHOP - 00357	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 353	SHOP - 00357	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - ROF	1,128	0	1,128	596	641	0	18	1,219	91	1.08	15.9
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM RI	1,397	120	1,277	1,147	1,233	0	481	1,900	623	1.49	11.6
Motors	MTR 354	SHOP - 00367	EVAP	EEM - ROF	900	0	900	1,587	1,071	0	36	2,622	1,722	2.91	5.9
Motors	MTR-354	SHOP - 00367	EVAP	EEM RI	1,115	80	1,035	2,592	1,749	0	-405	3,935	2,900	3.80	4.5
Motors	MTR-355	SHOP - 00367	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-355	SHOP - 00367	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-356	SHOP - 00384	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 356	SHOP - 00384	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-357	SHOP - 00384	EVAP	EEM - ROF	720	0	720	1,270	857	0	29	2,098	1,378	2.91	5.9
Motors	MTR 357	SHOP - 00384	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR-358	SHOP - 00842	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-358	SHOP - 00842	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-359	SHOP - 00842	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-359	SHOP - 00842	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 360	SHOP-ELC - 00581	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 360	SHOP ELC - 00581	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-361	SHOP ELC 00581	EVAP	EEM - ROF	720	0	720	1,270	857	0	29	2,098	1,378	2.91	5.9
Motors	MTR 361	SHOP-ELC - 00581	EVAP	EEM - RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR-362	SHOP-ELC - 00616	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR 362	SHOP ELC - 00616	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-363	SHOP-WPN - 07602	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-363	SHOP WPN - 07602	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-364	STOR UH - 00148	EVAP	EEM - ROF	391	0	391	65	44	0	36	74	-317	0.19	91.0
Motors	MTR-364	STOR-UH - 00148	EVAP	EEM RI	455	14	441	101	68	0	146	23	-418	0.05	332.4
Motors	MTR 365	TRAING - 00490	EVAP	EEM - ROF	1,470	0	1,470	228	154	0	-83	299	-1,171	0.20	84.7
Motors	MTR-365	TRAING - 00490	EVAP	EEM - RI	1,820	56	1,764	422	285	0	686	22	-1,742	0.01	1,387.3
Motors	MTR 366	TRAING - 00492	EVAP	EEM - ROF	1,470	0	1,470	228	154	0	83	299	-1,171	0.20	84.7
Motors	MTR-366	TRAING - 00492	EVAP	EEM - RI	1,820	56	1,764	422	285	0	686	22	1,742	0.01	1,387.3
Motors	MTR-367	TRAING - 00496	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-367	TRAING - 00496	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-368	TRAING - 00496	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-368	TRAING - 00496	EVAP	EEM - RI	223	16	-207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-369	TRAING - 00547	EVAP	EEM - ROF	394	0	394	105	71	0	33	142	252	0.36	47.7
Motors	MTR-369	TRAING - 00547	EVAP	EEM - RI	445	18	427	148	100	0	121	127	-300	0.30	58.0
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - ROF	167	0	167	482	226	0	-6	701	534	4.19	4.1
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - ROF	151	0	151	429	202	0	-5	626	475	4.14	4.2
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - RI	187	0	187	696	327	0	67	955	768	5.11	3.4
Motors	MTR-370	WHS - 00024	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-370	WHS 00024	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-371	WHS 00234	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR 371	WHS 00234	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-372	WHS - 00277	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-372	WHS 00277	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-373	WHS 00306	EVAP	EEM - ROF	719	0	719	171	115	0	-32	254	-464	0.35	48.6
Motors	MTR-373	WHS 00306	EVAP	EEM - RI	890	36	854	317	214	0	-326	204	650	0.24	72.0
Motors	MTR 374	WHS 00318	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-374	WHS - 00318	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-375	WHS - 00318	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR 375	WHS - 00318	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 376	WHS - 00318	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-376	WHS 00318	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-377	WHS - 00318	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-377	WHS - 00318	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 378	WHS - 00333	EVAP	EEM - ROF	367	0	367	57	38	0	21	75	-293	0.20	84.7
Motors	MTR 378	WHS - 00333	EVAP	EEM - RI	455	14	441	106	71	0	171	5	-436	0.01	1,387.3
Motors	MTR-379	WHS - 00333	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-379	WHS - 00333	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 380	WHS 00333	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR 380	WHS - 00333	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 381	WHS - 00342	EVAP	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-381	WHS - 00342	EVAP	EEM RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR 382	WHS - 00342	EVAP	EEM - ROF	720	0	720	1,270	857	0	29	2,098	1,378	2.91	5.9
Motors	MTR-382	WHS - 00342	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 383	WHS - 00344	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-383	WHS - 00344	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 384	WHS 00352	EVAP	EEM - ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR 384	WHS - 00352	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-385	WHS 00360	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-385	WHS 00360	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 386	WHS - 00364	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR 386	WHS - 00364	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-387	WHS - 00364	EVAP	EEM ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-387	WHS - 00364	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-388	WHS - 00364	EVAP	EEM ROF	360	0	360	635	428	0	14	1,049	689	2.91	5.9
Motors	MTR-388	WHS - 00364	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 389	WHS - 00435	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	-232	0.35	48.6
Motors	MTR-389	WHS - 00435	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR 390	WHS - 00456	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	-232	0.35	48.6
Motors	MTR-390	WHS - 00456	EVAP	EEM RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-391	WHS - 00460	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-391	WHS - 00460	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-392	WHS - 00462	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-392	WHS - 00462	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-393	WHS - 00462	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-393	WHS - 00462	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-394	WHS - 00470	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-394	WHS - 00470	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR-395	WHS - 00470	EVAP	EEM - ROF	359	0	359	85	58	0	16	127	232	0.35	48.6
Motors	MTR-395	WHS - 00470	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-396	WHS - 00470	EVAP	EEM - ROF	180	0	180	317	214	0	7	524	344	2.91	5.9
Motors	MTR-396	WHS - 00470	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-397	WHS - 00472	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-397	WHS - 00472	EVAP	EEM - RI	445	18	427	158	107	0	-163	102	325	0.24	72.0
Motors	MTR-398	WHS - 00474	EVAP	EEM - ROF	394	0	394	105	71	0	33	142	252	0.36	47.7
Motors	MTR-398	WHS - 00474	EVAP	EEM - RI	445	18	427	148	100	0	121	127	300	0.30	58.0
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - ROF	334	0	334	963	452	0	-13	1,402	1,068	4.19	4.1
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - RI	414	30	384	1,567	736	0	-150	2,153	1,769	5.61	3.1
Motors	MTR-399	WHS - 00486	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-399	WHS - 00486	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-400	WHS - 00486	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-400	WHS - 00486	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-401	WHS - 00517	EVAP	EEM - ROF	720	0	720	1,270	857	0	29	2,098	1,378	2.91	5.9
Motors	MTR-401	WHS - 00517	EVAP	EEM - RI	892	64	828	2,073	1,399	0	-324	3,148	2,320	3.80	4.5
Motors	MTR-402	WHS - 00531	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-402	WHS - 00531	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-403	WHS - 00531	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-403	WHS - 00531	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-404	WHS - 00537	EVAP	EEM - ROF	359	0	359	85	58	0	-16	127	232	0.35	48.6
Motors	MTR-404	WHS - 00537	EVAP	EEM - RI	445	18	427	158	107	0	163	102	325	0.24	72.0
Motors	MTR-405	WHS - 00545	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-405	WHS - 00545	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - ROF	334	0	334	421	452	0	-13	860	526	2.57	6.7
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - RI	414	30	384	685	736	0	-150	1,271	887	3.31	5.2
Motors	MTR-406	WHS - 00558	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-406	WHS - 00558	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR-407	WHS - 00584	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-407	WHS - 00584	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-408	WHS - 00585	EVAP	EEM ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-408	WHS - 00585	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-409	WHS - 00818	EVAP	EEM - ROF	1,128	0	1,128	772	521	0	-18	1,275	146	1.13	15.2
Motors	MTR-409	WHS - 00818	EVAP	EEM - RI	1,397	120	1,277	1,485	1,002	0	-481	2,006	729	1.57	11.0
Motors	MTR-410	WHS 00827	EVAP	EEM - ROF	191	0	191	364	246	0	-12	598	407	3.12	5.5
Motors	MTR-410	WHS - 00827	EVAP	EEM - RI	223	16	207	512	345	0	67	791	584	3.82	4.5
Motors	MTR-411	WHS - 00827	EVAP	EEM - ROF	574	0	574	1,093	738	0	37	1,794	1,220	3.12	5.5
Motors	MTR-411	WHS - 00827	EVAP	EEM - RI	669	48	621	1,536	1,036	0	-200	2,372	1,751	3.82	4.5
Motors	MTR-412	WHS - 00827	EVAP	EEM - ROF	191	0	191	364	246	0	12	598	407	3.12	5.5
Motors	MTR-412	WHS - 00827	EVAP	EEM - RI	223	16	207	512	345	0	-67	791	584	3.82	4.5
Motors	MTR-413	WHS - 00844	EVAP	EEM ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-413	WHS - 00844	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-414	WHS - 00860	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-414	WHS - 00860	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-415	WHS - 00860	EVAP	EEM - ROF	360	0	360	635	428	0	-14	1,049	689	2.91	5.9
Motors	MTR-415	WHS - 00860	EVAP	EEM - RI	446	32	414	1,037	700	0	-162	1,574	1,160	3.80	4.5
Motors	MTR-416	WHS - 00860	EVAP	EEM - ROF	180	0	180	317	214	0	-7	524	344	2.91	5.9
Motors	MTR-416	WHS - 00860	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR-417	WHS - 00934	EVAP	EEM - ROF	629	45	584	1,320	891	0	-62	2,148	1,564	3.68	4.7
Motors	MTR-417	WHS - 00934	EVAP	EEM - RI	669	48	621	1,504	1,015	0	130	2,389	1,768	3.85	4.5
Motors	MTR-96	WHS 20001	COOL	EEM - ROF	586	0	586	338	457	0	-14	781	195	1.33	12.9
Motors	MTR-96	WHS - 20001	COOL	EEM - RI	748	0	748	594	802	0	293	1,102	354	1.47	11.7
Motors	MTR-37	WHS CLD - 00862	COMPMTR	EEM - ROF	151	0	151	275	151	0	-5	421	270	2.79	6.2
Motors	MTR-37	WHS CLD - 00862	COMPMTR	EEM - RI	187	0	187	446	245	0	67	624	437	3.34	5.2
Motors	MTR-485	WHS CLD - 00862	Fan Motor	EEM - ROF	334	0	334	2,322	452	0	13	2,762	2,428	8.26	2.1
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - RI	414	30	384	3,779	736	0	-150	4,365	3,981	11.37	1.5
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - ROF	790	0	790	788	370	0	33	1,126	336	1.43	12.1
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - RI	978	70	908	1,401	658	0	357	1,702	794	1.87	9.2
Motors	MTR-49	WHS-CLD 00862	CONDMTR	EEM - ROF	151	0	151	163	142	0	-5	299	148	1.98	8.7
Motors	MTR-49	WHS CLD 00862	CONDMTR	EEM - RI	187	0	187	264	230	0	67	427	240	2.28	7.5
Motors	MTR 50a	WHS CLD - 00862	CONDMTR	EEM - ROF	892	0	892	553	418	0	25	946	54	1.06	16.2

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-50a	WHS CLD 00862	CONDMTR	EEM RI	1,104	80	1,024	1,002	757	0	391	1,368	344	1.34	12.9
Motors	MTR 50b	WHS CLD - 00862	CONDMTR	VSD to Std ROF	22,318	0	22,318	5,178	-192	220	3,144	1,622	20,696	0.07	236.9
Motors	MTR-50b	WHS CLD 00862	CONDMTR	VSD to Std RI	27,636	227	27,409	8,200	192	344	12,001	4,338	31,747	0.16	NA
Motors	MTR-50c	WHS CLD 00862	CONDMTR	VSD & EEM ROF	22,483	0	22,483	5,582	418	220	3,144	2,636	19,848	0.12	146.9
Motors	MTR-50c	WHS CLD 00862	CONDMTR	VSD & EEM RI	27,840	290	27,550	8,828	757	344	12,001	2,761	30,311	0.10	NA
Motors	PMTR-120	WHS CLD 00862	refrigeration unit	EEM - ROF	4,187	0	4,187	13,605	2,650	0	193	16,062	11,876	3.84	4.5
Motors	PMTR-120	WHS CLD 00862	refrigeration unit	EEM RI	5,184	420	4,764	25,036	4,876	0	1,910	28,002	23,238	5.88	2.9
Motors	PMTR 121	WHS CLD - 00862	refrigeration unit	EEM - ROF	2,093	0	2,093	6,803	1,325	0	96	8,031	5,938	3.84	4.5
Motors	PMTR 121	WHS CLD - 00862	refrigeration unit	EEM - RI	2,592	210	2,382	12,518	2,438	0	955	14,001	11,619	5.88	2.9
Motors	PMTR-122	WHS CLD 00862	PMPMTR	EEM ROF	334	0	334	803	452	0	13	1,242	908	3.71	4.6
Motors	PMTR-122	WHS CLD - 00862	PMPMTR	EEM RI	414	30	384	1,306	736	0	150	1,892	1,508	4.93	3.5
Refrigeration		Commercial	Refrigerators	Efficient Refrigerators - RI	286,928	0	286,928	94,206	20,596	0	136,665	251,467	35,461	0.88	19.6
Refrigeration		HSG-FAM	Refrigerators	Efficient Refrigerators - RI	1,257,407	0	1,257,407	412,840	90,256	0	598,908	1,102,004	155,403	0.88	19.6
T&D	10a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	29,291	0	29,291	2,848	606	0	6,614	10,068	19,223	0.34	50.1
T&D	10b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	15,906	0	15,906	409	87	0	15,544	16,040	134	1.01	17.1
T&D	10c		Transformer	Amorphous Core (No Load Loss Reduction) RI	32,117	0	32,117	7,974	1,697	0	6,925	16,596	15,522	0.52	33.3
T&D	10d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	17,441	0	17,441	1,146	244	0	16,716	18,107	666	1.04	16.6
T&D	10e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	30,704	0	30,704	3,638	1,668	0	6,770	12,076	18,629	0.39	43.8
T&D	10f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	16,673	0	16,673	523	240	0	16,130	16,893	219	1.01	17.0
T&D	10g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	33,531	0	33,531	8,764	2,759	0	7,081	18,603	14,927	0.55	31.0
T&D	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	18,208	0	18,208	1,260	397	0	17,303	18,959	751	1.04	16.5
T&D	11a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	15,622	0	15,622	1,519	323	0	8,090	9,932	5,690	0.64	27.1
T&D	11b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	11,512	0	11,512	772	164	0	10,832	11,767	255	1.02	16.8
T&D	11c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17,129	0	17,129	4,253	905	0	8,256	13,413	3,716	0.78	22.0
T&D	11d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	12,623	0	12,623	2,160	460	0	11,262	13,882	1,259	1.10	15.7
T&D	11e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16,376	0	16,376	1,940	890	0	8,173	11,002	5,373	0.67	25.6
T&D	11f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	12,067	0	12,067	986	452	0	11,047	12,484	417	1.03	16.6
T&D	11g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	17,883	0	17,883	4,674	1,471	0	8,338	14,484	3,399	0.81	21.3
T&D	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	13,178	0	13,178	2,374	748	0	11,477	14,599	1,421	1.11	15.5
T&D	12a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	25,386	0	25,386	2,468	525	0	22,056	25,049	336	0.99	17.5
T&D	12b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	24,622	0	24,622	2,331	496	0	22,565	25,392	770	1.03	16.7
T&D	12c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	27,835	0	27,835	6,910	1,471	0	22,325	30,707	2,872	1.10	15.6
T&D	12d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	26,998	0	26,998	6,527	1,389	0	22,884	30,799	3,801	1.14	15.1
T&D	12e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	26,610	0	26,610	3,153	1,446	0	22,191	26,789	179	1.01	17.1
T&D	12f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	25,810	0	25,810	2,978	1,365	0	22,725	27,068	1,257	1.05	16.4
T&D	12g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	29,060	0	29,060	7,595	2,391	0	22,460	32,447	3,387	1.12	15.4
T&D	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	28,186	0	28,186	7,173	2,258	0	23,043	32,475	4,289	1.15	14.9
T&D	13a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	29,291	0	29,291	3,594	765	0	15,168	19,527	9,765	0.67	25.8
T&D	13b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	21,585	0	21,585	1,826	389	0	20,309	22,523	938	1.04	16.5
T&D	13c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	32,117	0	32,117	10,062	2,142	0	15,479	27,683	-4,435	0.86	20.0
T&D	13d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	23,668	0	23,668	5,112	1,088	0	21,116	27,316	3,648	1.15	14.9
T&D	13e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	30,704	0	30,704	4,711	2,267	0	15,324	22,301	-8,403	0.73	23.7
T&D	13f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	22,626	0	22,626	2,393	1,151	0	20,713	24,257	1,631	1.07	16.1
T&D	13g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	33,531	0	33,531	11,179	3,643	0	15,635	30,457	-3,073	0.91	19.0
T&D	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	24,709	0	24,709	5,679	1,851	0	21,520	29,050	4,341	1.18	14.6
T&D	14a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,716	0	11,716	1,437	306	0	10,180	11,923	207	1.02	16.9
T&D	14b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	11,364	0	11,364	1,358	289	0	10,415	12,061	697	1.06	16.2
T&D	14c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,847	0	12,847	4,025	857	0	10,304	15,185	2,338	1.18	14.6
T&D	14d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	12,461	0	12,461	3,801	809	0	10,562	15,172	2,711	1.22	14.1
T&D	14e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	12,282	0	12,282	1,884	907	0	10,242	13,033	751	1.06	16.2
T&D	14f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	11,912	0	11,912	1,780	856	0	10,488	13,124	1,212	1.10	15.6
T&D	14g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,412	0	13,412	4,472	1,457	0	10,366	16,295	2,883	1.21	14.2
T&D	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	13,009	0	13,009	4,223	1,376	0	10,635	16,235	3,226	1.25	13.8
T&D	15a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,716	0	11,716	1,437	306	0	2,646	4,389	-7,327	0.37	46.0
T&D	15b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	6,362	0	6,362	207	44	0	6,218	6,468	106	1.02	16.9
T&D	15c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,847	0	12,847	4,025	857	0	2,770	7,651	5,195	0.60	28.9
T&D	15d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	6,976	0	6,976	579	123	0	6,687	7,388	412	1.06	16.3
T&D	15e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	12,282	0	12,282	1,884	907	0	2,708	5,499	6,783	0.45	38.5
T&D	15f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	6,669	0	6,669	271	130	0	6,452	6,853	184	1.03	16.8
T&D	15g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,412	0	13,412	4,472	1,457	0	2,832	8,761	-4,651	0.65	26.4
T&D	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	7,283	0	7,283	643	209	0	6,921	7,773	490	1.07	16.1
T&D	16a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	21,480	0	21,480	2,088	444	0	18,663	21,196	-285	0.99	17.5
T&D	16b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	20,834	0	20,834	1,972	420	0	19,094	21,486	651	1.03	16.7
T&D	16c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23,553	0	23,553	5,847	1,245	0	18,891	25,983	2,430	1.10	15.6
T&D	16d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	22,845	0	22,843	5,522	1,175	0	19,363	26,061	3,216	1.14	15.1
T&D	16e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	22,516	0	22,516	2,668	1,223	0	18,777	22,668	151	1.01	17.1
T&D	16f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	21,839	0	21,839	2,520	1,155	0	19,228	22,903	1,064	1.05	16.4
T&D	16g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	24,589	0	24,589	6,427	2,023	0	19,003	27,455	2,866	1.12	15.4
T&D	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	23,850	0	23,850	6,070	1,911	0	19,498	27,479	3,629	1.15	14.9
T&D	17a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	35,149	0	35,149	3,539	753	0	18,202	22,494	12,655	0.64	26.9
T&D	17b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	25,902	0	25,902	1,798	383	0	24,371	26,552	650	1.03	16.8
T&D	17c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	38,541	0	38,541	9,910	2,109	0	18,575	30,594	-7,947	0.79	21.7
T&D	17d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	28,401	0	28,401	5,034	1,072	0	25,339	31,445	3,044	1.11	15.6
T&D	17e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	36,845	0	36,845	4,487	2,028	0	18,388	24,903	11,942	0.68	25.5
T&D	17f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	27,151	0	27,151	2,280	1,030	0	24,835	28,165	1,014	1.04	16.6
T&D	17g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	40,237	0	40,237	10,858	3,384	0	18,761	33,003	7,233	0.82	21.0
T&D	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	29,651	0	29,651	5,516	1,719	0	25,824	33,059	3,408	1.11	15.4
T&D	18a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	10,323	0	10,323	1,067	227	0	8,942	10,236	87	0.99	17.4
T&D	18b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,012	0	10,012	1,007	214	0	9,149	10,371	358	1.04	16.6
T&D	18c		Transformer	Amorphous Core (No Load Loss Reduction) RI	11,351	0	11,351	2,987	636	0	9,055	12,678	1,327	1.12	15.4
T&D	18d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	11,010	0	11,010	2,821	600	0	9,283	12,704	1,694	1.15	14.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	18e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,837	0	10,837	1,390	662	0	8,998	11,051	214	1.02	16.9
T&D	18f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	10,511	0	10,511	1,313	625	0	9,216	11,154	643	1.06	16.2
T&D	18g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11,865	0	11,865	3,310	1,071	0	9,112	13,492	1,627	1.14	15.1
T&D	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	11,508	0	11,508	3,127	1,011	0	9,350	13,487	1,979	1.17	14.7
T&D	19a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,484	0	15,484	1,600	341	0	7,997	9,937	5,547	0.64	26.8
T&D	19b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	11,410	0	11,410	813	173	0	10,714	11,700	290	1.03	16.8
T&D	19c		Transformer	Amorphous Core (No Load Loss Reduction) RI	17,026	0	17,026	4,480	954	0	8,166	13,600	3,426	0.80	21.6
T&D	19d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	12,547	0	12,547	2,276	484	0	11,155	13,915	1,368	1.11	15.5
T&D	19e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16,255	0	16,255	2,085	993	0	8,081	11,160	-5,096	0.69	25.1
T&D	19f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	11,979	0	11,979	1,059	504	0	10,934	12,498	520	1.04	16.5
T&D	19g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	17,798	0	17,798	4,966	1,606	0	8,251	14,823	2,975	0.83	20.7
T&D	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	13,115	0	13,115	2,523	816	0	11,375	14,713	1,598	1.12	15.4
T&D	1a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	2,155	0	2,155	185	39	0	1,122	1,347	808	0.63	27.5
T&D	1b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	1,583	0	1,583	94	20	0	1,501	1,615	27	1.02	16.9
T&D	1c		Transformer	Amorphous Core (No Load Loss Reduction) RI	2,348	0	2,348	519	110	0	1,144	1,773	575	0.76	22.8
T&D	1d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	1,730	0	1,730	264	56	0	1,556	1,876	145	1.08	15.9
T&D	1e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	2,251	0	2,251	240	113	0	1,133	1,486	765	0.66	26.1
T&D	1f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	1,659	0	1,659	122	57	0	1,528	1,708	49	1.03	16.7
T&D	1g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	2,445	0	2,445	574	184	0	1,154	1,912	532	0.78	22.0
T&D	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	1,801	0	1,801	291	94	0	1,583	1,968	167	1.09	15.8
T&D	20a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	10,323	0	10,323	1,067	227	0	2,327	3,621	-6,702	0.35	49.1
T&D	20b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,606	0	5,606	153	33	0	5,474	5,660	54	1.01	17.1
T&D	20c		Transformer	Amorphous Core (No Load Loss Reduction) RI	11,351	0	11,351	2,987	636	0	2,440	6,063	5,288	0.53	32.2
T&D	20d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	6,164	0	6,164	429	91	0	5,900	6,421	257	1.04	16.5
T&D	20e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,837	0	10,837	1,390	662	0	2,383	4,436	6,401	0.41	42.1
T&D	20f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,885	0	5,885	200	95	0	5,687	5,982	97	1.02	16.9
T&D	20g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11,865	0	11,865	3,310	1,071	0	2,497	6,878	-4,988	0.58	29.7
T&D	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	6,443	0	6,443	476	154	0	6,114	6,743	300	1.05	16.5
T&D	21a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	80,002	0	80,002	10,439	2,222	0	69,299	81,960	1,959	1.02	16.8
T&D	21b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	77,596	0	77,596	9,859	2,098	0	70,904	82,862	5,266	1.07	16.1
T&D	21c		Transformer	Amorphous Core (No Load Loss Reduction) RI	87,970	0	87,970	29,230	6,221	0	70,176	105,627	17,657	1.20	14.3
T&D	21d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	85,325	0	85,325	27,606	5,876	0	71,941	105,422	20,097	1.24	13.9
T&D	21e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	83,986	0	83,986	13,986	6,988	0	69,738	90,711	6,726	1.08	15.9
T&D	21f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	81,461	0	81,461	13,209	6,600	0	71,422	91,231	9,770	1.12	15.4
T&D	21g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	91,954	0	91,954	32,776	10,987	0	70,614	114,378	22,424	1.24	13.8
T&D	21h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	89,189	0	89,189	30,956	10,377	0	72,459	113,791	24,602	1.28	13.5
T&D	22a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	46,453	0	46,453	6,062	1,290	0	23,990	31,341	15,111	0.67	25.5
T&D	22b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	34,231	0	34,231	3,079	655	0	32,143	35,878	1,646	1.05	16.4
T&D	22c		Transformer	Amorphous Core (No Load Loss Reduction) RI	51,079	0	51,079	16,972	3,612	0	24,499	45,083	-5,996	0.88	19.5
T&D	22d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	37,641	0	37,641	8,622	1,835	0	33,464	43,921	6,281	1.17	14.8
T&D	22e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	48,766	0	48,766	8,121	4,058	0	24,244	36,423	12,343	0.75	23.1
T&D	22f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	35,936	0	35,936	4,125	2,061	0	32,803	38,990	3,054	1.08	15.9
T&D	22g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	53,393	0	53,393	19,032	6,380	0	24,753	50,165	3,228	0.94	18.3
T&D	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	39,346	0	39,346	9,668	3,241	0	34,125	47,034	7,688	1.20	14.4
T&D	23a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,484	0	15,484	2,021	430	0	3,490	5,941	9,543	0.38	44.9
T&D	23b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,408	0	8,408	290	62	0	8,211	8,563	155	1.02	16.9
T&D	23c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17,026	0	17,026	5,657	1,204	0	3,660	10,522	6,505	0.62	27.9
T&D	23d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	9,246	0	9,246	813	173	0	8,851	9,837	591	1.06	16.2
T&D	23e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16,255	0	16,255	2,707	1,353	0	3,575	7,635	8,621	0.47	36.7
T&D	23f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,827	0	8,827	389	194	0	8,531	9,114	287	1.03	16.7
T&D	23g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	17,798	0	17,798	6,344	2,127	0	3,745	12,215	5,582	0.69	25.1
T&D	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	9,665	0	9,665	912	306	0	9,171	10,388	724	1.07	16.0
T&D	24a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7,742	0	7,742	800	170	0	6,706	7,677	-65	0.99	17.4
T&D	24b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	7,509	0	7,509	756	161	0	6,862	7,778	269	1.04	16.6
T&D	24c		Transformer	Amorphous Core (No Load Loss Reduction) RI	8,513	0	8,513	2,240	477	0	6,791	9,508	995	1.12	15.4
T&D	24d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	8,257	0	8,257	2,116	450	0	6,962	9,528	1,271	1.15	14.9
T&D	24e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8,128	0	8,128	1,043	496	0	6,749	8,288	160	1.02	16.9
T&D	24f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	7,883	0	7,883	985	469	0	6,912	8,365	482	1.06	16.2
T&D	24g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8,899	0	8,899	2,483	803	0	6,834	10,119	1,221	1.14	15.1
T&D	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	8,631	0	8,631	2,345	758	0	7,012	10,115	1,484	1.17	14.7
T&D	25a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7,742	0	7,742	800	170	0	3,998	4,969	2,773	0.64	26.8
T&D	25b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,705	0	5,705	406	87	0	5,357	5,850	145	1.03	16.8
T&D	25c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	8,513	0	8,513	2,240	477	0	4,083	6,800	1,713	0.80	21.6
T&D	25d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	6,273	0	6,273	1,138	242	0	5,577	6,958	684	1.11	15.5
T&D	25e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	8,128	0	8,128	1,043	496	0	4,041	5,580	2,548	0.69	25.1
T&D	25f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,989	0	5,989	530	252	0	5,467	6,249	260	1.04	16.5
T&D	25g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8,899	0	8,899	2,483	803	0	4,126	7,411	-1,488	0.83	20.7
T&D	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	6,558	0	6,558	1,261	408	0	5,687	7,357	799	1.12	15.4
T&D	26a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,484	0	15,484	1,600	341	0	3,490	5,431	10,053	0.35	49.1
T&D	26b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,408	0	8,408	230	49	0	8,211	8,490	81	1.01	17.1
T&D	26c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17,026	0	17,026	4,480	954	0	3,660	9,094	7,932	0.53	32.2
T&D	26d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,246	0	9,246	644	137	0	8,851	9,632	386	1.04	16.5
T&D	26e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16,255	0	16,255	2,085	993	0	3,575	6,653	-9,602	0.41	42.1
T&D	26f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,827	0	8,827	300	143	0	8,531	8,973	146	1.02	16.9
T&D	26g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	17,798	0	17,798	4,966	1,606	0	3,745	10,316	-7,481	0.58	29.7
T&D	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	9,665	0	9,665	714	231	0	9,171	10,115	451	1.05	16.5
T&D	27a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	46,453	0	46,453	4,800	1,022	0	23,990	29,812	16,641	0.64	26.8
T&D	27b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	34,231	0	34,231	2,439	519	0	32,143	35,101	869	1.03	16.8
T&D	27c		Transformer	Amorphous Core (No Load Loss Reduction) RI	51,079	0	51,079	13,441	2,861	0	24,499	40,801	10,279	0.80	21.6
T&D	27d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	37,641	0	37,641	6,828	1,453	0	33,464	41,746	4,105	1.11	15.5
T&D	27e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	48,766	0	48,766	6,256	2,978	0	24,244	33,479	15,287	0.69	25.1

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	27f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	35,936	0	35,936	3,178	1,513	0	32,803	37,495	1,559	1.04	16.5
T&D	27g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	53,393	0	53,393	14,897	4,817	0	24,753	44,468	8,925	0.83	20.7
T&D	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	39,346	0	39,346	7,568	2,447	0	34,125	44,140	4,794	1.12	15.4
T&D	28a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,484	0	15,484	1,600	341	0	3,490	5,431	10,053	0.35	49.1
T&D	28b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,408	0	8,408	230	49	0	8,211	8,490	81	1.01	17.1
T&D	28c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17,026	0	17,026	4,480	954	0	3,660	9,094	7,932	0.53	32.2
T&D	28d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,246	0	9,246	644	137	0	8,851	9,632	386	1.04	16.5
T&D	28e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	16,255	0	16,255	2,083	993	0	3,575	6,653	9,602	0.41	42.1
T&D	28f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,827	0	8,827	300	143	0	8,531	8,973	146	1.02	16.9
T&D	28g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	17,798	0	17,798	4,966	1,606	0	3,745	10,316	7,481	0.58	29.7
T&D	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	9,665	0	9,665	714	231	0	9,171	10,115	451	1.05	16.5
T&D	29a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	38,679	0	38,679	4,502	958	0	33,426	38,886	207	1.01	17.1
T&D	29b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	37,516	0	37,516	4,252	905	0	34,201	39,358	1,842	1.05	16.4
T&D	29c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	42,626	0	42,626	12,606	2,683	0	33,860	49,149	6,523	1.15	14.9
T&D	29d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	41,344	0	41,344	11,906	2,534	0	34,715	49,154	7,810	1.19	14.5
T&D	29e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	40,653	0	40,653	5,792	2,692	0	33,643	42,126	1,474	1.04	16.6
T&D	29f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	39,430	0	39,430	5,470	2,542	0	34,458	42,470	3,040	1.08	16.0
T&D	29g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	44,599	0	44,599	13,896	4,416	0	34,077	52,389	7,789	1.17	14.7
T&D	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	43,258	0	43,258	13,124	4,171	0	34,972	52,266	9,008	1.21	14.3
T&D	2a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	20,367	0	20,367	1,998	425	0	17,738	20,161	205	0.99	17.4
T&D	2b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	19,754	0	19,754	1,887	402	0	18,147	20,435	681	1.03	16.6
T&D	2c		Transformer	Amorphous Core (No Load Loss Reduction) RI	22,281	0	22,281	5,594	1,191	0	17,949	24,733	2,453	1.11	15.5
T&D	2d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	21,611	0	21,611	5,283	1,124	0	18,396	24,803	3,192	1.15	15.0
T&D	2e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	21,324	0	21,324	2,468	1,057	0	17,843	21,369	45	1.00	17.2
T&D	2f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	20,683	0	20,683	2,331	999	0	18,271	21,601	918	1.04	16.5
T&D	2g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	23,238	0	23,238	6,065	1,823	0	18,054	25,941	2,703	1.12	15.4
T&D	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	22,539	0	22,539	5,728	1,722	0	18,520	25,969	3,430	1.15	14.9
T&D	30a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	58,019	0	58,019	6,753	1,437	0	29,899	38,090	19,929	0.66	26.2
T&D	30b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	42,755	0	42,755	3,431	730	0	40,082	44,243	1,489	1.03	16.6
T&D	30c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	63,939	0	63,939	18,909	4,024	0	30,550	53,484	10,455	0.84	20.6
T&D	30d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	47,117	0	47,117	9,606	2,044	0	41,773	53,423	6,306	1.13	15.2
T&D	30e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	60,979	0	60,979	8,688	4,037	0	30,225	42,950	18,029	0.70	24.4
T&D	30f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	44,936	0	44,936	4,414	2,051	0	40,928	47,392	2,456	1.05	16.3
T&D	30g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	66,899	0	66,899	20,843	6,625	0	30,876	58,344	8,555	0.87	19.7
T&D	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	49,299	0	49,299	10,589	3,365	0	42,618	56,572	7,274	1.15	15.0
T&D	31a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16,116	0	16,116	1,876	399	0	3,628	5,903	10,213	0.37	47.0
T&D	31b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,752	0	8,752	270	57	0	8,541	8,868	116	1.01	17.0
T&D	31c		Transformer	Amorphous Core (No Load Loss Reduction) RI	17,761	0	17,761	5,252	1,118	0	3,809	10,179	7,582	0.57	30.0
T&D	31d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	9,645	0	9,645	755	161	0	9,223	10,139	494	1.05	16.4
T&D	31e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	16,939	0	16,939	2,413	1,122	0	3,718	7,253	9,686	0.43	40.2
T&D	31f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	9,198	0	9,198	347	161	0	8,882	9,390	192	1.02	16.9
T&D	31g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	18,583	0	18,583	5,790	1,840	0	3,899	11,529	7,054	0.62	27.8
T&D	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	10,091	0	10,091	832	265	0	9,564	10,661	570	1.06	16.3
T&D	32a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	19,340	0	19,340	2,685	571	0	16,713	19,969	630	1.03	16.7
T&D	32b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	18,758	0	18,758	2,536	540	0	17,101	20,176	1,418	1.08	16.0
T&D	32c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	21,313	0	21,313	7,518	1,600	0	16,930	26,048	4,735	1.22	14.1
T&D	32d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	20,672	0	20,672	7,100	1,511	0	17,357	25,969	5,297	1.26	13.7
T&D	32e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	20,326	0	20,326	3,619	1,827	0	16,821	22,267	1,940	1.10	15.7
T&D	32f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	19,715	0	19,715	3,418	1,725	0	17,229	22,372	2,657	1.13	15.2
T&D	32g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	22,300	0	22,300	8,452	2,855	0	17,038	28,345	6,046	1.27	13.5
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	21,629	0	21,629	7,982	2,697	0	17,486	28,164	6,535	1.30	13.2
T&D	33a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9,670	0	9,670	1,342	286	0	4,983	6,611	3,058	0.68	25.2
T&D	33b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	7,126	0	7,126	682	145	0	6,690	7,508	382	1.05	16.3
T&D	33c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10,657	0	10,657	3,759	800	0	5,092	9,651	1,006	0.91	19.0
T&D	33d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	7,853	0	7,853	1,910	406	0	6,962	9,278	1,425	1.18	14.6
T&D	33e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,163	0	10,163	1,809	913	0	5,037	7,760	2,403	0.76	22.6
T&D	33f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	7,489	0	7,489	919	464	0	6,821	8,204	715	1.10	15.7
T&D	33g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	11,150	0	11,150	4,226	1,428	0	5,146	10,799	350	0.97	17.8
T&D	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	8,216	0	8,216	2,147	725	0	7,103	9,975	1,759	1.21	14.2
T&D	34a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9,670	0	9,670	1,342	286	0	2,177	3,805	5,865	0.39	43.8
T&D	34b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,251	0	5,251	193	41	0	5,125	5,359	108	1.02	16.9
T&D	34c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10,657	0	10,657	3,759	800	0	2,285	6,844	3,812	0.64	26.8
T&D	34d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	5,787	0	5,787	540	115	0	5,534	6,189	402	1.07	16.1
T&D	34e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,163	0	10,163	1,809	913	0	2,231	4,954	5,210	0.49	35.3
T&D	34f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,519	0	5,519	260	131	0	5,329	5,721	202	1.04	16.6
T&D	34g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11,150	0	11,150	4,226	1,428	0	2,340	7,993	3,157	0.72	24.0
T&D	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	6,055	0	6,055	608	205	0	5,739	6,551	497	1.08	15.9
T&D	35a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	6,447	0	6,447	750	160	0	5,571	6,481	34	1.01	17.1
T&D	35b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	6,253	0	6,253	709	151	0	5,700	6,560	307	1.05	16.4
T&D	35c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	7,104	0	7,104	2,101	447	0	5,643	8,191	1,087	1.15	14.9
T&D	35d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	6,891	0	6,891	1,984	422	0	5,786	8,192	1,302	1.19	14.5
T&D	35e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	6,775	0	6,775	965	449	0	5,607	7,021	246	1.04	16.6
T&D	35f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	6,572	0	6,572	912	424	0	5,743	7,078	507	1.08	16.0
T&D	35g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	7,433	0	7,433	2,316	736	0	5,679	8,731	1,298	1.17	14.7
T&D	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	7,210	0	7,210	2,187	695	0	5,829	8,711	1,501	1.21	14.3
T&D	36a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9,670	0	9,670	1,126	240	0	2,177	3,542	6,128	0.37	47.0
T&D	36b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,251	0	5,251	162	34	0	5,125	5,321	70	1.01	17.0
T&D	36c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10,657	0	10,657	3,151	671	0	2,285	6,107	4,549	0.57	30.0
T&D	36d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	5,787	0	5,787	453	96	0	5,534	6,083	297	1.05	16.4
T&D	36e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,163	0	10,163	1,448	673	0	2,231	4,352	5,811	0.43	40.2
T&D	36f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,519	0	5,519	208	97	0	5,329	5,634	115	1.02	16.9

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	36g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	11,150	0	11,150	3,474	1,104	0	2,340	6,918	-4,232	0.62	27.8
T&D	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	6,055	0	6,055	499	159	0	5,739	6,397	342	1.06	16.3
T&D	37a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	19,340	0	19,340	2,251	479	0	16,713	19,443	103	1.01	17.1
T&D	37b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	18,758	0	18,758	2,126	452	0	17,101	19,679	921	1.05	16.4
T&D	37c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	21,313	0	21,313	6,303	1,341	0	16,930	24,574	3,261	1.15	14.9
T&D	37d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	20,672	0	20,672	5,953	1,267	0	17,357	24,577	3,905	1.19	14.5
T&D	37e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	20,326	0	20,326	2,896	1,346	0	16,821	21,063	737	1.04	16.6
T&D	37f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	19,715	0	19,715	2,735	1,271	0	17,229	21,235	1,520	1.08	16.0
T&D	37g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	22,300	0	22,300	6,948	2,208	0	17,038	26,194	3,895	1.17	14.7
T&D	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	21,629	0	21,629	6,562	2,086	0	17,486	26,133	4,504	1.21	14.3
T&D	38a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	19,340	0	19,340	2,251	479	0	4,353	7,084	-12,256	0.37	47.0
T&D	38b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,502	0	10,502	324	69	0	10,249	10,642	140	1.01	17.0
T&D	38c		Transformer	Amorphous Core (No Load Loss Reduction) RI	21,313	0	21,313	6,303	1,341	0	4,570	12,215	9,098	0.57	30.0
T&D	38d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,574	0	11,574	906	193	0	11,068	12,167	593	1.05	16.4
T&D	38e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	20,326	0	20,326	2,896	1,346	0	4,462	8,704	-11,623	0.43	40.2
T&D	38f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	11,038	0	11,038	416	193	0	10,659	11,268	230	1.02	16.9
T&D	38g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	22,300	0	22,300	6,948	2,208	0	4,679	13,835	8,465	0.62	27.8
T&D	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	12,110	0	12,110	999	317	0	11,477	12,793	684	1.06	16.3
T&D	39a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	24,942	0	24,942	3,528	751	0	21,532	25,811	868	1.03	16.6
T&D	39b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	24,193	0	24,193	3,332	709	0	22,032	26,073	1,881	1.08	16.0
T&D	39c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	27,515	0	27,515	9,878	2,102	0	21,815	33,796	6,281	1.23	14.0
T&D	39d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	26,687	0	26,687	9,330	1,986	0	22,367	33,682	6,995	1.26	13.6
T&D	39e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	26,229	0	26,229	4,800	2,460	0	21,673	28,934	2,705	1.10	15.6
T&D	39f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	25,440	0	25,440	4,533	2,324	0	22,200	29,056	3,617	1.14	15.1
T&D	39g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	28,801	0	28,801	11,150	3,812	0	21,956	36,919	8,118	1.28	13.4
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	27,935	0	27,935	10,531	3,600	0	22,534	36,665	8,730	1.31	13.1
T&D	3a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	14,100	0	14,100	1,383	294	0	7,317	8,995	5,105	0.64	27.0
T&D	3b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,390	0	10,390	703	150	0	9,792	10,644	254	1.02	16.8
T&D	3c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15,425	0	15,425	3,873	824	0	7,463	12,160	3,265	0.79	21.8
T&D	3d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,367	0	11,367	1,967	419	0	10,171	12,557	1,190	1.10	15.6
T&D	3e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	14,763	0	14,763	1,709	732	0	7,390	9,831	-4,931	0.67	25.9
T&D	3f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	10,879	0	10,879	868	372	0	9,981	11,221	343	1.03	16.7
T&D	3g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16,088	0	16,088	4,199	1,262	0	7,536	12,997	-3,091	0.81	21.3
T&D	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	11,855	0	11,855	2,133	641	0	10,360	13,134	1,279	1.11	15.5
T&D	40a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	7,126	0	7,126	1,008	215	0	3,669	4,892	2,235	0.69	25.1
T&D	40b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,252	0	5,252	512	109	0	4,920	5,541	289	1.06	16.3
T&D	40c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	7,861	0	7,861	2,822	601	0	3,750	7,173	-688	0.91	18.9
T&D	40d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	5,793	0	5,793	1,434	305	0	5,130	6,869	1,076	1.19	14.5
T&D	40e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7,494	0	7,494	1,371	703	0	3,709	5,784	-1,710	0.77	22.3
T&D	40f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,522	0	5,522	697	357	0	5,025	6,079	556	1.10	15.6
T&D	40g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8,229	0	8,229	3,186	1,089	0	3,790	8,065	-164	0.98	17.6
T&D	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	6,064	0	6,064	1,618	553	0	5,235	7,406	1,342	1.22	14.1
T&D	41a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	14,253	0	14,253	2,016	429	0	3,206	5,651	-8,601	0.40	43.4
T&D	41b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	7,740	0	7,740	290	62	0	7,551	7,903	163	1.02	16.9
T&D	41c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15,723	0	15,723	5,645	1,201	0	3,368	10,214	-5,508	0.65	26.5
T&D	41d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	8,538	0	8,538	811	173	0	8,161	9,145	607	1.07	16.1
T&D	41e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	14,988	0	14,988	2,743	1,406	0	3,287	7,436	-7,552	0.50	34.7
T&D	41f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	8,139	0	8,139	394	202	0	7,856	8,453	314	1.04	16.6
T&D	41g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16,458	0	16,458	6,372	2,178	0	3,449	11,999	-4,459	0.73	23.6
T&D	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	8,937	0	8,937	916	313	0	8,466	9,695	758	1.08	15.9
T&D	42a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	139,715	0	139,715	15,470	3,293	0	120,537	139,300	-415	1.00	17.3
T&D	42b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	135,514	0	135,514	14,611	3,110	0	123,340	141,060	5,546	1.04	16.5
T&D	42c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	154,210	0	154,210	43,317	9,219	0	122,132	174,668	20,458	1.13	15.2
T&D	42d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	149,574	0	149,574	40,910	8,707	0	125,225	174,843	25,269	1.17	14.7
T&D	42e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	146,963	0	146,963	20,737	10,371	0	121,333	132,442	5,479	1.04	16.6
T&D	42f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	142,544	0	142,544	19,585	9,794	0	124,283	153,662	11,118	1.08	16.0
T&D	42g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	161,458	0	161,458	48,583	16,297	0	122,929	187,810	26,352	1.16	14.6
T&D	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	156,603	0	156,603	45,884	15,392	0	126,168	187,444	30,841	1.20	14.4
T&D	43a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	30,209	0	30,209	3,345	712	0	15,544	19,601	-10,608	0.65	26.5
T&D	43b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	22,261	0	22,261	1,699	362	0	20,846	22,907	646	1.03	16.7
T&D	43c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	33,343	0	33,343	9,366	1,993	0	15,889	27,248	-6,095	0.82	21.1
T&D	43d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	24,571	0	24,571	4,758	1,013	0	21,741	27,512	2,941	1.12	15.4
T&D	43e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	31,776	0	31,776	4,484	2,242	0	15,717	22,442	-9,333	0.71	24.4
T&D	43f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	23,416	0	23,416	2,278	1,139	0	21,294	24,711	1,295	1.06	16.3
T&D	43g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	34,910	0	34,910	10,504	3,524	0	16,061	30,090	-4,820	0.86	20.0
T&D	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	25,725	0	25,725	5,336	1,790	0	22,189	29,315	3,590	1.14	15.1
T&D	44a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	64,193	0	64,193	7,108	1,513	0	14,436	23,057	-41,137	0.36	47.9
T&D	44b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	34,859	0	34,859	1,022	217	0	34,006	35,245	386	1.01	17.0
T&D	44c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	70,853	0	70,853	19,902	4,236	0	15,169	39,307	-31,546	0.55	31.0
T&D	44d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	38,476	0	38,476	2,861	609	0	36,769	40,239	1,763	1.05	16.5
T&D	44e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	67,523	0	67,523	9,528	4,765	0	14,802	29,095	-38,429	0.43	40.0
T&D	44f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	36,667	0	36,667	1,370	685	0	35,387	37,442	774	1.02	16.9
T&D	44g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	74,183	0	74,183	22,322	7,488	0	15,535	45,345	-28,839	0.61	28.2
T&D	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	40,284	0	40,284	3,209	1,076	0	38,150	42,436	2,151	1.05	16.3
T&D	45a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	22,656	0	22,656	3,336	710	0	19,547	23,392	936	1.04	16.5
T&D	45b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	21,975	0	21,975	3,151	671	0	20,001	23,822	1,847	1.08	15.9
T&D	45c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	25,007	0	25,007	9,341	1,988	0	19,805	31,134	6,127	1.24	13.8
T&D	45d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	24,255	0	24,255	8,822	1,878	0	20,307	31,006	6,751	1.28	13.5
T&D	45e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	23,832	0	23,832	4,508	2,285	0	19,676	26,468	2,636	1.11	15.5
T&D	45f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	23,115	0	23,115	4,257	2,158	0	20,154	26,569	3,454	1.15	15.0
T&D	45g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	26,182	0	26,182	10,512	3,563	0	19,935	34,009	7,827	1.30	13.3

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	25,395	0	25,395	9,928	3,365	0	20,460	33,753	8,357	1.33	13.0
T&D	46a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	11,328	0	11,328	1,668	355	0	5,829	7,852	3,476	0.69	24.8
T&D	46b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	8,348	0	8,348	847	180	0	7,817	8,845	497	1.06	16.3
T&D	46c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,504	0	12,504	4,670	994	0	5,958	11,623	881	0.93	18.5
T&D	46d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,214	0	9,214	2,373	505	0	8,153	11,030	1,817	1.20	14.4
T&D	46e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11,916	0	11,916	2,254	1,142	0	5,894	9,290	2,626	0.78	22.1
T&D	46f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,781	0	8,781	1,145	580	0	7,985	9,710	930	1.11	15.6
T&D	46g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,091	0	13,091	5,256	1,781	0	6,023	13,060	31	1.00	17.3
T&D	46h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	9,647	0	9,647	2,670	905	0	8,321	11,896	2,249	1.23	14.0
T&D	47a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	22,656	0	22,656	3,336	710	0	5,095	9,141	13,516	0.40	42.7
T&D	47b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	12,303	0	12,303	480	102	0	12,002	12,584	280	1.02	16.8
T&D	47c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	25,007	0	25,007	9,341	1,988	0	5,354	16,682	8,325	0.67	25.8
T&D	47d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	13,580	0	13,580	1,343	286	0	12,977	14,606	1,026	1.08	16.0
T&D	47e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	23,832	0	23,832	4,508	2,285	0	5,224	12,017	11,815	0.50	34.2
T&D	47f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	12,941	0	12,941	648	328	0	12,490	13,466	525	1.04	16.5
T&D	47g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	26,182	0	26,182	10,512	3,563	0	5,483	19,558	6,625	0.75	23.1
T&D	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	14,218	0	14,218	1,511	512	0	13,465	15,488	1,270	1.09	15.8
T&D	48a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	7,552	0	7,552	836	178	0	6,516	7,530	-22	1.00	17.3
T&D	48b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	7,325	0	7,325	790	168	0	6,667	7,625	300	1.04	16.5
T&D	48c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	8,336	0	8,336	2,341	498	0	6,602	9,442	1,106	1.13	15.2
T&D	48d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	8,085	0	8,085	2,211	471	0	6,769	9,451	1,366	1.17	14.7
T&D	48e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	7,944	0	7,944	1,121	561	0	6,559	8,240	296	1.04	16.6
T&D	48f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	7,705	0	7,705	1,059	529	0	6,718	8,306	601	1.08	16.0
T&D	48g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	8,727	0	8,727	2,626	881	0	6,645	10,152	1,424	1.16	14.8
T&D	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	8,465	0	8,465	2,480	832	0	6,820	10,132	1,667	1.20	14.4
T&D	49a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,328	0	11,328	1,254	267	0	5,829	7,350	3,978	0.65	26.5
T&D	49b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,348	0	8,348	637	136	0	7,817	8,590	242	1.03	16.7
T&D	49c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,504	0	12,504	3,512	748	0	5,958	10,218	2,285	0.82	21.1
T&D	49d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,214	0	9,214	1,784	380	0	8,153	10,317	1,103	1.12	15.4
T&D	49e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11,916	0	11,916	1,681	841	0	5,894	8,416	-3,500	0.71	24.4
T&D	49f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,781	0	8,781	854	427	0	7,985	9,266	486	1.06	16.3
T&D	49g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,091	0	13,091	3,939	1,321	0	6,023	11,284	1,808	0.86	20.0
T&D	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	9,647	0	9,647	2,001	671	0	8,321	10,993	1,346	1.14	15.1
T&D	4a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4,700	0	4,700	461	98	0	1,063	1,622	3,078	0.35	49.9
T&D	4b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	2,552	0	2,552	66	14	0	2,496	2,576	24	1.01	17.1
T&D	4c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	5,142	0	5,142	1,291	275	0	1,111	2,677	2,465	0.52	33.1
T&D	4d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	2,792	0	2,792	186	39	0	2,679	2,904	112	1.04	16.6
T&D	4e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4,921	0	4,921	570	244	0	1,087	1,901	3,020	0.39	44.6
T&D	4f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	2,672	0	2,672	82	35	0	2,587	2,704	32	1.01	17.0
T&D	4g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	5,363	0	5,363	1,400	421	0	1,136	2,956	2,407	0.55	31.2
T&D	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	2,912	0	2,912	201	60	0	2,771	3,032	120	1.04	16.5
T&D	50a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	26,433	0	26,433	3,702	788	0	22,804	27,294	862	1.03	16.7
T&D	50b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	25,638	0	25,638	3,496	744	0	23,335	27,575	1,937	1.08	16.0
T&D	50c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	29,175	0	29,175	10,366	2,206	0	23,106	35,678	6,503	1.22	14.1
T&D	50d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	28,298	0	28,298	9,790	2,084	0	23,691	35,565	7,267	1.26	13.7
T&D	50e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	27,804	0	27,804	5,095	2,660	0	22,955	30,710	2,907	1.10	15.6
T&D	50f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	26,968	0	26,968	4,812	2,512	0	23,513	30,837	3,869	1.14	15.1
T&D	50g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	30,546	0	30,546	11,759	4,078	0	23,257	39,094	8,548	1.28	13.5
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	29,628	0	29,628	11,105	3,852	0	23,870	38,827	9,199	1.31	13.1
T&D	51a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,328	0	11,328	1,587	338	0	5,829	7,753	3,575	0.68	25.2
T&D	51b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,348	0	8,348	806	172	0	7,817	8,795	447	1.05	16.3
T&D	51c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,504	0	12,504	4,442	945	0	5,958	11,346	1,157	0.91	19.0
T&D	51d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,214	0	9,214	2,257	480	0	8,153	10,890	1,676	1.18	14.6
T&D	51e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11,916	0	11,916	2,184	1,140	0	5,894	9,217	2,699	0.77	22.3
T&D	51f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,781	0	8,781	1,109	579	0	7,985	9,674	893	1.10	15.6
T&D	51g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,091	0	13,091	5,039	1,748	0	6,023	12,810	281	0.98	17.6
T&D	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	9,647	0	9,647	2,560	888	0	8,321	11,769	2,122	1.22	14.1
T&D	52a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	22,656	0	22,656	3,173	675	0	5,095	8,944	13,713	0.39	43.6
T&D	52b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	12,303	0	12,303	456	97	0	12,002	12,555	252	1.02	16.9
T&D	52c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	25,007	0	25,007	8,885	1,891	0	5,354	16,130	-8,878	0.64	26.7
T&D	52d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	13,580	0	13,580	1,277	272	0	12,977	14,526	947	1.07	16.1
T&D	52e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	23,832	0	23,832	4,367	2,280	0	5,224	11,872	11,960	0.50	34.6
T&D	52f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	12,941	0	12,941	628	328	0	12,490	13,445	504	1.04	16.6
T&D	52g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	26,182	0	26,182	10,079	3,496	0	5,483	19,058	7,125	0.73	23.7
T&D	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	14,218	0	14,218	1,449	503	0	13,465	15,416	1,198	1.08	15.9
T&D	53a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	61,405	0	61,405	8,374	1,782	0	52,853	63,009	1,605	1.03	16.8
T&D	53b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	59,558	0	59,558	7,908	1,683	0	54,085	63,677	4,118	1.07	16.1
T&D	53c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	67,921	0	67,921	23,446	4,990	0	53,570	82,007	14,085	1.21	14.3
T&D	53d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	65,879	0	65,879	22,144	4,713	0	54,933	81,789	15,910	1.24	13.9
T&D	53e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	64,663	0	64,663	10,795	5,036	0	53,212	69,042	4,379	1.07	16.1
T&D	53f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	62,719	0	62,719	10,195	4,756	0	54,509	69,460	6,741	1.11	15.5
T&D	53g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	71,180	0	71,180	25,867	8,244	0	53,929	88,040	16,860	1.24	13.9
T&D	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	69,040	0	69,040	24,430	7,786	0	55,357	87,573	18,533	1.27	13.6
T&D	54a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	75,575	0	75,575	10,306	2,193	0	38,807	51,306	24,269	0.68	25.4
T&D	54b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	55,692	0	55,692	5,236	1,114	0	52,071	58,421	2,730	1.05	16.4
T&D	54c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	83,596	0	83,596	28,857	6,142	0	39,689	74,688	8,908	0.89	19.3
T&D	54d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	61,602	0	61,602	14,660	3,120	0	54,362	72,141	10,539	1.17	14.7
T&D	54e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	79,585	0	79,585	13,286	6,198	0	39,248	58,732	20,853	0.74	23.3
T&D	54f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	58,647	0	58,647	6,749	3,149	0	53,216	63,115	4,468	1.08	16.0
T&D	54g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	87,606	0	87,606	31,836	10,146	0	40,130	82,113	5,493	0.94	18.4
T&D	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	64,557	0	64,557	16,174	5,155	0	55,507	76,835	12,277	1.19	14.5

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	55a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	108,639	0	108,639	14,815	3,153	0	24,398	42,366	66,273	0.39	44.2
T&D	55b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	58,995	0	58,995	2,130	453	0	57,517	60,100	1,105	1.02	16.9
T&D	55c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	120,169	0	120,169	41,482	8,829	0	25,666	75,977	-44,192	0.63	27.2
T&D	55d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	65,256	0	65,256	5,963	1,269	0	62,300	69,533	4,277	1.07	16.2
T&D	55e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	114,404	0	114,404	19,098	8,910	0	25,032	53,040	61,364	0.46	37.1
T&D	55f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	62,125	0	62,125	2,745	1,281	0	59,909	63,935	1,810	1.03	16.7
T&D	55g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	125,933	0	125,933	43,765	14,585	0	26,300	86,651	39,283	0.69	25.0
T&D	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	68,386	0	68,386	6,579	2,097	0	64,692	73,368	4,982	1.07	16.1
T&D	56a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	47,234	0	47,234	8,136	1,732	0	24,254	34,122	13,112	0.72	23.8
T&D	56b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	34,807	0	34,807	4,133	880	0	32,545	37,558	2,750	1.08	16.0
T&D	56c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	52,247	0	52,247	22,782	4,849	0	24,806	52,436	189	1.00	17.2
T&D	56d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	38,501	0	38,501	11,574	2,463	0	33,976	48,013	9,511	1.25	13.8
T&D	56e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	49,741	0	49,741	10,770	5,272	0	24,530	40,572	9,169	0.82	21.1
T&D	56f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	36,654	0	36,654	5,471	2,678	0	33,260	41,410	4,755	1.13	15.2
T&D	56g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	54,754	0	54,754	25,415	8,389	0	25,081	58,886	4,132	1.08	16.0
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	40,348	0	40,348	12,912	4,262	0	34,692	51,865	11,516	1.29	13.4
T&D	57a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	14,170	0	14,170	2,441	520	0	3,182	6,143	8,028	0.43	39.7
T&D	57b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	7,695	0	7,695	351	75	0	7,502	7,928	233	1.03	16.7
T&D	57c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15,674	0	15,674	6,835	1,455	0	3,348	11,637	-4,037	0.74	23.2
T&D	57d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	8,512	0	8,512	983	209	0	8,126	9,318	806	1.09	15.7
T&D	57e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14,922	0	14,922	3,231	1,581	0	3,265	8,078	-6,845	0.54	31.8
T&D	57f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	8,103	0	8,103	464	227	0	7,814	8,506	403	1.05	16.4
T&D	57g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16,426	0	16,426	7,625	2,517	0	3,430	13,572	-2,854	0.83	20.8
T&D	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	8,920	0	8,920	1,096	362	0	8,438	9,896	976	1.11	15.5
T&D	58a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	14,170	0	14,170	2,441	520	0	7,276	10,237	3,934	0.72	23.8
T&D	58b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,442	0	10,442	1,240	264	0	9,763	11,267	825	1.08	16.0
T&D	58c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15,674	0	15,674	6,835	1,455	0	7,442	15,731	57	1.00	17.2
T&D	58d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,550	0	11,550	3,472	739	0	10,193	14,404	2,853	1.25	13.8
T&D	58e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14,922	0	14,922	3,231	1,581	0	7,359	12,171	2,751	0.82	21.1
T&D	58f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	10,996	0	10,996	1,641	803	0	9,978	12,423	1,427	1.13	15.2
T&D	58g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	16,426	0	16,426	7,625	2,517	0	7,524	17,666	1,240	1.08	16.0
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	12,105	0	12,105	3,873	1,278	0	10,407	15,559	3,455	1.29	13.4
T&D	59a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	66,473	0	66,473	9,628	2,049	0	57,123	68,800	2,327	1.04	16.6
T&D	59b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	64,474	0	64,474	9,093	1,935	0	58,456	69,485	5,011	1.08	16.0
T&D	59c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	73,638	0	73,638	26,958	5,738	0	57,911	90,607	16,969	1.23	14.0
T&D	59d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	71,424	0	71,424	25,461	5,419	0	59,388	90,268	18,844	1.26	13.6
T&D	59e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	70,055	0	70,055	12,565	5,997	0	57,517	76,079	6,023	1.09	15.9
T&D	59f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	67,949	0	67,949	11,867	5,664	0	58,922	76,453	8,504	1.13	15.3
T&D	59g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	77,221	0	77,221	29,895	9,685	0	58,305	97,886	20,665	1.27	13.6
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	74,899	0	74,899	28,235	9,147	0	59,854	97,236	22,337	1.30	13.3
T&D	5a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	3,133	0	3,133	307	65	0	1,626	1,999	1,134	0.64	27.0
T&D	5b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	2,309	0	2,309	156	33	0	2,176	2,365	56	1.02	16.8
T&D	5c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	3,428	0	3,428	861	183	0	1,659	2,702	726	0.79	21.8
T&D	5d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	2,526	0	2,526	437	93	0	2,260	2,790	264	1.10	15.6
T&D	5e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	3,281	0	3,281	380	163	0	1,642	2,185	1,096	0.67	25.9
T&D	5f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	2,417	0	2,417	193	83	0	2,218	2,494	76	1.03	16.7
T&D	5g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	3,575	0	3,575	933	280	0	1,675	2,888	687	0.81	21.3
T&D	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	2,635	0	2,635	474	142	0	2,302	2,919	284	1.11	15.5
T&D	60a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	33,236	0	33,236	4,814	1,025	0	17,041	22,880	-10,356	0.69	25.0
T&D	60b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	24,492	0	24,492	2,446	521	0	22,875	25,841	1,349	1.06	16.3
T&D	60c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	36,819	0	36,819	13,479	2,869	0	17,436	33,784	-3,035	0.92	18.8
T&D	60d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	27,132	0	27,132	6,848	1,457	0	23,898	32,203	5,071	1.19	14.5
T&D	60e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	35,028	0	35,028	6,283	2,998	0	17,239	26,519	8,508	0.76	22.7
T&D	60f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	25,812	0	25,812	3,192	1,523	0	23,386	28,101	2,289	1.09	15.8
T&D	60g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	38,610	0	38,610	14,948	4,843	0	17,633	37,423	1,187	0.97	17.8
T&D	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	28,452	0	28,452	7,594	2,460	0	24,409	34,463	6,011	1.21	14.2
T&D	61a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	60,933	0	60,933	8,826	1,878	0	13,671	24,375	36,558	0.40	43.0
T&D	61b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	33,089	0	33,089	1,269	270	0	32,247	33,786	697	1.02	16.9
T&D	61c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	67,502	0	67,502	24,712	5,260	0	14,394	44,365	-23,136	0.66	26.2
T&D	61d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	36,656	0	36,656	3,553	756	0	34,972	39,281	2,625	1.07	16.1
T&D	61e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	64,217	0	64,217	11,518	5,497	0	14,033	31,047	33,170	0.48	35.6
T&D	61f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	34,872	0	34,872	1,656	790	0	33,610	36,056	1,183	1.03	16.7
T&D	61g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	70,786	0	70,786	27,404	8,878	0	14,755	51,037	-19,748	0.72	23.9
T&D	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	38,439	0	38,439	3,940	1,276	0	36,334	41,550	3,111	1.08	15.9
T&D	62a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16,618	0	16,618	3,017	642	0	14,281	17,940	1,322	1.08	16.0
T&D	62b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	16,118	0	16,118	2,850	606	0	14,614	18,070	1,952	1.12	15.4
T&D	62c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18,410	0	18,410	8,448	1,798	0	14,478	24,724	6,315	1.34	12.8
T&D	62d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	17,856	0	17,856	7,979	1,698	0	14,847	24,524	6,668	1.37	12.5
T&D	62e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	17,514	0	17,514	3,919	1,854	0	14,379	20,153	2,639	1.15	15.0
T&D	62f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	16,987	0	16,987	3,701	1,751	0	14,731	20,183	3,196	1.19	14.5
T&D	62g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	19,305	0	19,305	9,350	3,010	0	14,576	26,937	7,631	1.40	12.3
T&D	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	18,725	0	18,725	8,831	2,843	0	14,964	26,637	7,912	1.42	12.1
T&D	63a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16,618	0	16,618	3,017	642	0	8,521	12,180	-4,438	0.73	23.5
T&D	63b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	12,246	0	12,246	1,533	326	0	11,437	13,297	1,050	1.09	15.9
T&D	63c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18,410	0	18,410	8,448	1,798	0	8,718	18,964	555	1.03	16.7
T&D	63d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	13,566	0	13,566	4,292	913	0	11,949	17,154	3,588	1.26	13.6
T&D	63e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	17,514	0	17,514	3,919	1,854	0	8,619	14,393	3,121	0.82	21.0
T&D	63f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	12,906	0	12,906	1,991	942	0	11,693	14,626	1,720	1.13	15.2
T&D	63g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	19,305	0	19,305	9,350	3,010	0	8,816	21,177	1,871	1.10	15.7
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	14,226	0	14,226	4,750	1,529	0	12,205	18,484	4,258	1.30	13.3
T&D	64a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	16,618	0	16,618	3,017	642	0	3,729	7,388	9,230	0.44	38.7

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	64b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	9,024	0	9,024	434	92	0	8,795	9,321	296	1.03	16.7
T&D	64c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18,410	0	18,410	8,448	1,798	0	3,926	14,172	-4,238	0.77	22.4
T&D	64d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,997	0	9,997	1,214	258	0	9,538	11,011	1,014	1.10	15.6
T&D	64e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	17,514	0	17,514	3,919	1,854	0	3,827	9,600	7,913	0.55	31.4
T&D	64f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	9,511	0	9,511	563	267	0	9,166	9,996	486	1.05	16.4
T&D	64g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	19,305	0	19,305	9,350	3,010	0	4,024	16,384	2,921	0.85	20.3
T&D	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	10,483	0	10,483	1,344	433	0	9,909	11,686	1,203	1.11	15.4
T&D	65a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,079	0	11,079	1,605	342	0	9,520	11,467	388	1.04	16.6
T&D	65b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,746	0	10,746	1,516	323	0	9,743	11,581	835	1.08	16.0
T&D	65c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	12,273	0	12,273	4,493	956	0	9,652	15,101	2,828	1.23	14.0
T&D	65d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,904	0	11,904	4,243	903	0	9,898	15,045	3,141	1.26	13.6
T&D	65e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	11,676	0	11,676	2,094	999	0	9,586	12,680	1,004	1.09	15.9
T&D	65f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	11,325	0	11,325	1,978	944	0	9,820	12,742	1,417	1.13	15.3
T&D	65g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	12,870	0	12,870	4,983	1,614	0	9,718	16,314	3,444	1.27	13.6
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	12,483	0	12,483	4,706	1,525	0	9,976	16,206	3,723	1.30	13.3
T&D	66a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16,618	0	16,618	3,207	683	0	3,729	7,618	9,000	0.46	37.6
T&D	66b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	9,024	0	9,024	461	98	0	8,795	9,354	330	1.04	16.6
T&D	66c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18,410	0	18,410	8,980	1,911	0	3,926	14,817	3,593	0.80	21.4
T&D	66d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,997	0	9,997	1,291	275	0	9,538	11,103	1,106	1.11	15.5
T&D	66e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	17,514	0	17,514	12,090	12,622	0	3,827	28,539	11,025	1.63	10.6
T&D	66f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	9,511	0	9,511	1,738	1,814	0	9,166	12,719	3,208	1.34	12.9
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	19,305	0	19,305	17,863	13,850	0	4,024	35,737	16,432	1.85	9.3
T&D	66h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	10,483	0	10,483	2,568	1,991	0	9,909	14,468	3,985	1.38	12.5
T&D	67a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	16,618	0	16,618	2,821	600	0	14,281	17,702	1,083	1.07	16.2
T&D	67b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	16,118	0	16,118	2,664	567	0	14,614	17,845	1,726	1.11	15.6
T&D	67c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	18,410	0	18,410	7,898	1,681	0	14,478	24,056	5,647	1.31	13.2
T&D	67d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	17,856	0	17,856	7,459	1,588	0	14,847	23,893	6,037	1.34	12.9
T&D	67e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	17,514	0	17,514	3,457	1,456	0	14,379	19,293	1,779	1.10	15.6
T&D	67f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	16,987	0	16,987	3,265	1,375	0	14,731	19,371	2,384	1.14	15.1
T&D	67g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	19,305	0	19,305	8,535	2,537	0	14,576	25,648	6,343	1.33	13.0
T&D	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	18,725	0	18,725	8,060	2,396	0	14,964	25,420	6,695	1.36	12.7
T&D	68a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	19,269	0	19,269	2,396	510	0	4,266	7,172	12,097	0.37	46.3
T&D	68b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,464	0	10,464	344	73	0	10,140	10,558	94	1.01	17.1
T&D	68c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	21,792	0	21,792	6,708	1,428	0	4,544	12,679	9,113	0.58	29.6
T&D	68d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	11,834	0	11,834	964	205	0	11,187	12,357	523	1.04	16.5
T&D	68e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	20,531	0	20,531	3,071	1,418	0	4,405	8,894	11,636	0.43	39.7
T&D	68f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	11,149	0	11,149	442	204	0	10,664	11,309	160	1.01	17.0
T&D	68g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	23,054	0	23,054	7,384	2,336	0	4,682	14,402	8,652	0.62	27.6
T&D	68h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	12,519	0	12,519	1,061	336	0	11,711	13,108	589	1.05	16.4
T&D	69a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9,634	0	9,634	1,198	255	0	8,092	9,545	-90	0.99	17.4
T&D	69b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	9,345	0	9,345	1,131	241	0	8,285	9,657	313	1.03	16.7
T&D	69c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10,896	0	10,896	3,354	714	0	8,231	12,299	1,403	1.13	15.3
T&D	69d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	10,568	0	10,568	3,168	674	0	8,449	12,291	1,723	1.16	14.8
T&D	69e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,265	0	10,265	1,536	709	0	8,161	10,406	141	1.01	17.0
T&D	69f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	9,957	0	9,957	1,450	670	0	8,367	10,487	531	1.05	16.3
T&D	69g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	11,527	0	11,527	3,692	1,168	0	8,300	13,160	1,633	1.14	15.1
T&D	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	11,180	0	11,180	3,487	1,103	0	8,531	13,121	1,941	1.17	14.7
T&D	6a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	28,200	0	28,200	3,580	762	0	14,635	18,977	9,223	0.67	25.6
T&D	6b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	20,781	0	20,781	1,819	387	0	19,584	21,790	1,009	1.05	16.4
T&D	6c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	-30,851	0	30,851	10,028	2,133	0	14,927	27,084	-3,767	0.88	19.6
T&D	6d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	22,734	0	22,734	5,092	1,084	0	20,341	26,517	3,783	1.17	14.8
T&D	6e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	29,525	0	29,525	4,763	2,352	0	14,781.	21,895	-7,630	0.74	23.2
T&D	6f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	21,757	0	21,757	2,420	1,195	0	19,963	23,577	1,820	1.08	15.9
T&D	6g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	32,176	0	32,176	11,207	3,723	0	15,072	30,002	-2,174	0.93	18.5
T&D	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	23,711	0	23,711	5,693	1,891	0	20,720	28,304	4,594	1.19	14.4
T&D	70a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	9,634	0	9,634	1,198	255	0	2,133	3,586	6,049	0.37	46.3
T&D	70b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,232	0	5,232	172	37	0	5,070	5,279	47	1.01	17.1
T&D	70c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	10,896	0	10,896	3,354	714	0	2,272	6,340	-4,556	0.58	29.6
T&D	70d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	5,917	0	5,917	482	103	0	5,594	6,178	261	1.04	16.5
T&D	70e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	10,265	0	10,265	1,536	709	0	2,202	4,447	5,818	0.43	39.7
T&D	70f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	5,574	0	5,574	221	102	0	5,332	5,655	80	1.01	17.0
T&D	70g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	11,527	0	11,527	3,692	1,168	0	2,341	7,201	-4,326	0.62	27.6
T&D	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	6,259	0	6,259	531	168	0	5,855	6,554	294	1.05	16.4
T&D	71a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	22,076	0	22,076	2,531	539	0	18,539	21,609	-467	0.98	17.6
T&D	71b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	21,412	0	21,412	2,391	509	0	18,981	21,881	469	1.02	16.9
T&D	71c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	24,970	0	24,970	7,088	1,508	0	18,857	27,453	2,483	1.10	15.7
T&D	71d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	24,219	0	24,219	6,694	1,425	0	19,358	27,476	3,257	1.13	15.2
T&D	71e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	23,523	0	23,523	3,431	1,747	0	18,698	23,876	352	1.01	17.0
T&D	71f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	22,816	0	22,816	3,240	1,650	0	19,170	24,060	1,244	1.05	16.3
T&D	71g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	26,417	0	26,417	7,987	2,717	0	19,016	29,720	3,303	1.13	15.3
T&D	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	25,623	0	25,623	7,543	2,566	0	19,546	29,655	4,032	1.16	14.9
T&D	72a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,038	0	11,038	1,266	269	0	2,444	3,979	7,059	0.36	47.8
T&D	72b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	5,994	0	5,994	182	39	0	5,809	6,029	35	1.01	17.1
T&D	72c		Transformer	Amorphous Core (No Load Loss Reduction) RI	12,485	0	12,485	3,544	754	0	2,600	6,901	5,584	0.55	31.2
T&D	72d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	6,780	0	6,780	509	108	0	6,409	7,027	247	1.04	16.6
T&D	72e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	11,762	0	11,762	1,715	874	0	2,523	5,112	6,649	0.43	39.6
T&D	72f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	6,387	0	6,387	247	126	0	6,109	6,481	94	1.01	17.0
T&D	72g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	13,209	0	13,209	3,993	1,359	0	2,682	8,034	5,174	0.61	28.3
T&D	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	7,173	0	7,173	574	195	0	6,709	7,478	306	1.04	16.5
T&D	73a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	92,901	0	92,901	9,040	1,924	0	20,565	31,530	61,371	0.34	50.7
T&D	73b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	50,448	0	50,448	1,300	277	0	48,887	50,463	15	1.00	17.2

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	73c		Transformer	Amorphous Core (No Load Loss Reduction) RI	105,087	0	105,087	25,313	5,387	0	21,906	52,606	52,480	0.50	34.4
T&D	73d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	57,066	0	57,066	3,639	774	0	53,942	58,356	1,290	1.02	16.8
T&D	73e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	98,994	0	98,994	12,446	6,501	0	21,236	40,182	58,812	0.41	42.4
T&D	73f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	53,757	0	53,757	1,789	935	0	51,414	54,138	381	1.01	17.1
T&D	73g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	111,179	0	111,179	28,718	9,964	0	22,576	61,259	-49,921	0.55	31.3
T&D	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	60,374	0	60,374	4,128	1,432	0	56,470	62,031	1,657	1.03	16.8
T&D	74a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	11,613	0	11,613	1,130	241	0	9,751	11,122	-491	0.96	18.0
T&D	74b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	11,263	0	11,263	1,067	227	0	9,984	11,279	15	1.00	17.2
T&D	74c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	13,136	0	13,136	3,164	673	0	9,919	13,756	621	1.05	16.4
T&D	74d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	12,741	0	12,741	2,988	636	0	10,182	13,807	1,066	1.08	15.9
T&D	74e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	12,374	0	12,374	1,556	813	0	9,835	12,203	-171	0.99	17.5
T&D	74f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	12,002	0	12,002	1,469	767	0	10,083	12,320	318	1.03	16.8
T&D	74g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	13,897	0	13,897	3,590	1,246	0	10,003	14,838	941	1.07	16.1
T&D	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	13,480	0	13,480	3,390	1,176	0	10,281	14,848	1,369	1.10	15.6
T&D	75a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	34,838	0	34,838	4,292	913	0	7,712	12,917	21,921	0.37	46.4
T&D	75b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	18,918	0	18,918	617	131	0	18,333	19,081	163	1.01	17.1
T&D	75c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	39,407	0	39,407	12,017	2,558	0	8,215	22,790	16,618	0.58	29.8
T&D	75d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	21,400	0	21,400	1,728	368	0	20,228	22,324	924	1.04	16.5
T&D	75e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	37,123	0	37,123	6,855	4,359	0	7,963	19,178	17,945	0.52	33.3
T&D	75f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	20,159	0	20,159	986	627	0	19,280	20,893	734	1.04	16.6
T&D	75g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	41,692	0	41,692	14,581	6,003	0	8,466	29,050	12,642	0.70	24.7
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	22,640	0	22,640	2,096	863	0	21,176	24,135	1,495	1.07	16.2
T&D	76a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	40,110	0	40,110	5,967	1,270	0	8,878	16,115	23,996	0.40	42.9
T&D	76b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	21,781	0	21,781	858	183	0	21,106	22,146	365	1.02	16.9
T&D	76c		Transformer	Amorphous Core (No Load Loss Reduction) RI	45,378	0	45,378	16,707	3,556	0	9,458	29,720	15,658	0.65	26.3
T&D	76d		Transformer	Amorphous Core (No Load Loss Reduction) ROF	24,642	0	24,642	2,402	511	0	23,292	26,204	1,563	1.06	16.2
T&D	76e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	42,744	0	42,744	7,898	3,866	0	9,168	20,932	21,812	0.49	35.2
T&D	76f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	23,212	0	23,212	1,135	556	0	22,199	23,890	678	1.03	16.7
T&D	76g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	48,012	0	48,012	18,638	6,152	0	9,748	34,537	13,475	0.72	23.9
T&D	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	26,072	0	26,072	2,679	884	0	24,384	27,948	1,876	1.07	16.1
T&D	77a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	13,370	0	13,370	1,989	423	0	6,713	9,125	-4,245	0.68	25.2
T&D	77b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	9,853	0	9,853	1,010	215	0	9,060	10,285	433	1.04	16.5
T&D	77c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	15,126	0	15,126	5,569	1,185	0	6,906	13,661	1,465	0.90	19.1
T&D	77d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,147	0	11,147	2,829	602	0	9,561	12,993	1,846	1.17	14.8
T&D	77e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	14,248	0	14,248	2,633	1,289	0	6,810	10,731	3,517	0.75	22.9
T&D	77f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	10,500	0	10,500	1,337	655	0	9,311	11,303	803	1.08	16.0
T&D	77g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	16,004	0	16,004	6,213	2,051	0	7,003	15,266	738	0.95	18.1
T&D	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	11,794	0	11,794	3,156	1,042	0	9,812	14,010	2,216	1.19	14.5
T&D	78a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	61,272	0	61,272	9,492	2,020	0	13,561	25,074	36,198	0.41	42.1
T&D	78b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	33,273	0	33,273	1,365	290	0	32,240	33,895	622	1.02	16.9
T&D	78c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	69,329	0	69,329	26,579	5,657	0	14,448	46,683	22,646	0.67	25.6
T&D	78d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	37,648	0	37,648	3,821	813	0	35,583	40,217	2,569	1.07	16.1
T&D	78e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	65,301	0	65,301	12,951	6,669	0	14,004	33,624	-31,677	0.51	33.4
T&D	78f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	35,460	0	35,460	1,862	959	0	33,912	36,732	1,272	1.04	16.6
T&D	78g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	73,357	0	73,357	30,037	10,305	0	14,891	55,233	18,124	0.75	22.9
T&D	78h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	39,836	0	39,836	4,318	1,481	0	37,254	43,054	3,218	1.08	15.9
T&D	79a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,318	0	15,318	1,693	360	0	3,390	5,443	-9,875	0.36	48.5
T&D	79b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	8,318	0	8,318	243	52	0	8,060	8,355	37	1.00	17.1
T&D	79c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	17,332	0	17,332	4,740	1,009	0	3,612	9,361	7,972	0.54	31.9
T&D	79d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	9,412	0	9,412	681	145	0	8,896	9,722	310	1.03	16.7
T&D	79e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	16,325	0	16,325	2,545	1,505	0	3,501	7,551	-8,774	0.46	37.2
T&D	79f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	8,865	0	8,865	366	216	0	8,478	9,060	195	1.02	16.9
T&D	79g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	18,339	0	18,339	5,592	2,154	0	3,723	11,468	6,871	0.63	27.5
T&D	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	9,959	0	9,959	804	310	0	9,314	10,427	468	1.05	16.4
T&D	7a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	18,800	0	18,800	2,387	508	0	16,374	19,268	468	1.02	16.8
T&D	7b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	18,235	0	18,235	2,254	480	0	16,751	19,485	1,250	1.07	16.1
T&D	7c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	20,567	0	20,567	6,683	1,422	0	16,568	24,673	4,106	1.20	14.4
T&D	7d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	19,949	0	19,949	6,311	1,343	0	16,981	24,635	4,687	1.23	13.9
T&D	7e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	19,684	0	19,684	3,175	1,568	0	16,471	21,214	1,530	1.08	16.0
T&D	7f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	19,092	0	19,092	2,999	1,481	0	16,866	21,345	2,253	1.12	15.4
T&D	7g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	21,451	0	21,451	7,471	2,482	0	16,665	26,618	5,168	1.24	13.9
T&D	7h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	20,806	0	20,806	7,056	2,344	0	17,095	26,496	5,690	1.27	13.5
T&D	80a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	30,636	0	30,636	4,746	1,010	0	6,781	12,537	18,099	0.41	42.1
T&D	80b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	16,636	0	16,636	682	145	0	16,120	16,948	311	1.02	16.9
T&D	80c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	34,664	0	34,664	13,289	2,828	0	7,224	23,342	-11,323	0.67	25.6
T&D	80d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	18,824	0	18,824	1,910	407	0	17,791	20,108	1,284	1.07	16.1
T&D	80e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	32,650	0	32,650	6,475	3,334	0	7,002	16,812	-15,838	0.51	33.4
T&D	80f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	17,730	0	17,730	931	479	0	16,956	18,366	636	1.04	16.6
T&D	80g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	36,679	0	36,679	15,019	5,153	0	7,445	27,617	9,062	0.75	22.9
T&D	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	19,918	0	19,918	2,159	741	0	18,627	21,527	1,609	1.08	15.9
T&D	81a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	15,318	0	15,318	2,373	505	0	12,859	15,737	419	1.03	16.8
T&D	81b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	14,857	0	14,857	2,241	477	0	13,166	15,884	1,027	1.07	16.1
T&D	81c		Transformer	Amorphous Core (No Load Loss Reduction) RI	17,332	0	17,332	6,645	1,414	0	13,080	21,139	3,807	1.22	14.1
T&D	81d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	16,811	0	16,811	6,276	1,336	0	13,428	21,039	4,228	1.25	13.8
T&D	81e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	16,325	0	16,325	3,238	1,667	0	12,969	17,874	1,549	1.09	15.7
T&D	81f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	15,834	0	15,834	3,058	1,575	0	13,297	17,929	2,095	1.13	15.2
T&D	81g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	18,339	0	18,339	7,509	2,576	0	13,191	23,277	4,937	1.27	13.6
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO	17,788	0	17,788	7,092	2,433	0	13,559	23,084	5,296	1.30	13.3
T&D	82a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	19,503	0	19,503	3,616	770	0	4,316	8,702	10,801	0.45	38.6
T&D	82b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	10,591	0	10,591	520	111	0	10,261	10,892	301	1.03	16.7
T&D	82c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	22,073	0	22,073	10,125	2,155	0	4,598	16,879	5,194	0.76	22.5

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	82d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	11,986	0	11,986	1,456	310	0	11,327	13,093	1,107	1.09	15.8
T&D	82e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	20,788	0	20,788	5,000	2,629	0	4,457	12,086	8,702	0.58	29.6
T&D	82f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF	11,288	0	11,288	719	378	0	10,794	11,891	603	1.05	16.3
T&D	82g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	23,358	0	23,358	11,509	4,014	0	4,740	20,263	3,095	0.87	19.9
T&D	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	12,684	0	12,684	1,654	577	0	11,861	14,092	1,408	1.11	15.5
T&D	83a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	78,010	0	78,010	14,465	3,079	0	65,466	83,009	4,999	1.06	16.2
T&D	83b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	75,665	0	75,665	13,661	2,908	0	67,031	83,600	7,935	1.10	15.6
T&D	83c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	88,290	0	88,290	40,501	8,620	0	66,597	115,718	27,428	1.31	13.1
T&D	83d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	85,636	0	85,636	38,251	8,141	0	68,368	114,760	29,125	1.34	12.9
T&D	83e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	83,150	0	83,150	19,998	10,516	0	66,032	96,546	13,396	1.16	14.8
T&D	83f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	80,650	0	80,650	18,887	9,932	0	67,700	96,519	15,868	1.20	14.4
T&D	83g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	93,430,	0	93,430	46,034	16,057	0	67,163	129,254	35,824	1.38	12.4
T&D	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	90,621	0	90,621	43,477	15,165	0	69,037	127,679	37,058	1.41	12.2
T&D	84a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	97,513	0	97,513	18,081	3,848	0	21,579	43,508	54,005	0.45	38.6
T&D	84b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	52,953	0	52,953	2,599	553	0	51,306	54,458	1,506	1.03	16.7
T&D	84c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	110,363	0	110,363	50,626	10,775	0	22,992	84,393	25,969	0.76	22.5
T&D	84d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	59,931	0	59,931	7,278	1,549	0	56,637	65,464	- 5,533	1.09	15.8
T&D	84e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction)' - RI	103,938	0	103,938	24,998	13,145	0	22,286	60,428	-43,510	0.58	29.6
T&D	84f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	56,442	0	56,442	3,594	1,890	0	53,971	59,455	3,013	1.05	16.3
T&D	84g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	116,788	0	116,788	57,543	20,072	0	23,699	101,314	15,474	0.87	19.9
T&D	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	63,420	0	63,420	8,272	2,885	0	59,303	70,460	7,041	1.11	15.5
T&D	85a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	25,136	0	25,136	4,068	866	0	12,590	17,524	7,612	0.70	24.7
T&D	85b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	18,523	0	18,523	2,067	440	0	17,002	19,509	985	1.05	16.4
T&D	85c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	28,507	0	28,507	11,391	2,424	0	12,961	26,776	1,731	0.94	18.3
T&D	85d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	21,007	0	21,007	5,787	1,232	0	17,964	24,983	3,976	1.19	14.5
T&D	85e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI	26,822	0	26,822	6,090	3,583	0	12,776	22,449	-4,373	0.84	20.6
T&D	85f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	19,765	0	19,765	3,094	1,820	0	17,483	22,397	2,632	1.13	15.2
T&D	85g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	30,192	0	30,192	13,413	5,142	0	13,146	31,701	1,509	1.05	16.4
T&D	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	22,249	0	22,249	6,814	2,612	0	18,446	27,872	5,623	1.25	13.7
T&D	86a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	25,136	0	25,136	4,068	866	0	5,555	10,489	14,647	0.42	41.3
T&D	86b		Transformer	Improved Silicon Steel (No Load Loss Reduction) ROF	13,650	0	13,650	585	124	0	13,218	13,927	277	1.02	16.9
T&D	86c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	28,507	0	28,507	11,391	2,424	0	5,926	19,741	8,766	0.69	24.9
T&D	86d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	15,480	0	15,480	1,638	349	0	14,616	16,602	1,122	1.07	16.1
T&D	86e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	26,822	0	26,822	6,090	3,583	0	5,740	15,414	11,408	0.57	30.0
T&D	86f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	14,565	0	14,565	875	515	0	13,917	15,308	743	1.05	16.4
T&D	86g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	30,192	0	30,192	13,413	5,142	0	6,111	24,666	5,526	0.82	21.1
T&D	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	16,395	0	16,395	1,928	739	0	15,315	17,983	1,587	1.10	15.7
T&D	87a		Transformer	Improved Silicon Steel (No Load Loss Reduction) RI	547,742	0	547,742	131,085	27,899	0	271,586	430,571	-117,172	0.79	21.9
T&D	87b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	403,636	0	403,636	66,594	14,173	0	367,724	448,491	44,855	1.11	15.5
T&D	87e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	587,523	0	587,523	198,393	118,363	0	275,963	592,718	5,195	1.01	17.1
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	432,951	0	432,951	100,787	60,130	0	379,082	540,000	107,049	1.25	13.8
T&D	8a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	21,933	0	21,933	2,152	458	0	19,103	21,712	-221	0.99	17.4
T&D	8b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	21,274	0	21,274	2,032	432	0	19,543	22,007	733	1.03	16.6
T&D	8c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	23,995	0	23,995	6,024	1,282	0	19,329	26,636	2,641	1.11	15.5
T&D	8d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	23,273	0	23,273	5,690	1,211	0	19,811	26,711	3,438	1.15	15.0
T&D	8e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	22,964	0	22,964	2,658	1,139	0	19,216	23,013	49	1.00	17.2
T&D	8f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	22,274	0	22,274	2,510	1,075	0	19,677	23,263	989	1.04	16.5
T&D	8g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	25,026	0	25,026	6,531	1,963	0	19,443	27,937	2,911	1.12	15.4
T&D	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	24,273	0	24,273	6,168	1,854	0	19,945	27,967	3,694	1.15	14.9
T&D	9a		Transformer	Improved Silicon Steel (No Load Loss Reduction) - RI	4,700	0	4,700	461	98	0	4,093	4,653	-47	0.99	17.4
T&D	9b		Transformer	Improved Silicon Steel (No Load Loss Reduction) - ROF	4,559	0	4,559	435	93	0	4,188	4,716	157	1.03	16.6
T&D	9c		Transformer	Amorphous Core (No Load Loss Reduction) - RI	5,142	0	5,142	1,291	275	0	4,142	5,708	566	1.11	15.5
T&D	9d		Transformer	Amorphous Core (No Load Loss Reduction) - ROF	4,987	0	4,987	1,219	259	0	4,245	5,724	737	1.15	15.0
T&D	9e		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI	4,921	0	4,921	570	244	0	4,118	4,931	10	1.00	17.2
T&D	9f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	4,773	0	4,773	538	230	0	4,216	4,985	212	1.04	16.5
T&D	9g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	5,363	0	5,363	1,400	421	0	4,166	5,986	624	1.12	15.4
T&D	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO	5,201	0	5,201	1,322	397	0	4,274	5,993	792	1.15	14.9
T&D		Substation	Sub. Transformers	Conservation Voltage Reduction - RI	1,000	0	1,000	672,326	295,297	0	0	967,624	966,624	967.62	0.0
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity - RI	31,590	0	31,590	16,932	390,511	-109	0	407,334	375,744	12.89	1.3
Vehicles	C-CNG 1		Sedan compact/Midsize	CNG Conversion - RI	32,000	0	32,000	128,397	NA	167,115	NA	295,511	263,511	9.23	1.9
Vehicles	C-CNG-1		Sedan compact/Midsize	CNG Conversion - ROF	28,321	0	28,321	103,353	NA	131,129	NA	234,482	206,160	8.28	2.1
Vehicles	C-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - RI	216,000	0	216,000	1,899,806	NA	1,468,387	NA	3,368,193	3,152,193	15.59	1.1
Vehicles	C-CNG-2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - ROF	185,422	0	185,422	1,441,086	NA	1,078,994	NA	2,520,080	2,334,658	13.59	1.3
Vehicles	C-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - RI	18,000	0	18,000	138,578	NA	104,729	NA	243,307	225,307	13.52	1.3
Vehicles	C-CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - ROF	15,452	0	15,452	105,118	NA	76,956	NA	182,074	166,622	11.78	1.5
Vehicles	C-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	54,000	0	54,000	84,885	NA	185,324	NA	270,209	216,209	5.00	3.4
Vehicles	C-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	46,355	0	46,355	64,389	NA	136,179	NA	200,568	154,212	4.33	4.0
Vehicles	C-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	6,000	0	6,000	24,896	NA	18,292	NA	43,188	37,188	7.20	2.4
Vehicles	C-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	4,996	0	4,996	17,719	NA	12,557	NA	30,276	25,281	6.06	2.8
Vehicles	C-CNG 6		Van multipurpose	CNG Conversion - RI	96,000	0	96,000	558,773	NA	827,777	NA	1,386,550	1,290,550	14.44	1.2
Vehicles	C-CNG 6		Van multipurpose	CNG Conversion - ROF	82,410	0	82,410	423,854	NA	608,263	NA	1,032,117	949,708	12.52	1.4
Vehicles	C-CNG-7		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	3,000	0	3,000	2,011	NA	8,482	NA	10,493	7,493	3.50	4.9
Vehicles	C-CNG-7		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	2,655	0	2,655	1,653	NA	6,656	NA	8,309	5,654	3.13	5.5
Vehicles	C-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	15,000	0	15,000	39,959	NA	45,422	NA	85,381	70,381	5.69	3.0
Vehicles	C-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	12,489	0	12,489	29,345	NA	31,181	NA	60,526	48,036	4.85	3.6
Vehicles	G-CNG 1		Sedan Compact/Midsize	CNG Conversion - RI	116,000	0	116,000	465,438	NA	605,791	NA	1,071,229	955,229	9.23	1.9
Vehicles	G-CNG-1		Sedan Compact/Midsize	CNG Conversion - ROF	112,512	0	112,512	441,766	NA	571,670	NA	1,013,437	900,924	9.01	1.9
Vehicles	G-CNG 2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - RI	30,000	0	30,000	263,862	NA	203,943	NA	467,805	437,805	15.59	1.1
Vehicles	G CNG 2		Pickup compact/4dr, under 8510 GVW	CNG Conversion - ROF	27,374	0	27,374	224,832	NA	170,508	NA	395,390	368,016	14.44	1.2
Vehicles	G-CNG 3		Truck light weight under 8,000 GVW	CNG Conversion - RI	63,000	0	63,000	485,024	NA	366,551	NA	851,575	788,575	13.52	1.3
Vehicles	G CNG-3		Truck light weight under 8,000 GVW	CNG Conversion - ROF	57,486	0	57,486	413,373	NA	306,458	NA	719,831	662,345	12.52	1.4

Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Vehicles	G-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - RI	144,000	0	144,000	226,459	NA	494,415	NA	720,875	576,875	5.01	3.4
Vehicles	G-CNG-4		Truck medium weight over 8,001, under 17,000	CNG Conversion - ROF	127,446	0	127,446	182,288	NA	387,950	NA	570,238	442,792	4.47	3.8
Vehicles	G-CNG 5		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	33,000	0	33,000	136,927	NA	57,489	NA	194,416	161,416	5.89	2.9
Vehicles	G-CNG-5		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	29,206	0	29,206	110,219	NA	45,110	NA	155,329	126,123	5.32	3.2
Vehicles	G-CNG-6		Van multipurpose	CNG Conversion - RI	177,000	0	177,000	1,030,238	NA	1,526,214	NA	2,556,452	2,379,452	14.44	1.2
Vehicles	G-CNG 6		Van multipurpose	CNG Conversion - ROF	171,678	0	171,678	977,841	NA	1,440,252	NA	2,418,093	2,246,415	14.09	1.2
Vehicles	G-CNG-7		Bus multipurpose	CNG Conversion - RI	30,000	0	30,000	421,650	NA	88,516	NA	510,166	480,166	17.01	1.0
Vehicles	G-CNG-7		Bus multipurpose	CNG Conversion - ROF	25,753	0	25,753	319,840	NA	65,043	NA	384,883	359,130	14.95	1.2
Vehicles	G-CNG-8		Truck heavy weight over 17,001 GVW	CNG Conversion - RI	42,000	0	42,000	89,508	NA	290,414	NA	379,922	337,922	9.05	1.9
Vehicles	G-CNG 8		Truck heavy weight over 17,001 GVW	CNG Conversion - ROF	37,172	0	37,172	73,594	NA	227,877	NA	301,471	264,299	8.11	2.1
Vehicles	G CNG-9		Ambulance patient Transport	CNG Conversion - RI	9,000	0	9,000	12,283	NA	16,930	NA	29,213	20,213	3.25	5.3
Vehicles	G-CNG-9		Ambulance patient Transport	CNG Conversion - ROF	7,494	0	7,494	9,020	NA	11,622	NA	20,642	13,149	2.75	6.3
Vehicles	Option 1			Refueling Station - Option 1	1,080,000	0	1,080,000	-362,742	-25,561	NA	NA	388,303	1,468,303	-0.36	NA
Vehicles	Option 2			Refueling Station - Option 2	963,000	0	963,000	-320,273	-25,561	NA	NA	345,835	1,308,835	-0.36	NA
Wells	1		Well Pumps	Add New 500 kgal. Tank - RI	210,500	0	210,500	442,299	275,857	-4,305	51,131	764,981	554,481	3.63	4.7

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	DINING HALLS-05	DINING HALLS	Roof Insulation R-Value 0.00	Attic Ceiling. Increase insulation by R 38	1	1	1017	85	368,956	101.90	0.2
Hot Water	COMMISSARIES	COMMISSARIES	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	197	0	197	0	20,374	89.30	0.2
Hot Water	CLUBS-03	CLUBS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	369	0	369	0	38,070	75.90	0.3
Lights	SECURITY-03	SECURITY	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	499	17	633	28	330,336	59.90	0.3
Hot Water	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	Electric Central Boiler	Electric Boiler, Wrap Tank w/ Insulation, LFSHs, Aerators	14	1	14	1	6,150	52.70	0.3
Lights	SECURITY-02	SECURITY	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	576	20	555	20	304,156	48.00	0.4
Lights	SECURITY-01	SECURITY	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	4	0	3	1	2,803	42.60	0.4
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	4	0	5	0	3,415	42.30	0.4
Lights	COMMISSARIES	COMMISSARIES	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	11	0	14	1	7,548	40.60	0.4
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	7	0	7	0	442	40.50	0.3
Hot Water	MILITARY OTHER-05	MILITARY OTHER	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	120	0	120	0	12,205	39.20	0.5
Hot Water	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	45	0	45	0	1,969	38.80	0.2
Hot Water	ADMINISTRATION-08	ADMINISTRATION	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	79	0	79	0	47,518	35.00	0.6
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	30	2	37	2	20,910	34.30	0.5
Lights	ADMINISTRATION-04	ADMINISTRATION	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	10	1	13	1	8,016	30.10	0.6
Lights	SHOPS-05	SHOPS	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	23	2	23	2	14,394	28.00	0.6
Lights	MWR-03	MORALE-WELFARE RECREATION	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	1	0	1	0	755	27.50	0.7
Lights	ADMINISTRATION-03	ADMINISTRATION	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	63	4	93	4	45,027	26.90	0.7
Roof	SHOPS-04	SHOPS	Roof Insulation R Value 5.00	Attic Ceiling. Increase insulation by R 19	1	1	7038	0	799,303	26.80	0.8
Hot Water	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	39	4	39	4	4,750	25.10	0.1
Lights	WAREHOUSE-12	WAREHOUSE	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	125	11	154	18	111,684	25.00	0.7
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	1	0	1	0	941	24.30	0.7
Roof	SECURITY-01	SECURITY	Roof Insulation R-Value 8.69	Attic Ceiling. Increase insulation by R 19	1	1	8	1	5,275	24.10	0.8
Lights	RECREATION-02	RECREATION	IN8: INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	5	0	0	0	3,050	23.70	0.7
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	9	1	6	1	5,518	23.60	0.8
Roof	RECREATION-02	RECREATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 30	1	1	4164	88	868,002	23.40	0.8
Hot Water	DINING HALLS-06	DINING HALLS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	186	0	186	0	51,093	23.20	0.9
Lights	CHAPEL-01	CHAPEL	IN8· INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	30	3	37	4	24,042	21.30	0.8
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	639	58	803	55	512,894	20.50	0.9
Lights	WAREHOUSE-02	WAREHOUSE	IN8· INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	128	11	129	11	87,602	19.50	0.9
Lights	MILITARY OTHER-04	MILITARY OTHER	IN8· INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	30	3	27	3	20,971	19.50	0.9
Lights	WAREHOUSE-01	WAREHOUSE	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	284	24	274	24	193,870	19.40	0.9
Hot Water	BARRACKS-07	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	768	0	768	0	364,573	19.30	1.1
Roof	HANGER	HANGAR	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 30	1	1	1060	0	118,577	19.00	1.1
Roof	WAREHOUSE-06	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 19	1	1	746	0	87,926	19.00	1.1
Hot Water	ADMINISTRATION-09	ADMINISTRATION	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	38	4	38	4	7,146	18.10	0.3
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	11	1	7	1	7,088	18.00	1.0
Hot Water	BARRACKS-02	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	2000	0	2000	0	162,771	17.70	1.0
Hot Water	FH-DUPLEX-03	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	10311	0	10311	0	309,710	17.50	0.4
Lights	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	37	3	34	1	24,690	17.10	1.0
Lights	RECREATION-03	RECREATION	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	112	14	112	14	57,132	16.90	1.1
Hot Water	BARRACKS-04	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	127	0	127	0	33,667	16.10	0.8
Lights	SHOPS-04	SHOPS	MV8· MERC 1000 PEND	HS19. HPS 400 PEND	169	13	204	13	98,855	16.00	1.1
Lights	FH-DUPLEX-03	DUPLEX	IN8. INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	103	5	229	6	78,875	15.70	1.2
Lights	CHAPEL-02	CHAPEL	IN8 INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	137	12	137	12	79,788	15.60	1.2
Lights	FH-DUPLEX-01	DUPLEX	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	282	12	192	12	203,631	14.80	1.2
Lights	ADMINISTRATION-03	ADMINISTRATION	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	31	2	80	2	25,715	14.20	1.3
Hot Water	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	5	0	5	0	651	14.20	0.4
Hot Water	RECREATION-04	RECREATION	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	76	0	76	0	7,379	14.10	1.5
Lights	SHOPS-04	SHOPS	IN6· INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	8	1	11	1	6,528	14.00	1.3
Roof	WAREHOUSE-12	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R-30	1	1	433	28	154,241	13.50	1.4
Lights	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	432	19	437	35	277,242	13.30	1.3
Lights	ADMINISTRATION-04	ADMINISTRATION	IN6. INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	5	0	7	1	3,796	13.30	1.4
Roof	BARRACKS-04	BARRACKS	Roof Insulation R-Value 0.00	Suspended Ceiling· Increase insulation by R-19	1	1	3522	6	345,751	13.10	1.5
Hot Water	MWR-05	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	121	0	121	0	5,997	12.90	0.8
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	IN8· INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	2	0	2	0	1,371	12.90	1.4
Lights	COMMISSARIES	COMMISSARIES	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	6	0	8	0	3,921	12.70	1.4
Lights	FH-3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	IN8· INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	731	32	622	34	440,282	12.50	1.4
Lights	ADMINISTRATION-07	ADMINISTRATION	IN6. INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	17	1	22	1	12,373	12.20	1.5
Lights	SHOPS-03	SHOPS	IN6: INC 2-60 CEIL	FL182· CFL 2-13 + BLST UNIT	6	0	5	0	3,404	12.10	1.5
Lights	ADMINISTRATION-08	ADMINISTRATION	IN6 INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	17	1	24	1	12,535	11.90	1.5
Lights	CLINIC-02	CLINIC	IN6: INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	3	0	1	0	1,636	11.90	1.5
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	IN6. INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	10	1	15	1	7,277	11.80	1.5
Lights	ADMINISTRATION-07a	ADMINISTRATION	IN6· INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	4	0	3	0	2,938	11.80	1.5
Lights	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	170	8	117	8	95,225	11.70	1.5
Lights	COMMISSARIES	COMMISSARIES	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	5	0	6	0	2,405	11.40	1.6
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	2	0	5	0	1,592	11.40	1.6
Lights	SECURITY-03	SECURITY	FL1 FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	141	5	167	7	68,239	11.30	1.6
Lights	MWR-06	MORALE-WELFARE-RECREATION	IN6 INC 2-60 CEIL	FL182. CFL 2 13 + BLST UNIT	7	1	8	1	5,839	11.30	1.6
Roof	CHAPEL-01	CHAPEL	Roof Insulation R-Value 11.00	Attic Ceiling· Increase insulation by R 38	1	1	108	9	36,330	11.20	1.7
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	2	0	2	0	1,083	11.20	1.6
Lights	SHOPS-05	SHOPS	IN6 INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	12	1	10	1	7,364	11.10	1.6
Lights	STORAGE-01	STORAGE	IN8 INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	298	34	305	34	148,420	11.00	1.6
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN6 INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	1	0	1	0	455	11.00	1.6
Lights	STORAGE-02	STORAGE	IN8 INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	1370	158	1557	158	678,056	10.90	1.6
Lights	DINING HALLS-04	DINING HALLS	IN5 INC 60 CEIL	FL181· CFL 13 + BLST UNIT	16	1	18	1	10,673	10.90	1.6
Lights	MWR-07	MORALE-WELFARE RECREATION	IN6· INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	11	1	10	1	8,537	10.90	1.6
Roof	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11.00	Attic Ceiling· Increase Insulation by R 8	1	1	512	0	52,503	10.80	1.9
Lights	CLUBS-02	CLUBS	IN5 INC 60 CEIL	FL181: CFL 13 + BLST UNIT	12	1	16	1	8,007	10.80	1.7
Lights	ADMINISTRATION-05	ADMINISTRATION	IN5 INC 60 CEIL	FL181· CFL 13 + BLST UNIT	31	2	80	2	24,584	10.70	1.7

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Hot Water	MWR-04	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	98	0	98	0	7,624	10.70	1.6
Roof	MWR-04	MORALE-WELFARE RECREATION	Roof Insulation R Value 20.05	Suspended Ceiling. Increase Insulation by R-8	1	1	555	0	55,483	10.50	2.0
Lights	COMMISSARIES	COMMISSARIES	EX2: EXIT - INC (2x15)	EX6: EXIT - LED	8	0	10	0	11,656	10.50	1.7
Lights	FH 3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	157	7	58	7	76,042	10.30	1.7
Lights	MWR-02	MORALE-WELFARE-RECREATION	IN6 INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	5	0	6	0	3,545	10.20	1.8
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN6: INC 2 60 CEIL	FL182. CFL 2 13 + BLST UNIT	4	0	3	0	2,491	10.10	1.8
Lights	DINING HALLS-04	DINING HALLS	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	24	1	26	2	14,170	9.90	1.8
Lights	ADMINISTRATION-04	ADMINISTRATION	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	5	0	7	1	3,616	9.90	1.8
Hot Water	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	1	0	1	0	158	9.90	0.6
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	38	2	11	2	17,513	9.80	1.8
Lights	HOSPITAL	HOSPITAL	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	479	17	492	18	195,225	9.70	1.9
Lights	CLUBS-03	CLUBS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	17	1	14	2	10,967	9.70	1.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178. CFL 9 + BLST UNIT	3	0	4	0	1,999	9.30	1.9
Lights	CLINIC-02	CLINIC	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	7	0	5	0	3,840	9.20	1.9
Hot Water	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	4	0	4	0	469	9.20	0.6
Lights	SHOPS-04	SHOPS	FL2: FL 2X4 3F40T12 STD1,2	FL236. FL 2X4 3F32T8 ELC3	3	0	6	0	2,817	9.10	2.0
Lights	SECURITY-02	SECURITY	FL1 FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	162	6	149	6	61,156	9.00	2.0
Lights	SHOPS-03	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	12	1	11	1	6,423	9.00	2.0
Roof	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R 38	1	1	65	6	32,564	8.90	2.0
Lights	SHOPS-04	SHOPS	IN12: INC 2-100 CEIL	HS12. HPS 50 PEND	7	1	10	1	5,357	8.90	2.0
Hot Water	BARRACKS-05	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	41	0	41	0	3,754	8.80	2.4
Hot Water	BARRACKS-04	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	329	0	329	0	30,483	8.70	2.4
Hot Water	FH DUPLEX-01	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	6234	0	6234	0	126,398	8.40	0.5
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	7	0	11	0	4,065	8.40	2.2
Roof	BARRACKS-03	BARRACKS	Roof Insulation R-Value 20.05	Suspended Ceiling Increase Insulation by R 8	1	1	723	0	70,533	8.30	2.5
Lights	RECREATION-02	RECREATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	40	2	22	3	24,021	8.30	2.2
Lights	SHOPS-05	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	6	0	5	0	3,418	8.20	2.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1	0	1	0	429	8.20	2.2
Lights	ELECTRONICS-03	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	94	3	105	3	38,473	8.10	2.2
Lights	SHOPS-06	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	3	0	2	0	1,792	8.10	2.2
Lights	BARRACKS-07	BARRACKS	IN6. INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	216	8	280	8	106,053	7.90	2.3
Lights	HOSPITAL	HOSPITAL	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	250	9	250	9	100,566	7.90	2.3
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	2	0	6	0	1,598	7.80	2.4
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	7	1	5	1	3,761	7.60	2.4
Roof	DINING HALLS-04	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	234	25	84,736	7.50	2.5
Lights	ADMINISTRATION-05	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	74	5	104	5	41,711	7.50	2.4
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	10	1	14	1	6,978	7.50	2.4
Hot Water	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	59	0	59	0	5,332	7.50	2.8
Hot Water	DINING HALLS-01	DINING HALLS	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	44	2	44	2	4,361	7.50	0.7
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	1	0	4	0	949	7.50	2.5
Lights	SHOPS-03	SHOPS	MH36: MH 250 HE PEND	LS4: LPS 90 PEND	462	33	469	33	236,026	7.40	2.4
Hot Water	BARRACKS-06	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	314	0	314	0	28,395	7.40	2.8
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178. CFL 9 + BLST UNIT	21	1	25	1	11,626	7.40	2.4
Lights	MILITARY OTHER-03	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	5	0	2,615	7.40	2.4
Hot Water	WAREHOUSE-06	WAREHOUSE	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	5	0	5	0	546	7.40	0.7
Lights	WAREHOUSE-07	WAREHOUSE	FL158: FL 1X8 4F96T12HO STD2 REF	LS6: LPS 180 PEND	231	20	211	20	117,613	7.30	2.5
Lights	WAREHOUSE-05	WAREHOUSE	IN30: INC 300 PEND	LS2: LPS 35 PEND	159	14	142	14	83,779	7.30	2.5
Roof	DINING HALLS-06	DINING HALLS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-38	1	1	550	6	82,321	7.10	2.7
Lights	SHOPS-04	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	118	9	151	9	64,750	7.10	2.6
Lights	CLINIC-01	CLINIC	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	45	3	50	3	25,146	7.10	2.6
Lights	ADMINISTRATION-01	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	14	1	12	1	7,506	7.10	2.5
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	11	1	7	1	5,407	7.10	2.5
Lights	WAREHOUSE-08	WAREHOUSE	FL158: FL 1X8 4F96T12HO STD2 REF	LS6: LPS 180 PEND	37	3	29	3	17,914	7.00	2.6
Lights	SECURITY-03	SECURITY	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	25	1	32	1	15,610	7.00	2.6
Lights	ADMINISTRATION-06	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	26	2	22	2	11,746	7.00	2.6
Hot Water	BARRACKS-03	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	204	0	204	0	9,427	7.00	1.5
Lights	MWR-05	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	10	0	5,218	7.00	2.6
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	10	0	5,197	7.00	2.6
Lights	CLINIC-01	CLINIC	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	86	6	99	6	47,187	6.90	2.6
Lights	CLUBS-03	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	15	1	8,127	6.90	2.6
Roof	CLINIC-02	CLINIC	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 19	1	1	71	0	6,563	6.90	3.0
Lights	MWR-07	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	10	0	10	1	6,083	6.90	2.6
Lights	DINING HALLS-04	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	8	0	5,138	6.90	2.6
Lights	WAREHOUSE-11	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	4	0	5	0	2,590	6.90	2.6
Lights	WAREHOUSE-12	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	5	0	2,581	6.90	2.6
Roof	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 30	1	1	7623	0	913,862	6.80	2.9
Lights	ADMINISTRATION-04	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	25	1	26	1	15,075	6.80	2.6
Lights	MWR-03	MORALE-WELFARE-RECREATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	21	1	21	1	12,768	6.80	2.6
Lights	RECREATION-04	RECREATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	8	0	9	0	5,040	6.80	2.6
Lights	ADMINISTRATION-09	ADMINISTRATION	EX1 EXIT - INC (2x20)	EX6: EXIT - LED	153	5	185	9	90,435	6.70	2.7
Lights	COMMISSARIES	COMMISSARIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	6	0	8	0	3,145	6.70	2.7
Lights	MWR-05	MORALE-WELFARE-RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2	0	7	0	2,048	6.70	2.8
Hot Water	HOSPITAL	HOSPITAL	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	567	0	567	0	31,984	6.60	2.0
Lights	ADMINISTRATION-07	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	26	1	30	1	14,950	6.60	2.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	EX1: EXIT INC (2x20)	EX6 EXIT - LED	8	0	11	0	4,902	6.60	2.7
Lights	SHOPS-03	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	68	5	66	5	30,163	6.50	2.8
Lights	ADMINISTRATION-02	ADMINISTRATION	EX1 EXIT INC (2x20)	EX6: EXIT - LED	50	2	42	3	28,923	6.50	2.7
Lights	SHOPS-03	SHOPS	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	13	1	12	1	6,948	6.50	2.7
Lights	ADMINISTRATION-06a	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	8	0	12	0	4,815	6.50	2.8
Lights	CHAPEL-01	CHAPEL	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	8	0	6	0	4,766	6.50	2.7

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	MWR 06	MORALE-WELFARE RECREATION	EX1: EXIT INC (2x20)	EX6 EXIT - LED	7	0	5	0	3,732	6.50	2.7
Lights	COMMISSARIES	COMMISSARIES	FL61· FL 1X8 4F96T12 STD2	FL130: FL 1X8 4F96T12ES ELC2 REF	12	1	15	1	5,614	6.40	2.9
Lights	MWR 05a	MORALE WELFARE RECREATION	EX1. EXIT INC (2x20)	EX6: EXIT LED	8	0	6	0	4,697	6.40	2.8
Lights	CLINIC-02	CLINIC	IN1· INC 40 CEIL	FL178· CFL 9 + BLST UNIT	1	0	0	0	476	6.40	2.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL6 FL 2X2 2F40T12U STD2	FL54 FL 2X2 2F32T8U ELC2	0	0	0	0	180	6.40	2.8
Lights	SHOPS-04	SHOPS	FL4. FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 FLC2	6	0	9	0	4,251	6.30	2.9
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	4	0	7	0	2,328	6.30	2.9
Lights	DINING HALLS-05	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	2	0	2	0	1,020	6.30	2.8
Lights	SHOPS-05	SHOPS	IN29. INC 200 PEND	HS12· HPS 50 PEND	85	7	78	7	44,165	6.20	2.9
Lights	MWR-02	MORALE WELFARE-RECREATION	EX1: EXIT INC (2x20)	EX6· EXIT LED	67	2	69	2	36,653	6.20	2.9
Lights	ADMINISTRATION-05	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	67	2	85	2	36,529	6.20	2.9
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT LED	63	2	66	2	34,183	6.20	2.9
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN6: INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	53	2	77	2	33,450	6.20	2.9
Lights	FH-DUPLEX-02	DUPLEX	IN6 INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	24	1	31	1	15,134	6.20	2.9
Lights	CLINIC-01	CLINIC	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	9	0	10	0	5,136	6.20	2.9
Lights	CLUBS-02	CLUBS	EX1: EXIT INC (2x20)	EX6 EXIT LED	8	0	8	0	4,536	6.20	2.9
Lights	CLUBS-01	CLUBS	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	3	0	6	0	1,666	6.20	2.9
Lights	SHOPS-05	SHOPS	FL61· FL 1X8 4F96T12 STD2	LS5 LPS 135 PEND	578	46	573	46	268,376	6.10	3.0
Lights	SHOPS-07	SHOPS	EX1. EXIT INC (2x20)	EX6 EXIT LED	33	1	36	1	17,764	6.10	2.9
Lights	ADMINISTRATION-07a	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	6	0	5	0	3,368	6.10	2.9
Lights	DINING HALLS-06	DINING HALLS	EX1: EXIT INC (2x20)	EX6. EXIT LED	6	0	8	0	3,021	6.10	2.9
Hot Water	GUEST HOUSES-02	MILITARY MOBILE HOMES	Electric SHW Heater	0.76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	5	7	5	3	1,425	6.10	0.2
Wall	DINING HALLS-04	DINING HALLS	Wall Insulation R-Value 0 00	Interior Masonary Surface Increase Insulation by R 10 9	1	1	205	23	67,005	6.00	3.1
Lights	BARRACKS-04	BARRACKS	EX1· EXIT INC (2x20)	EX6· EXIT LED	53	2	66	2	27,623	6.00	3.0
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	13	0	13	0	6,561	6.00	3.0
Lights	ELECTRONICS-03	ELECTRONICS	EX1· EXIT - INC (2x20)	EX6· EXIT - LED	4	0	4	0	2,191	6.00	3.0
Lights	MWR-03	MORALE-WELFARE-RECREATION	FL2: FL 2X4 3F40T12 STD1,2	FL236. FL 2X4 3F32T8 ELC3	1	0	1	0	798	6.00	3.0
Lights	ADMINISTRATION-01	ADMINISTRATION	IN11: INC 100 CEIL	FL189. CFL 2 15 CEIL FIXT	2	0	1	0	670	6.00	3.0
Lights	SHOPS-05	SHOPS	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	212	17	214	17	109,811	5.90	3.1
Lights	BARRACKS-07	BARRACKS	EX1: EXIT INC (2x20)	EX6. EXIT LED	204	7	273	7	104,108	5.90	3.0
Lights	ADMINISTRATION-04	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237· FL 2X4 3F32T8 ELC3 REF	134	9	163	14	77,596	5.90	3.1
Lights	COMMISSARIES	COMMISSARIES	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	84	4	108	6	45,775	5.90	3.0
Lights	BARRACKS-07	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	92	4	122	4	42,401	5.90	3.0
Lights	HOSPITAL	HOSPITAL	EX1 EXIT INC (2x20)	EX6: EXIT LED	63	2	59	2	32,336	5.90	3.0
Lights	BARRACKS-06	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT LED	18	1	23	1	9,280	5.90	3.0
Lights	ADMINISTRATION-02	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	650	45	750	73	371,308	5.80	3.1
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	EX1: EXIT INC (2x20)	EX6. EXIT LED	209	7	212	7	103,892	5.80	3.1
Wall	MWR-05	MORALE-WELFARE-RECREATION	Wall Insulation R-Value 5.32	Interior Masonary Surface. Increase Insulation by R 10 9	1	1	194	16	56,177	5.80	3.2
Lights	STORAGE-01	STORAGE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	96	3	98	3	48,364	5.80	3.1
Lights	DINING HALLS-01	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	17	1	16	1	8,400	5.80	3.1
Lights	MILITARY OTHER-05	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	17	1	17	1	8,395	5.80	3.1
Lights	ELECTRONICS-02	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	13	0	6,252	5.80	3.1
Lights	BARRACKS-02	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	384	15	335	15	169,131	5.70	3.1
Lights	WAREHOUSE-01	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	163	5	158	5	80,746	5.70	3.1
Lights	MILITARY OTHER-01	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT LED	159	5	141	5	77,253	5.70	3.1
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	76	5	81	5	38,082	5.70	3.2
Lights	SHOPS-02	SHOPS	EX1: EXIT INC (2x20)	EX6. EXIT - LED	71	2	63	3	35,215	5.70	3.1
Lights	SHOPS-03	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	71	2	61	2	34,905	5.70	3.1
Lights	DINING HALLS-03	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	59	2	54	2	28,911	5.70	3.1
Lights	WAREHOUSE-02	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	29	1	29	1	14,435	5.70	3.1
Lights	WAREHOUSE-10	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	13	0	13	0	6,207	5.70	3.1
Lights	WAREHOUSE-09	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	13	0	12	0	6,198	5.70	3.1
Lights	RECREATION-01	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	13	0	6,190	5.70	3.1
Lights	RECREATION-01	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	13	0	13	0	6,190	5.70	3.1
Lights	WAREHOUSE-03	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT LED	13	0	11	0	6,118	5.70	3.1
Lights	WAREHOUSE-04	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT LED	8	0	8	0	4,137	5.70	3.1
Lights	RECREATION-03	RECREATION	EX1 EXIT - INC (2x20)	EX6: EXIT - LED	8	0	8	0	4,129	5.70	3.1
Lights	CLINIC-01	CLINIC	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	7	0	8	0	3,518	5.70	3.2
Lights	CLUBS-01	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	3	0	3	0	1,619	5.70	3.1
Lights	ELECTRONICS-01	ELECTRONICS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1	0	1	0	697	5.70	3.2
Hot Water	ELECTRONICS-03	ELECTRONICS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	8	0	8	0	153	5.70	0.8
Lights	WAREHOUSE-07	WAREHOUSE	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	697	60	627	60	351,785	5.60	3.2
Lights	BARRACKS-02	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	268	9	222	9	128,861	5.60	3.2
Lights	WAREHOUSE-03	WAREHOUSE	IN11. INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	187	16	166	16	92,485	5.60	3.2
Lights	MILITARY OTHER-02	MILITARY OTHER	EX1: EXIT INC (2x20)	EX6· EXIT LED	151	5	127	5	72,083	5.60	3.2
Lights	WAREHOUSE-05	WAREHOUSE	EX1: EXIT INC (2x20)	EX6. EXIT - LED	113	4	96	4	54,180	5.60	3.2
Lights	SECURITY-02	SECURITY	EX1: EXIT INC (2x20)	EX6· EXIT LED	50	2	45	2	24,325	5.60	3.2
Lights	ADMINISTRATION-06	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	50	2	39	2	23,868	5.60	3.2
Lights	SHOPS-05	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	42	1	34	1	19,915	5.60	3.2
Lights	CLINIC-01	CLINIC	FL4: FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	14	1	15	1	7,223	5.60	3.2
Hot Water	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Electric SHW Heater	0 76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	9	6	-9	4	6,855	5.60	1.0
Lights	WAREHOUSE-08	WAREHOUSE	EX1· EXIT - INC (2x20)	EX6. EXIT - LED	8	0	7	0	4,000	5.60	3.2
Lights	WAREHOUSE-06	WAREHOUSE	EX1 EXIT - INC (2x20)	EX6 EXIT LED	8	0	7	0	3,995	5.60	3.2
Lights	CHAPEL-02	CHAPEL	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	8	0	7	0	3,985	5.60	3.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	EX1. EXIT - INC (2x20)	EX6 EXIT - LED	4	0	3	0	1,987	5.60	3.2
Hot Water	MWR-02	MORALE WELFARE RECREATION	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	8	1	8	1	839	5.60	0.8
Lights	MWR-07	MORALE-WELFARE RECREATION	FL1· FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	248	19	295	29	157,010	5.50	3.3
Lights	MWR-06	MORALE-WELFARE RECREATION	FL1· FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	163	12	186	18	103,973	5.50	3.3
Hot Water	FH 3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	3618	0	3618	0	94,395	5.50	1.2
Lights	WAREHOUSE-08	WAREHOUSE	IN11 INC 100 CEIL	FL189 CFL 2-15 CEIL FIXT	113	10	91	10	55,452	5.50	3.3

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	BARRACKS-03	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	50	2	32	2	23,368	5.50	3.2
Lights	ADMINISTRATION-01	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	17	1	11	1	7,822	5.50	3.2
Lights	LABS-01	LABS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	13	0	9	0	5,860	5.50	3.2
Lights	ADMINISTRATION-08	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	9	0	7	0	4,165	5.50	3.2
Lights	SHOPS-06	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	6	0	3,919	5.50	3.2
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	1	0	5	0	1,077	5.50	3.4
Hot Water	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	5	0	5	0	123	5.50	1.0
Lights	ADMINISTRATION-03	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	527	18	368	18	243,847	5.40	3.3
Wall	HANGER	HANGAR	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 13	1	1	1006	0	89,300	5.40	3.8
Lights	CLINIC-02	CLINIC	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	126	4	74	4	57,148	5.40	3.3
Lights	WAREHOUSE-12	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	35	3	42	5	24,250	5.40	3.3
Lights	BARRACKS-03	BARRACKS	IN15: INC 60 TABLE LAMP	FL181: CFL 13 + BLST UNIT	38	1	24	1	15,793	5.40	3.3
Lights	RECREATION-04	RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	12	1	15	1	7,011	5.40	3.3
Lights	BARRACKS-01	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	12	0	9	0	5,006	5.40	3.3
Lights	DINING HALLS-04	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	4	0	4	0	1,984	5.40	3.4
Roof	WAREHOUSE-07	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	1	1	1232	0	128,155	5.30	3.8
Lights	SHOPS-07	SHOPS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	73	6	88	6	42,681	5.30	3.4
Roof	MWR-05	MORALE WELFARE-RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	129	13	38,701	5.30	3.5
Lights	DINING HALLS-05	DINING HALLS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	8	0	9	1	3,833	5.30	3.4
Lights	LABS-02	LABS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	4	0	2	0	1,896	5.30	3.3
Lights	MWR-04	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	42	1	19	1	18,152	5.20	3.4
Lights	RECREATION-04	RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	23	1	23	2	12,699	5.20	3.5
Lights	BARRACKS-01	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	4	0	3,662	5.20	3.4
Lights	MWR-07	MORALE-WELFARE RECREATION	FL4. FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	3	0	4	0	1,914	5.20	3.5
Lights	HANGER	HANGAR	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	2	0	1,812	5.20	3.4
Lights	BARRACKS-05	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2	0	1	0	742	5.20	3.4
Lights	MILITARY OTHER-05	MILITARY OTHER	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	47	2	48	2	19,190	5.10	3.5
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	21	1	9	1	8,987	5.10	3.4
Lights	RECREATION-02	RECREATION	FL79. FL 2X4 4F40T12ES STD2	FL232: FL 2X4 3F40T12 ELC3	6	0	1	0	3,043	5.10	3.4
Lights	BARRACKS-03	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	2	0	2	0	886	5.10	3.5
Heating	MWR-07	MORALE-WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	529	5.10	4.1
Hot Water	MILITARY OTHER-03	MILITARY OTHER	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	0	0	0	0	48	5.10	1.1
Lights	FH-DUPLEX-03	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	827	37	1146	47	521,036	5.00	3.6
Lights	RECREATION-01	RECREATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	33	4	33	4	21,227	5.00	3.6
Lights	RECREATION-01	RECREATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	33	4	33	4	21,227	5.00	3.6
Lights	DINING HALLS-06	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	23	1	38	1	11,085	5.00	3.6
Lights	RECREATION-02	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	4	0	1	0	1,751	5.00	3.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	880	58	833	58	388,869	4.90	3.7
Lights	CLUBS-02	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	63	3	88	5	35,976	4.90	3.7
Lights	COMMISSARIES	COMMISSARIES	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	72	3	95	5	34,536	4.90	3.7
Lights	WAREHOUSE-07	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	42	4	41	4	23,368	4.90	3.7
Lights	SHOPS-03	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	63	4	62	4	29,027	4.80	3.7
Lights	MWR-03	MORALE-WELFARE-RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	30	2	34	4	21,402	4.80	3.8
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	21	1	18	1	8,940	4.80	3.7
Roof	LABS-02	LABS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-19	1	1	93	0	8,009	4.80	4.3
Lights	CLINIC-02	CLINIC	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	18	1	14	1	7,950	4.80	3.8
Lights	WAREHOUSE-07	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	1	0	3,286	4.80	3.6
Lights	MWR-06	MORALE-WELFARE-RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2	0	2	0	1,167	4.80	3.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL6: FL 2X2 2F40T12U STD2	FL54: FL 2X2 2F32T8U ELC2	2	0	3	0	953	4.80	3.8
Heating	BARRACKS-03	BARRACKS	Other Fuels Conv Boiler	Add Automatic Electric Damper	17	0	17	0	724	4.80	2.3
Lights	SHOPS-05	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	231	18	233	18	116,238	4.70	3.8
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	60	3	81	3	34,587	4.70	3.8
Lights	BARRACKS-02	BARRACKS	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	99	4	61	4	33,252	4.70	3.8
Lights	FH-DUPLEX-02	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	27	1	34	1	15,920	4.70	3.8
Lights	SHOPS-04	SHOPS	MV5: MERC 250 PEND	LS4: LPS 90 PEND	26	2	53	2	13,751	4.70	3.9
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	18	1	20	1	10,320	4.70	3.8
Lights	SHOPS-05	SHOPS	IN28: INC 150 PEND	HS11: HPS 35 PEND	15	1	13	1	7,256	4.70	3.8
Lights	ADMINISTRATION-04	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	11	1	14	1	5,875	4.70	3.9
Lights	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	8	0	5	0	3,264	4.70	3.7
Lights	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	691	30	598	55	392,096	4.60	3.9
Lights	FH-DUPLEX-01	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	450	20	205	20	257,258	4.60	3.8
Lights	ADMINISTRATION-03	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	70	5	100	5	35,536	4.60	4.0
Hot Water	FH-DUPLEX-02	DUPLEX	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	1132	0	1132	0	20,386	4.60	1.0
Lights	ADMINISTRATION-04	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	34	2	40	4	18,435	4.60	3.9
Lights	ADMINISTRATION-04	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	31	2	36	3	17,195	4.60	3.9
Lights	ADMINISTRATION-06a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	17	1	22	1	7,928	4.60	3.9
Lights	SHOPS-07	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	5	0	5	0	2,358	4.60	3.9
Roof	CLUBS-03	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R-38	1	1	278	36	108,814	4.50	4.1
Roof	CLUBS-02	CLUBS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	136	20	54,331	4.50	4.1
Wall	CHAPEL-01	CHAPEL	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	1	1	69	5	17,848	4.50	4.2
Roof	WAREHOUSE-08	WAREHOUSE	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	188	0	17,230	4.50	4.5
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	16	1	19	1	8,928	4.50	4.0
Lights	BARRACKS-01	BARRACKS	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	3	0	1	0	1,002	4.50	3.9
Lights	WAREHOUSE-05	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	108	9	94	9	52,066	4.40	4.1
Lights	CLUBS-03	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	89	5	101	8	49,586	4.40	4.0
Lights	FH-DUPLEX-01	DUPLEX	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	61	3	58	3	31,627	4.40	4.1
Lights	FH-DUPLEX-02	DUPLEX	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	4	0	12	0	2,859	4.40	4.2
Lights	MWR-05a	MORALE-WELFARE-RECREATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1	0	0	0	328	4.40	4.1
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	182	16	232	16	103,462	4.30	4.2
Lights	FH 3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	158	7	106	7	80,231	4.30	4.1

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	GUEST HOUSES-02	MILITARY MOBILE HOMES	Roof Insulation R-Value 8 69	Attic Ceiling Increase insulation by R-30	1	1	210	0	31,705	4.30	4.5
Roof	ADMINISTRATION-07a	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling. Increase insulation by R 38	1	1	91	10	30,648	4.30	4.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	49	4	43	4	19,687	4.30	4.2
Lights	ELECTRONICS-02	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	34	2	35	2	14,146	4.30	4.2
Lights	RECREATION-04	RECREATION	FL79 FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	17	1	15	1	8,845	4.30	4.2
Lights	ADMINISTRATION-02	ADMINISTRATION	FL4. FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	18	1	19	2	8,770	4.30	4.2
Lights	MILITARY OTHER-03	MILITARY OTHER	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	9	1	10	1	5,576	4.30	4.2
Lights	WAREHOUSE-08	WAREHOUSE	IN29. INC 200 PEND	HS12 HPS 50 PEND	7	1	6	1	3,208	4.30	4.2
Hot Water	ADMINISTRATION-03	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	126	0	126	0	2,217	4.30	1.1
Lights	WAREHOUSE-07	WAREHOUSE	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	3	0	3	0	1,722	4.30	4.1
Lights	WAREHOUSE-08	WAREHOUSE	FL2: FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	1	0	0	0	275	4.30	4.2
Lights	FH-3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1169	52	774	54	584,026	4.20	4.2
Roof	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Roof Insulation R-Value 8 69	Attic Ceiling: Increase insulation by R-38	1	1	345	0	87,453	4.20	4.3
Roof	SHOPS-03	SHOPS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	954	0	79,720	4.20	4.9
Lights	LABS-01	LABS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	58	4	49	4	22,946	4.20	4.3
Lights	WAREHOUSE-05	WAREHOUSE	FL61: FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	33	3	28	3	14,116	4.20	4.3
Lights	LABS-02	LABS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	29	2	23	2	11,493	4.20	4.3
Lights	MILITARY OTHER-04	MILITARY OTHER	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	9	1	8	1	4,258	4.20	4.3
Hot Water	BARRACKS-01	BARRACKS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins Pipe, LFSHs, Aerators	19	0	19	0	324	4.20	1.1
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	308	14	259	14	151,270	4.10	4.3
Lights	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	273	12	172	12	131,907	4.10	4.3
Lights	ADMINISTRATION-03	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	226	15	227	15	100,866	4.10	4.4
Lights	WAREHOUSE-01	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	80	7	79	7	39,066	4.10	4.4
Lights	ADMINISTRATION-06	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	59	4	48	4	24,359	4.10	4.4
Lights	WAREHOUSE-02	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	36	3	36	3	17,506	4.10	4.4
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	35	3	25	3	15,605	4.10	4.4
Lights	CLUBS-01	CLUBS	FL79. FL 2X4 4F40T12ES STD2	FL232. FL 2X4 3F40T12 ELC3	13	1	16	1	5,926	4.10	4.4
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	5	0	4	0	2,296	4.10	4.4
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	2	0	1	0	717	4.10	4.4
Roof	WAREHOUSE-05	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	1	1	1154	0	98,407	4.00	5.2
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	200	17	191	17	97,060	4.00	4.5
Lights	ADMINISTRATION-03	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	205	14	211	14	91,159	4.00	4.5
Lights	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	34	1	33	1	15,468	4.00	4.5
Lights	WAREHOUSE-05	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	20	2	17	2	9,417	4.00	4.5
Lights	CLINIC-02	CLINIC	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	14	1	11	1	6,151	4.00	4.5
Lights	SHOPS-06	SHOPS	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	166	13	160	13	79,275	3.90	4.7
Lights	BARRACKS-07	BARRACKS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	22	1	38	1	8,262	3.90	4.6
Roof	MWR-05a	MORALE-WELFARE RECREATION	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R-38	1	1	27	2	7,438	3.90	4.8
Lights	COMMISSARIES	COMMISSARIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	13	1	18	1	7,031	3.90	4.7
Lights	CLUBS-02	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	12	1	16	1	5,422	3.90	4.7
Lights	SHOPS-03	SHOPS	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	11	1	10	1	4,581	3.90	4.6
Lights	DINING HALLS-05	DINING HALLS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	8	0	9	1	4,040	3.90	4.6
Lights	CHAPEL-01	CHAPEL	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	6	0	7	1	3,331	3.90	4.6
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	5	0	4	0	2,063	3.90	4.6
Hot Water	CHAPEL-02	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	18	0	18	0	304	3.90	1.2
Lights	ADMINISTRATION-09	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	3517	244	4175	385	1,804,162	3.80	4.8
Lights	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	250	11	126	11	108,909	3.80	4.7
Lights	SHOPS-03	SHOPS	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	256	18	262	18	94,171	3.80	4.8
Lights	SHOPS-07	SHOPS	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	77	6	92	6	45,057	3.80	4.7
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	38	3	51	3	19,169	3.80	4.7
Wall	SHOPS-04	SHOPS	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6 5	1	1	810	0	53,650	3.70	5.9
Roof	ADMINISTRATION-03	ADMINISTRATION	Roof Insulation R-Value 0 00	Suspended Ceiling: Increase insulation by R-11	1	1	625	0	53,462	3.70	5.5
Lights	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	93	4	84	8	37,909	3.70	4.9
Roof	WAREHOUSE-09	WAREHOUSE	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	161	0	14,177	3.70	5.5
Lights	DINING HALLS-06	DINING HALLS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	23	1	38	1	11,704	3.70	4.8
Lights	CLINIC-02	CLINIC	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	21	1	19	1	9,876	3.70	4.8
Lights	CLUBS-03	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	16	1	18	1	7,916	3.70	4.9
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	7	0	9	1	4,065	3.70	4.8
Lights	RECREATION-04	RECREATION	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	4	0	1,618	3.70	4.9
Hot Water	MWR-04	MORALE-WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	16	0	16	0	262	3.70	1.3
Hot Water	ADMINISTRATION-06	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	10	0	10	0	176	3.70	1.3
Hot Water	ADMINISTRATION-04	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	6	0	6	0	103	3.70	1.3
Lights	ADMINISTRATION-05	ADMINISTRATION	FL3. FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	166	12	189	12	67,420	3.60	5.0
Heating	BARRACKS-04	BARRACKS	Hot Water (Generated) Fan Coil	New Conventional Individual Building LPG Boiler	-132	0	133	0	29,390	3.60	3.4
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX7. EXIT - SELF LUMINOUS	10	0	15	0	4,557	3.60	5.0
Lights	WAREHOUSE-03	WAREHOUSE	FL4 FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	8	1	7	1	3,960	3.60	4.9
Lights	MWR-04	MORALE-WELFARE-RECREATION	FL4 FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	4	0	3	0	1,634	3.60	4.9
Lights	DINING HALLS-05	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	4	0	1,324	3.60	5.0
Hot Water	ADMINISTRATION-01	ADMINISTRATION	Electric SHW Heater	0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	1	0	1	0	586	3.60	1.5
Hot Water	RECREATION-02	RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	18	0	18	0	298	3.60	1.3
Lights	ADMINISTRATION-08	ADMINISTRATION	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	969	67	1326	75	450,751	3.50	5.1
Roof	COMMISSARIES	COMMISSARIES	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R 38	1	1	311	72	178,949	3.50	5.1
Lights	WAREHOUSE-05	WAREHOUSE	FL4. FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	63	5	51	5	30,951	3.50	5.1
Lights	MWR-02	MORALE-WELFARE RECREATION	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	41	3	48	3	22,664	3.50	5.1
Roof	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Roof Insulation R-Value 20 05	Suspended Ceiling: Increase Insulation by R 8	1	1	202	0	16 864	3.50	5.9
Lights	WAREHOUSE 11	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3 LPS 55 PEND	13	1	18	1	6,949	3.50	5.2
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL79: FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	14	1	14	1	6,387	3.50	5.1
Lights	SHOPS-03	SHOPS	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	12	1	11	1	5,315	3.50	5.1
Lights	SCHOOL-TRAINING-01	SCHOOLS and/or TRAINING	FL1. FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	11	1	9	0	4,614	3.50	5.1
Lights	COMMISSARIES	COMMISSARIES	FL5 FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	6	0	8	0	2,784	3.50	5.2

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	SHOPS-03	SHOPS	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	6	0	5	0	2,664	3.50	5.1
Hot Water	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	55	0	55	0	900	3.50	1.3
Hot Water	MILITARY OTHER-01	MILITARY OTHER	Electric SHW Heater	Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM)	-1	0	-1	0	253	3.50	1.6
Hot Water	SHOPS-02	SHOPS	Electric SHW Heater	Wrap Old Ele Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	2	0	2	0	97	3.50	0.8
Lights	ADMINISTRATION-01	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	33	2	31	2	12,388	3.40	5.3
Lights	SHOPS-04	SHOPS	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	19	1	19	1	8,381	3.40	5.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	15	1	13	1	5,348	3.40	5.3
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN1: INC 40 CEIL	FL178: CFL 9 + BLST UNIT	9	0	10	0	4,446	3.40	5.3
Lights	COMMISSARIES	COMMISSARIES	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	2	0	2	0	527	3.40	5.3
Heating	CHAPEL-02	CHAPEL	Other Fuels Conv Boiler	Add Automatic Electric Damper	7	0	7	0	345	3.40	3.9
Hot Water	MWR-05a	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	6	0	6	0	104	3.40	1.3
Hot Water	ADMINISTRATION-06a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	6	0	6	0	100	3.40	1.3
Hot Water	LABS-02	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators	2	0	2	0	26	3.40	1.4
Roof	ADMINISTRATION-05	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling Increase insulation by R-19	1	1	1198	0	93,066	3.30	6.2
Wall	WAREHOUSE-12	WAREHOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-13	1	1	84	19	30,547	3.30	5.6
Hot Water	FH 3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	1874	0	1874	0	30,079	3.30	1.4
Wall	WAREHOUSE-06	WAREHOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	397	0	28,550	3.30	6.4
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	20	2	26	2	10,708	3.30	5.4
Lights	DINING HALLS-06	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	10	0	14	1	3,559	3.30	5.5
Roof	ADMINISTRATION-03a	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling Increase Insulation by R-8	1	1	21	0	1,693	3.30	6.2
Hot Water	SHOPS-05	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	40	0	40	0	649	3.30	1.4
Hot Water	LABS-01	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators	3	0	3	0	45	3.30	1.4
Hot Water	CLUBS-01	CLUBS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp.	1	0	1	0	16	3.30	1.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	152	10	184	10	74,494	3.20	5.6
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL6: FL 2X2 2F40T12U STD2	FL54 FL 2X2 2F32T8U ELC2	55	5	58	5	25,964	3.20	5.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	50	3	62	3	24,663	3.20	5.6
Lights	WAREHOUSE-07	WAREHOUSE	FL80: FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	22	2	16	2	10,959	3.20	5.6
Lights	RECREATION-02	RECREATION	FL81: FL 2X4 2F40T12ES STD2	FL105. FL 2X4 2F40T12ES ELC2	11	1	6	1	5,087	3.20	5.6
Hot Water	DINING HALLS-03	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	202	0	202	0	3,206	3.20	1.4
Hot Water	DINING HALLS-04	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	186	0	186	0	2,954	3.20	1.4
Hot Water	WAREHOUSE-07	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	10	0	10	0	160	3.20	1.4
Hot Water	CHAPEL-01	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	9	0	9	0	146	3.20	1.4
Hot Water	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	2	0	2	0	36	3.20	1.4
Lights	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	37	2	-5	2	11,679	3.10	5.6
Lights	ADMINISTRATION-04	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	23	2	26	3	11,138	3.10	5.8
Lights	BARRACKS-07	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	15	1	25	1	4,885	3.10	5.9
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	4	0	2	0	1,833	3.10	5.7
Hot Water	SECURITY-02	SECURITY	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	2	1	2	1	1,250	3.10	1.8
Hot Water	WAREHOUSE-05	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	60	0	60	0	931	3.10	1.5
Lights	CLINIC-02	CLINIC	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	2	0	911	3.10	5.8
Hot Water	WAREHOUSE-12	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	6	0	6	0	91	3.10	1.5
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	6	0	6	0	90	3.10	1.5
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	170	24	173	24	63,922	3.00	5.9
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	15	1	18	2	7,113	3.00	6.0
Lights	FH-DUPLEX-02	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	7	0	15	0	3,967	3.00	6.1
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4	0	3	0	1,807	3.00	6.0
Lights	WAREHOUSE-08	WAREHOUSE	FL80: FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	4	0	3	0	1,622	3.00	6.0
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4	0	3	0	1,574	3.00	5.9
Hot Water	SHOPS-04	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	14	0	14	0	214	3.00	1.6
Heating	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	2	0	2	0	153	3.00	7.0
Roof	FH-DUPLEX-01	DUPLEX	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R-30	1	1	2973	13	491,496	2.90	6.6
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	243	38	247	38	94,241	2.90	6.1
Lights	FH-DUPLEX-03	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	40	2	55	2	20,904	2.90	6.1
Lights	ADMINISTRATION-08	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	41	3	57	3	17,714	2.90	6.2
Lights	HANGER	HANGAR	HS17: HPS 250 PEND	LS5: LPS 135 PEND	30	3	26	3	11,600	2.90	6.2
Lights	SHOPS-07	SHOPS	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	11	1	14	1	5,988	2.90	6.3
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	12	1	11	1	5,413	2.90	6.1
Lights	CLINIC-01	CLINIC	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	4	0	4	0	1,768	2.90	6.1
Hot Water	CLINIC-02	CLINIC	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	28	0	28	0	421	2.90	1.6
Heating	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	3	0	3	0	204	2.90	7.1
Roof	BARRACKS-07	BARRACKS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R-19	1	1	1135	1	99,867	2.80	6.9
Cooling	HOSPITAL	HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling)	373	62	373	62	75,110	2.80	3.1
Lights	WAREHOUSE-05	WAREHOUSE	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	75	6	61	6	32,842	2.80	6.3
Lights	ADMINISTRATION-07	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	63	4	70	5	26,459	2.80	6.4
Lights	ADMINISTRATION-07	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	50	3	55	4	20,893	2.80	6.4
Wall	ADMINISTRATION-04	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	1	1	75	6	16,717	2.80	6.6
Roof	ADMINISTRATION-04	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-38	1	1	52	6	15,017	2.80	6.7
Lights	CHAPEL-02	CHAPEL	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	26	2	24	2	9,719	2.80	6.4
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	4	0	7	0	2,013	2.80	6.4
Lights	RECREATION-02	RECREATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	4	0	0	0	1,714	2.80	6.2
Lights	RECREATION-04	RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	1	0	1	0	336	2.80	6.3
Lights	MILITARY OTHER-02	MILITARY OTHER	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	44	4	41	4	22,751	2.70	6.5
Lights	MILITARY OTHER-01	MILITARY OTHER	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	34	3	31	3	17,741	2.70	6.5
Lights	WAREHOUSE-05	WAREHOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	25	2	21	2	12,535	2.70	6.6
Lights	ADMINISTRATION-08	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	17	1	21	1	6,977	2.70	6.6
Lights	BARRACKS-04	BARRACKS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	4	0	5	0	1,079	2.70	6.6
Lights	MWR-03	MORALE-WELFARE-RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	1	0	1	0	521	2.70	6.5
Heating	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Other Fuels Conv Boiler	Add Automatic Electric Damper	4	0	4	0	289	2.70	7.8
Heating	RECREATION-04	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	3	0	3	0	215	2.70	7.9
Hot Water	ADMINISTRATION-01	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	19	0	19	0	169	2.70	1.0

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1991 $)	Savings to Investment Ratio	Discounted Payback Period
Wall	FH-DUPLEX-01	DUPLEX	Wall Insulation R-Value 0.00	Blow in Insulation. Increase Insulation by R 6.5	1	1	2424	13	364,427	2.60	7.3
Lights	BARRACKS-02	BARRACKS	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	252	10	222	10	65,396	2.60	6.9
Lights	BARRACKS-02	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	252	10	222	10	65,395	2.60	6.9
Hot Water	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	1730	0	1730	0	24,718	2.60	1.8
Hot Water	SHOPS-03	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	362	0	362	0	5,116	2.60	1.8
Lights	WAREHOUSE-05	WAREHOUSE	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	8	1	6	1	4,045	2.60	6.8
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	1	0	1	0	369	2.60	6.9
Lights	BARRACKS-06	BARRACKS	FL4 FL 1X4 2F40T12 STD2	FL28 FL 1X4 2F40T12 ELC2	1	0	1	0	270	2.60	7.0
Lights	WAREHOUSE-05	WAREHOUSE	FL62· FL 1X8 2F96T12 STD2	LS3. LPS 55 PEND	356	31	324	31	113,015	2.50	7.3
Roof	ADMINISTRATION-07	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling Increase insulation by R 30	1	1	248	1	45,331	2.50	7.4
Lights	WAREHOUSE-10	WAREHOUSE	FL62 FL 1X8 2F96T12 STD2	LS3. LPS 55 PEND	36	3	36	3	11,749	2.50	7.2
Lights	WAREHOUSE-09	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	30	3	28	3	9,719	2.50	7.2
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	16	1	17	1	6,591	2.50	7.2
Roof	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11.00	Attic Ceiling· Increase insulation by R-19	1	1	9	2	1,240	2.50	7.4
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL62· FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	35	3	34	3	13,336	2.40	7.5
Lights	ADMINISTRATION-01	ADMINISTRATION	FL62 FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	25	2	26	2	7,625	2.40	7.4
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	15	1	14	1	5,673	2.40	7.4
Roof	CLUBS-01	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling. Increase Insulation by R 8	1	1	45	0	3,170	2.40	8.6
Lights	BARRACKS-01	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	8	0	5	0	1,818	2.40	7.4
Lights	BARRACKS-01	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	8	0	5	0	1,818	2.40	7.4
Lights	CLUBS-01	CLUBS	FL62· FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	3	0	6	0	1,055	2.40	7.6
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL4. FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	1	0	1	0	301	2.40	7.5
Hot Water	MWR-07	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSHs, Aerators	8	0	8	0	- 44	2.40	0.8
Wall	RECREATION-02	RECREATION	Wall Insulation R-Value 7.00	Blow-in Insulation: Increase Insulation by R-2.4	1	1	179	9	27,337	2.30	8.2
Roof	MWR-03	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	1	1	71	7	16,272	2.30	8.0
Lights	FH-DUPLEX-03	DUPLEX	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	21	1	35	1	11,450	2.30	7.8
Hot Water	WAREHOUSE-09	WAREHOUSE	Electric SHW Heater	0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	0	0	0	0	42	2.30	1.6
Hot Water	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	668	0	668	0	11,795	2.20	2.9
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	6	1	4	1	2,126	2.20	8.1
Roof	SHOPS-02	SHOPS	Roof Insulation R-Value 8.69	Attic Ceiling· Increase insulation by R-19	1	1	299	11	38,405	2.10	8.9
Roof	RECREATION-04	RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling· Increase insulation by R-30	1	1	109	12	25,023	2.10	8.8
Roof	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	Roof Insulation R-Value 8.90	Suspended Ceiling Increase Insulation by R 8	1	1	81	0	11,764	2.10	8.8
Lights	WAREHOUSE-06	WAREHOUSE	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	13	1	11	1	5,495	2.10	8.5
Lights	BARRACKS-05	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	0	0	0	0	22	2.10	8.4
Wall	BARRACKS-04	BARRACKS	Wall Insulation R-Value 7.00	Blow in Insulation. Increase Insulation by R-2.4	1	1	592	1	31,507	2.00	9.6
Wall	CLUBS-02	CLUBS	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-10.9	1	1	103	15	25,602	2.00	9.4
Hot Water	FH-3 OR MORE-02	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	7917	0	7917	0	19,267	2.00	0.5
Roof	MILITARY OTHER-01	MILITARY OTHER	Roof Insulation R-Value 0.00	Attic Ceiling· Increase insulation by R-11	1	1	89	0	5,048	2.00	10.1
Lights	BARRACKS-06	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	14	1	19	1	3,500	2.00	9.0
Heating	MWR-04	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	7	0	7	0	298	2.00	8.7
Lights	BARRACKS-04	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	41	2	48	2	9,456	1.90	9.3
Wall	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Wall Insulation R-Value 8.79	Blow-in Insulation: Increase Insulation by R 6.5	1	1	16	3	4,362	1.90	9.7
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	8	0	7	0	2,803	1.90	9.6
Lights	CLUBS-03	CLUBS	FL117: FL 1X8 1F96T12ES STD1	FL123: FL 1X8 1F96T12ES EEF1	5	0	4	0	2,132	1.90	9.5
Lights	CLUBS-02	CLUBS	FL117: FL 1X8 1F96T12ES STD1	FL123: FL 1X8 1F96T12ES EEF1	3	0	4	0	1,477	1.90	9.2
Roof	MILITARY OTHER-04	MILITARY OTHER	Roof Insulation R-Value 7.15	Attic Ceiling. Increase insulation by R-19	1	1	17	0	937	1.90	10.7
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	0	0	0	0	179	1.90	9.1
Lights	COMMISSARIES	COMMISSARIES	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	49	2	63	3	12,217	1.80	10.0
Roof	DINING HALLS-03	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	1	1	117	0	5,739	1.80	11.4
Lights	COMMISSARIES	COMMISSARIES	HS15: HPS 150 PEND	LS4: LPS 90 PEND	21	1	28	1	5,116	1.80	10.1
Roof	SECURITY-03	SECURITY	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	1	1	10	2	3,128	1.80	9.9
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	0	0	0	0	133	1.80	10.1
Hot Water	ADMINISTRATION-07a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp.	9	0	9	0	87	1.80	2.6
Lights	BARRACKS-02	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	117	4	78	4	20,386	1.70	10.5
Roof	ADMINISTRATION-01	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling· Increase Insulation by R-8	1	1	64	0	3,012	1.70	11.9
Wall	ELECTRONICS-03	ELECTRONICS	Wall Insulation R-Value 0.00	Interior Masonry Surface. Increase Insulation by R-4.3	1	1	46	0	2,977	1.70	11.5
Wall	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	22	3	2,295	1.70	10.5
Lights	BARRACKS-05	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	1	0	1	0	227	1.70	10.4
Wall	CHAPEL-02	CHAPEL	Wall Insulation R-Value 5.32	Interior Masonry Surface: Increase Insulation by R-4.3	1	1	134	0	5,511	1.60	12.9
Lights	SHOPS-04	SHOPS	FL63: FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	16	1	18	1	4,497	1.60	11.1
Lights	BARRACKS-01	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	4	0	2	0	589	1.60	10.8
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	FL62: FL 1X8 2F96T12 STD2	FL74: FL 1X8 2F96T12 ELC2	204	32	208	32	36,978	1.50	12.2
Roof	BARRACKS-02	BARRACKS	Roof Insulation R-Value 20.05	Suspended Ceiling· Increase Insulation by R-8	1	1	887	0	36,568	1.50	13.4
Roof	ADMINISTRATION-08	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-19	1	1	133	6	15,128	1.50	12.1
Lights	DINING HALLS-03	DINING HALLS	FL63: FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	52	3	59	3	10,250	1.50	12.1
Wall	ADMINISTRATION-02	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	1	1	80	8	8,409	1.50	12.9
Lights	RECREATION-04	RECREATION	HS14: HPS 100 PEND	LS3: LPS 55 PEND	12	1	13	1	2,605	1.50	11.9
Roof	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	Roof Insulation R-Value 20.05	Suspended Ceiling. Increase Insulation by R-8	1	1	60	0	2,154	1.50	14.0
Roof	MILITARY OTHER-03	MILITARY OTHER	Roof Insulation R Value 20.05	Suspended Ceiling Increase insulation by R 30	1	1	7	1	1,904	1.50	12.3
Wall	SECURITY-01	SECURITY	Wall Insulation R Value 5.32	Interior Masonry Surface Increase Insulation by R-10.9	1	1	11	0	1,876	1.50	12.1
Roof	ADMINISTRATION-06	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling· Increase Insulation by R 8	1	1	47	0	1,704	1.50	13.9
Roof	SHOPS-06	SHOPS	Roof Insulation R-Value 8.69	Attic Ceiling· Increase Insulation by R 8	1	1	32	0	1,225	1.50	13.5
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	4	1	5	1	979	1.50	12.1
Roof	ELECTRONICS-03	ELECTRONICS	Roof Insulation R-Value 20.05	Suspended Ceiling. Increase Insulation by R 8	1	1	14	0	952	1.50	12.4
Lights	MWR-06	MORALE-WELFARE RECREATION	FL63. FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	1	0	1	0	468	1.50	12.0
Roof	ADMINISTRATION-09	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling· Increase insulation by R 19	1	1	182	42	31,962	1.40	13.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	113	8	115	8	20,233	1.40	13.1
Roof	SHOPS-05	SHOPS	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R 19	1	1	474	0	15,526	1.40	14.5
Lights	SHOPS-05	SHOPS	FL63 FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	28	2	25	2	5,497	1.40	12.6
Lights	BARRACKS-07	BARRACKS	FL5· FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	26	1	41	1	3,545	1.40	12.7

Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type:	Use Area	Existing Technology	Retrofit Technology	Retrofit Energy Savings (MBtu)	Retrofit Demand Savings (kW)	Energy Savings due to Interactive Effects (MBtu)	Demand Savings due to Interactive Effects (kW)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	DINING HALLS-01	DINING HALLS	FL63. FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	18	1	18	1	3,196	1.40	12.4
Lights	ADMINISTRATION-04	ADMINISTRATION	FL63: FL 1X8 1F96T12 STD1	FL126· FL 1X8 1F96T12ES EEF1 REF	17	1	18	2	3,066	1.40	13.3
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	FL82: FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	6	1	6	1	1,200	1.40	13.0
Lights	MWR-07	MORALE-WELFARE-RECREATION	FL63: FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	4	0	7	1	949	1.40	13.3
Roof	BARRACKS-01	BARRACKS	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 11	1	1	29	0	926	1.40	14.9
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	3	0	2	0	451	1.40	13.2
Heating	RECREATION-02	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	86	1.40	8.0
Wall	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	1811	0	67,286	1.30	14.8
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	324	46	330	46	32,525	1.30	14.0
Cooling	ADMINISTRATION-07	ADMINISTRATION	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	257	19	317	19	23,441	1.30	7.7
Roof	STORAGE-02	STORAGE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase Insulation by R 8	1	1	341	0	15,355	1.30	14.7
Wall	HOSPITAL	HOSPITAL	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-4.3	1	1	351	0	11,228	1.30	15.6
Cooling	CLINIC-01	CLINIC	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	63	18	61	18	8,617	1.30	8.8
Wall	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	223	0	5,440	1.30	16.1
Heating	HOSPITAL	HOSPITAL	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	0	6	0	89	1.30	9.3
Heating	CLUBS-03	CLUBS	Other Fuels Conv Boiler	Add Automatic Electric Damper	1	0	1	0	30	1.30	16.5
Hot Water	MILITARY OTHER-04	MILITARY OTHER	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	3	0	3	0	12	1.30	3.6
Roof	FH-DUPLEX-03	DUPLEX	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	1	1	1416	53	68,504	1.20	15.5
Roof	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 19	1	1	487	0	8,910	1.20	17.2
Wall	CLINIC-02	CLINIC	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	285	0	5,049	1.20	17.4
Lights	BARRACKS-02	BARRACKS	FL94: FL 1X4 2F40T12ES EEF2	FL106: FL 1X4 2F40T12ES ELC2	38	1	29	1	3,500	1.20	14.5
Roof	ADMINISTRATION-02	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	1	1	44	5	3,011	1.20	15.3
Roof	MWR-07	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	1	1	42	4	2,454	1.20	15.7
Wall	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R 4.3	1	1	123	0	1,812	1.20	18.0
Lights	WAREHOUSE-07	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	1	0	0	0	116	1.20	14.4
Lights	BARRACKS-01	BARRACKS	FL94: FL 1X4 2F40T12ES EEF2	FL106: FL 1X4 2F40T12ES ELC2	1	0	1	0	88	1.20	15.0
Lights	WAREHOUSE-08	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	0	0	0	0	17	1.20	14.7
Hot Water	MWR-03	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	7	0	7	0	16	1.20	3.2
Roof	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	1	1	470	46	20,672	1.10	16.3
Wall	BARRACKS-02	BARRACKS	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	1	1	1059	0	7,666	1.10	19.3
Roof	CHAPEL-02	CHAPEL	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	1	1	62	0	656	1.10	18.8
Roof	MWR-06	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	1	1	15	2	519	1.10	17.3
Cooling	GUEST HOUSES-02	MILITARY MOBILE HOMES	Electric Package Unit	Split System Residential AC Unit (1.5 to 5.4167 tons cooling)	93	19	88	18	394	1.10	0.9
Roof	CLINIC-01	CLINIC	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 19	1	1	10	0	158	1.10	17.6
Cooling	MWR-02	MORALE-WELFARE-RECREATION	Electric Air Cool Heat Pump	Air to Air Heat Pump with Supplementary Electric Heat Coil	123	26	123	26	934	1.00	4.4
Wall	WAREHOUSE-09	WAREHOUSE	Wall Insulation R-Value 8.79	Blow-in Insulation: Increase Insulation by R-2.4	1	1	193	0	919	1.00	20.1
Roof	WAREHOUSE-01	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase Insulation by R-8	1	1	69	0	319	1.00	19.3
Wall	ADMINISTRATION-06	ADMINISTRATION	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-4.3	1	1	161	0	125	1.00	20.9
Roof	MWR-02	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-11	1	1	15	0	116	1.00	17.8

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	1	Bldg 253	250 ton chiller	Reset chilled and condenser water temps - RI	334	450	334	450	201,183	6,707.11	0.0
AC	2	Bldg 263	554 ton chiller	Reset chilled and condenser water temps - RI	298	499	298	499	197,519	6,584.96	0.0
AC	3	Bldg 273	200 ton chiller	Reset chilled and condenser water temps. - RI	303	180	303	180	139,087	4,637.24	0.0
T&D		Substation	Sub Transformers	Conservation Voltage Reduction - RI	2,094	2,128	2,094	2,128	966,624	967.62	0.0
HVAC	6	MtrPool	Programmable T-Stat	Night Setback - RI	3,439	46	3,439	46	419,976	152.64	0.1
Lighting	OS-8b	Highbay	T8 Lighting	T8 + Occupancy Controls - RI	2,062	NA	2,062	NA	1,082,188	94.36	0.2
Envelope	MT-12		Leaky	Weatherization - RI	1,241	904	1,241	904	648,218	73.29	0.2
HVAC	4	Comcatn	Programmable T-Stat	Night Setback - RI	964	24	964	24	136,424	66.68	0.3
HVAC	3	Clinic	Programmable T-Stat	Night Setback - RI	645	28	645	28	112,544	55.18	0.3
HVAC	1	Admin	Programmable T-Stat	Night Setback - RI	7,583	101	7,583	101	909,248	46.28	0.4
Envelope		Masonite Siding: post 1950		Weatherization - RI	755	496	755	496	331,363	46.17	0.4
Lighting	OS-7b	Hallway	T8 Lighting	T8 + Occupancy Controls - RI	915	NA	915	NA	469,897	41.89	0.4
HVAC	2	Chapel	Programmable T-Stat	Night Setback - RI	275	5	275	5	35,968	35.63	0.5
Envelope		Metal Siding		Weatherization - RI	1,024	672	1,024	672	445,841	33.69	0.5
Lighting	OS-4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	615	NA	615	NA	315,071	32.26	0.5
Envelope	Other	U Shaped Bldgs. Other		Weatherization - RI	382	251	382	251	166,045	32.15	0.5
Envelope		Masonite Siding: pre 1950		Weatherization - RI	1,827	1,200	1,827	1,200	794,401	32.01	0.5
Lighting	OS-3b	Conference	T8 Lighting	T8 + Occupancy Controls - RI	248	NA	248	NA	126,608	31.63	0.5
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization - RI	557	366	557	366	241,072	27.99	0.6
HVAC	5	DGR	Programmable T-Stat	Night Setback - RI	555	20	555	20	91,366	24.99	0.7
Envelope	Barracks	U Shaped Bldgs Barracks		Weatherization - RI	1,432	940	1,432	940	614,151	22.55	0.8
Envelope		Wood Siding		Weatherization - RI	87	57	87	57	37,033	21.45	0.8
HVAC	8	Traing	Programmable T-Stat	Night Setback - RI	413	44	413	44	114,454	20.45	0.8
Envelope	Misc -pre 1980	Concrete Block: Misc -pre 1980		Weatherization - RI	217	142	217	142	92,117	19.11	0.9
Envelope		WHS		Weatherization - RI	104	68	104	68	44,122	18.79	0.9
Envelope	*Shop*	*SHOP*		Weatherization - RI	199	131	199	131	84,456	18.67	0.9
Envelope	Barracks	Concrete Block: Barracks		Weatherization - RI	409	269	409	269	173,276	17.70	1.0
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	1,203	790	1,203	790	508,458	17.14	1.0
Lighting	OS-MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	147	NA	147	NA	72,991	16.83	1.0
Lighting	OS-2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	1,100	NA	1,100	NA	554,005	16.68	1.0
Envelope	Family Housing	1963		Weatherization - RI	1,971	1,295	1,971	1,295	830,164	16.20	1.1
Envelope	Dining	DINING. MSIC		Weatherization - RI	203	133	203	133	85,324	15.77	1.1
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	62	41	62	41	26,113	15.46	1.1
DHW & A/C	13	00166	*CHILLER-air cooled*	*Install Desuperheater - RI*	*2,178*	*630*	*2,178*	*630*	*365,486*	14.84	1.2
Envelope	Misc -post 1980	Concrete Block: Misc -post 1980		Weatherization - RI	299	197	299	197	124,741	13.97	1.2
Envelope	Family Housing	1961		Weatherization - RI	1,803	1,184	1,803	1,184	749,345	13.50	1.3
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - RI	56	22	56	22	15,977	12.96	1.3
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - RI	28	11	28	11	7,988	12.96	1.3
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity - RI	53	1,476	53	1,476	375,744	12.89	1.3
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater - RI	110	18	110	18	15,732	11.59	1.5
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - RI	13	5	13	5	3,981	11.37	1.5
Motors	PMTR-71	POOL-OT - 00328	PMPMTR	EEM - RI	7	3	7	3	1,991	11.37	1.5
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	190	58	190	58	32,023	11.33	1.5
Envelope	Admin	ADMIN: MISC post 1964		Weatherization - RI	68	44	68	44	27,627	11.11	1.5
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	218	76	218	76	36,469	10.52	1.6
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	243	92	243	92	42,194	10.39	1.7
Lighting	DLC-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	198	NA	198	NA	107,946	10.07	1.7
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - RI	33	13	33	13	8,882	9.67	1.8
Envelope	*Training*	TRAINING		Weatherization - RI	82	54	82	54	32,873	9.06	1.9
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	159	72	159	72	29,597	9.03	1.9
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	47	31	47	31	18,563	9.01	1.9
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	277	51	277	51	36,498	8.93	1.9
HVAC	7	Shop-Elc	Programmable T-Stat	Night Setback - RI	52	4	52	4	10,946	8.90	1.9
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - RI	153	19	153	19	42,432	8.48	2.0
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	99	45	99	45	17,765	7.87	2.2
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	85	32	85	32	14,074	7.79	2.2
Motors	PMTR-72	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
Motors	PMTR-73	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
Motors	PMTR-70	POOL-OT - 00328	PMPMTR	EEM - RI	4	2	4	2	1,251	7.69	2.2
DHW & A/C	31	00905	CHILLER-air cooled	Install Desuperheater - RI	155	72	155	72	23,881	7.48	2.3
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater - RI	75	27	75	27	11,980	7.47	2.3
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	75	27	75	27	11,980	7.47	2.3
Envelope	Family Housing	1983		Weatherization - RI	746	490	746	490	289,719	7.43	2.3
Motors	PMTR-94	PUMP - 00044	PMPMTR	EEM - RI	97	39	97	39	21,124	7.37	2.3
Motors	PMTR-93	PUMP - 00044	PMPMTR	EEM - RI	97	39	97	39	21,124	7.37	2.3
Envelope	MT-9		Single pane window	Shade Screens - SW side - RI	37	69	37	69	32,627	7.33	2.4
Envelope		Metal Siding		Window Screen - SW side - RI	77	142	77	142	67,187	7.33	2.4
Envelope		Concrete Block: Misc -post 1980		Window Screen - SW side - RI	10	19	10	19	9,214	7.33	2.4
Envelope		Masonite Siding: pre 1950		Window Screen - SW side - RI	109	202	109	202	95,684	7.33	2.4
Envelope		ADMIN: MISC post 1964		Window Screen - SW side - RI	30	55	30	55	25,898	7.33	2.4

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope		U Shaped Bldgs: Other		Window Screen - SW side - RI	28	53	28	53	24,955	7.33	2.4
Envelope		BRK/ADM MISC		Window Screen - SW side - RI	16	30	16	30	14,078	7.33	2.4
Envelope		Wood Siding		Window Screen - SW side - RI	13	25	13	25	11,708	7.33	2.4
Envelope		TRAINING		Window Screen - SW side - RI	10	18	10	18	8,568	7.33	2.4
Envelope		WHS		Window Screen - SW side - RI	6	11	6	11	5,402	7.33	2.4
Envelope		Concrete Block: Barracks		Window Screen - SW side - RI	39	72	39	72	34,111	7.33	2.4
Envelope		MOTORPOOL		Window Screen - SW side - RI	30	56	30	56	26,403	7.33	2.4
Envelope		SHOP		Window Screen - SW side - RI	29	55	29	55	25,862	7.33	2.4
Envelope		U Shaped Bldgs: Barracks		Window Screen - SW side - RI	199	369	199	369	174,765	7.33	2.4
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	164	303	164	303	143,521	7.33	2.4
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	153	284	153	284	134,112	7.33	2.4
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen - RI	115	213	115	213	100,856	7.33	2.4
Envelope		DINING MISC		Window Screen - SW side - RI	18	33	18	33	15,734	7.33	2.4
Envelope		ADMIN: MISC pre 1964		Window Screen - SW side - RI	17	31	17	31	14,676	7.33	2.4
Envelope		Concrete Block: Misc -pre 1980		Window Screen - SW side - RI	12	22	12	22	10,564	7.33	2.4
Envelope		SECURTY		Window Screen - SW side - RI	1	3	1	3	1,254	7.33	2.4
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen - RI	151	279	151	279	132,108	7.33	2.4
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen - RI	100	185	100	185	87,588	7.33	2.4
Envelope		Masonite Siding: post 1950		Window Screen - SW side - RI	44	81	44	81	38,348	7.33	2.4
Envelope		MWR		Window Screen - SW side - RI	7	13	7	13	6,120	7.33	2.4
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - RI	76	13	76	13	10,631	7.25	2.4
Envelope	Family Housing	1984		Weatherization - RI	554	364	554	364	214,222	7.21	2.4
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - RI	8	8	8	8	3,550	7.16	2.4
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - RI	3	3	3	3	1,183	7.16	2.4
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - RI	297	57	297	57	37,429	7.12	2.4
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - RI	132	16	132	16	35,113	7.04	2.4
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM - RI	12	12	12	12	4,597	6.79	2.5
Lighting	OS-6b	Restroom	T8 Lighting	T8 + Occupancy Controls - RI	307	NA	307	NA	138,582	6.68	2.6
Motors	PMTR-88	PUMP - 00044	PMPMTR	EEM - RI	31	12	31	12	7,257	6.43	2.7
Lighting	OS-5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	50	NA	50	NA	22,149	6.40	2.7
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater - RI	158	180	158	180	43,471	6.38	2.7
DHW & A/C	10	00037	PKG A/C	Install Desuperheater - RI	60	27	60	27	9,877	6.33	2.7
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	60	27	60	27	9,877	6.33	2.7
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	15	20	15	20	3,926	6.17	2.8
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - RI	4	6	4	6	2,120	6.12	2.8
Motors	MTR-439	DGR - 00308	Fan Motor	EEM - RI	7	10	7	10	3,177	6.12	2.8
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - RI	4	6	4	6	2,118	6.12	2.8
Motors	PMTR-117	REC - 00905	PMPMTR	EEM - RI	2	3	2	3	1,059	6.12	2.8
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - RI	2	3	2	3	1,059	6.12	2.8
Vehicles	Conversion	Vehicles		CNG Vehicles	14,638	-180	14,638	-180	10,091,649	5.93	2.9
Motors	PMTR-120	WHS-CLD - 00862	refrigeration unit	EEM - RI	106	42	106	42	23,238	5.88	2.9
Motors	PMTR-121	WHS-CLD - 00862	refrigeration unit	EEM - RI	53	21	53	21	11,619	5.88	2.9
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	117	23	117	23	14,722	5.81	3.0
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - RI	54	56	54	56	15,897	5.79	3.0
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	53	9	53	9	22,062	5.74	3.0
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	86	17	86	17	10,811	5.70	3.0
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater - RI	47	18	47	18	6,950	5.68	3.0
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - RI	20	21	20	21	5,949	5.66	3.0
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	76	86	76	86	19,850	5.65	3.0
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM - RI	11	16	11	16	4,888	5.62	3.1
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - RI	4	5	4	5	1,769	5.61	3.1
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - RI	2	3	2	3	885	5.61	3.1
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - RI	11	16	11	16	5,308	5.61	3.1
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	33	0	33	0	7,624	5.48	3.1
Motors	MTR-6	HOSPITL - 00166	AIRCOMP	EEM - RI	22	17	22	17	5,907	5.42	3.2
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - RI	49	56	49	56	14,628	5.41	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	8	0	8	0	1,828	5.35	3.2
Envelope	MT-11a		None	Crawl Space Insulation: R-19 - RI	1,002	1,039	1,002	1,039	542,721	5.35	3.2
Motors	PMTR-89	PUMP - 00044	PMPMTR	EEM - RI	26	11	26	11	5,634	5.22	3.3
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	32	6	32	6	4,245	5.16	3.3
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	34	41	34	41	9,912	5.13	3.4
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - RI	2	2	2	2	768	5.11	3.4
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	51	8	51	8	6,239	5.05	3.4
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	40	18	40	18	5,933	4.99	3.4
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	40	36	40	36	8,823	4.98	3.5
Motors	PMTR-122	WHS-CLD - 00862	PMPMTR	EEM - RI	5	5	5	5	1,508	4.93	3.5

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - RI	14	16	14	16	4,141	4.92	3.5
Motors	MTR-457	MWR - 01313	Fan Motor	EEM - RI	4	4	4	4	1,426	4.81	3.6
Motors	MTR-460	MWR - 01313	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-462	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	713	4.81	3.6
Motors	PMTR-100	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-103	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
Motors	PMTR-102	PUMP - 00700	PMPMTR	EEM - RI	51	20	51	20	9,679	4.81	3.6
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	40	72	40	72	13,496	4.66	3.7
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	105	16	105	16	13,882	4.63	3.7
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-195	BRK/ADM - 00250	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-191	BRK/ADM - 00103	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-190	BRK/ADM - 00102	EVAP	EEM - RI	10	10	10	10	4,492	4.62	3.7
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - RI	6	6	6	6	2,995	4.62	3.7
Motors	MTR-194	BRK/ADM - 00249	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-250	CLUB - 00202	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM - RI	2	2	2	2	749	4.62	3.7
Motors	MTR-248	CLUB - 00021	EVAP	EEM - RI	3	3	3	3	1,496	4.61	3.7
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM - RI	2	2	2	2	748	4.61	3.7
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - RI	8	8	8	8	3,738	4.61	3.7
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - RI	10	10	10	10	4,485	4.61	3.7
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-210	BRK/ADM - 00267	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-206	BRK/ADM - 00264	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - RI	2	2	2	2	747	4.61	3.7
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - RI	36	35	36	35	16,435	4.61	3.7
Motors	PMTR-56	ADMIN - 00988	PMPMTR	VSD & EEM - RI	26	4	26	4	9,792	4.31	4.0
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - RI	42	8	42	8	4,999	4.25	4.1
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM - RI	72	72	72	72	17,228	4.22	4.1
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - RI	16	21	16	21	3,847	4.21	4.1
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater - RI	28	43	28	43	7,902	4.15	4.2
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - RI	52	56	52	56	12,387	4.11	4.2
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - RI	51	56	51	56	12,170	4.05	4.2
Motors	MTR-428	ADMIN - 00988	Fan Motor	EEM - RI	34	14	34	14	6,930	4.05	4.2
Motors	PMTR-40	HOSPITL - 00166	PMPMTR	EEM - RI	14	5	14	5	2,772	4.05	4.2
Motors	PMTR-39	HOSPITL - 00166	PMPMTR	EEM - RI	14	5	14	5	2,772	4.05	4.2
Motors	PMTR-41	HOSPITL - 00166	PMPMTR	EEM - RI	7	3	7	3	1,386	4.05	4.2
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - RI	2	1	2	1	586	4.05	4.3
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls - RI	268	NA	268	NA	133,386	4.01	4.3
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM - RI	103	119	103	119	25,521	3.96	4.3
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM - RI	4	6	4	6	1,211	3.92	4.4
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM - RI	2	3	2	3	605	3.92	4.4
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM - RI	29	56	29	56	9,492	3.86	4.5

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-258	DGR - 00909	EVAP	EEM - RI	1	2	1	2	591	3.86	4.5
Motors	MTR-417	WHS - 00934	EVAP	EEM - RI	3	5	3	5	1,768	3.85	4.5
Motors	MTR-259	DGR - 00909	EVAP	EEM - RI	2	3	2	3	1,175	3.84	4.5
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - RI	1	3	1	3	544	3.83	4.5
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	544	3.83	4.5
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - RI	6	16	6	16	3,265	3.83	4.5
Envelope	MT-10		Single pane window	Shade Screens - NW side - RI	26	46	26	46	17,362	3.83	4.5
Envelope		U Shaped Bldgs: Barracks		Window Screen - NW Side - RI	59	107	59	107	40,117	3.83	4.5
Envelope		Concrete Block: Barracks		Window Screen - NW Side - RI	20	36	20	36	13,513	3.83	4.5
Envelope		U Shaped Bldgs: Other		Window Screen - NW Side - RI	8	15	8	15	5,728	3.83	4.5
Envelope		Masonite Siding: post 1950		Window Screen - NW Side - RI	8	14	8	14	5,102	3.83	4.5
Envelope		TRAINING		Window Screen - NW Side - RI	2	3	2	3	1,140	3.83	4.5
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	113	204	113	204	76,372	3.83	4.5
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen - RI	105	190	105	190	71,365	3.83	4.5
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen - RI	103	186	103	186	69,803	3.83	4.5
Envelope		Metal Siding		Window Screen - NW Side - RI	55	99	55	99	37,110	3.83	4.5
Envelope		Concrete Block: Misc -pre 1980		Window Screen - NW Side - RI	8	15	8	15	5,622	3.83	4.5
Envelope		SHOP		Window Screen - NW Side - RI	5	9	5	9	3,440	3.83	4.5
Envelope		DINING, MSIC		Window Screen - NW Side - RI	3	6	3	6	2,093	3.83	4.5
Envelope		BRK/ADM MISC		Window Screen - NW Side - RI	3	5	3	5	1,873	3.83	4.5
Envelope		Wood Siding		Window Screen - NW Side - RI	2	4	2	4	1,558	3.83	4.5
Envelope		MWR		Window Screen - NW Side - RI	1	2	1	2	814	3.83	4.5
Envelope		WHS		Window Screen - NW Side - RI	1	2	1	2	719	3.83	4.5
Envelope		SECURTY		Window Screen - NW Side - RI	0	0	0	0	167	3.83	4.5
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen - RI	79	143	79	143	53,668	3.83	4.5
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side - RI	20	36	20	36	13,495	3.83	4.5
Envelope		MOTORPOOL		Window Screen - NW Side - RI	5	9	5	9	3,512	3.83	4.5
Envelope		ADMIN: MISC pre 1964		Window Screen - NW Side - RI	3	5	3	5	1,952	3.83	4.5
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen - RI	69	124	69	124	46,608	3.83	4.5
Envelope		Concrete Block: Misc -post 1980		Window Screen - NW Side - RI	7	13	7	13	4,903	3.83	4.5
Envelope		ADMIN: MISC post 1964		Window Screen - NW Side - RI	5	9	5	9	3,445	3.83	4.5
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-132	ADMIN - 00444	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-245	CLINIC - 00242	EVAP	EEM - RI	2	3	2	3	1,171	3.83	4.5
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - RI	7	10	7	10	3,513	3.83	4.5
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - RI	3	3	3	5	1,756	3.83	4.5
Motors	MTR-246	CLINIC - 00245	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-347	SECURTY - 00326	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-130	ADMIN - 00443	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-135	ADMIN - 00521	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-131	ADMIN - 00443	EVAP	EEM - RI	1	2	1	2	585	3.83	4.5
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-28	HOTEL - 00906	COMPMTR	EEM - RI	8	7	8	7	2,111	3.82	4.5
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - RI	6	5	6	5	1,583	3.82	4.5
Motors	MTR-103	ADMIN - 00237	EVAP	EEM - RI	9	13	9	13	4,669	3.82	4.5
Motors	MTR-411	WHS - 00827	EVAP	EEM - RI	3	5	3	5	1,751	3.82	4.5
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - RI	3	5	3	5	1,751	3.82	4.5
Motors	MTR-304	MTRPOOL - 00680	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-306	MTRPOOL - 00681	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-254	DGR - 00308	EVAP	EEM - RI	2	3	2	3	1,167	3.82	4.5
Motors	MTR-412	WHS - 00827	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-410	WHS - 00827	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-256	DGR - 00404	EVAP	EEM - RI	1	2	1	2	584	3.82	4.5
Motors	MTR-261	DINING - 00254	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-336	PLT-BLDG - 00253	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-335	PLT-BLDG - 00253	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-260	DINING - 00254	EVAP	EEM - RI	1	2	1	2	582	3.81	4.5
Motors	MTR-354	SHOP - 00367	EVAP	EEM - RI	6	8	6	8	2,900	3.80	4.5
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-361	SHOP-ELC - 00581	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-401	WHS - 00517	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-357	SHOP - 00384	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-382	WHS - 00342	EVAP	EEM - RI	4	6	4	6	2,320	3.80	4.5
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-384	WHS - 00352	EVAP.	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-386	WHS - 00364	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-175	ADMIN - 00583	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-97	01315	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-362	SHOP-ELC - 00616	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-294	MTRPOOL - 00621	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-381	WHS - 00342	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-355	SHOP - 00367	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-415	WHS - 00860	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-296	MTRPOOL - 00623	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-383	WHS - 00344	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-262	DINING - 00431	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-380	WHS - 00333	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-350	SHOP - 00356	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-376	WHS - 00318	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-116	ADMIN - 00408	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-286	MTRPOOL - 00605	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	PMTR-28	DGR - 00430	PMPMTR	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-320	MTRPOOL - 00941	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-291	MTRPOOL - 00612	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-394	WHS - 00470	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-292	MTRPOOL - 00614	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-340	PUMP - 00044	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-388	WHS - 00364	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-280	MTRPOOL - 00600	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-344	REC - 00338	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - RI	2	3	2	3	1,160	3.80	4.5
Motors	MTR-310	MTRPOOL - 00837	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-309	MTRPOOL - 00832	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-358	SHOP - 00842	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-359	SHOP - 00842	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-407	WHS - 00584	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-333	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-342	PUMP - 00838	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-360	SHOP-ELC - 00581	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-405	WHS - 00545	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-416	WHS - 00860	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-399	WHS - 00486	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-392	WHS - 00462	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-393	WHS - 00462	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-385	WHS - 00360	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-379	WHS - 00333	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-377	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-363	SHOP-WPN - 07602	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-413	WHS - 00844	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-371	WHS - 00234	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-367	TRAING - 00496	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-368	TRAING - 00496	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-370	WHS - 00024	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-387	WHS - 00364	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-374	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-375	WHS - 00318	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-414	WHS - 00860	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-406	WHS - 00558	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-396	WHS - 00470	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-270	DINING - 00560	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-324	MWR - 00410	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-308	MTRPOOL - 00832	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-300	MTRPOOL - 00646	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-352	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-331	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-323	MWR - 00340	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-325	MWR - 00480	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-400	WHS - 00486	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-326	MWR - 00556	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-408	WHS - 00585	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-353	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-332	MWR - 01322	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-267	DINING - 00449	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-255	DOR - 00404	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-402	WHS - 00531	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-403	WHS - 00531	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-356	SHOP - 00384	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-351	SHOP - 00357	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-298	MTRPOOL - 00639	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-313	MTRPOOL - 00840	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-173	ADMIN - 00579	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-174	ADMIN - 00580	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-112	ADMIN - 00320	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-182	ADMIN - 00988	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-177	ADMIN - 00604	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-297	MTRPOOL - 00626	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-284	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-285	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-314	MTRPOOL - 00847	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-289	MTRPOOL - 00608	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-293	MTRPOOL - 00620	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-299	MTRPOOL - 00642	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-271	FUELDSP - 00836	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-315	MTRPOOL - 00847	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-247	CLINIC - 00245	EVAP	EEM - RI	1	2	1	2	580	3.80	4.5
Motors	MTR-268	DINING - 00468	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5
Motors	MTR-257	DOR - 00430	EVAP	EEM - RI	7	10	7	10	3,481	3.80	4.5
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-127	ADMIN - 00439	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-307	MTRPOOL - 00830	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - RI	3	5	3	5	1,740	3.80	4.5
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - RI	2	3	2	3	1,154	3.79	4.5
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - RI	7	10	7	10	3,462	3.79	4.5
Motors	MTR-334	OTHER - 00992	EVAP	EEM - RI	1	2	1	2	577	3.79	4.5
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - RI	256	39	256	39	25,525	3.78	4.6
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - RI	2	3	2	3	1,151	3.78	4.6
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - RI	1	2	1	2	575	3.78	4.6
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - RI	42	8	42	8	5,849	3.76	4.6
Motors	PMTR-84	PUMP - 18005	PMPMTR	EEM - RI	78	90	78	90	18,636	3.75	4.6
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - RI	1	2	1	2	514	3.75	4.6
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - RI	1	2	1	2	514	3.75	4.6
Lighting	OS-MT-5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	30	NA	30	NA	11,615	3.72	4.6
DHW & A/C	19	00237	AIR CONDITIONER	Install Desuperheater - RI	22	27	22	27	5,013	3.71	4.6
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - RI	333	52	333	52	32,996	3.70	4.7
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - RI	333	52	333	52	32,996	3.70	4.7
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - RI	161	0	161	0	30,899	3.69	4.7
DHW & A/C	30	00857	Chiller-air cooled	Install Desuperheater - RI	12	72	12	72	9,712	3.64	4.7
Wells	1		Well Pumps	Add New 500 kgal. Tank - RI	0	1,097	0	1,097	154,481	3.63	4.7
Motors	PMTR-67	PLT-BLDG - 00253	PMPMTR	EEM - RI	7	7	7	7	2,090	3.63	4.7
Motors	PMTR-91	PUMP - 00042	PMPMTR	EEM - RI	12	11	12	11	2,762	3.61	4.8
Motors	PMTR-90	PUMP - 00044	PMPMTR	EEM - RI	12	11	12	11	2,762	3.61	4.8
Motors	MTR-183	ADMIN - 00988	EVAP	EEM - RI	1	1	1	1	499	3.60	4.8
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES - RI	1,099	2,110	1,099	2,110	893,186	3.52	4.9
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - RI	2	2	2	2	470	3.51	4.9
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM - RI	6	7	6	7	1,881	3.51	4.9
Motors	MTR-17	CLUB - 00202	COMPMTR	EEM - RI	6	7	6	7	1,881	3.51	4.9
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - RI	3	4	3	4	940	3.51	4.9
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	11	54	11	54	7,338	3.49	4.9
Motors	MTR-42	CLUB - 00202	CONDMTR	EEM - RI	2	2	2	2	465	3.49	4.9
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - RI	2	3	2	3	950	3.47	5.0
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - RI	2	3	2	3	950	3.47	5.0
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - RI	1	1	1	1	475	3.47	5.0
Motors	MTR-181	ADMIN - 00988	EVAP	EEM - RI	1	1	1	1	475	3.47	5.0
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM - RI	1	1	1	1	475	3.47	5.0
DHW & A/C	28	00488	PKG A/C	Install Desuperheater - RI	10	72	10	72	8,986	3.44	5.0
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - RI	11	11	11	11	3,103	3.43	5.0
Motors	PMTR-83	PUMP - 18005	PMPMTR	EEM - RI	66	90	66	90	15,910	3.35	5.1
Motors	MTR-37	WHS-CLD - 00862	COMPMTR	EEM - RI	1	2	1	2	437	3.34	5.2
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	58	11	58	11	17,717	3.32	5.2
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	58	11	58	11	17,717	3.32	5.2
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	29	5	29	5	8,859	3.32	5.2
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	32	6	32	6	3,572	3.32	5.2
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - RI	1	2	1	2	432	3.31	5.2
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - RI	2	5	2	5	887	3.31	5.2
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM - RI	27	4	27	4	8,900	3.31	5.2
DHW & A C	1	00013	CHILLER-air cooled	Install Desuperheater - RI	6	63	6	63	7,635	3.30	5.2
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - RI	1	2	1	2	425	3.27	5.3
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - RI	50	72	50	72	12,077	3.26	5.3
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	29	14	29	14	2,890	3.22	5.3
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - RI	8	8	8	8	2,257	3.20	5.4
Motors	PMTR-69	PLT-BLDG - 00263	PMPMTR	EEM - RI	8	8	8	8	2,257	3.20	5.4
Envelope	MWR	MWR		Weatherization - RI	10	6	10	6	2,960	3.17	5.4
Motors	MTR-526	Fam Housing	Heat System Fan	EEM - RI	1,739	1,467	1,739	1,467	662,338	3.16	5.4
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	250	40	250	40	23,281	3.15	5.5
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - RI	34	39	34	39	7,036	3.12	5.5
Motors	PMTR-92	PUMP - 00044	PMPMTR	EEM - RI	33	39	33	39	6,970	3.10	5.6
Controls	MT-1		Thermostat	Night Setback - RI	1,508	2,186	1,508	2,186	314,125	3.09	5.6
Motors	PMTR-99	PUMP - 00324	PMPMTR	EEM - RI	10	11	10	11	2,171	3.05	5.6
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - RI	2	3	2	3	920	3.03	5.7
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	232	0	232	0	37,921	2.98	5.8
Motors	PMTR-60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	33	12	33	12	10,980	2.81	6.1

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - RI	222	40	222	40	19,582	2.81	6.1
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	20	9	20	9	1,990	2.78	6.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	5	0	5	0	924	2.78	6.2
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	32	6	32	6	2,955	2.74	6.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	32	6	32	6	2,955	2.74	6.3
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - RI	0	3	0	3	323	2.68	6.4
Motors	MTR-449	GROCERY - 00920	Fan Motor	EEM - RI	8	11	8	11	2,101	2.65	6.5
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM - RI	4	14	4	14	1,730	2.64	6.5
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - RI	4	14	4	14	1,730	2.64	6.5
Motors	PMTR-80	PUMP - 05590	PMPMTR	EEM - RI	52	119	52	119	13,826	2.60	6.6
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - RI	31	27	31	27	5,308	2.60	6.6
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	9	22	9	22	2,570	2.57	6.7
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - RI	29	5	29	5	4,018	2.57	6.7
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	34	5	34	5	3,984	2.56	6.7
Envelope	w/ SB win only	Concrete Block w/ SB win only		Weatherization - RI	24	16	24	16	6,474	2.54	6.8
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - RI	4	3	4	3	693	2.53	6.8
Motors	MTR-447	GROCERY - 00920	Fan Motor	EEM - RI	7	11	7	11	1,970	2.47	7.0
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - RI	4	5	4	5	985	2.47	7.0
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM - RI	4	5	4	5	985	2.47	7.0
Motors	MTR-481	REC - 00905	Fan Motor	EEM - RI	3	4	3	4	750	2.47	7.0
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - RI	3	4	3	4	750	2.47	7.0
Motors	MTR-467a	MWR - 01322	Fan Motor	EEM - RI	3	3	3	3	664	2.46	7.0
Motors	PMTR-59c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	39	11	39	11	11,266	2.46	7.0
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM - RI	3	4	3	4	735	2.44	7.1
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM - RI	9	14	9	14	2,333	2.41	7.2
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	7	27	7	27	2,604	2.41	7.2
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - RI	38	90	38	90	9,474	2.40	7.2
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	9	3	9	3	2,630	2.39	7.2
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - RI	8	5	8	5	1,464	2.39	7.2
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM - RI	3	4	3	4	623	2.37	7.3
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	12	15	12	15	1,883	2.37	7.3
HVAC	MT-3		Heat pump	2-speed compressor - RI	1,132	1,418	1,132	1,418	328,228	2.36	7.3
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - RI	43	6	43	6	4,055	2.33	7.4
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - RI	0	1	0	1	254	2.32	7.4
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM - RI	9	11	9	11	1,755	2.31	7.4
Motors	MTR-20	GROCERY - 00920	COMPMTR	EEM - RI	5	5	5	5	877	2.31	7.4
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM - RI	5	5	5	5	877	2.31	7.4
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - RI	0	1	0	1	251	2.31	7.5
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM - RI	60	68	60	68	11,354	2.30	7.5
Motors	MTR-329	MWR - 01322	EVAP	EEM - RI	1	1	1	1	240	2.29	7.5
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,923	2.28	7.5
Motors	MTR-49	WHS-CLD - 00862	CONDMTR	EEM - RI	1	1	1	1	240	2.28	7.5
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM - RI	9	9	9	9	1,678	2.26	7.6
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM - RI	8	22	8	22	2,645	2.25	7.6
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM - RI	8	22	8	22	2,645	2.25	7.6
Envelope	MT-5		Black EDPM	Reflective roof - RI	566	684	566	684	277,647	2.24	7.7
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM - RI	38	119	38	119	9,759	2.13	8.1
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM - RI	4	12	4	12	1,874	2.13	8.1
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater - RI	6	23	6	23	1,907	2.13	8.1
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	6	23	6	23	1,907	2.13	8.1
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - RI	45	6	45	6	3,407	2.11	8.1
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,402	2.11	8.2
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - RI	42	6	42	6	3,402	2.11	8.2
Motors	MTR-92	HOTEL - 00904	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-87	HOSPITL - 00166	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-93	HOTEL - 00906	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-91	HOTEL - 00903	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-88	HOTEL - 00900	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-89	HOTEL - 00901	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Motors	MTR-90	HOTEL - 00902	COOL	EEM - RI	1	1	1	1	205	2.10	8.2
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	462	68	462	68	30,142	2.10	8.2
Motors	PMTR-107	PUMP - 00636	PMPMTR	EEM - RI	6	56	6	56	3,619	2.09	8.2
Lighting	OS-MT-4b	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	51	NA	51	NA	14,477	2.04	8.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	5	22	5	22	1,666	2.02	8.5
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater - RI	5	22	5	22	1,666	2.02	8.5
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	67	8	67	8	4,630	2.01	8.6
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - RI	5	17	5	17	1,393	2.00	8.6
Motors	PMTR-79	PUMP - 05590	PMPMTR	EEM - RI	30	119	30	119	8,516	1.99	8.7
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	126	17	126	17	9,037	1.98	8.7

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	MT-8		Single pane window	Shade Screens - SB side - RI	37	22	37	22	5,021	1.97	8.7
Envelope		Metal Siding		Window Screen - SB side - RI	76	46	76	46	10,339	1.97	8.7
Envelope		Concrete Block. Barracks		Window Screen - SB side - RI	29	17	29	17	3,905	1.97	8.7
Envelope		Concrete Block: Misc -post 1980		Window Screen - SB side - RI	10	6	10	6	1,418	1.97	8.7
Envelope		MOTORPOOL		Window Screen - SB side - RI	7	5	7	5	1,016	1.97	8.7
Envelope		TRAINING		Window Screen - SB side - RI	2	1	2	1	330	1.97	8.7
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen - RI	405	246	405	246	55,215	1.97	8.7
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	378	230	378	230	51,595	1.97	8.7
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	370	225	370	225	50,445	1.97	8.7
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	284	173	284	173	38,801	1.97	8.7
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	247	150	247	150	33,697	1.97	8.7
Envelope		U Shaped Bldgs: Barracks		Window Screen - SB side - RI	197	120	197	120	26,894	1.97	8.7
Envelope		Masonite Siding: pre 1950		Window Screen - SB side - RI	34	21	34	21	4,629	1.97	8.7
Envelope		U Shaped Bldgs. Other		Window Screen - SB side - RI	28	17	28	17	3,840	1.97	8.7
Envelope		Concrete Block w. SB win only		Window Screen - SB side - RI	18	11	18	11	2,487	1.97	8.7
Envelope		Concrete Block: Misc -pre 1980		Window Screen - SB side - RI	12	7	12	7	1,626	1.97	8.7
Envelope		Masonite Siding: post 1950		Window Screen - SB side - RI	11	7	11	7	1,531	1.97	8.7
Envelope		SHOP		Window Screen - SB side - RI	7	4	7	4	995	1.97	8.7
Envelope		DINING MSIC		Window Screen - SB side - RI	4	3	4	3	605	1.97	8.7
Envelope		ADMIN. MISC pre 1964		Window Screen - SB side - RI	4	3	4	3	565	1.97	8.7
Envelope		BRK/ADM MISC		Window Screen - SB side - RI	4	2	4	2	542	1.97	8.7
Envelope		Wood Siding		Window Screen - SB side - RI	3	2	3	2	450	1.97	8.7
Envelope		MWR		Window Screen - SB side - RI	2	1	2	1	235	1.97	8.7
Envelope		WHS		Window Screen - SB side - RI	2	1	2	1	208	1.97	8.7
Envelope		SECURTY		Window Screen - SB side - RI	0	0	0	0	48	1.97	8.7
Envelope		ADMIN· MISC post 1964		Window Screen - SB side - RI	7	4	7	4	996	1.97	8.7
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	82	11	82	11	5,827	1.95	8.8
Motors	PMTR-52a	PLT-BLDG - 00263	PMPMTR	EEM - RI	1	4	1	4	615	1.92	9.0
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - ROF	0	0	12	6	1,108	1.92	9.0
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - RI	77	10	77	10	4,797	1.89	9.1
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - ROF	0	0	19	10	1,778	1.89	9.1
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - RI	8	11	8	11	1,588	1.87	9.2
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - RI	4	5	4	5	794	1.87	9.2
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	151	9	151	9	17,118	1.87	9.2
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - RI	2	3	2	3	394	1.87	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - RI	38	6	38	6	2,654	1.87	9.2
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM - RI	2	3	2	3	392	1.86	9.2
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	56	104	56	104	16,432	1.85	9.3
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - RI	470	80	470	80	25,646	1.79	9.6
Motors	MTR-527	Fam Housing	Cool System Fan	EEM - RI	748	1,467	748	1,467	230,320	1.75	9.8
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - RI	34	67	34	67	10,559	1.75	9.8
Motors	MTR-60	BRK/ADM - 00110	COOL	EEM - RI	9	18	9	18	2,816	1.75	9.8
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-61	BRK/ADM - 00111	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-57	BRK/ADM - 00106	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM - RI	7	14	7	14	2,253	1.75	9.8
Motors	MTR-82	CLUB - 20018	COOL	EEM - RI	0	1	0	1	141	1.75	9.8
Fam Hsg HVAC	2b			High Eff. Grnd Source HP - RI	76,678	15,226	76,678	15,226	5,244,863	1.74	9.9
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - RI	2	1	2	1	335	1.74	9.9
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	282	11	282	11	28,576	1.74	9.9
Motors	MTR-79	BRK/ADM - 00275	COOL	EEM - RI	3	6	3	6	958	1.73	9.9
Motors	MTR-63	BRK/ADM - 00226	COOL	EEM - RI	3	6	3	6	958	1.73	9.9
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - RI	0	1	0	1	137	1.73	9.9
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - RI	34	67	34	67	10,267	1.73	9.9
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - RI	34	67	34	67	10,267	1.73	9.9
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	MTR-64	BRK/ADM - 00226	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	MTR-80	BRK/ADM - 00275	COOL	EEM - RI	1	2	1	2	274	1.73	9.9
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - RI	13	39	13	39	2,410	1.73	10.0
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	190	7	190	7	18,999	1.72	10.0
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - RI	15	11	15	11	1,831	1.72	10.0
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - RI	14	18	14	18	1,900	1.71	10.1
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - RI	3	6	3	6	906	1.69	10.2
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - RI	0	1	0	1	129	1.69	10.2
Motors	MTR-72	BRK ADM - 00265	COOL	EEM - RI	0	1	0	1	129	1.69	10.2

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-67	BRK/ADM - 00262	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-73	BRK/ADM - 00267	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - RI	32	64	32	64	9,190	1.69	10.2
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	367	11	367	11	35,397	1.69	10.2
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - RI	4	11	4	11	842	1.63	10.6
Motors	PMTR-34	GROCERY - 00920	power vents	EEM - RI	3	8	3	8	639	1.62	10.6
Motors	PMTR-55a	PLT-BLDG - 00253	PMPMTR	EEM - RI	5	15	5	15	1,582	1.62	10.6
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - RI	5	15	5	15	1,582	1.62	10.6
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater - RI	8	9	8	9	683	1.61	10.7
Motors	PMTR-74	PUMP - 00042	PMPMTR	EEM - RI	5	5	5	5	551	1.61	10.7
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - RI	2	3	2	3	276	1.61	10.7
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater - RI	5	14	5	14	801	1.60	10.8
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater - RI	5	14	5	14	801	1.60	10.8
Motors	MTR-409	WHS - 00818	EVAP	EEM - RI	4	6	4	6	729	1.57	11.0
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - RI	0	1	0	1	107	1.56	11.0
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM - RI	0	1	0	1	101	1.54	11.2
Motors	PMTR-61c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	14	4	14	4	2,066	1.53	11.3
Motors	MTR-85	DINING - 00254	COOL	EEM - RI	0	1	0	1	97	1.52	11.3
Motors	PMTR-38	HOSPITL - 00166	PMPMTR	EEM - RI	6	2	6	2	434	1.51	11.4
Motors	MTR-81	CLINIC - 00171	COOL	EEM - RI	0	1	0	1	93	1.50	11.5
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - RI	0	1	0	1	93	1.50	11.5
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - RI	1	3	1	3	222	1.49	11.6
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - RI	1	3	1	3	222	1.49	11.6
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - RI	3	11	3	11	623	1.49	11.6
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - RI	1	3	1	3	218	1.48	11.6
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - RI	1	3	1	3	218	1.48	11.6
Motors	MTR-8	MTRPOOL - 00646	AIRCOMP	EEM - RI	1	4	1	4	235	1.47	11.7
Motors	MTR-96	WHS - 20001	COOL	EEM - RI	1	4	1	4	354	1.47	11.7
Motors	MTR-455c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	81	3	81	3	5,955	1.47	11.7
Motors	MTR-282	MTRPOOL - 00600	EVAP	EEM - RI	1	2	1	2	206	1.45	11.8
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - RI	1	2	1	2	232	1.45	11.9
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - RI	1	2	1	2	229	1.45	11.9
Motors	MTR-83	DINING - 00222	COOL	EEM - RI	1	2	1	2	161	1.43	12.0
Motors	MTR-84	DINING - 00222	COOL	EEM - RI	1	2	1	2	161	1.43	12.0
Motors	PMTR-29	DGR - 00308	PMPMTR	EEM - RI	1	4	1	4	219	1.43	12.1
T&D	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	31	24	7,912	1.42	12.1
T&D	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	150	126	37,058	1.41	12.2
T&D	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	28	20	6,695	1.36	12.7
Motors	MTR-509	BRK/ADM - 00251	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-503	BRK/ADM - 00250	HEAT	EEM - RI	31	26	31	26	1,895	1.35	12.8
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-502	BRK/ADM - 00250	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - RI	17	14	17	14	1,045	1.35	12.8
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-498	BRK/ADM - 00249	HEAT	EEM - RI	4	4	4	4	261	1.35	12.8
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-510	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-505	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-500	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-501	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-506	BRK/ADM - 00250	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-511	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-517	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-512	BRK/ADM - 00251	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-497	BRK/ADM - 00249	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8
Motors	MTR-521	MTRPOOL - 00681	HEAT	EEM - RI	1	1	1	1	65	1.35	12.8

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR-50a	WHS-CLD - 00862	CONDMTR	EEM - RI	5	4	5	4	344	1.34	12.9
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	34	28	8,357	1.33	13.0
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - RI	31	26	31	26	1,765	1.33	13.0
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM - RI	21	18	21	18	1,217	1.33	13.0
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-490	BRK/ADM - 00108	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - RI	17	14	17	14	974	1.33	13.0
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	36	30	8,730	1.31	13.1
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	38	32	9,199	1.31	13.1
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	28	23	6,535	1.30	13.2
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	31	24	4,258	1.30	13.3
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	98	77	22,337	1.30	13.3
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	16	13	3,723	1.30	13.3
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	24	20	5,296	1.30	13.3
Motors	MTR-30	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-47	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-31	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-33	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-32	MWR - 01322	COMPMTR	EEM - RI	1	1	1	1	56	1.30	13.3
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - RI	2	1	2	1	130	1.29	13.4
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	83	66	11,516	1.29	13.4
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	25	20	3,455	1.29	13.4
T&D	21h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	107	87	24,602	1.28	13.5
T&D	7h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	24	20	5,690	1.27	13.5
T&D	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	85	65	18,533	1.27	13.6
T&D	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	44	40	5,623	1.25	13.7
T&D	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	15	12	3,226	1.25	13.8
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - RI	1	3	1	3	165	1.25	13.8
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	0	0	630	897	107,049	1.25	13.8
T&D	46h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	17	14	2,249	1.23	14.0
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	15	4	15	4	1,112	1.23	14.0
T&D	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	10	9	1,342	1.22	14.1
T&D	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	16	14	2,122	1.22	14.1
T&D	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	14	11	1,759	1.21	14.2
T&D	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	49	38	6,011	1.21	14.2
T&D	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	45	35	9,008	1.21	14.3
T&D	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	23	18	4,504	1.21	14.3
T&D	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	8	6	1,501	1.21	14.3
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - RI	1	3	1	3	93	1.20	14.3
T&D	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	159	129	30,841	1.20	14.4
T&D	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	9	7	1,667	1.20	14.4
T&D	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	62	50	7,688	1.20	14.4
T&D	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	37	29	4,594	1.19	14.4
T&D	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	104	81	12,277	1.19	14.5
T&D	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	20	16	2,216	1.19	14.5
T&D	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	37	29	4,341	1.18	14.6
T&D	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	12	9	1,941	1.17	14.7
T&D	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	11	8	1,979	1.17	14.7
T&D	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	8	6	1,484	1.17	14.7
T&D	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	26	21	4,032	1.16	14.9
T&D	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	21	16	3,694	1.15	14.9
T&D	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	20	15	3,430	1.15	14.9
T&D	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	5	3	792	1.15	14.9
T&D	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	25	19	4,289	1.15	14.9
T&D	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	21	16	3,629	1.15	14.9
T&D	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	68	53	7,274	1.15	15.0
T&D	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	34	28	3,590	1.14	15.1
T&D	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	13	10	1,346	1.14	15.1
T&D	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	49	38	4,794	1.12	15.4
T&D	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	16	13	1,598	1.12	15.4
T&D	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	8	6	799	1.12	15.4

Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	36	27	3,408	1.11	15.4
T&D	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	31	24	1,203	1.11	15.4
T&D	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	188	158	7,041	1.11	15.5
T&D	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	38	32	1,408	1.11	15.5
T&D	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	25	20	976	1.11	15.5
T&D	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	14	10	1,279	1.11	15.5
T&D	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	3	2	284	1.11	15.5
T&D	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	15	12	1,421	1.11	15.5
T&D	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	12	10	1,369	1.10	15.6
Motors	MTR-111	ADMIN - 00281	EVAP	EEM - RI	1	2	1	2	50	1.10	15.7
T&D	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	44	40	1,587	1.10	15.7
T&D	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	2	1	167	1.09	15.8
T&D	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	34	28	1,270	1.09	15.8
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM - RI	1	3	1	3	59	1.09	15.8
T&D	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	21	17	758	1.08	15.9
T&D	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	33	28	1,198	1.08	15.9
T&D	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	14	11	497	1.08	15.9
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - RI	2	11	2	11	109	1.08	15.9
T&D	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	90	70	3,111	1.08	15.9
T&D	78h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	98	81	3,218	1.08	15.9
T&D	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	49	41	1,609	1.08	15.9
T&D	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	21	17	724	1.07	16.0
T&D	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	150	116	4,982	1.07	16.1
T&D	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	61	49	1,876	1.07	16.1
Motors	MTR-274	GROCERY - 00920	EVAP	EEM - RI	3	4	3	4	93	1.07	16.1
T&D	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	15	12	490	1.07	16.1
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	47	47	1,495	1.07	16.2
T&D	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	23	18	684	1.06	16.3
T&D	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	19	15	570	1.06	16.3
T&D	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	11	9	342	1.06	16.3
T&D	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	73	59	2,151	1.05	16.3
Motors	MTR-273	GROCERY - 00920	EVAP	EEM - RI	3	4	3	4	69	1.05	16.4
T&D	68h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	24	19	589	1.05	16.4
T&D	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	12	9	294	1.05	16.4
T&D	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	18	17	468	1.05	16.4
T&D	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	16	13	451	1.05	16.5
T&D	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	16	13	451	1.05	16.5
T&D	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	11	8	300	1.05	16.5
T&D	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	13	11	306	1.04	16.5
T&D	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	5	3	120	1.04	16.5
T&D	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	29	22	751	1.04	16.5
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - RI	2	2	2	2	15	1.03	16.7
T&D	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	0	0	94	78	1,657	1.03	16.8

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Roof	DINING HALLS 05	DINING HALLS	Roof Insulation R Value 0 00	Attic Ceiling. Increase insulation by R 38	3,655	NA	3,655	372,611	0	372,611	368,954	101 90	0 2	3,655
Hot Water	COMMISSARIES	COMMISSARIES	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LPSHs, Aerators	231	NA	231	20,605	0	20,605	20,374	89 30	0 2	231
Hot Water	CLUBS 03	CLUBS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LPSHs, Aerators	508	NA	508	38,578	0	38,578	38,070	75 90	0 3	508
Lights	SECURITY 03	SECURITY	INS. INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	5,607	NA	5,607	259,449	76,493	335,942	330,336	59 90	0 3	5 607
Hot Water	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Electric Central Boiler	Electric Boiler: Wrap Tank w/ Insulation, LPSHs Aerators	119	NA	119	6,268	0	6,268	6,150	52 70	0 3	119
Lights	SECURITY 02	SECURITY	INS: INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	6,467	NA	6,467	222,393	88,229	310,622	304,156	48 00	0 4	6 467
Lights	SECURITY 01	SECURITY	INS. INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	67	NA	67	2,265	605	2,870	2,803	42 60	0 4	67
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	83	NA	83	2,879	618	3,497	3,415	42 30	0 4	83
Lights	COMMISSARIES	COMMISSARIES	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	191	NA	191	6,031	1,708	7,739	7,548	40.60	0 4	191
Hot Water	WAREHOUSE 08	WAREHOUSE	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LPSHs, Aerators	11	NA	11	454	0	454	442	40.50	0 3	11
Hot Water	MILITARY OTHER 05	MILITARY OTHER	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	320	NA	320	12,525	0	12,525	12,205	39.20	0.5	320
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Central Boiler	LPG. Wrap Tank w/ Insulation, LPSHs, Aerators	52	NA	52	2,021	0	2,021	1,969	38.80	0 2	52
Hot Water	ADMINISTRATION 08	ADMINISTRATION	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condens Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	1,375	NA	1,375	48,893	0	48,893	47,518	35 60	0 6	1 375
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	628	NA	628	16,845	4,693	21,538	20,910	34 30	0.5	628
Lights	ADMINISTRATION 04	ADMINISTRATION	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	276	NA	276	6,728	1,564	8,292	8,016	30 10	0 6	276
Lights	SHOPS 03	SHOPS	INS. INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	533	NA	533	11,353	3,574	14,927	14,394	28 00	0 6	533
Lights	MWR 03	MORALE WELFARE RECREATION	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	28	NA	28	644	140	784	755	27.50	0 7	28
Lights	ADMINISTRATION 03	ADMINISTRATION	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	1,735	NA	1,735	36,131	10,631	46,762	45,027	26.90	0 7	1 735
Roof	SHOPS 04	SHOPS	Roof Insulation R Value 5 00	Attic Ceiling. Increase insulation by R 19	31,037	NA	31,037	830,340	0	830,340	799,303	26 80	0.8	31,037
Hot Water	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	197	NA	197	4,947	0	4,947	4,750	25 10	0 1	197
Lights	WAREHOUSE 12	WAREHOUSE	INS INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	4,652	NA	4,652	94,691	21,645	116,334	111,684	25 00	0 7	4,652
Lights	ADMINISTRATION 03a	ADMINISTRATION	INS: INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	40	NA	40	734	248	982	941	24 30	0 7	40
Roof	SECURITY 01	SECURITY	Roof Insulation R Value 8.69	Attic Ceiling Increase insulation by R 19	228	NA	228	5,504	0	5,504	5,275	24 10	0.8	228
Lights	RECREATION 02	RECREATION	INS. INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	134	NA	134	2,360	824	3,184	3,050	23 70	0 7	134
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	INS· INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	244	NA	244	4,318	1,445	5,763	5,518	23 60	0.8	244
Roof	RECREATION 02	RECREATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 30	38,692	NA	38,692	906,694	0	906,694	868,002	23 40	0.8	38,692
Hot Water	DINING HALLS 06	DINING HALLS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condens. Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	2,305	NA	2,305	53,399	0	53,399	51,093	23 20	0.9	2 305
Lights	CHAPEL 01	CHAPEL	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	1,185	NA	1,185	20 384	4,843	25,227	24,042	21 30	0.8	1,185
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	INS· INC 75 CEIL	PL175· CPL 27 INTEGRAL UNIT	26,337	NA	26,337	435,164	104,067	539,231	512,894	20.50	0.9	26,337
Lights	WAREHOUSE 02	WAREHOUSE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	4,748	NA	4,748	70,259	22,092	92,351	87,602	19.50	0 9	4,748
Lights	MILITARY OTHER 04	MILITARY OTHER	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	1,134	NA	1,134	16,830	5,275	22,105	20,971	19.50	0 9	1 134
Lights	WAREHOUSE 01	WAREHOUSE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	10,564	NA	10,564	155,278	49,156	204,434	193,870	19 40	0 9	10,564
Hot Water	BARRACKS 07	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condens. Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	19,960	NA	19,960	384,533	0	384,533	364,573	19 30	1 1	19 960
Roof	HANGER	HANGAR	Roof Insulation R Value 0 00	Attic Ceiling: Increase insulation by R-30	6,571	NA	6,571	125,148	0	125,148	118,577	19 00	1 1	6,571
Roof	WAREHOUSE 06	WAREHOUSE	Roof Insulation R-Value 0 00	Attic Ceiling: Increase insulation by R 19	4,873	NA	4,873	92,799	0	92,799	87,926	19 00	1 1	4,873
Hot Water	ADMINISTRATION 09	ADMINISTRATION	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	418	NA	418	7,564	0	7,564	7,146	18 10	0 3	418
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	INS: INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	416	NA	416	5,659	1,845	7,504	7,088	18 00	1 0	416
Hot Water	BARRACKS 02	BARRACKS	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	9,749	NA	9,749	172,520	0	172,520	162,771	17 70	1.0	11,389
Hot Water	PH DUPLEX 03	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	18,797	NA	18,797	328,507	0	328,507	309,710	17.50	0 4	18,797
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	1,533	NA	1,533	20,166	6,056	26,222	24,690	17 10	1 0	1,533
Lights	RECREATION 03	RECREATION	INS· INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	3,584	NA	3,584	42,026	18,691	60,717	57,132	16 90	1 1	3,584
Hot Water	BARRACKS 04	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Condens Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	2,227	NA	2,227	35,894	0	35,894	33,667	16 10	0.8	3,418
Lights	SHOPS 04	SHOPS	MVS. MERC 1000 PEND	HS19. HPS 400 PEND	6,612	NA	6,612	102,961	2,506	105,467	98,855	16 00	1 1	6,612
Lights	PH DUPLEX 03	DUPLEX	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	5,378	NA	5,378	67,011	17,242	84,253	78,875	15 70	1.2	5,378
Lights	CHAPEL 02	CHAPEL	INS. INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	5,482	NA	5,482	62,869	22,401	85,270	79,788	15 60	1.2	5,482
Lights	PH DUPLEX 01	DUPLEX	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	14,710	NA	14,710	171,180	47,161	218,341	203,631	14.80	1 2	14,710
Lights	ADMINISTRATION 03	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182. CPL 2 13 + BLST UNIT	1,945	NA	1,945	22,622	5,039	27,661	25,715	14.20	1 3	1,945
Hot Water	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	49	NA	49	701	0	701	651	14 20	0 4	49
Hot Water	RECREATION 04	RECREATION	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	562	NA	562	7,941	0	7,941	7,379	14 10	1.5	562
Lights	SHOPS 04	SHOPS	IN6: INC 2 60 CEIL	PL182· CPL 2 13 + BLST UNIT	501	NA	501	5,709	1,320	7,029	6,528	14.00	1 3	501
Roof	WAREHOUSE 12	WAREHOUSE	Roof Insulation R-Value 0 00	Suspended Ceiling: Increase insulation by R 30	12,314	NA	12,314	166,555	0	166,555	154,241	13 50	1 4	12,314
Lights	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	22,576	NA	22,576	227,440	72,378	299,818	277,242	13.30	1 3	22,576
Lights	ADMINISTRATION 04	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182· CPL 2 13 + BLST UNIT	309	NA	309	3,360	745	4,105	3,796	13 30	1.4	309
Roof	BARRACKS 04	BARRACKS	Roof Insulation R Value 0 00	Suspended Ceiling· Increase insulation by R 19	28,540	NA	28,540	374,291	0	374,291	345,751	13 10	1.5	28,540
Hot Water	MWR 05	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/Insulation, LPSHs, Aerators	503	NA	503	6,500	0	6,500	5,997	12 90	0.8	876
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	INS· INC 75 CEIL	PL175. CPL 27 INTEGRAL UNIT	115	NA	115	1,116	370	1,486	1,371	12 90	1 4	115
Lights	COMMISSARIES	COMMISSARIES	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	336	NA	336	3,514	743	4,257	3,921	12 70	1 4	336
Lights	PH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	38,187	NA	38,187	356,042	122,427	478,469	440,282	12.50	1 4	38,187
Lights	ADMINISTRATION 07	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182: CPL 2 13 + BLST UNIT	1,120	NA	1,120	10,991	2,702	13,693	12,573	12.20	1.5	1,120
Lights	SHOPS 03	SHOPS	IN6. INC 2 60 CEIL	PL182: CPL 2-13 + BLST UNIT	307	NA	307	2,795	916	3,711	3,404	12 10	1.5	307
Lights	ADMINISTRATION 08	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182. CPL 2 13 + BLST UNIT	1,145	NA	1,145	10,917	2 763	13,680	12,535	11 90	1.5	1,145
Lights	CLINIC 02	CLINIC	IN6: INC 2 60 CEIL	PL182 CPL 2 13 + BLST UNIT	151	NA	151	1,315	472	1,787	1,636	11.90	1.5	151
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN6. INC 2 60 CEIL	PL182· CPL 2 13 + BLST UNIT	674	NA	674	6,282	1,669	7,951	7,277	11 80	1.5	674
Lights	ADMINISTRATION 07a	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182 CPL 2 13 + BLST UNIT	272	NA	272	2,553	657	3,210	2,938	11 80	1.5	272
Lights	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	INS: INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	8,905	NA	8,905	75,580	28,551	104,131	95,225	11 70	1.5	8,905
Lights	COMMISSARIES	COMMISSARIES	IN11: INC 100 CEIL	PL189. CPL 2 15 CEIL FIXT	232	NA	232	2,416	221	2,637	2,405	11 40	1 6	232
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN11. INC 100 CEIL	PL189. CPL 2 15 CEIL FIXT	152	NA	152	1,593	152	1,745	1,592	11 40	1 6	152
Lights	SECURITY 03	SECURITY	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	6,594	NA	6,594	68,556	6,277	74,833	68,239	11 30	1 6	6,594
Lights	MWR 06	MORALE WELFARE RECREATION	IN6: INC 2 60 CEIL	PL182: CPL 2-13 + BLST UNIT	567	NA	567	5,274	1,132	6,406	5,839	11 30	1 6	567
Roof	CHAPEL 01	CHAPEL	Roof Insulation R-Value 11 00	Attic Ceiling. Increase insulation by R 38	3,576	NA	3,576	39,906	0	39,906	36,330	11.20	1 7	3,576
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	INS. INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	106	NA	106	848	341	1,189	1,083	11.20	1 6	106
Lights	SHOPS 05	SHOPS	IN6. INC 2 60 CEIL	PL182 CPL 2 13 + BLST UNIT	726	NA	726	6,177	1,913	8,090	7,364	11.10	1 6	726
Lights	STORAGE 01	STORAGE	INS: INC 75 CEIL	PL175· CPL 27 INTEGRAL UNIT	14,900	NA	14,900	113,019	50,301	163,320	148,420	11.00	1 6	14,900
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN6: INC 2 60 CEIL	PL182· CPL 2 13 + BLST UNIT	45	NA	45	383	118	501	455	11 00	1 6	45
Lights	STORAGE 02	STORAGE	INS: INC 75 CEIL	PL175· CPL 27 INTEGRAL UNIT	68,373	NA	68,373	515 612	230,818	746,430	678,056	10 90	1 6	68,373
Lights	DINING HALLS 04	DINING HALLS	IN5. INC 60 CEIL	PL181. CPL 13 + BLST UNIT	1,073	NA	1,073	9,593	2,153	11,746	10,673	10.90	1 6	1 073
Lights	MWR 07	MORALE WELFARE RECREATION	IN6 INC 2 60 CEIL	PL182. CPL 2 13 + BLST UNIT	860	NA	860	7,480	1,717	9,397	8,537	10.90	1 6	860
Roof	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11 00	Attic Ceiling Increase insulation by R 8	5,333	NA	5,333	57,838	0	57,838	52,505	10 80	1 9	5,333
Lights	CLUBS 02	CLUBS	IN5. INC 60 CEIL	PL181: CPL 13 + BLST UNIT	814	NA	814	7,150	1,671	8,821	8,007	10 80	1 7	814
Lights	ADMINISTRATION 03	ADMINISTRATION	IN5 INC 60 CEIL	PL181: CPL 13 + BLST UNIT	2,547	NA	2,547	22 622	4,510	27,132	24,584	10 70	1 7	2,547
Hot Water	MWR 04	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/Insulation LPSHs Aerators	788	NA	788	8,412	0	8,412	7,624	10 70	1 6	920
Roof	MWR 04	MORALE WELFARE RECREATION	Roof Insulation R Value 20 05	Suspended Ceiling Increase insulation by R 8	5,864	NA	5,864	61,347	0	61,347	55,483	10.50	2 0	5,864
Lights	COMMISSARIES	COMMISSARIES	EX2 EXIT INC (2x15)	EX6 EXIT LED	1,233	NA	1,233	3,854	9,035	12,889	11,656	10.50	1 7	1,233
Lights	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	INS INC 75 CEIL	PL175: CPL 27 INTEGRAL UNIT	8,177	NA	8,177	58,004	26,215	84,219	76,042	10 30	1 7	8 177
Lights	MWR 02	MORALE WELFARE RECREATION	IN6. INC 2 60 CEIL	PL182. CPL 2 13 + BLST UNIT	385	NA	385	3,161	770	3,931	3,545	10.20	1.8	385
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN6 INC 2 60 CEIL	PL182: CPL 2 13 + BLST UNIT	274	NA	274	2,086	678	2,764	2,491	10 10	1.8	274
Lights	DINING HALLS 04	DINING HALLS	IN11. INC 100 CEIL	PL189. CPL 2-15 CEIL FIXT	1,592	NA	1,592	14,004	1,759	15,763	14,170	9.90	1 8	1,592
Lights	ADMINISTRATION 04	ADMINISTRATION	IN5 INC 60 CEIL	PL181: CPL 13 + BLST UNIT	404	NA	404	3,360	661	4,021	3,616	9.90	1.8	404
Hot Water	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LPSHs Aer , Lower Tank Temp	18	NA	18	176	0	176	158	9.90	0 6	18
Lights	PH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	INS INC 75 CEIL	PL175 CPL 27 INTEGRAL UNIT	2,001	NA	2 001	13,098	6 417	19,515	17,513	9.80	1 8	2,001
Lights	HOSPITAL	HOSPITAL	PL1 PL 2X4 4F40T12 STD2	PL237. PL 2X4 3F32T8 ELC3 REF	22,447	NA	22,447	196,304	21,368	217,672	195,225	9 70	1 9	22 447
Lights	CLUBS 03	CLUBS	IN5 INC 60 CEIL.	PL181 CPL 13 + BLST UNIT	1,264	NA	1,264	9,871	2,362	12,233	10,967	9 70	1 8	1 264
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	IN1 INC 40 CEIL	PL178. CPL 9 + BLST UNIT	240	NA	240	1,967	272	2,239	1,999	9 30	1 9	240

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non-Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	CLINIC 02	CLINIC	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	469	NA	469	3,295	1,013	4,308	3,840	9.20	1.9	469
Hot Water	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Ele Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	57	NA	57	526	0	526	469	9.20	0.6	57
Lights	SHOPS 04	SHOPS	PL2: PL 2X4 3F40T12 STD1,2	PL234: PL 2X4 3F32T8 ELC3	349	NA	349	2,894	272	3,166	2,817	9.10	2.0	349
Lights	SECURITY 02	SECURITY	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	7,605	NA	7,605	61,522	7,240	68,762	61,156	9.00	2.0	7,605
Lights	SHOPS 03	SHOPS	IN5: INC 60 CEIL	PL181. CPL 13 + BLST UNIT	804	NA	804	5,579	1,648	7,227	6,423	9.00	2.0	804
Roof	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R-38	4,114	NA	4,114	36,678	0	36,678	32,564	8.90	2.0	4,114
Lights	SHOPS 04	SHOPS	IN12: INC 2-100 CEIL	HS12: HPS 50 PEND	676	NA	676	4,888	1,145	6,033	5,357	8.90	2.0	676
Hot Water	BARRACKS 05	BARRACKS	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/insulation, LPSHs, Aerators	482	NA	482	4,236	0	4,236	3,754	8.80	2.4	482
Hot Water	BARRACKS 04	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	3,940	NA	3,940	34,423	0	34,423	30,483	8.70	2.4	3,940
Hot Water	PH DUPLEX 01	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	17,038	NA	17,038	143,436	0	143,436	126,398	8.40	0.5	17,038
Lights	ADMINISTRATION 06a	ADMINISTRATION	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	550	NA	550	4,054	560	4,614	4,065	8.40	2.2	550
Roof	BARRACKS 03	BARRACKS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-8	9,600	NA	9,600	80,133	0	80,133	70,533	8.30	2.5	9,600
Lights	RECREATION 02	RECREATION	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	3,307	NA	3,307	21,449	5,879	27,328	24,021	8.30	2.2	3,307
Lights	SHOPS 05	SHOPS	IN5· INC 60 CEIL	PL181: CPL 13 + BLST UNIT	475	NA	475	3,039	855	3,894	3,418	8.20	2.2	475
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	59	NA	59	383	105	488	429	8.20	2.2	59
Lights	ELECTRONICS 03	ELECTRONICS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	5,426	NA	5,426	40,085	3,813	43,898	38,473	8.10	2.2	5,426
Lights	SHOPS 06	SHOPS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	251	NA	251	1,592	451	2,043	1,792	8.10	2.2	251
Lights	BARRACKS 07	BARRACKS	IN6: INC 2 60 CEIL	PL182: CPL 2 13 + BLST UNIT	15,453	NA	15,453	88,954	32,552	121,506	106,053	7.90	2.3	15,453
Lights	HOSPITAL	HOSPITAL	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	14,592	NA	14,592	102,014	13,144	115,158	100,566	7.90	2.3	14,592
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	235	NA	235	1,683	150	1,833	1,598	7.80	2.4	235
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	574	NA	574	3,369	966	4,335	3,761	7.60	2.4	574
Roof	DINING HALLS 04	DINING HALLS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	13,024	NA	13,024	97,760	0	97,760	84,736	7.50	2.5	13,024
Lights	ADMINISTRATION 05	ADMINISTRATION	IN11: INC 100 CEIL	PL189. CPL 2 15 CEIL FIXT	6,381	NA	6,381	42,658	5,435	48,093	41,711	7.50	2.4	6,381
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	1,074	NA	1,074	7,307	745	8,052	6,978	7.50	2.4	1,074
Hot Water	MWR 06	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/insulation, LPSHs, Aerators	821	NA	821	6,153	0	6,153	5,332	7.50	2.8	821
Hot Water	DINING HALLS 01	DINING HALLS	Electric SHW Heater	Wrap Old Ele Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp.	676	NA	676	5,037	0	5,037	4,361	7.50	0.7	676
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	147	NA	147	979	117	1,096	949	7.50	2.5	147
Lights	SHOPS 03	SHOPS	MH36: MH 250 HB PEND	LS4. LPS 90 PEND	36,770	NA	36,770	234,913	37,882	272,795	236,026	7.40	2.4	36,770
Hot Water	BARRACKS 06	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	4,450	NA	4,450	32,845	0	32,845	28,395	7.40	2.8	4,450
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	1,823	NA	1,823	11,382	2,067	13,449	11,626	7.40	2.4	1,823
Lights	MILITARY OTHER 03	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	411	NA	411	2,171	854	3,025	2,615	7.40	2.4	411
Hot Water	WAREHOUSE 06	WAREHOUSE	Electric SHW Heater	Wrap Old Ele Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp.	86	NA	86	632	0	632	544	7.40	0.7	86
Lights	WAREHOUSE 07	WAREHOUSE	PL158: PL 1X8 4F96T12HO STD2 REP	LS6: LPS 180 PEND	18,527	NA	18,527	129,097	7,043	136,140	117,613	7.30	2.5	18,527
Lights	WAREHOUSE 05	WAREHOUSE	IN30: INC 300 PEND	LS2: LPS 35 PEND	13,195	NA	13,195	86,359	10,616	96,975	83,779	7.30	2.5	13,195
Roof	DINING HALLS 06	DINING HALLS	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 38	13,508	NA	13,508	95,829	0	95,829	82,321	7.10	2.7	13,508
Lights	SHOPS 04	SHOPS	PL61: PL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	10,682	NA	10,682	73,415	2,018	75,433	64,750	7.10	2.6	10,682
Lights	CLINIC 01	CLINIC	PL2: PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	4,135	NA	4,135	26,582	2,698	29,280	25,146	7.10	2.6	4,135
Lights	ADMINISTRATION 01	ADMINISTRATION	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	1,238	NA	1,238	6,866	1,877	8,743	7,506	7.10	2.5	1,238
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	892	NA	892	5,413	885	6,298	5,407	7.10	2.5	892
Lights	WAREHOUSE 08	WAREHOUSE	PL158: PL 1X8 4F96T12HO STD2 REP	LS6· LPS 180 PEND	3,005	NA	3,005	19,777	1,142	20,919	17,914	7.00	2.6	3,005
Lights	SECURITY 03	SECURITY	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	2,618	NA	2,618	12,783	5,446	18,229	15,610	7.00	2.6	2,618
Lights	ADMINISTRATION 06	ADMINISTRATION	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	1,949	NA	1,949	11,708	1,987	13,695	11,746	7.00	2.6	1,949
Hot Water	BARRACKS 03	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LPSHs, Aerators	1,563	NA	1,563	10,991	0	10,991	9,427	7.00	1.5	1,563
Lights	MWR 05	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	873	NA	873	4,276	1,815	6,091	5,218	7.00	2.6	873
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6. EXIT LED	873	NA	873	4,255	1,815	6,070	5,197	7.00	2.6	873
Lights	CLINIC 01	CLINIC	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	7,966	NA	7,966	50,674	4,480	55,154	47,187	6.90	2.6	7,966
Lights	CLUBS 03	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,367	NA	1,367	6,651	2,843	9,494	8,127	6.90	2.6	1,367
Roof	CLINIC 02	CLINIC	Roof Insulation R Value 0.00	Suspended Ceiling Increase insulation by R-19	1,114	NA	1,114	7,677	0	7,677	6,563	6.90	3.0	1,114
Lights	MWR 07	MORALE WELFARE RECREATION	EX1: EXIT INC (2x20)	EX6: EXIT LED	1,033	NA	1,033	4,967	2,149	7,116	6,083	6.90	2.6	1,033
Lights	DINING HALLS 04	DINING HALLS	EX1: EXIT - INC (2x20)	EX6· EXIT LED	873	NA	873	4,195	1,815	6,010	5,138	6.90	2.6	873
Lights	WAREHOUSE 11	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT LED	436	NA	436	2,119	908	3,027	2,390	6.90	2.6	436
Lights	WAREHOUSE 12	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	2,109	908	3,017	2,581	6.90	2.6	436
Roof	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 30	158,833	NA	158,833	1,072,696	0	1,072,696	913,862	6.80	2.9	158,833
Lights	ADMINISTRATION 04	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	2,618	NA	2,618	12,248	5,446	17,694	15,075	6.80	2.6	2,618
Lights	MWR 03	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	2,210	NA	2,210	10,382	4,596	14,978	12,768	6.80	2.6	2,210
Lights	RECREATION 04	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	4,097	1,815	5,912	5,040	6.80	2.6	873
Lights	ADMINISTRATION 09	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	15,968	NA	15,968	73,195	33,208	106,403	90,435	6.70	2.7	15,968
Lights	COMMISSARIES	COMMISSARIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	550	NA	550	3,325	370	3,695	3,145	6.70	2.7	550
Lights	MWR 05	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	361	NA	361	2,119	290	2,409	2,048	6.70	2.8	361
Hot Water	HOSPITAL	HOSPITAL	Other Fuels Central Boiler	LPG Pulse Condens. Boiler, Wrap Tank w/insulation, LPSHs, Aerators	5,716	NA	5,716	37,700	0	37,700	31,984	6.60	2.0	8,305
Lights	ADMINISTRATION 07	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	2,693	NA	2,693	12,043	5,600	17,643	14,950	6.60	2.7	2,693
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,960	1,815	5,775	4,902	6.60	2.7	873
Lights	SHOPS 03	SHOPS	PL61: PL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	5,457	NA	5,457	34,099	1,521	35,630	30,163	6.50	2.8	5,457
Lights	ADMINISTRATION 02	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	23,269	10,891	34,160	28,923	6.50	2.7	5,237
Lights	SHOPS 03	SHOPS	IN1. INC 40 CEIL	PL178. CPL 9 + BLST UNIT	1,256	NA	1,256	6,281	1,924	8,205	6,948	6.50	2.7	1,256
Lights	ADMINISTRATION 06a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	873	NA	873	3,872	1,815	5,687	4,815	6.50	2.8	873
Lights	CHAPEL 01	CHAPEL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,824	1,815	5,639	4,764	6.50	2.7	873
Lights	MWR 06	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	681	NA	681	2,996	1,417	4,413	3,732	6.50	2.7	681
Lights	COMMISSARIES	COMMISSARIES	PL61: PL 1X8 4F96T12 STD2	PL130. PL 1X8 4F96T12ES ELC2 REF	1,044	NA	1,044	6,568	90	6,658	5,614	6.40	2.9	1,044
Lights	MWR 05a	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,754	1,815	5,569	4,697	6.40	2.8	873
Lights	CLINIC 02	CLINIC	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	88	NA	88	421	143	564	476	6.40	2.8	88
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL6: PL 2X2 2F40T12U STD2	PL54: PL 2X2 2F32T8U ELC2	33	NA	33	195	18	213	180	6.40	2.8	33
Lights	SHOPS 04	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	805	NA	805	4,479	577	5,056	4,251	6.30	2.9	805
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	435	NA	435	2,539	225	2,764	2,328	6.30	2.9	435
Lights	DINING HALLS 05	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	192	NA	192	812	399	1,211	1,020	6.30	2.8	192
Lights	SHOPS 05	SHOPS	IN29: INC 200 PEND	HS12. HPS 50 PEND	8,489	NA	8,489	45,308	7,346	52,654	44,165	6.20	2.9	8,489.
Lights	MWR 02	MORALE WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,983	NA	6,983	29,114	14,522	43,636	36,653	6.20	2.9	6,983
Lights	ADMINISTRATION 05	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT LED	6,983	NA	6,983	28,990	14,522	43,512	36,529	6.20	2.9	6,983
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	EX1: EXIT - INC (2x20)	EX6: EXIT LED	6,546	NA	6,546	27,115	13,614	40,729	34,183	6.20	2.9	6,546
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN6: INC 2 60 CEIL	PL182. CPL 2 13 + BLST UNIT	6,412	NA	6,412	28,498	11,364	39,862	33,450	6.20	2.9	6,412
Lights	PH DUPLEX 02	DUPLEX	IN6: INC 2 60 CEIL	PL182: CPL 2 13 + BLST UNIT	2,900	NA	2,900	12,894	5,139	18,033	15,134	6.20	2.9	2,900
Lights	CLINIC 01	CLINIC	EX1: EXIT - INC (2x20)	EX6: EXIT LED	979	NA	979	4,079	2,036	6,115	5,136	6.20	2.9	979
Lights	CLUBS 02	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	879	NA	879	3,587	1,828	5,415	4,536	6.20	2.9	879
Lights	CLUBS 01	CLUBS	IN5: INC 60 CEIL	PL181. CPL 13 + BLST UNIT	318	NA	318	1,522	442	1,984	1,666	6.20	2.9	318
Lights	SHOPS 05	SHOPS	PL61: PL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	52,490	NA	52,490	310,949	9,916	320,865	268,376	6.10	3.0	52,490
Lights	SHOPS 07	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	3,491	NA	3,491	13,994	7,261	21,255	17,764	6.10	2.9	3,491
Lights	ADMINISTRATION 07a	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT LED	655	NA	655	2,661	1,362	4,023	3,368	6.10	2.9	655
Lights	DINING HALLS 06	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	592	NA	592	2,381	1,232	3,613	3,021	6.10	2.9	592
Hot Water	GUEST HOUSES 02	MILITARY MOBILE HOMES	Electric SHW Heater	0.76 LPG WH (REF), Ins Pipe, LPSHs Aerators, Lower Tank Temp	279	NA	279	1,704	0	1,704	1,425	6.10	0.2	2 445
Wall	DINING HALLS 04	DINING HALLS	Wall Insulation R Value 0.00	Interior Masonry Surface: Increase insulation by R 10.9	13,468	NA	13,468	80,473	0	80,473	67,005	6.00	3.1	13,468
Lights	BARRACKS 04	BARRACKS	EX1: EXIT INC (2x20)	EX6. EXIT LED	5,572	NA	5,572	21,607	11,588	33,195	27,623	6.00	3.0	5,572
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	EX1: EXIT INC (2x20)	EX6: EXIT LED	1,309	NA	1,309	5 148	2,723	7,871	6,561	6.00	3.0	1,309
Lights	ELECTRONICS 03	ELECTRONICS	EX1 EXIT INC (2x20)	EX6: EXIT LED	436	NA	436	1,720	908	2,628	2,191	6.00	3.0	436

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	MWR 03	MORALE WELFARE RECREATION	PL2 PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	160	NA	160	823	134	957	798	6.00	3.0	160
Lights	ADMINISTRATION 01	ADMINISTRATION	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FDXT	135	NA	135	690	115	805	670	6.00	3.0	135
Lights	SHOPS 05	SHOPS	PL2 PL 2X4 3F40T12 STD1,2	PL236: PL 2X4 3F32T8 ELC3	22,601	NA	22,601	114,776	17,636	132,412	109,811	5.90	3.1	22,601
Lights	BARRACKS 07	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	21,230	NA	21,230	81,185	44,153	125,338	104,108	5.90	3.0	21,230
Lights	ADMINISTRATION 04	ADMINISTRATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	15,959	NA	15,959	89,837	3,718	93,555	77,596	5.90	3.1	15,959
Lights	COMMISSARIES	COMMISSARIES	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	9,274	NA	9,274	47,971	7,078	55,049	45,775	5.90	3.0	9,274
Lights	BARRACKS 07	BARRACKS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	8,672	NA	8,672	38,817	12,256	51,073	42,401	5.90	3.0	8,672
Lights	HOSPITAL	HOSPITAL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,546	NA	6,546	25,268	13,614	38,882	32,336	5.90	3.0	6,544
Lights	BARRACKS 06	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,901	NA	1,901	7,227	3,954	11,181	9,280	5.90	3.0	1,901
Lights	ADMINISTRATION 02	ADMINISTRATION	PL1: PL 2X4 4F40T12 STD2	PL237. PL 2X4 3F32T8 ELC3 REF	77,591	NA	77,591	430,821	18,078	448,899	371,308	5.80	3.1	77,591
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	EX1: EXIT INC (2x20)	EX6. EXIT - LED	21,820	NA	21,820	80,332	45,381	125,713	103,892	5.80	3.1	21,820
Wall	MWR 05	MORALE WELFARE RECREATION	Wall Insulation R-Value 5.32	Interior Masonry Surface Increase Insulation by R 10.9	11,818	NA	11,818	67,995	0	67,995	56,177	5.80	3.2	11,818
Lights	STORAGE 01	STORAGE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	10,037	NA	10,037	37,526	20,875	58,401	48,364	5.80	3.1	10,037
Lights	DINING HALLS 01	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,746	NA	1,746	6,515	3,630	10,145	8,400	5.80	3.1	1,746
Lights	MILITARY OTHER 05	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,746	NA	1,746	6,511	3,630	10,141	8,395	5.80	3.1	1,746
Lights	ELECTRONICS 02	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,839	2,723	7,562	6,252	5.80	3.1	1,309
Lights	BARRACKS 02	BARRACKS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	36,057	NA	36,057	154,232	50,957	205,189	169,131	5.70	3.1	36,057
Lights	WAREHOUSE 01	WAREHOUSE	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	17,020	NA	17,020	62,369	35,397	97,766	80,746	5.70	3.1	17,020
Lights	MILITARY OTHER 01	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	16,584	NA	16,584	59,347	34,489	93,836	77,253	5.70	3.1	16,584
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	8,150	NA	8,150	40,579	5,653	46,232	38,082	5.70	3.2	8,150
Lights	SHOPS 02	SHOPS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	7,419	NA	7,419	27,204	15,429	42,633	35,215	5.70	3.1	7,419
Lights	SHOPS 03	SHOPS	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	7,419	NA	7,419	26,894	15,429	42,323	34,905	5.70	3.1	7,419
Lights	DINING HALLS 03	DINING HALLS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	6,110	NA	6,110	22,314	12,707	35,021	28,911	5.70	3.1	6,110
Lights	WAREHOUSE 02	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT - LED	3,055	NA	3,055	11,136	6,353	17,489	14,435	5.70	3.1	3,055
Lights	WAREHOUSE 10	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,794	2,723	7,517	6,207	5.70	3.1	1,309
Lights	WAREHOUSE 09	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,784	2,723	7,507	6,198	5.70	3.1	1,309
Lights	RECREATION 01	RECREATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,777	2,723	7,500	6,190	5.70	3.1	1,309
Lights	RECREATION 01	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,777	2,723	7,500	6,190	5.70	3.1	1,309
Lights	WAREHOUSE 03	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,705	2,723	7,428	6,118	5.70	3.1	1,309
Lights	WAREHOUSE 04	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,195	1,815	5,010	4,137	5.70	3.1	873
Lights	RECREATION 03	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,186	1,815	5,001	4,129	5.70	3.1	873
Lights	CLINIC 01	CLINIC	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	748	NA	748	3,814	452	4,266	3,518	5.70	3.2	748
Lights	CLUBS 01	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	344	NA	344	1,248	715	1,963	1,619	5.70	3.1	344
Lights	ELECTRONICS 01	ELECTRONICS	IN5: INC 60 CEIL	PL181. CPL 13 + BLST UNIT	149	NA	149	644	202	846	697	5.70	3.2	149
Hot Water	ELECTRONICS 03	ELECTRONICS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	33	NA	33	186	0	186	153	5.70	0.8	33
Lights	WAREHOUSE 07	WAREHOUSE	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FDXT	75,767	NA	75,767	383,336	44,216	427,552	351,785	5.60	3.2	75,767
Lights	BARRACKS 02	BARRACKS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	27,930	NA	27,930	98,704	58,087	156,791	128,861	5.60	3.2	27,930
Lights	WAREHOUSE 05	WAREHOUSE	IN11. INC 100 CEIL	PL189: CPL 2 15 CEIL FDXT	20,278	NA	20,278	100,929	11,834	112,763	92,485	5.60	3.2	20,278
Lights	MILITARY OTHER 02	MILITARY OTHER	EX1 EXIT INC (2x20)	EX6: EXIT - LED	15,711	NA	15,711	55,119	32,674	87,793	72,083	5.60	3.2	15,711
Lights	WAREHOUSE 05	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	11,783	NA	11,783	41,457	24,506	65,963	54,180	5.60	3.2	11,783
Lights	SECURITY 02	SECURITY	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	18,670	10,891	29,561	24,325	5.60	3.2	5,237
Lights	ADMINISTRATION 06	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	18,214	10,891	29,105	23,868	5.60	3.2	5,237
Lights	SHOPS 05	SHOPS	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	4,364	NA	4,364	15,203	9,076	24,279	19,915	5.60	3.2	4,364
Lights	CLINIC 01	CLINIC	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,559	NA	1,559	7,840	942	8,782	7,223	5.60	3.2	1,559
Hot Water	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	Electric SHW Heater	0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	1,493	NA	1,493	8,349	0	8,349	6,855	5.60	1.0	2,347
Lights	WAREHOUSE 08	WAREHOUSE	EX1: EXIT INC (2x20)	EX6: EXIT - LED	873	NA	873	3,058	1,815	4,873	4,000	5.60	3.2	873
Lights	WAREHOUSE 06	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,053	1,815	4,868	3,995	5.60	3.2	873
Lights	CHAPEL 02	CHAPEL	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	3,042	1,815	4,857	3,985	5.60	3.2	873
Lights	ADMINISTRATION 03a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	436	NA	436	1,515	908	2,423	1,987	5.60	3.2	436
Hot Water	MWR 02	MORALE WELFARE RECREATION	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	183	NA	183	1,022	0	1,022	839	5.60	0.8	183
Lights	MWR 07	MORALE WELFARE RECREATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	35,259	NA	35,259	171,655	20,614	192,269	157,010	5.50	3.3	35,259
Lights	MWR 06	MORALE WELFARE RECREATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	23,243	NA	23,243	113,627	13,589	127,216	103,973	5.50	3.3	23,243
Hot Water	FH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	20,856	NA	20,856	115,251	0	115,251	94,395	5.50	1.2	20,856
Lights	WAREHOUSE 08	WAREHOUSE	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FDXT	12,290	NA	12,290	60,570	7,172	67,742	55,452	5.50	3.3	12,290
Lights	BARRACKS 03	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	5,237	NA	5,237	17,713	10,891	28,604	23,368	5.50	3.2	5,237
Lights	ADMINISTRATION 01	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	1,746	NA	1,746	5,938	3,630	9,568	7,822	5.50	3.2	1,746
Lights	LABS 01	LABS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	1,309	NA	1,309	4,447	2,723	7,170	5,860	5.50	3.2	1,309
Lights	ADMINISTRATION 08	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	918	NA	918	3,174	1,909	5,083	4,165	5.50	3.2	918
Lights	SHOPS 06	SHOPS	EX1: EXIT INC (2x20)	EX6. EXIT - LED	873	NA	873	2,976	1,815	4,791	3,919	5.50	3.2	873
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL62: PL 1X8 2F96T12 STD2	PL131. PL 1X8 2F96T12ES ELC2 REF	241	NA	241	1,258	61	1,319	1,077	5.50	3.4	241
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	27	NA	27	150	0	150	123	5.50	1.0	27
Lights	ADMINISTRATION 03	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	54,987	NA	54,987	184,475	114,359	298,834	243,847	5.40	3.3	54,987
Wall	HANGER	HANGAR	Wall Insulation R-Value 0.00	Blow-in Insulation Increase Insulation by R 13	20,331	NA	20,331	109,631	0	109,631	89,300	5.40	3.8	20,331
Lights	CLINIC 02	CLINIC	EX1: EXIT INC (2x20)	EX6: EXIT LED	13,092	NA	13,092	43,012	27,228	70,240	57,148	5.40	3.3	13,092
Lights	WAREHOUSE 12	WAREHOUSE	PL1. PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	5,488	NA	5,488	26,524	3,213	29,737	24,250	5.40	3.3	5,488
Lights	BARRACKS 03	BARRACKS	IN15: INC 60 TABLE LAMP	PL181: CPL 13 + BLST UNIT	3,568	NA	3,568	14,319	5,042	19,361	15,793	5.40	3.3	3,568
Lights	RECREATION 04	RECREATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	1,577	NA	1,577	7,477	1,111	8,588	7,011	5.40	3.3	1,577
Lights	BARRACKS 01	BARRACKS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	1,135	NA	1,135	4,537	1,605	6,142	5,006	5.40	3.3	1,135
Lights	DINING HALLS 04	DINING HALLS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	456	NA	456	2,172	268	2,440	1,984	5.40	3.4	456
Roof	WAREHOUSE 07	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	30,037	NA	30,037	158,192	0	158,192	128,155	5.30	3.8	30,037
Lights	SHOPS 07	SHOPS	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	9,843	NA	9,843	45,469	7,056	52,525	42,681	5.30	3.4	9,843
Roof	MWR 05	MORALE WELFARE RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	9,025	NA	9,025	47,726	0	47,726	38,701	5.30	3.5	9,025
Lights	DINING HALLS 05	DINING HALLS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	890	NA	890	4,201	523	4,724	3,833	5.30	3.4	890
Lights	LABS 02	LABS	EX1 EXIT INC (2x20)	EX6: EXIT - LED	436	NA	436	1,425	908	2,333	1,896	5.30	3.3	436
Lights	MWR 04	MORALE WELFARE RECREATION	EX1 EXIT - INC (2x20)	EX6: EXIT - LED	4,364	NA	4,364	13,440	9,076	22,516	18,152	5.20	3.4	4,364
Lights	RECREATION 04	RECREATION	PL4 PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	3,041	NA	3,041	13,597	2,143	15,740	12,699	5.20	3.5	3,041
Lights	BARRACKS 01	BARRACKS	EX1. EXIT INC (2x20)	EX6: EXIT - LED	873	NA	873	2,719	1,815	4,534	3,662	5.20	3.4	873
Lights	MWR 07	MORALE WELFARE RECREATION	PL4 PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	461	NA	461	2,004	371	2,375	1,914	5.20	3.5	461
Lights	HANGER	HANGAR	EX1: EXIT INC (2x20)	EX6: EXIT LED	434	NA	436	1,340	908	2,248	1,812	5.20	3.4	436
Lights	BARRACKS 05	BARRACKS	EX1: EXIT INC (2x20)	EX6: EXIT - LED	176	NA	176	552	366	918	742	5.20	3.4	176
Lights	MILITARY OTHER 05	MILITARY OTHER	PL4 PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,649	NA	4,649	20,382	3,457	23,839	19,190	5.10	3.5	4,649
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	EX1 EXIT INC (2x20)	EX6: EXIT - LED	2,182	NA	2,182	6,631	4,538	11,169	8,987	5.10	3.4	2,182
Lights	RECREATION 02	RECREATION	PL79. PL 2X4 4F40T12ES STD2	PL232 PL 2X4 3F40T12 ELC3	737	NA	737	2,898	882	3,780	3,043	5.10	3.4	737
Lights	BARRACKS 03	BARRACKS	IN11: INC 100 CEIL	PL189. CPL 2 15 CEIL FDXT	214	NA	214	935	166	1,101	886	5.10	3.5	214
Heating	MWR 07	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	130	NA	130	659	0	659	529	5.10	4.1	130
Hot Water	MILITARY OTHER 03	MILITARY OTHER	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	12	NA	12	60	0	60	48	5.10	1.1	12
Lights	FH DUPLEX 03	DUPLEX	IN5 INC 60 CEIL	PL181. CPL 13 + BLST UNIT	130,459	NA	130,459	474,983	176,532	651,515	521,056	5.00	3.6	130,460
Lights	RECREATION 01	RECREATION	IN5 INC 60 CEIL	PL181: CPL 13 + BLST UNIT	5,349	NA	5,349	19,739	6,834	26,575	21,227	5.00	3.6	5,349
Lights	RECREATION 01	RECREATION	IN5 INC 60 CEIL	PL181. CPL 13 + BLST UNIT	5,349	NA	5,349	19,739	6,834	26,575	21,227	5.00	3.6	5,349
Lights	DINING HALLS 06	DINING HALLS	PL4 PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	2,747	NA	2,747	12,219	1,614	13,833	11,085	5.00	3.6	2,747
Lights	RECREATION 02	RECREATION	EX1 EXIT INC (2x20)	EX6: EXIT LED	434	NA	434	1,283	902	2,185	1,751	5.00	3.4	434
Lights	ADMINISTRATION 03	ADMINISTRATION	PL1 PL 2X4 4F40T12 STD2	PL237 PL 2X4 3F32T8 ELC3 REF	100,504	NA	100,504	437,189	52,184	489,373	388,869	4.90	3.7	100,504
Lights	CLUBS 02	CLUBS	PL79 PL 2X4 4F40T12ES STD2	PL237 PL 2X4 3F32T8 ELC3 REF	9,254	NA	9,254	39,495	5,735	45,230	35,976	4.90	3.7	9,254

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	COMMISSARIES	COMMISSARIES	PL62. PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REP	8,800	NA	8,800	41,969	1,367	43,336	34,536	4.90	3.7	8,800
Lights	WAREHOUSE 07	WAREHOUSE	IN29· INC 200 PEND	HS12 HPS 50 PEND	5,999	NA	5,999	25,834	3,533	29,367	23,368	4.90	3.7	5,999
Lights	SHOPS 03	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	7,571	NA	7,571	31,971	4,626	36,597	29,027	4.80	3.7	7,571
Lights	MWR 03	MORALE WELFARE RECREATION	PL3· PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	5,666	NA	5,666	22,490	4,578	27,068	21,402	4.80	3.8	5,666
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	2,345	NA	2,345	10,067	1,218	11,285	8,940	4.80	3.7	2,345
Roof	LABS 02	LABS	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 19	2,112	NA	2,112	10,122	0	10,122	8,009	4.80	4.3	2,112
Lights	CLINIC 02	CLINIC	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	2,101	NA	2,101	8,782	1,269	10,051	7,950	4.80	3.8	2,101
Lights	WAREHOUSE 07	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	873	NA	873	2,344	1,815	4,159	3,286	4.80	3.6	873
Lights	MWR 06	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	304	NA	304	1,227	244	1,471	1,167	4.80	3.7	304
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL6: PL 2X2 2F40T12U STD2	PL54: PL 2X2 2F32T8U ELC2	251	NA	251	1,066	138	1,204	953	4.80	3.8	251
Heating	BARRACKS 03	BARRACKS	Other Fuels Conv Boiler	Add Automatic Electric Damper	192	NA	192	916	0	916	724	4.80	2.3	192
Lights	SHOPS 05	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	31,141	NA	31,141	125,056	22,323	147,379	116,238	4.70	3.8	31,141
Lights	FH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	9,446	NA	9,446	31,252	12,781	44,033	34,587	4.70	3.8	9,446
Lights	BARRACKS 02	BARRACKS	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	8,982	NA	8,982	35,286	6,949	42,235	33,252	4.70	3.8	8,982
Lights	FH DUPLEX 02	DUPLEX	IN5: INC 60 CEIL	PL181· CPL 13 + BLST UNIT	4,272	NA	4,272	14,412	5,780	20,192	15,920	4.70	3.8	4,272
Lights	SHOPS 04	SHOPS	MV5: MERC 250 PEND	LS4: LPS 90 PEND	3,722	NA	3,722	17,811	339	17,472	13,751	4.70	3.9	3,722
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	2,801	NA	2,801	9,331	3,790	13,121	10,320	4.70	3.8	2,801
Lights	SHOPS 06	SHOPS	IN28: INC 150 PEND	HS11: HPS 35 PEND	1,959	NA	1,959	7,820	1,394	9,214	7,256	4.70	3.8	1,959
Lights	ADMINISTRATION 04	ADMINISTRATION	PL4: PL 1X4 2F40T12 STD2	PL52· PL 1X4 2F32T8 ELC2	1,589	NA	1,589	7,253	211	7,464	5,875	4.70	3.9	1,589
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	EX1· EXIT INC (2x20)	EX6. EXIT - LED	873	NA	873	2,322	1,815	4,137	3,264	4.70	3.7	873
Lights	FH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	PL181· CPL 13 + BLST UNIT	108,968	NA	108,968	353,613	147,451	501,064	392,096	4.60	3.9	108,968
Lights	FH DUPLEX 01	DUPLEX	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	71,003	NA	71,003	234,747	93,514	328,261	257,258	4.60	3.8	71,003
Lights	ADMINISTRATION 03	ADMINISTRATION	PL4: PL 1X4 2F40T12 STD2	PL52· PL 1X4 2F32T8 ELC2	10,009	NA	10,009	39,605	5,941	45,546	35,536	4.60	4.0	10,009
Hot Water	FH DUPLEX 02	DUPLEX	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp	5,654	NA	5,654	26,040	0	26,040	20,386	4.60	1.0	10,507
Lights	ADMINISTRATION 04	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	5,099	NA	5,099	22,856	678	23,534	18,435	4.60	3.9	5,099
Lights	ADMINISTRATION 04	ADMINISTRATION	PL13: PL 2X4 4F40T12 EEF2	PL237: PL 2X4 3F32T8 ELC3 REP	4,788	NA	4,788	20,739	1,243	21,982	17,195	4.60	3.9	4,788
Lights	ADMINISTRATION 06a	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	2,206	NA	2,206	8,587	1,547	10,134	7,928	4.60	3.9	2,206
Lights	SHOPS 07	SHOPS	PL4: PL 1X4 2F40T12 STD2	PL52· PL 1X4 2F32T8 ELC2	656	NA	656	2,544	470	3,014	2,358	4.60	3.9	656
Roof	CLUBS 03	CLUBS	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 38	31,173	NA	31,173	139,987	0	139,987	108,814	4.50	4.1	31,173
Roof	CLUBS 02	CLUBS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	15,681	NA	15,681	70,012	0	70,012	54,331	4.50	4.1	15,681
Wall	CHAPEL 01	CHAPEL	Wall Insulation R-Value 0.00	Blow in Insulation: Increase insulation by R 6.5	5,158	NA	5,158	23,006	0	23,006	17,848	4.50	4.2	5,158
Roof	WAREHOUSE 08	WAREHOUSE	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 8	4,872	NA	4,872	22,102	0	22,102	17,230	4.50	4.5	4,872
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181· CPL 13 + BLST UNIT	2,578	NA	2,578	8,111	3,395	11,506	8,928	4.50	4.0	2,578
Lights	BARRACKS 01	BARRACKS	IN11: INC 100 CEIL	PL189. CPL 2 15 CEIL FIXT	283	NA	283	1,066	219	1,285	1,002	4.50	3.9	283
Lights	WAREHOUSE 05	WAREHOUSE	IN29. INC 200 PEND	HS12: HPS 50 PEND	15,395	NA	15,395	58,394	9,066	67,460	52,066	4.40	4.1	15,395
Lights	CLUBS 03	CLUBS	PL79 PL 2X4 4F40T12ES STD2	PL237· PL 2X4 3F32T8 ELC3 REP	14,398	NA	14,398	54,181	9,802	63,983	49,586	4.40	4.0	14,398
Lights	FH DUPLEX 01	DUPLEX	IN11: INC 100 CEIL	PL189 CPL 2 15 CEIL FIXT	9,293	NA	9,293	31,585	9,334	40,919	31,627	4.40	4.1	9,293
Lights	FH DUPLEX 02	DUPLEX	IN1: INC 40 CEIL	PL178. CPL 9 + BLST UNIT	847	NA	847	2,774	933	3,707	2,859	4.40	4.2	847
Lights	MWR 05a	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	97	NA	97	347	78	425	328	4.40	4.1	97
Lights	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237. PL 2X4 3F32T8 ELC3 REP	31,331	NA	31,331	119,978	14,815	134,793	103,462	4.30	4.2	31,331
Lights	FH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN11. INC 100 CEIL	PL189 CPL 2-15 CEIL FIXT	24,123	NA	24,123	80,122	24,232	104,354	80,231	4.30	4.1	24,123
Roof	GUEST HOUSES 02	MILITARY MOBILE HOMES	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 30	9,734	NA	9,734	41,440	0	41,440	31,705	4.30	4.5	9,734
Roof	ADMINISTRATION 07a	ADMINISTRATION	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 38	9,330	NA	9,330	39,978	0	39,978	30,648	4.30	4.3	9,330
Lights	ADMINISTRATION 01	ADMINISTRATION	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	6,040	NA	6,040	24,267	1,460	25,727	19,687	4.30	4.2	6,040
Lights	ELECTRONICS 02	ELECTRONICS	PL1: PL 2X4 4F40T12 STD2	PL237· PL 2X4 3F32T8 ELC3 REP	4,240	NA	4,240	17,361	1,025	18,386	14,146	4.30	4.2	4,240
Lights	RECREATION 04	RECREATION	PL79· PL 2X4 4F40T12ES STD2	PL237. PL 2X4 3F32T8 ELC3 REP	2,714	NA	2,714	9,712	1,848	11,560	8,845	4.30	4.2	2,714
Lights	ADMINISTRATION 02	ADMINISTRATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	2,621	NA	2,621	11,042	349	11,391	8,770	4.30	4.2	2,621
Lights	MILITARY OTHER 03	MILITARY OTHER	PL79 PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REP	1,666	NA	1,666	6,755	487	7,242	5,576	4.30	4.2	1,666
Lights	WAREHOUSE 08	WAREHOUSE	IN29· INC 200 PEND	HS12 HPS 50 PEND	973	NA	973	3,608	573	4,181	3,208	4.30	4.2	973
Hot Water	ADMINISTRATION 03	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	675	NA	675	2,893	0	2,893	2,217	4.30	1.1	675
Lights	WAREHOUSE 07	WAREHOUSE	PL2: PL 2X4 3F40T12 STD1,2	PL236. PL 2X4 3F32T8 ELC3	517	NA	517	1,804	434	2,238	1,722	4.30	4.1	517
Lights	WAREHOUSE 08	WAREHOUSE	PL2. PL 2X4 3F40T12 STD1,2	PL236· PL 2X4 3F32T8 ELC3	84	NA	84	288	70	358	275	4.30	4.2	84
Lights	FH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	PL181. CPL 13 + BLST UNIT	184,318	NA	184,318	518,933	249,411	768,344	584,026	4.20	4.2	184,318
Roof	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 38	26,977	NA	26,977	114,430	0	114,430	87,453	4.20	4.3	26,977
Roof	SHOPS 03	SHOPS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 8	24,881	NA	24,881	104,601	0	104,601	79,720	4.20	4.9	24,881
Lights	LABS 01	LABS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	7,125	NA	7,125	28,349	1,723	30,072	22,946	4.20	4.3	7,125
Lights	WAREHOUSE 05	WAREHOUSE	PL61: PL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	4,347	NA	4,347	17,706	757	18,463	14,116	4.20	4.3	4,347
Lights	LABS 02	LABS	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	3,582	NA	3,582	14,209	866	15,075	11,493	4.20	4.3	3,582
Lights	MILITARY OTHER 04	MILITARY OTHER	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	1,334	NA	1,334	4,811	781	5,592	4,258	4.20	4.3	1,334
Hot Water	BARRACKS 01	BARRACKS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LPSHs, Aerators	102	NA	102	426	0	426	324	4.20	1.1	102
Lights	FH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	48,552	NA	48,552	134,123	65,698	199,821	151,270	4.10	4.3	48,552
Lights	FH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	42,984	NA	42,984	118,279	56,612	174,891	131,907	4.10	4.3	42,984
Lights	ADMINISTRATION 03	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	32,112	NA	32,112	113,918	19,060	132,978	100,866	4.10	4.4	32,112
Lights	WAREHOUSE 01	WAREHOUSE	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	12,452	NA	12,452	44,231	7,297	51,528	39,066	4.10	4.4	12,462
Lights	ADMINISTRATION 06	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51. PL 2X4 2F32T8 ELC2	7,819	NA	7,819	26,693	5,485	32,178	24,359	4.10	4.4	7,819
Lights	WAREHOUSE 02	WAREHOUSE	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	5,601	NA	5,601	19,827	3,280	23,107	17,506	4.10	4.4	5,601
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL3: PL 2X4 2F40T12 STD2	PL51. PL 2X4 2F32T8 ELC2	5,107	NA	5,107	17,700	3,012	20,712	15,605	4.10	4.4	5,107
Lights	CLUBS 01	CLUBS	PL79. PL 2X4 4F40T12ES STD2	PL232: PL 2X4 3F40T12 ELC3	1,908	NA	1,908	5,304	2,530	7,834	5,926	4.10	4.4	1,908
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51· PL 2X4 2F32T8 ELC2	749	NA	749	2,600	445	3,045	2,296	4.10	4.4	749
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	234	NA	234	812	139	951	717	4.10	4.4	234
Roof	WAREHOUSE 05	WAREHOUSE	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 8	33,033	NA	33,033	131,440	0	131,440	98,407	4.00	5.2	33,033
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	32,209	NA	32,209	113,594	15,674	129,268	97,060	4.00	4.5	32,209
Lights	ADMINISTRATION 03	ADMINISTRATION	PL13: PL 2X4 4F40T12 EEF2	PL237: PL 2X4 3F32T8 ELC3 REP	30,151	NA	30,151	104,355	16,955	121,310	91,159	4.00	4.5	30,151
Lights	FH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	PL189: CPL 2 15 CEIL FIXT	5,165	NA	5,165	15,445	5,189	20,634	15,468	4.00	4.5	5,165
Lights	WAREHOUSE 05	WAREHOUSE	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REP	3,159	NA	3,159	10,726	1,850	12,576	9,417	4.00	4.5	3,159
Lights	CLINIC 02	CLINIC	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REP	2,045	NA	2,045	6,907	1,228	8,195	6,151	4.00	4.5	2,045
Lights	SHOPS 06	SHOPS	PL79: PL 2X4 4F40T12ES STD2	PL237. PL 2X4 3F32T8 ELC3 REP	27,643	NA	27,643	88,049	18,869	106,918	79,275	3.90	4.7	27,643
Lights	BARRACKS 07	BARRACKS	PL1: PL 2X4 4F40T12 STD2	PL237 PL 2X4 3F32T8 ELC3 REP	2,852	NA	2,852	10,445	669	11,114	8,262	3.90	4.6	2,852
Roof	MWR 05a	MORALE WELFARE RECREATION	Roof Insulation R Value 11.00	Attic Ceiling. Increase insulation by R 38	2,582	NA	2,582	10,020	0	10,020	7,438	3.90	4.8	2,582
Lights	COMMISSARIES	COMMISSARIES	PL5: PL 1X4 1F40T12 STD1	PL29 PL 1X4 1F40T12 ELC1	2,462	NA	2,462	8,004	1,489	9,493	7,011	3.90	4.7	2,462
Lights	CLUBS 02	CLUBS	PL62. PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REP	1,882	NA	1,882	6,838	466	7,304	5,422	3.90	4.7	1,882
Lights	SHOPS 03	SHOPS	PL79. PL 2X4 4F40T12ES STD2	PL237. PL 2X4 3F32T8 ELC3 REP	1,586	NA	1,586	5,174	994	6,168	4,581	3.90	4.6	1,586
Lights	DINING HALLS 05	DINING HALLS	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	1,394	NA	1,394	4,267	1,167	5,434	4,040	3.90	4.6	1,394
Lights	CHAPEL 01	CHAPEL	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	1,156	NA	1,156	3,688	799	4,487	3,331	3.90	4.6	1,156
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL13. PL 2X4 4F40T12 EEF2	PL237. PL 2X4 3F32T8 ELC3 REP	703	NA	703	2,371	396	2,767	2,063	3.90	4.6	703
Hot Water	CHAPEL 02	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs Aer., Lower Tank Temp.	106	NA	106	409	0	409	304	3.90	1.2	106
Lights	ADMINISTRATION 09	ADMINISTRATION	PL79. PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REP	647,663	NA	647,663	2,267,804	184,020	2,451,824	1,804,162	3.80	4.8	647,663
Lights	FH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	IN5 INC 60 CEIL	PL181: CPL 13 + BLST UNIT	39,467	NA	39,467	96,396	51,980	148,376	108,909	3.80	4.7	39,467
Lights	SHOPS 03	SHOPS	PL62· PL 1X8 2F96T12 STD2	LS3 LPS 55 PEND	33,641	NA	33,641	130,321	2,509	127,812	94,171	3.80	4.8	33,641
Lights	SHOPS 07	SHOPS	PL82 PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	16,027	NA	16,027	47,598	13,486	61,084	45,057	3.80	4.7	16,027
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL79. PL 2X4 4F40T12ES STD2	PL237. PL 2X4 3F32T8 ELC3 REP	6,748	NA	6,748	22,085	3,831	25,916	19,169	3.80	4.7	6,748
Wall	SHOPS 04	SHOPS	Wall Insulation R Value 0.00	Blow in Insulation Increase insulation by R 4.5	20,147	NA	20,147	73,797	0	73,797	53,650	3.70	5.9	20,147
Roof	ADMINISTRATION 03	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 11	19,934	NA	19,934	73,396	0	73,396	53,462	3.70	5.5	19,934

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	PH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	14,261	NA	14,261	37,844	14,326	52,170	37,909	3.70	4.9	14,261
Roof	WAREHOUSE 09	WAREHOUSE	Roof Insulation R Value 20 05	Suspended Ceiling: Increase Insulation by R 8	5,268	NA	5,268	19,445	0	19,445	14,177	3.70	5.5	5,268
Lights	DINING HALLS 06	DINING HALLS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	4,301	NA	4,301	12,404	3,601	16,005	11,704	3.70	4.8	4,301
Lights	CLINIC 02	CLINIC	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,651	NA	3,651	10,395	3,132	13,527	9,876	3.70	4.8	3,651
Lights	CLUBS 03	CLUBS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	2,927	NA	2,927	10,297	547	10,844	7,916	3.70	4.9	2,927
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,480	NA	1,480	4,652	893	5,545	4,065	3.70	4.8	1,480
Lights	RECREATION 04	RECREATION	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	601	NA	601	2,107	112	2,219	1,618	3.70	4.9	601
Hot Water	MWR 04	MORALE-WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	99	NA	99	361	0	361	262	3.70	1.3	99
Hot Water	ADMINISTRATION 06	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	65	NA	65	241	0	241	176	3.70	1.3	65
Hot Water	ADMINISTRATION 04	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	39	NA	39	141	0	141	103	3.70	1.3	39
Lights	ADMINISTRATION 05	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	25,601	NA	25,601	89,146	3,874	93,020	67,420	3.60	5.0	25,601
Heating	BARRACKS 04	BARRACKS	Hot Water (Generated) Fan Coil	New Conventional Individual Building LPG Boiler	11,149	NA	11,149	40,539	0	40,539	29,390	3.60	3.4	17,112
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	1,756	NA	1,756	4,499	1,815	6,314	4,557	3.60	5.0	1,209
Lights	WAREHOUSE 03	WAREHOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,500	NA	1,500	4,246	1,214	5,460	3,960	3.60	4.9	1,500
Lights	MWR 04	MORALE WELFARE RECREATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	621	NA	621	1,755	499	2,254	1,634	3.60	4.9	621
Lights	DINING HALLS 05	DINING HALLS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	503	NA	503	1,702	124	1,826	1,324	3.60	5.0	503
Hot Water	ADMINISTRATION 01	ADMINISTRATION	Electric SHW Heater	0.76 LPG WH (COND), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp	222	NA	222	808	0	808	586	3.60	1.5	349
Hot Water	RECREATION 02	RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs Aer., Lower Tank Temp	114	NA	114	412	0	412	298	3.60	1.3	114
Lights	ADMINISTRATION 08	ADMINISTRATION	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	178,528	NA	178,528	578,554	50,725	629,279	450,751	3.50	5.1	178,528
Roof	COMMISSARIES	COMMISSARIES	Roof Insulation R Value 8 90	Suspended Ceiling: Increase Insulation by R 38	70,277	NA	70,277	249,226	0	249,226	178,949	3.50	5.1	70,277
Lights	WAREHOUSE 05	WAREHOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	12,236	NA	12,236	33,282	9,904	43,186	30,951	3.50	5.1	12,236
Lights	MWR 02	MORALE WELFARE-RECREATION	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	8,963	NA	8,963	25,957	5,670	31,627	22,664	3.50	5.1	8,963
Roof	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Roof Insulation R Value 20 05	Suspended Ceiling: Increase Insulation by R 8	6,828	NA	6,828	23,692	0	23,692	16,864	3.50	5.9	6,828
Lights	WAREHOUSE-11	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	2,804	NA	2,804	9,903	150	9,753	6,949	3.50	5.2	2,804
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	2,547	NA	2,547	7,488	1,446	8,934	6,387	3.50	5.1	2,547
Lights	SHOPS 03	SHOPS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	2,144	NA	2,144	5,609	1,850	7,459	5,315	3.50	5.1	2,144
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	PL1: PL 2X4 4F40T12 STD2	PL237: PL 2X4 3F32T8 ELC3 REF	1,823	NA	1,823	5,575	862	6,437	4,614	3.50	5.1	1,823
Lights	COMMISSARIES	COMMISSARIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,119	NA	1,119	3,226	677	3,903	2,784	3.50	5.2	1,119
Lights	SHOPS 03	SHOPS	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	1,072	NA	1,072	2,811	925	3,736	2,664	3.50	5.1	1,072
Hot Water	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	358	NA	358	1,258	0	1,258	900	3.50	1.3	358
Hot Water	MILITARY OTHER 01	MILITARY OTHER	Electric SHW Heater	Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM)	102	NA	102	355	0	355	253	3.50	1.6	161
Hot Water	SHOPS 02	SHOPS	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	39	NA	39	136	0	136	97	3.50	0.8	39
Lights	ADMINISTRATION 01	ADMINISTRATION	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	5,119	NA	5,119	16,732	775	17,507	12,388	3.40	5.3	5,119
Lights	SHOPS 04	SHOPS	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	3,513	NA	3,513	8,263	3,630	11,893	8,381	3.40	5.3	2,418
Lights	ADMINISTRATION 01	ADMINISTRATION	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	2,240	NA	2,240	7,249	339	7,588	5,348	3.40	5.3	2,240
Lights	PH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	IN1: INC 40 CEIL	PL178: CPL 9 + BLST UNIT	1,874	NA	1,874	4,257	2,063	6,320	4,446	3.40	5.3	1,874
Lights	COMMISSARIES	COMMISSARIES	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	224	NA	224	556	194	750	527	3.40	5.3	224
Heating	CHAPEL 02	CHAPEL	Other Fuels Conv Boiler	Add Automatic Electric Damper	144	NA	144	488	0	488	345	3.40	3.9	144
Hot Water	MWR 05a	MORALE-WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	43	NA	43	147	0	147	104	3.40	1.3	43
Hot Water	ADMINISTRATION 06a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	41	NA	41	141	0	141	100	3.40	1.3	41
Hot Water	LABS 02	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LPSHs, Aerators	11	NA	11	36	0	36	26	3.40	1.4	11
Roof	ADMINISTRATION 05	ADMINISTRATION	Roof Insulation R-Value 0 00	Suspended Ceiling: Increase Insulation by R 19	40,100	NA	40,100	133,166	0	133,166	93,066	3.30	6.2	40,100
Wall	WAREHOUSE 12	WAREHOUSE	Wall Insulation R Value 0 00	Blow in Insulation: Increase Insulation by R 13	13,336	NA	13,336	43,884	0	43,884	30,547	3.30	5.6	13,336
Hot Water	PH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp.	13,034	NA	13,034	43,113	0	43,113	30,079	3.30	1.4	13,034
Wall	WAREHOUSE 06	WAREHOUSE	Wall Insulation R Value 0 00	Blow-in Insulation: Increase Insulation by R 6.5	12,613	NA	12,613	41,163	0	41,163	28,550	3.30	6.4	12,613
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	4,559	NA	4,559	11,630	3,638	15,268	10,708	3.30	5.4	4,559
Lights	DINING HALLS 06	DINING HALLS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	1,550	NA	1,550	4,725	384	5,109	3,559	3.30	5.5	1,550
Roof	ADMINISTRATION 03a	ADMINISTRATION	Roof Insulation R-Value 0 00	Suspended Ceiling: Increase Insulation by R-8	735	NA	735	2,428	0	2,428	1,693	3.30	6.2	735
Hot Water	SHOPS 05	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	281	NA	281	930	0	930	649	3.30	1.4	281
Hot Water	LABS 01	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LPSHs, Aerators	20	NA	20	65	0	65	45	3.30	1.4	20
Hot Water	CLUBS 01	CLUBS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	7	NA	7	23	0	23	16	3.30	1.4	7
Lights	ADMINISTRATION 03	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	33,272	NA	33,272	81,220	26,547	107,767	74,494	3.20	5.6	33,272
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL6: PL 2X2 2F40T12U STD2	PL54: PL 2X2 2F32T8U ELC2	11,853	NA	11,853	31,653	6,163	37,816	25,964	3.20	5.7	11,853
Lights	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	11,229	NA	11,229	29,114	6,778	35,892	24,663	3.20	5.6	11,229
Lights	WAREHOUSE 07	WAREHOUSE	PL80: PL 2X4 3F40T12ES STD1,2	PL57: PL 2X4 2F32T8 ELC2 REF	5,031	NA	5,031	12,764	3,226	15,990	10,959	3.20	5.6	5,031
Lights	RECREATION 02	RECREATION	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	2,361	NA	2,361	5,565	1,884	7,449	5,087	3.20	5.6	2,361
Hot Water	DINING HALLS 03	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	1,439	NA	1,439	4,645	0	4,645	3,206	3.20	1.4	1,439
Hot Water	DINING HALLS 04	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	1,328	NA	1,328	4,283	0	4,283	2,954	3.20	1.4	1,328
Hot Water	WAREHOUSE 07	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	72	NA	72	231	0	231	160	3.20	1.4	72
Hot Water	CHAPEL 01	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	66	NA	66	211	0	211	146	3.20	1.4	66
Hot Water	ADMINISTRATION 03a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	16	NA	16	52	0	52	36	3.20	1.4	16
Lights	PH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN11: INC 100 CEIL	PL189: CPL 2-15 CEIL FIXT	5,626	NA	5,626	11,654	5,651	17,305	11,679	3.10	5.6	5,626
Lights	ADMINISTRATION 04	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	5,283	NA	5,283	15,201	1,220	16,421	11,138	3.10	5.8	5,283
Lights	BARRACKS 07	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	2,367	NA	2,367	6,904	347	7,251	4,885	3.10	5.9	2,367
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	857	NA	857	2,101	589	2,690	1,833	3.10	5.7	857
Hot Water	SECURITY 02	SECURITY	Electric SHW Heater	0.76 LPG WH (COND), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp	608	NA	608	1,859	0	1,859	1,250	3.10	1.8	956
Hot Water	WAREHOUSE 05	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	439	NA	439	1,370	0	1,370	931	3.10	1.5	439
Lights	CLINIC 02	CLINIC	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	431	NA	431	1,243	99	1,342	911	3.10	5.8	431
Hot Water	WAREHOUSE 12	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	43	NA	43	134	0	134	91	3.10	1.5	43
Hot Water	WAREHOUSE 08	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	43	NA	43	132	0	132	90	3.10	1.5	43
Lights	PROD-PROCESS 02	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	31,510	NA	31,510	61,012	34,420	95,432	63,922	3.00	5.9	31,510
Lights	ADMINISTRATION 07a	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,506	NA	3,506	9,809	810	10,619	7,113	3.00	6.0	3,506
Lights	PH DUPLEX 02	DUPLEX	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,999	NA	1,999	4,482	1,483	5,965	3,967	3.00	6.1	1,999
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	908	NA	908	1,990	725	2,715	1,807	3.00	6.0	908
Lights	WAREHOUSE 08	WAREHOUSE	PL80: PL 2X4 3F40T12ES STD1,2	PL57: PL 2X4 2F32T8 ELC2 REF	816	NA	816	1,915	523	2,438	1,622	3.00	6.0	816
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	776	NA	776	1,731	619	2,350	1,574	3.00	5.9	776
Hot Water	SHOPS 04	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp	109	NA	109	323	0	323	214	3.00	1.6	109
Heating	ADMINISTRATION 03a	ADMINISTRATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	76	NA	76	229	0	229	153	3.00	7.0	76
Roof	PH DUPLEX 01	DUPLEX	Roof Insulation R Value 11 00	Attic Ceiling: Increase Insulation by R 30	262,367	NA	262,367	753,863	0	753,863	491,496	2.90	6.6	262,367
Lights	PROD-PROCESS 01	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	PL181: CPL 13 + BLST UNIT	49,179	NA	49,179	89,846	53,574	143,420	94,241	2.90	6.1	49,179
Lights	PH DUPLEX 03	DUPLEX	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	10,877	NA	10,877	23,708	8,074	31,782	20,904	2.90	6.1	10,877
Lights	ADMINISTRATION 08	ADMINISTRATION	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	9,330	NA	9,330	24,889	2,155	27,044	17,714	2.90	6.2	9,330
Lights	HANGER	HANGAR	HS17: HPS 250 PEND	L85: LPS 135 PEND	5,972	NA	5,972	18,391	818	17,573	11,600	2.90	6.2	5,972
Lights	SHOPS 07	SHOPS	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	3,205	NA	3,205	7,244	1,950	9,194	5,988	2.90	6.3	3,205
Lights	ADMINISTRATION 07a	ADMINISTRATION	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	2,793	NA	2,793	7,541	645	8,206	5,413	2.90	6.1	2,793
Lights	CLINIC 01	CLINIC	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	914	NA	914	2,123	559	2,682	1,768	2.90	6.1	914
Hot Water	CLINIC 02	CLINIC	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LPSHs, Aerators	223	NA	223	644	0	644	421	2.90	1.6	223
Heating	MWR 06	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	105	NA	105	308	0	308	204	2.90	7.1	105
Roof	BARRACKS 07	BARRACKS	Roof Insulation R Value 8 90	Suspended Ceiling: Increase Insulation by R 19	54,371	NA	54,371	154,238	0	154,238	99,867	2.80	6.9	54,371
Cooling	HOSPITAL	HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling)	41,206	NA	41,206	116,316	0	116,316	75,110	2.80	3.1	71,572
Lights	WAREHOUSE 05	WAREHOUSE	PL79: PL 2X4 4F40T12ES STD2	PL237: PL 2X4 3F32T8 ELC3 REF	17,903	NA	17,903	39,424	11,322	50,746	32,842	2.80	6.3	17,904
Lights	ADMINISTRATION 07	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	14,419	NA	14,419	37,547	3,330	40,877	26,459	2.80	6.4	14,419
Lights	ADMINISTRATION 07	ADMINISTRATION	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	11,456	NA	11,456	29,726	2,653	32,379	20,893	2.80	6.4	11,456

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Wall	ADMINISTRATION 04	ADMINISTRATION	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 4.5	9,235	NA	9,235	25,952	0	25,952	16,717	2.80	6.6	9,235
Roof	ADMINISTRATION 04	ADMINISTRATION	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R 38	8,466	NA	8,466	23,482	0	23,482	15,017	2.80	6.7	8,466
Lights	CHAPEL 02	CHAPEL	PL4. PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	5,347	NA	5,347	11,369	3,697	15,066	9,719	2.80	6.4	5,347
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,103	NA	1,103	2,483	634	3,117	2,013	2.80	6.4	1,103
Lights	RECREATION 02	RECREATION	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	945	NA	945	1,905	754	2,659	1,714	2.80	6.2	945
Lights	RECREATION 04	RECREATION	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	183	NA	183	412	107	519	336	2.80	6.3	183
Lights	MILITARY OTHER 02	MILITARY OTHER	PL82. PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	13,098	NA	13,098	24,010	11,839	35,849	22,751	2.70	6.5	13,098
Lights	MILITARY OTHER 01	MILITARY OTHER	PL82. PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	10,266	NA	10,266	18,728	9,279	28,007	17,741	2.70	6.5	10,266
Lights	WAREHOUSE 05	WAREHOUSE	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	7,471	NA	7,471	13,253	6,753	20,006	12,535	2.70	6.6	7,471
Lights	ADMINISTRATION 08	ADMINISTRATION	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,998	NA	3,998	10,052	924	10,976	6,977	2.70	6.6	3,998
Lights	BARRACKS 04	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	621	NA	621	1,609	91	1,700	1,079	2.70	6.6	621
Lights	MWR 03	MORALE WELFARE RECREATION	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	301	NA	301	589	233	822	521	2.70	6.5	301
Heating	EXCHANGE FACILITIES 05	EXCHANGE FACILITIES	Other Fuels Conv Boiler	Add Automatic Electric Damper	171	NA	171	461	0	461	289	2.70	7.8	171
Heating	RECREATION 04	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	130	NA	130	345	0	345	215	2.70	7.9	130
Hot Water	ADMINISTRATION 01	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	99	NA	99	268	0	268	169	2.70	1.0	99
Wall	FH DUPLEX 01	DUPLEX	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 4.5	227,405	NA	227,405	591,832	0	591,832	364,427	2.60	7.3	227,405
Lights	BARRACKS 02	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	40,652	NA	40,652	100,080	5,967	106,047	65,396	2.60	6.9	40,652
Lights	BARRACKS 02	BARRACKS	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	40,652	NA	40,652	100,080	5,967	106,047	65,395	2.60	6.9	40,652
Hot Water	FH-DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	15,098	NA	15,098	39,816	0	39,816	24,718	2.60	1.8	15,098
Hot Water	SHOPS 03	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	3,223	NA	3,223	8,338	0	8,338	5,116	2.60	1.8	3,223
Lights	WAREHOUSE 05	WAREHOUSE	PL81: PL 2X4 2F40T12ES STD2	PL105: PL 2X4 2F40T12ES ELC2	2,490	NA	2,490	4,285	2,251	6,536	4,045	2.60	6.8	2,490
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	234	NA	234	429	173	602	369	2.60	6.9	234
Lights	BARRACKS 06	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL28: PL 1X4 2F40T12 ELC2	173	NA	173	400	42	442	270	2.60	7.0	173
Lights	WAREHOUSE 05	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	75,680	NA	75,680	192,744	4,049	188,695	113,015	2.50	7.3	75,680
Roof	ADMINISTRATION 07	ADMINISTRATION	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R 30	30,033	NA	30,033	75,364	0	75,364	45,331	2.50	7.4	30,033
Lights	WAREHOUSE 10	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	7,614	NA	7,614	19,770	-407	19,363	11,749	2.50	7.2	7,614
Lights	WAREHOUSE 09	WAREHOUSE	PL62: PL 1X8 2F96T12 STD2	L83: LPS 55 PEND	6,331	NA	6,331	16,389	339	16,050	9,719	2.50	7.2	6,331
Lights	FH DETACHED 02	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,419	NA	4,419	7,730	3,280	11,010	6,591	2.50	7.2	4,419
Roof	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 19	850	NA	850	2,090	0	2,090	1,240	2.50	7.4	850
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	9,599	NA	9,599	19,857	3,078	22,935	13,336	2.40	7.5	9,599
Lights	ADMINISTRATION 01	ADMINISTRATION	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	5,264	NA	5,264	12,916	-27	12,889	7,625	2.40	7.4	5,264
Lights	FH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	4,048	NA	4,048	6,716	3,005	9,721	5,673	2.40	7.4	4,048
Roof	CLUBS 01	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R 8	2,317	NA	2,317	5,486	0	5,486	3,170	2.40	8.6	2,317
Lights	BARRACKS 01	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52: PL 1X4 2F32T8 ELC2	1,280	NA	1,280	2,910	188	3,098	1,818	2.40	7.4	1,280
Lights	BARRACKS 01	BARRACKS	PL3: PL 2X4 2F40T12 STD2	PL51: PL 2X4 2F32T8 ELC2	1,280	NA	1,280	2,910	188	3,098	1,818	2.40	7.4	1,280
Lights	CLUBS 01	CLUBS	PL62: PL 1X8 2F96T12 STD2	PL131: PL 1X8 2F96T12ES ELC2 REF	736	NA	736	1,493	298	1,791	1,055	2.40	7.6	736
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	215	NA	215	356	160	516	301	2.40	7.5	215
Hot Water	MWR 07	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	32	NA	32	76	0	76	44	2.40	0.8	32
Wall	RECREATION 02	RECREATION	Wall Insulation R Value 7.00	Blow-in Insulation: Increase Insulation by R 2.4	21,108	NA	21,108	48,445	0	48,445	27,337	2.30	8.2	21,108
Roof	MWR 03	MORALE WELFARE RECREATION	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	12,324	NA	12,324	28,596	0	28,596	16,272	2.30	8.0	12,324
Lights	FH DUPLEX 03	DUPLEX	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	8,855	NA	8,855	13,434	6,871	20,305	11,450	2.30	7.8	8,855
Hot Water	WAREHOUSE 09	WAREHOUSE	Electric SHW Heater	0.76 LPG WH (CON), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	32	NA	32	74	0	74	42	2.30	1.6	72
Hot Water	FH-DETACHED 03	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	9,477	NA	9,477	21,272	0	21,272	11,795	2.20	2.9	9,477
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	1,768	NA	1,768	2,878	1,016	3,894	2,126	2.20	8.1	1,768
Roof	SHOPS 02	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase insulation by R 19	33,590	NA	33,590	71,995	0	71,995	38,405	2.10	8.9	33,590
Roof	RECREATION 04	RECREATION	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	22,535	NA	22,535	47,558	0	47,558	25,023	2.10	8.8	22,535
Roof	EXCHANGE FACILITIES 04	EXCHANGE FACILITIES	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R 8	11,058	NA	11,058	22,822	0	22,822	11,764	2.10	8.8	11,058
Lights	WAREHOUSE 06	WAREHOUSE	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	5,079	NA	5,079	6,645	3,929	10,574	5,495	2.10	8.5	5,079
Lights	BARRACKS 05	BARRACKS	PL4: PL 1X4 2F40T12 STD2	PL52. PL 1X4 2F32T8 ELC2	20	NA	20	39	3	42	22	2.10	8.4	20
Wall	BARRACKS 04	BARRACKS	Wall Insulation R Value 7.00	Blow-in Insulation Increase Insulation by R 2.4	31,169	NA	31,169	62,676	0	62,676	31,507	2.00	9.6	31,169
Wall	CLUBS 02	CLUBS	Wall Insulation R Value 0.00	Interior Masonry Surface: Increase Insulation by R 10.9	26,717	NA	26,717	52,319	0	52,319	25,602	2.00	9.4	26,717
Hot Water	FH 3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	0.85 LPG WH (REF), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp.	18,926	NA	18,926	38,194	0	38,194	19,267	2.00	0.5	165,604
Roof	MILITARY OTHER 01	MILITARY OTHER	Roof Insulation R Value 0.00	Attic Ceiling: Increase insulation by R 11	4,852	NA	4,852	9,901	0	9,901	5,048	2.00	10.1	4,852
Lights	BARRACKS 06	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,450	NA	3,450	6,104	846	6,950	3,500	2.00	9.0	3,450
Heating	MWR 04	MORALE WELFARE RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	304	NA	304	602	0	602	298	2.00	8.7	304
Lights	BARRACKS 04	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	10,114	NA	10,114	17,088	2,481	19,569	9,456	1.90	9.3	10,114
Wall	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	Wall Insulation R Value 8.79	Blow-in Insulation: Increase Insulation by R 4.5	5,007	NA	5,007	9,369	0	9,369	4,362	1.90	9.7	5,007
Lights	FH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	PL82. PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,296	NA	3,296	3,542	2,557	6,099	2,803	1.90	9.6	3,296
Lights	CLUBS 03	CLUBS	PL117: PL 1X8 1F96T12ES STD1	PL123. PL 1X8 1F96T12ES EEP1	2,461	NA	2,461	2,978	1,616	4,594	2,132	1.90	9.5	2,461
Lights	CLUBS 02	CLUBS	PL117: PL 1X8 1F96T12ES STD1	PL123: PL 1X8 1F96T12ES EEP1	1,582	NA	1,582	1,958	1,102	3,060	1,477	1.90	9.2	1,582
Roof	MILITARY OTHER 04	MILITARY OTHER	Roof Insulation R Value 7.15	Attic Ceiling: Increase insulation by R-19	1,000	NA	1,000	1,937	0	1,937	937	1.90	10.7	1,000
Lights	GUEST HOUSES 02	MILITARY MOBILE HOMES	PL82. PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	190	NA	190	222	148	370	179	1.90	9.1	190
Lights	COMMISSARIES	COMMISSARIES	PL63: PL 1X8 1F96T12 STD1	PL124: PL 1X8 1F96T12ES EEP1 REF	14,842	NA	14,842	27,777	-719	27,058	12,217	1.80	10.0	14,842
Roof	DINING HALLS 03	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 8	7,006	NA	7,006	12,745	0	12,745	5,739	1.80	11.4	7,006
Lights	COMMISSARIES	COMMISSARIES	HS15: HPS 150 PEND	L84: LPS 90 PEND	6,351	NA	6,351	12,567	1,100	11,467	5,116	1.80	10.1	6,351
Roof	SECURITY 03	SECURITY	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	3,699	NA	3,699	6,827	0	6,827	3,128	1.80	9.9	3,699
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	PL82 PL 1X4 2F40T12ES STD2	PL106; PL 1X4 2F40T12ES ELC2	175	NA	175	172	136	308	133	1.80	10.1	175
Hot Water	ADMINISTRATION 07	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	109	NA	109	196	0	196	87	1.80	2.4	109
Lights	BARRACKS 02	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	29,155	NA	29,155	42,389	7,152	49,541	20,386	1.70	10.5	29,155
Roof	ADMINISTRATION 01	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	4,031	NA	4,031	7,043	0	7,043	3,012	1.70	11.9	4,031
Wall	ELECTRONICS 03	ELECTRONICS	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R 4.3	4,364	NA	4,364	7,341	0	7,341	2,977	1.70	11.5	4,364
Wall	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 4.5	3,099	NA	3,099	5,395	0	5,395	2,295	1.70	10.5	3,099
Lights	BARRACKS 05	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	319	NA	319	468	78	546	227	1.70	10.4	319
Wall	CHAPEL 02	CHAPEL	Wall Insulation R Value 5.32	Interior Masonry Surface: Increase Insulation by R 4.3	9,153	NA	9,153	14,664	0	14,664	5,511	1.60	12.9	9,153
Lights	SHOPS 04	SHOPS	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REF	7,248	NA	7,248	9,624	2,121	11,745	4,497	1.60	11.1	7,248
Lights	BARRACKS 01	BARRACKS	PL82: PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	918	NA	918	1,282	225	1,507	589	1.60	10.8	918
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	PL62 PL 1X8 2F96T12 STD2	PL74. PL 1X8 2F96T12 ELC2	80,945	NA	80,945	75,445	42,478	117,923	36,978	1.50	12.2	80,945
Roof	BARRACKS 02	BARRACKS	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	73,163	NA	73,163	109,732	0	109,732	36,568	1.50	13.4	73,163
Roof	ADMINISTRATION 08	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling. Increase insulation by R 19	28,208	NA	28,208	43,336	0	43,336	15,128	1.50	12.1	28,208
Lights	DINING HALLS 03	DINING HALLS	PL63. PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REF	20,853	NA	20,853	24,167	6,936	31,103	10,250	1.50	12.1	20,853
Wall	ADMINISTRATION 02	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow in Insulation: Increase Insulation by R 4.5	18,375	NA	18,375	26,784	0	26,784	8,409	1.50	12.9	18,375
Lights	RECREATION 04	RECREATION	HS14: HPS 100 PEND	L83: LPS 55 PEND	4,980	NA	4,980	7,302	283	7,585	2,605	1.50	11.9	4,980
Roof	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	Roof Insulation R Value 20.05	Suspended Ceiling. Increase Insulation by R 8	4,438	NA	4,438	6,592	0	6,592	2,154	1.50	14.0	4,438
Roof	MILITARY OTHER 03	MILITARY OTHER	Roof Insulation R Value 20.05	Suspended Ceiling. Increase insulation by R 30	3,925	NA	3,925	5,829	0	5,829	1,904	1.50	12.3	3,925
Wall	SECURITY 01	SECURITY	Wall Insulation R Value 5.32	Interior Masonry Surface: Increase Insulation by R 10.9	3,735	NA	3,735	5,611	0	5,611	1,876	1.50	12.1	3,735
Roof	ADMINISTRATION 06	ADMINISTRATION	Roof Insulation R Value 20.05	Suspended Ceiling. Increase Insulation by R 8	3,358	NA	3,358	5,062	0	5,062	1,704	1.50	13.9	3,358
Roof	SHOPS 06	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase Insulation by R 8	2,326	NA	2,326	3,551	0	3,551	1,225	1.50	13.5	2,326
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	PL82 PL 1X4 2F40T12ES STD2	PL106. PL 1X4 2F40T12ES ELC2	2,115	NA	2,115	1,597	1,498	3,095	979	1.50	12.1	2,115
Roof	ELECTRONICS 03	ELECTRONICS	Roof Insulation R Value 20.05	Suspended Ceiling Increase Insulation by R 8	1,755	NA	1,755	2,706	0	2,706	952	1.50	12.4	1,755
Lights	MWR 06	MORALE WELFARE RECREATION	PL63: PL 1X8 1F96T12 STD1	PL75 PL 1X8 1F96T12 ELC1	985	NA	985	772	680	1,452	468	1.50	12.0	985
Roof	ADMINISTRATION 09	ADMINISTRATION	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 19	88,158	NA	88,158	120,120	0	120,120	31,962	1.40	13.4	88,158
Lights	ADMINISTRATION 03	ADMINISTRATION	PL63 PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REF	54,419	NA	54,419	57,561	17,091	74,652	20,233	1.40	13.1	54,419
Roof	SHOPS 05	SHOPS	Roof Insulation R Value 0.00	Suspended Ceiling Increase insulation by R 19	35,771	NA	35,771	51,297	0	51,297	15,526	1.40	14.5	35,771

Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy & Demand Savings (1994 $)	Present Value of Non Annual O&M Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period	First Cost (1994 $)
Lights	SHOPS 05	SHOPS	PL63. PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REP	12,844	NA	12,844	14,584	3,758	18 342	5,497	1 40	12 6	12,844
Lights	BARRACKS 07	BARRACKS	PL5: PL 1X4 1F40T12 STD1	PL29: PL 1X4 1F40T12 ELC1	8,670	NA	8,670	11 253	963	12 216	3,545	1 40	12 7	8 670
Lights	DINING HALLS 01	DINING HALLS	PL63. PL 1X8 1F96T12 STD1	PL126. PL 1X8 1F96T12ES EEP1 REP	7,176	NA	7,176	7,985	2,387	10,372	3,196	1 40	12 4	7,176
Lights	ADMINISTRATION 04	ADMINISTRATION	PL63· PL 1X8 1F96T12 STD1	PL126. PL 1X8 1F96T12ES EEP1 REP	8,641	NA	8,641	11,216	491	11,707	3,066	1 40	13 3	8,641
Lights	PROD/PROCESS 01	PRODUCTION and/or PROCESS	PL82 PL 1X4 2F40T12ES STD2	PL106: PL 1X4 2F40T12ES ELC2	3,302	NA	3,302	2,234	2,267	4,501	1,200	1 40	13 0	3,302
Lights	MWR 07	MORALE WELFARE RECREATION	PL63 PL 1X8 1F96T12 STD1	PL126. PL 1X8 1F96T12ES EEP1 REP	2,592	NA	2,592	3,331	210	3,541	949	1 40	13 3	2,592
Roof	BARRACKS 01	BARRACKS	Roof Insulation R Value 11 00	Attic Ceiling Increase insulation by R 11	2,439	NA	2,439	3,366	0	3,366	926	1 40	14 9	2,439
Lights	ADMINISTRATION 03a	ADMINISTRATION	PL63: PL 1X8 1F96T12 STD1	PL126: PL 1X8 1F96T12ES EEP1 REP	1,270	NA	1,270	1,321	399	1,720	451	1 40	13 2	1,270
Heating	RECREATION 02	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	244	NA	244	330	0	330	86	1 40	8 0	244
Wall	FH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R Value 0 00	Blow in Insulation: Increase Insulation by R 6.5	209,504	NA	209,504	276,790	0	276,790	67,286	1 30	14.8	209,504
Lights	PROD/PROCESS 02	PRODUCTION and/or PROCESS	PL62: PL 1X8 2F96T12 STD2	L83 LPS 55 PEND	113,513	NA	113,513	116,514	29,524	146,038	32,525	1 30	14 0	113,513
Cooling	ADMINISTRATION 07	ADMINISTRATION	Electric Conv Chiller	Air Cooled Reciprocating Chiller (75 to 200 tons cooling)	71,588	NA	71,588	95,029	0	95,029	23,441	1 30	7 7	106,648
Roof	STORAGE 02	STORAGE	Roof Insulation R Value 0 00	Attic Ceiling: Increase Insulation by R 8	56,310	NA	56,310	71,645	0	71,665	15,355	1 30	14 7	56,310
Wall	HOSPITAL	HOSPITAL	Wall Insulation R Value 0 00	Interior Masonry Surface: Increase Insulation by R 4 3	42,931	NA	42,931	54,160	0	54,160	11,228	1 30	15 6	42,931
Cooling	CLINIC 01	CLINIC	Electric Conv Chiller	Air Cooled Reciprocating Chiller (75 to 200 tons cooling)	27,057	NA	27,057	35,674	0	35,674	8,617	1 30	8.8	35,549
Wall	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	19,441	NA	19,441	24,882	0	24,882	5,440	1 30	16 1	19,441
Heating	HOSPITAL	HOSPITAL	Other Fuels Conv Boiler	Add Automatic Electric Damper	258	NA	258	346	0	346	89	1 30	9 3	258
Heating	CLUBS 03	CLUBS	Other Fuels Conv Boiler	Add Automatic Electric Damper	113	NA	113	143	0	143	30	1 30	16.5	113
Hot Water	MILITARY OTHER 04	MILITARY OTHER	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	46	NA	46	58	0	58	12	1 30	3 6	46
Roof	FH DUPLEX 03	DUPLEX	Roof Insulation R Value 30 00	Attic Ceiling: Increase insulation by R 19	314,380	NA	314,380	382,884	0	382,884	68,504	1.20	15.5	314,380
Roof	FH 3 OR MORE 01	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 11.00	Attic Ceiling: Increase insulation by R 19	50,557	NA	50,557	59,468	0	59,468	8,910	1.20	17.2	50,557
Wall	CLINIC 02	CLINIC	Wall Insulation R-Value 0 00	Blow-in Insulation: Increase Insulation by R 6.5	25,381	NA	25,381	30,430	0	30,430	5,049	1.20	17 4	25,381
Lights	BARRACKS 02	BARRACKS	PL94: PL 1X4 2F40T12ES EEP2	PL106: PL 1X4 2F40T12ES ELC2	14,971	NA	14,971	14,224	4,247	18,471	3,500	1.20	14.5	14,971
Roof	ADMINISTRATION 02	ADMINISTRATION	Roof Insulation R Value 30 00	Attic Ceiling: Increase insulation by R 19	14,427	NA	14,427	17,438	0	17,438	3,011	1.20	15 3	14,427
Roof	MWR 07	MORALE WELFARE RECREATION	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 19	13,318	NA	13,318	15,772	0	15,772	2,454	1 20	15 7	13,318
Wall	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Wall Insulation R Value 0 00	Interior Masonry Surface: Increase Insulation by R 4 3	10,662	NA	10,662	12,474	0	12,474	1,812	1.20	18 0	10,662
Lights	WAREHOUSE 07	WAREHOUSE	PL63: PL 1X8 1F96T12 STD1	PL75: PL 1X8 1F96T12 ELC1	515	NA	515	275	356	631	116	1 20	14.4	515
Lights	BARRACKS 01	BARRACKS	PL94: PL 1X4 2F40T12ES EEP2	PL106: PL 1X4 2F40T12ES ELC2	471	NA	471	426	134	560	88	1.20	15 0	471
Lights	WAREHOUSE 08	WAREHOUSE	PL63 PL 1X8 1F96T12 STD1	PL75: PL 1X8 1F96T12 ELC1	84	NA	84	42	58	100	17	1.20	14.7	84
Hot Water	MWR 03	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp	106	NA	106	122	0	122	16	1 20	3.2	106
Roof	FH 3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 19	139,587	NA	139,587	160,259	0	160,259	20,672	1 10	16 3	139,587
Wall	BARRACKS 02	BARRACKS	Wall Insulation R Value 0 00	Blow in Insulation: Increase Insulation by R 6.5	108,268	NA	108,268	115,934	0	115,934	7,666	1.10	19 3	108,268
Roof	CHAPEL 02	CHAPEL	Roof Insulation R Value 20.05	Suspended Ceiling: Increase Insulation by R 8	5,858	NA	5,858	6,514	0	6,514	656	1 10	18.8	5,858
Roof	MWR 06	MORALE-WELFARE RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	8,780	NA	8,780	9,298	0	9,298	519	1 10	17.3	8,780
Cooling	GUEST HOUSES 02	MILITARY MOBILE HOMES	Electric Package Unit	Split System Residential AC Unit (1.5 to 5 4167 tons cooling)	3,197	NA	3,197	3,590	0	3,590	394	1 10	0.9	32,613
Roof	CLINIC 01	CLINIC	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 19	2,149	NA	2,149	2,307	0	2,307	158	1 10	17.6	2,149
Cooling	MWR 02	MORALE WELFARE RECREATION	Electric Air Cool Heat Pump	Air to Air Heat Pump with Supplementary Electric Heat Coil	22,852	NA	22,852	23,786	0	23,786	934	1 00	4 4	49,514
Wall	WAREHOUSE 09	WAREHOUSE	Wall Insulation R Value 8 79	Blow-in Insulation: Increase Insulation by R 2 4	18,813	NA	18,813	19,732	0	19,732	919	1 00	20 1	18,813
Roof	WAREHOUSE 01	WAREHOUSE	Roof Insulation R-Value 0 00	Attic Ceiling: Increase Insulation by R 8	8,700	NA	8,700	9,020	0	9,020	319	1.00	19 3	8,700
Wall	ADMINISTRATION 06	ADMINISTRATION	Wall Insulation R-Value 0 00	Interior Masonry Surface: Increase Insulation by R 4 3	16,023	NA	16,023	16,148	0	16,148	125	1 00	20.9	16,023
Roof	MWR 02	MORALE WELFARE RECREATION	Roof Insulation R-Value 30 00	Attic Ceiling Increase insulation by R 11	5,788	NA	5,788	5,904	0	5,904	116	1 00	17.8	5,788

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	1	Bldg 253	250 ton chiller	Reset chilled and condenser water temps RI	30	0	30	116,678	85,052	517	0	201,213	201,183	6,707.11	0.0
AC	2	Bldg 263	554 ton chiller	Reset chilled and condenser water temps RI	30	0	30	103,828	94,238	517	0	197,549	197,519	6,584.96	0.0
AC	3	Bldg 273	200 ton chiller	Reset chilled and condenser water temps RI	30	0	30	105,613	34,021	517	0	139,117	139,087	4,637.24	0.0
T&D		Substation	Sub. Transformers	Conservation Voltage Reduction RI	1,000	0	1,000	672,326	295,297	0	0	967,624	966,624	967.62	0.0
HVAC	6	McPool	Programmable T-Stat	Night Setback - RI	2,770	0	2,770	421,880	2,121	0	1,255	422,746	419,976	152.64	0.1
Lighting	OS 8b	Highbay	T8 Lighting	T8 + Occupancy Controls - RI	16,560	4,968	11,592	864,678	NA	229,102	NA	1,093,780	1,082,188	94.36	0.2
Envelope	MT 12		Leaky	Weatherization - RI	8,967	0	8,967	453,986	203,198	0	0	657,185	648,218	73.29	0.2
HVAC	4	Concrete	Programmable T-Stat	Night Setback - RI	2,077	0	2,077	138,353	1,089	0	941	138,501	136,424	66.68	0.3
HVAC	3	Chair	Programmable T-Stat	Night Setback RI	2,077	0	2,077	114,249	1,313	0	-941	114,621	112,544	55.18	0.3
HVAC	1	Admin	Programmable T-Stat	Night Setback - RI	20,079	0	20,079	933,750	4,672	0	-9,095	929,327	909,248	46.28	0.4
Envelope		Masonite Siding post 1950		Weatherization RI	7,336	0	7,336	218,137	120,561	0	0	338,699	331,363	46.17	0.4
Lighting	OS 7b	Hallway	T8 Lighting	T8 + Occupancy Controls - RI	16,416	4,925	11,491	383,726	NA	97,662	NA	481,389	469,897	41.89	0.4
HVAC	2	Chapel	Programmable T-Stat	Night Setback - RI	1,039	0	1,039	37,246	231	0	-470	37,007	35,968	35.63	0.5
Envelope		Metal Siding		Weatherization RI	13,638	0	13,638	295,925	163,554	0	0	459,479	445,841	33.69	0.5
Lighting	OS 4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	14,400	4,320	10,080	257,967	NA	67,184	NA	325,151	315,071	32.26	0.5
Envelope	Other	U Shaped Bldgs Other		Weatherization - RI	5,330	0	5,330	110,373	61,002	0	0	171,375	166,045	32.15	0.5
Envelope		Masonite Siding pre 1950		Weatherization - RI	25,617	0	25,617	528,129	291,890	0	0	820,019	794,401	32.01	0.5
Lighting	OS 3b	Conference	T8 Lighting	T8 + Occupancy Controls - RI	5,904	1,771	4,133	104,037	NA	26,704	NA	130,741	126,608	31.63	0.5
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization - RI	8,931	0	8,931	161,013	88,990	0	0	250,003	241,072	27.99	0.6
HVAC	5	DOR	Programmable T-Stat	Night Setback RI	3,808	0	3,808	95,978	922	0	1,725	95,175	91,366	24.99	0.7
Envelope	Barracks	U Shaped Bldgs Barracks		Weatherization - RI	28,505	0	28,505	413,900	228,756	0	0	642,656	614,151	22.55	0.8
Envelope		Wood Siding		Weatherization - RI	1,811	0	1,811	25,017	13,827	0	0	38,844	37,033	21.45	0.8
HVAC	8	Trning	Programmable T-Stat	Night Setback RI	5,885	0	5,885	120,531	2,054	0	-2,245	120,339	114,454	20.45	0.8
Envelope	Misc -pre 1980	Concrete Block: Misc pre 1980		Weatherization - RI	5,088	0	5,088	62,604	34,601	0	0	97,205	92,117	19.11	0.9
Envelope		WHS		Weatherization RI	2,480	0	2,480	30,013	16,588	0	0	46,601	44,122	18.79	0.9
Envelope	Shop	SHOP		Weatherization RI	4,780	0	4,780	57,472	31,764	0	0	89,236	84,456	18.67	0.9
Envelope	Barracks	Concrete Block, Barracks		Weatherization - RI	10,378	0	10,378	118,282	65,373	0	0	183,655	173,276	17.70	1.0
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	31,502	0	31,502	347,758	192,201	0	0	539,959	508,458	17.14	1.0
Lighting	OS MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	5,904	1,293	4,611	61,679	NA	15,924	NA	77,602	72,991	16.83	1.0
Lighting	OS 2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	45,000	9,671	35,329	461,425	NA	127,909	NA	589,334	554,005	16.68	1.0
Envelope	Family Housing	1963		Weatherization - RI	54,608	0	54,608	569,833	314,939	0	0	884,771	830,164	16.20	1.1
Envelope	Dining	DINING: MISC		Weatherization RI	5,777	0	5,777	58,674	32,428	0	0	91,102	85,324	15.77	1.1
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	1,806	0	1,806	17,981	9,938	0	0	27,920	26,113	15.46	1.1
DHW & A/C	13	00166	CHILLER air cooled	Install Desuperheater - RI	26,415	0	26,415	285,655	119,073	861	11,965	391,901	365,486	14.84	1.2
Envelope	Misc -post 1980	Concrete Block Misc post 1980		Weatherization - RI	9,621	0	9,621	86,535	47,827	0	0	134,362	124,741	13.97	1.2
Envelope	Family Housing	1961		Weatherization - RI	59,959	0	59,959	521,228	288,075	0	0	809,304	749,345	13.50	1.3
Motors	PMTR 44	HOSPITL 00166	PMPMTR	EEM - RI	1,456	120	1,336	14,916	2,905	0	-508	17,313	15,977	12.96	1.3
Motors	PMTR 43	HOSPITL 00166	PMPMTR	EEM - RI	728	60	668	7,458	1,453	0	-254	8,654	7,988	12.96	1.3
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity - RI	31,590	0	31,590	16,932	390,511	109	0	407,334	375,744	12.89	1.3
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater - RI	1,486	0	1,486	15,349	3,402	861	-473	17,217	15,732	11.59	1.5
Motors	MTR 485	WHS CLD 00862	Fan Motor	EEM RI	414	30	384	3,779	736	0	-150	4,365	3,981	11.37	1.5
Motors	PMTR 71	POOL OT 00328	PMPMTR	EEM - RI	207	15	192	1,890	368	0	-75	2,183	1,991	11.37	1.5
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	3,099	0	3,099	26,499	10,887	861	-1,404	35,121	32,023	11.33	1.5
Envelope	Admin	ADMIN, MISC post 1964		Weatherization - RI	2,732	0	2,732	19,553	10,807	0	0	30,359	27,627	11.11	1.5
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	3,832	0	3,832	28,609	14,289	861	-1,736	40,301	36,469	10.52	1.6
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	4,492	0	4,492	32,231	17,351	861	-2,035	46,684	42,194	10.39	1.7
Lighting	DLC MT 2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls RI	17,000	5,100	11,900	83,185	NA	36,661	NA	119,846	107,946	10.07	1.7
Motors	PMTR 42	HOSPITL 00166	PMPMTR	EEM - RI	1,104	80	1,024	8,618	1,679	0	-391	9,906	8,882	9.67	1.8
Envelope	Training	TRAINING		Weatherization - RI	4,080	0	4,080	23,799	13,154	0	0	36,953	32,873	9.06	1.9
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	3,685	0	3,685	22,204	13,608	861	-1,669	33,282	29,597	9.03	1.9
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	2,318	0	2,318	13,448	7,433	0	0	20,881	18,563	9.01	1.9
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	4,600	0	4,600	36,512	2,803	0	1,783	41,098	36,498	8.93	1.9
HVAC	7	Shop Ele	Programmable T-Stat	Night Setback - RI	1,385	0	1,385	12,782	176	0	-627	12,331	10,946	8.90	1.9
Motors	MTR 35c	REC - 00905	COMPMTR	VSD & EEM RI	6,854	1,183	5,671	48,156	2,069	-172	-1,951	48,103	42,432	8.48	2.0
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	2,585	0	2,585	13,877	8,505	861	-1,171	20,350	17,765	7.87	2.2
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	2,072	0	2,072	11,822	6,124	861	-939	16,146	14,074	7.79	2.2
Motors	PMTR 72	POOL OT 00328	PMPMTR	EEM - RI	187	0	187	1,260	245	0	-67	1,438	1,251	7.69	2.2
Motors	PMTR 73	POOL OT 00328	PMPMTR	EEM - RI	187	0	187	1,260	245	0	-67	1,438	1,251	7.69	2.2
Motors	PMTR 70	POOL OT 00328	PMPMTR	EEM - RI	187	0	187	1,260	245	0	-67	1,438	1,251	7.69	2.2
DHW & A/C	31	00905	CHILLER air cooled	Install Desuperheater - RI	3,685	0	3,685	16,488	13,608	861	-1,669	27,564	23,881	7.48	2.3
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater RI	1,852	0	1,852	10,429	5,103	861	-839	13,832	11,980	7.47	2.3
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	1,852	0	1,852	10,429	5,103	861	-839	13,832	11,980	7.47	2.3
Envelope	Family Housing	1983		Weatherization - RI	45,070	0	45,070	215,619	119,170	0	0	334,789	289,719	7.43	2.3
Motors	PMTR 94	PUMP - 00044	PMPMTR	EEM - RI	3,588	270	3,318	21,533	4,194	0	1,285	24,442	21,124	7.37	2.3
Motors	PMTR 93	PUMP 00044	PMPMTR	EEM - RI	3,588	270	3,318	21,533	4,194	0	-1,285	24,442	21,124	7.37	2.3
Envelope	MT 9		Single pane window	Shade Screens SW side RI	6,138	982	5,156	22,675	21,425	0	6,317	37,783	32,627	7.33	2.4
Envelope		Metal Siding		Window Screen - SW side - RI	12,640	2,022	10,618	46,694	44,119	0	-13,008	77,805	67,187	7.33	2.4
Envelope		Concrete Block, Misc -post 1980		Window Screen - SW side RI	1,733	277	1,456	6,403	6,050	0	-1,784	10,670	9,214	7.33	2.4
Envelope		Masonite Siding pre 1950		Window Screen - SW side RI	18,002	2,880	15,121	66,499	62,832	0	-18,525	110,806	95,684	7.33	2.4
Envelope		ADMIN, MISC post 1964		Window Screen SW side - RI	4,872	780	4,093	17,999	17,006	0	-5,014	29,991	25,898	7.33	2.4
Envelope		U Shaped Bldgs Other		Window Screen - SW side RI	4,695	751	3,944	17,343	16,387	0	-4,831	28,898	24,955	7.33	2.4
Envelope		BRK/ADM MISC		Window Screen - SW side - RI	2,648	424	2,225	9,784	9,244	0	2,726	16,302	14,078	7.33	2.4
Envelope		Wood Siding		Window Screen - SW side RI	2,203	352	1,850	8,137	7,688	0	2,267	13,558	11,708	7.33	2.4
Envelope		TRAINING		Window Screen - SW side - RI	1,612	258	1,354	5,954	5,626	0	-1,659	9,922	8,568	7.33	2.4
Envelope		WHS		Window Screen - SW side RI	1,016	163	854	3,754	3,547	0	1,046	6,256	5,402	7.33	2.4
Envelope		Concrete Block, Barracks		Window Screen - SW side - RI	6,417	1,027	5,391	23,707	22,400	0	4,604	39,502	34,111	7.33	2.4
Envelope		MOTORPOOL		Window Screen - SW side RI	4,967	795	4,172	18,349	17,338	0	-5,112	30,575	26,403	7.33	2.4
Envelope		SHOP		Window Screen SW side - RI	4,865	778	4,087	17,973	16,982	0	5,007	29,949	25,862	7.33	2.4
Envelope		U Shaped Bldgs Barracks		Window Screen - SW side - RI	32,879	5,261	27,619	121,459	114,762	0	33,836	202,384	174,765	7.33	2.4
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	27,001	4,320	22,681	99,744	94,245	0	-27,787	166,202	143,521	7.33	2.4
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	25,231	4,037	21,194	93,205	88,066	0	-25,965	155,306	134,112	7.33	2.4
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen RI	18,975	3,036	15,939	70,093	66,228	0	19,527	116,795	100,856	7.33	2.4
Envelope		DINING: MISC		Window Screen SW side - RI	2,960	474	2,486	10,935	10,332	0	3,046	18,220	15,734	7.33	2.4
Envelope		ADMIN, MISC pre 1964		Window Screen - SW side RI	2,761	442	2,319	10,200	9,637	0	2,841	16,996	14,676	7.33	2.4
Envelope		Concrete Block: Misc pre 1980		Window Screen SW side - RI	1,987	318	1,669	7,342	6,937	0	2,045	12,234	10,564	7.33	2.4
Envelope		SECURTY		Window Screen SW side RI	236	38	198	871	823	0	-243	1,452	1,254	7.33	2.4
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen RI	24,854	3,977	20,877	91,813	86,750	0	25,577	152,985	132,108	7.33	2.4
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen RI	16,478	2,637	13,842	60,872	57,516	0	16,958	101,430	87,588	7.33	2.4
Envelope		Masonite Siding post 1950		Window Screen SW side RI	7,215	1,154	6,060	26,651	25,182	0	7,425	44,409	38,348	7.33	2.4
Envelope		MWR		Window Screen SW side RI	1,151	184	967	4,253	4,018	0	1,185	7,087	6,120	7.33	2.4
Heating	20	MTRPOOL 00612	Unit Heaters	Radiant Heat RI	1,700	0	1,700	9,994	692	0	1,643	12,331	10,631	7.25	2.4

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope	Family Housing	1984		Weatherization RI	34,480	0	34,480	160,175	88,526	0	0	248,702	214,222	7.21	2.4
Motors	MTR 474	MWR 01322	Fan Motor	EEM RI	621	45	576	3,247	1,104	0	225	4,126	3,550	7.16	2.4
Motors	MTR 469	MWR 01322	Fan Motor	EEM RI	207	15	192	1,082	368	0	75	1,375	1,183	7.16	2.4
Heating	17	MTRPOOL 00840	Unit Heaters	Radiant Heat RI	6,120	0	6,120	39,093	3,114	0	1,341	43,549	37,429	7.12	2.4
Motors	MTR 34c	REC 00905	COMPMTR	VSD & EEM RI	6,854	1,039	5,815	41,277	1,774	172	1,951	40,928	35,113	7.04	2.4
Motors	PMTR 66	PLT BLDG - 00253	PMPMTR	EEM RI	864	70	794	4,260	1,449	0	318	5,391	4,597	6.79	2.5
Lighting	OS 6b	Restroom	T8 Lighting	T8 + Occupancy Controls RI	27,072	2,694	24,378	128,547	NA	34,413	NA	162,960	138,582	6.48	2.6
Motors	PMTR 88	PUMP 00044	PMPMTR	EEM - RI	1,456	120	1,336	7,618	1,484	0	508	8,593	7,257	6.43	2.7
Lighting	OS 5b	Copy Room	T8 Lighting	T8 + Occupancy Controls RI	4,536	438	4,098	20,894	NA	5,353	NA	26,247	22,149	6.40	2.7
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater - RI	8,085	0	8,085	22,058	34,021	-861	3,642	51,556	43,471	6.38	2.7
DHW & A/C	10	00037	PKG A/C	Install Desuperheater RI	1,852	0	1,852	8,326	5,103	-861	839	11,730	9,877	6.33	2.7
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater RI	1,852	0	1,852	8,326	5,103	-861	839	11,730	9,877	6.33	2.7
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat RI	760	0	760	3,587	1,125	0	-26	4,686	3,926	6.17	2.8
Motors	MTR 440	DOR - 00308	Fan Motor	EEM - RI	446	32	414	1,761	827	0	53	2,534	2,120	6.12	2.8
Motors	MTR 439	DOR - 00308	Fan Motor	EEM RI	669	48	621	2,750	1,292	0	243	3,798	3,177	6.12	2.8
Motors	MTR 475	PLT BLDG 00253	Fan Motor	EEM - RI	446	32	414	1,833	861	0	162	2,532	2,118	6.12	2.8
Motors	PMTR 117	REC 00905	PMPMTR	EEM RI	223	16	207	917	431	0	81	1,266	1,059	6.12	2.8
Motors	MTR 446	DINING 00254	Fan Motor	EEM RI	223	16	207	917	431	0	81	1,266	1,059	6.12	2.8
Vehicles	Conversion	Vehicles		CNG Vehicles	2,047,000	0	2,047,000	5,688,420	25,561	6,475,790	0	12,138,649	10,091,649	5.93	2.9
Motors	PMTR 120	WHS CLD 00862	refrigeration unit	EEM RI	5,184	420	4,764	25,036	4,876	0	1,910	28,002	23,238	5.88	2.9
Motors	PMTR 121	WHS CLD 00862	refrigeration unit	EEM - RI	2,592	210	2,382	12,518	2,438	0	955	14,001	11,619	5.88	2.9
Heating	23	MTRPOOL 00847	Unit Heaters	Radiant Heat RI	3,060	0	3,060	15,345	1,246	0	1,192	17,782	14,722	5.81	3.0
Motors	PMTR 109	PUMP 00636	PMPMTR	EEM - RI	3,588	270	3,318	13,679	6,826	0	1,290	19,215	15,897	5.79	3.0
Motors	PMTR 6c	ADMIN 00988	PMPMTR	VSD & EEM RI	4,978	320	4,658	26,618	1,744	172	1,470	26,720	22,062	5.74	3.0
Heating	22	MTRPOOL 00830	Unit Heaters	Radiant Heat RI	2,300	0	2,300	11,285	934	0	891	13,111	10,811	5.70	3.0
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater RI	1,486	0	1,486	6,568	3,402	861	473	8,436	6,950	5.68	3.0
Motors	PMTR 86	PUMP - 00324	PMPMTR	EEM - RI	1,397	120	1,277	5,028	2,679	0	481	7,226	5,949	5.66	3.0
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater RI	4,272	0	4,272	10,588	16,330	861	1,935	24,122	19,850	5.65	3.0
Motors	MTR 437a	CLINIC 00171	Fan Motor	EEM RI	1,147	90	1,057	4,316	2,027	0	399	5,945	4,888	5.62	3.1
Motors	MTR 484	WHS 00474	Fan Motor	EEM RI	414	30	384	1,567	736	0	150	2,153	1,769	5.61	3.1
Motors	PMTR 118	REC - 00322	PMPMTR	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR 482	TRAING - 01202	Fan Motor	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	PMTR 119	REC - 00362	PMPMTR	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR 445	DINING 00254	Fan Motor	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR 441	DOR - 00308	Fan Motor	EEM RI	207	15	192	784	368	0	75	1,077	885	5.61	3.1
Motors	MTR 442	DINING - 00254	Fan Motor	EEM RI	1,242	90	1,152	4,701	2,208	0	450	6,460	5,308	5.61	3.1
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat RI	1,700	0	1,700	7,681	0	0	1,643	9,324	7,624	5.48	3.1
Motors	MTR 6	HOSPITL 00166	AIRCOMP	EEM RI	1,456	120	1,336	5,579	2,173	0	-508	7,243	5,907	5.42	3.2
Motors	PMTR 106	PUMP - 00636	PMPMTR	EEM - RI	3,588	270	3,318	12,410	6,826	0	1,290	17,946	14,628	5.41	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	420	0	420	1,835	0	0	413	2,248	1,828	5.35	3.2
Envelope	MT 11a		None	Crawl Space Insulation R 19 RI	124,770	0	124,770	421,228	246,263	0	0	667,491	542,721	5.35	3.2
Motors	PMTR 89	PUMP - 00044	PMPMTR	EEM RI	1,456	120	1,336	6,259	1,219	0	-508	6,970	5,634	5.22	3.3
Heating	25	MTRPOOL 00646	Unit Heaters	Radiant Heat - RI	1,020	0	1,020	4,209	311	0	745	5,265	4,245	5.16	3.3
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater RI	2,402	0	2,402	6,609	7,655	861	1,088	12,314	9,912	5.13	3.4
Motors	MTR 483	TRAING - 01202	Fan Motor	EEM - RI	187	0	187	696	327	0	-67	955	768	5.11	3.4
Heating	26	MTRPOOL 00832	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	6,720	467	0	591	7,779	6,239	5.05	3.4
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater RI	1,486	0	1,486	5,551	3,402	861	-673	7,419	5,933	4.99	3.4
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater RI	2,219	0	2,219	6,104	6,804	861	1,005	11,042	8,823	4.98	3.5
Motors	PMTR 122	WHS CLD 00862	PMPMTR	EEM - RI	414	30	384	1,306	736	0	150	1,892	1,508	4.93	3.5
Motors	PMTR 81	PUMP - 00044	PMPMTR	EEM - RI	1,147	90	1,057	3,652	1,946	0	399	5,198	4,141	4.92	3.5
Motors	MTR 457	MWR - 01313	Fan Motor	EEM RI	374	0	374	1,444	491	0	135	1,800	1,426	4.81	3.6
Motors	MTR 460	MWR 01313	Fan Motor	EEM RI	187	0	187	722	245	0	-67	900	713	4.81	3.6
Motors	MTR 461	MWR - 01322	Fan Motor	EEM - RI	187	0	187	722	245	0	-67	900	713	4.81	3.6
Motors	MTR 462	MWR 01322	Fan Motor	EEM RI	187	0	187	722	245	0	-67	900	713	4.81	3.6
Motors	MTR 464	MWR - 01322	Fan Motor	EEM - RI	187	0	187	722	245	0	-67	900	713	4.81	3.6
Motors	MTR 466	MWR - 01322	Fan Motor	EEM - RI	187	0	187	722	245	0	-67	900	713	4.81	3.6
Motors	PMTR 100	PUMP - 00700	PMPMTR	EEM - RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR 101	PUMP - 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR 103	PUMP - 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
Motors	PMTR 102	PUMP - 00700	PMPMTR	EEM RI	2,743	200	2,543	11,056	2,153	0	987	12,222	9,679	4.81	3.6
DHW & A/C	35	00988	CHILLER	Install Desuperheater RI	3,685	0	3,685	6,104	13,608	861	1,669	17,181	13,496	4.66	3.7
Heating	1	HANGAR 06203	Unit Heaters	Radiant Heat RI	3,820	0	3,820	13,115	887	0	3,699	17,702	13,882	4.63	3.7
Motors	MTR 202	BRK/ADM - 00261	EVAP	EEM RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 199	BRK/ADM 00252	EVAP	EEM RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 197	BRK/ADM 00251	EVAP	EEM RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 200	BRK/ADM 00252	EVAP	EEM RI	223	16	207	683	348	0	-74	956	749	4.62	3.7
Motors	MTR 195	BRK/ADM 00250	EVAP	EEM RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 198	BRK/ADM - 00251	EVAP	EEM RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 196	BRK/ADM 00250	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 193	BRK/ADM 00249	EVAP	EEM - RI	223	16	207	683	348	0	74	956	749	4.62	3.7
Motors	MTR 238	BRK/ADM 00534	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 192	BRK/ADM 00104	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 214	BRK/ADM 00416	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	-486	5,734	4,492	4.62	3.7
Motors	MTR 222	BRK/ADM 00434	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 191	BRK/ADM 00103	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 223	BRK/ADM 00440	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 224	BRK/ADM 00448	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 231	BRK/ADM 00512	EVAP	EEM - RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 239	BRK/ADM 00540	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 232	BRK/ADM 00514	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 233	BRK/ADM 00516	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 234	BRK/ADM 00518	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 237	BRK/ADM 00530	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 190	BRK/ADM 00102	EVAP	EEM RI	1,338	96	1,242	4,121	2,099	0	486	5,734	4,492	4.62	3.7
Motors	MTR 212	BRK/ADM 00413	EVAP	EEM RI	892	64	828	2,748	1,399	0	324	3,823	2,995	4.62	3.7
Motors	MTR 194	BRK/ADM 00249	EVAP	EEM RI	223	16	207	687	350	0	81	956	749	4.62	3.7
Motors	MTR 250	CLUB 00202	EVAP	EEM RI	223	16	207	687	350	0	81	956	749	4.62	3.7
Motors	MTR 189	BRK/ADM 00498	EVAP	EEM RI	223	16	207	687	350	0	81	956	749	4.62	3.7
Motors	MTR 248	CLUB 00021	EVAP	EEM RI	446	32	414	1,352	704	0	176	1,910	1,496	4.61	3.7
Motors	MTR 155	BRK ADM 00314	EVAP	EEM RI	223	16	207	691	352	0	88	955	748	4.61	3.7
Motors	MTR 230	BRK/ADM 00511	EVAP	EEM RI	1,115	80	1,035	3,476	1,770	0	473	4,773	3,738	4.61	3.7

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 236	BRK/ADM - 00523	EVAP	EEM - RI	1,338	96	1,242	4,171	2,124	0	567	5,727	4,485	4.61	3.7
Motors	MTR 201	BRK/ADM 00261	EVAP	EEM RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 203	BRK/ADM 00262	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 210	BRK/ADM - 00267	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 204	BRK/ADM - 00262	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 205	BRK/ADM - 00264	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 206	BRK/ADM - 00264	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 207	BRK/ADM - 00265	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 208	BRK/ADM 00265	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 209	BRK/ADM - 00267	EVAP	EEM - RI	223	16	207	699	356	0	101	954	747	4.61	3.7
Motors	MTR 211	BRK/ADM - 00412	EVAP	EEM - RI	4,906	352	4,554	15,379	7,832	0	-2,222	20,989	16,435	4.61	3.7
Motors	PMTR 5e	ADMIN - 00988	PMPMTR	VSD & EEM - RI	3,132	172	2,960	13,218	660	172	954	12,752	9,792	4.31	4.0
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - RI	1,540	0	1,540	5,480	467	0	591	6,539	4,999	4.25	4.1
Motors	PMTR 110	PUMP - 05996	PMPMTR	EEM - RI	5,795	450	5,345	16,692	8,065	0	2,184	22,573	17,228	4.22	4.1
Heating	34	SHOP 20018	Unit Heaters	Radiant Heat - RI	1,200	0	1,200	3,766	1,180	0	101	5,047	3,847	4.21	4.1
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater - RI	2,512	0	2,512	4,248	8,165	861	-1,138	10,414	7,902	4.15	4.2
Motors	PMTR 113	PUMP - 00319	PMPMTR	EEM - RI	4,304	320	3,984	11,790	6,166	0	1,585	16,371	12,387	4.11	4.2
Motors	PMTR 112	PUMP - 00319	PMPMTR	EEM - RI	4,304	320	3,984	11,573	6,166	0	-1,585	16,154	12,170	4.05	4.2
Motors	MTR 428	ADMIN 00988	Fan Motor	EEM - RI	2,445	175	2,270	8,447	1,645	0	892	9,200	6,930	4.05	4.2
Motors	PMTR 40	HOSPITL - 00164	PMPMTR	EEM - RI	978	70	908	3,379	658	0	357	3,680	2,772	4.05	4.2
Motors	PMTR 39	HOSPITL - 00164	PMPMTR	EEM - RI	978	70	908	3,379	658	0	357	3,680	2,772	4.05	4.2
Motors	PMTR 41	HOSPITL - 00164	PMPMTR	EEM - RI	489	35	454	1,689	329	0	178	1,840	1,386	4.05	4.2
Motors	PMTR 82	PUMP - 00324	PMPMTR	EEM - RI	207	15	192	784	69	0	-75	778	586	4.05	4.3
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls - RI	60,139	15,146	44,994	112,461	NA	68,119	NA	180,580	135,586	4.01	4.3
Motors	PMTR 114	PUMP - 00663	PMPMTR	EEM - RI	9,174	550	8,624	23,902	13,473	0	-3,230	34,145	25,521	3.96	4.3
Motors	MTR 39	ADMIN - 00985	CONDMTR	EEM - RI	446	32	414	926	861	0	-162	1,625	1,211	3.92	4.4
Motors	MTR 38	ADMIN - 00985	CONDMTR	EEM - RI	223	16	207	463	431	0	-81	812	605	3.92	4.4
Motors	PMTR 108	PUMP - 00652	PMPMTR	EEM RI	3,588	270	3,318	7,274	6,826	0	1,290	12,810	9,492	3.86	4.5
Motors	MTR 258	DOR - 00909	EVAP	EEM - RI	223	16	207	498	336	0	-35	798	591	3.86	4.5
Motors	MTR 417	WHS 00934	EVAP	EEM - RI	669	48	621	1,504	1,015	0	-130	2,389	1,768	3.85	4.5
Motors	MTR 259	DOR - 00909	EVAP	EEM - RI	446	32	414	1,010	682	0	103	1,589	1,175	3.84	4.5
Motors	PMTR 30	DOR - 00430	PMPMTR	EEM - RI	207	15	192	443	368	0	75	736	544	3.83	4.5
Motors	MTR 424	ADMIN 00988	Fan Motor	EEM - RI	207	15	192	443	368	0	-75	736	544	3.83	4.5
Motors	MTR 431	ADMIN - 00988	Fan Motor	EEM - RI	1,242	90	1,152	2,659	2,208	0	450	4,417	3,265	3.83	4.5
Envelope	MT-10		Single pane window	Shade Screens - NW side - RI	6,138	0	6,138	15,377	14,439	0	4,317	23,500	17,362	3.83	4.5
Envelope		U Shaped Bldgs: Barracks		Window Screen - NW Side - RI	14,183	0	14,183	35,532	33,364	0	14,596	54,300	40,117	3.83	4.5
Envelope		Concrete Block: Barracks		Window Screen - NW Side RI	4,778	0	4,778	11,969	11,238	0	4,917	18,290	13,513	3.83	4.5
Envelope		U Shaped Bldgs: Other		Window Screen - NW Side - RI	2,025	0	2,025	5,074	4,764	0	-2,084	7,753	5,728	3.83	4.5
Envelope		Masonite Siding: post 1950		Window Screen - NW Side RI	1,804	0	1,804	4,519	4,243	0	1,856	6,905	5,102	3.83	4.5
Envelope		TRAINING		Window Screen NW Side RI	403	0	403	1,010	948	0	415	1,543	1,140	3.83	4.5
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	27,001	0	27,001	67,643	63,517	0	-27,787	103,373	76,372	3.83	4.5
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen - RI	25,231	0	25,231	63,209	59,353	0	25,965	96,596	71,365	3.83	4.5
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen - RI	24,679	0	24,679	61,826	58,054	0	-25,397	94,482	69,803	3.83	4.5
Envelope		Metal Siding		Window Screen - NW Side RI	13,120	0	13,120	32,869	30,864	0	13,502	50,230	37,110	3.83	4.5
Envelope		Concrete Block: Misc pre 1980		Window Screen - NW Side RI	1,987	0	1,987	4,979	4,675	0	-2,045	7,609	5,622	3.83	4.5
Envelope		SHOP		Window Screen NW Side - RI	1,216	0	1,216	3,047	2,861	0	-1,252	4,657	3,440	3.83	4.5
Envelope		DINING, MISC		Window Screen' NW Side RI	740	0	740	1,854	1,741	0	762	2,833	2,093	3.83	4.5
Envelope		BRK/ADM MISC		Window Screen NW Side RI	662	0	662	1,659	1,558	0	681	2,535	1,873	3.83	4.5
Envelope		Wood Siding		Window Screen NW Side - RI	551	0	551	1,380	1,295	0	567	2,108	1,558	3.83	4.5
Envelope		MWR		Window Screen - NW Side RI	228	0	228	721	677	0	296	1,102	814	3.83	4.5
Envelope		WHS		Window Screen - NW Side RI	254	0	254	637	598	0	261	973	719	3.83	4.5
Envelope		SECURTY		Window Screen NW Side - RI	59	0	59	148	139	0	61	226	167	3.83	4.5
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen RI	18,975	0	18,975	47,535	44,635	0	19,527	72,643	53,668	3.83	4.5
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side - RI	4,771	0	4,771	11,952	11,223	0	-4,910	18,266	13,495	3.83	4.5
Envelope		MOTORPOOL		Window Screen NW Side RI	1,242	0	1,242	3,111	2,921	0	1,278	4,754	3,512	3.83	4.5
Envelope		ADMIN: MISC pre 1964		Window Screen NW Side - RI	690	0	690	1,729	1,624	0	710	2,643	1,952	3.83	4.5
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen RI	16,478	0	16,478	41,281	38,763	0	16,958	63,086	46,608	3.83	4.5
Envelope		Concrete Block: Misc -post 1980		Window Screen NW Side - RI	1,733	0	1,733	4,342	4,078	0	1,784	6,636	4,903	3.83	4.5
Envelope		ADMIN: MISC post 1964		Window Screen NW Side RI	1,218	0	1,218	3,052	2,865	0	-1,254	4,663	3,445	3.81	4.5
Motors	MTR 128	ADMIN - 00441	EVAP	EEM RI	446	32	414	1,017	686	0	-118	1,585	1,171	3.83	4.5
Motors	MTR 166	ADMIN - 00544	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR 150	ADMIN - 00504	EVAP	EEM RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR 148	ADMIN - 00499	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR 132	ADMIN - 00444	EVAP	EEM - RI	446	32	414	1,017	686	0	118	1,585	1,171	3.83	4.5
Motors	MTR 245	CLINIC 00242	EVAP	EEM - RI	446	32	414	1,017	686	0	-118	1,585	1,171	3.83	4.5
Motors	MTR 156	ADMIN - 00524	EVAP	EEM - RI	1,338	96	1,242	3,051	2,059	0	355	4,755	3,513	3.83	4.5
Motors	MTR 124	ADMIN - 00436	EVAP	EEM - RI	669	48	621	1,525	1,029	0	178	2,377	1,756	3.83	4.5
Motors	MTR 246	CLINIC 00245	EVAP	EEM RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 347	SECURTY - 00326	EVAP	EEM RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 159	ADMIN 00528	EVAP	EEM - RI	223	16	207	508	343	0	59	792	585	3.83	4.5
Motors	MTR 163	ADMIN 00543	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR 130	ADMIN - 00441	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR 147	ADMIN 00498	EVAP	EEM - RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR 155	ADMIN - 00521	EVAP	EEM RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR 131	ADMIN 00443	EVAP	EEM RI	223	16	207	508	343	0	-59	792	585	3.83	4.5
Motors	MTR 25	HOTEL - 00902	COMPMTR	EEM RI	748	0	748	2,147	982	0	-270	2,859	2,111	3.82	4.5
Motors	MTR 23	HOTEL 00900	COMPMTR	EEM RI	748	0	748	2,147	982	0	270	2,859	2,111	3.82	4.5
Motors	MTR 24	HOTEL 00901	COMPMTR	EEM RI	748	0	748	2,147	982	0	270	2,859	2,111	3.82	4.5
Motors	MTR 26	HOTEL 00903	COMPMTR	EEM - RI	748	0	748	2,147	982	0	270	2,859	2,111	3.82	4.5
Motors	MTR 28	HOTEL - 00906	COMPMTR	EEM RI	748	0	748	2,147	982	0	270	2,859	2,111	3.82	4.5
Motors	MTR 27	HOTEL - 00904	COMPMTR	EEM RI	561	0	561	1,610	736	0	202	2,144	1,583	3.82	4.5
Motors	MTR 103	ADMIN - 00237	EVAP	EEM RI	1,784	128	1,656	4,095	2,763	0	534	6,325	4,669	3.82	4.5
Motors	MTR 411	WHS - 00827	EVAP	EEM - RI	669	48	621	1,536	1,036	0	200	2,372	1,751	3.82	4.5
Motors	MTR 105	ADMIN - 00241	EVAP	EEM - RI	669	48	621	1,536	1,036	0	200	2,372	1,751	3.82	4.5
Motors	MTR 304	MTRPOOL 00680	EVAP	EEM RI	446	32	414	1,024	691	0	133	1,581	1,167	3.82	4.5
Motors	MTR 306	MTRPOOL 00681	EVAP	EEM RI	446	32	414	1,024	691	0	133	1,581	1,167	3.82	4.5
Motors	MTR 254	DOR 00306	EVAP	EEM - RI	446	32	414	1,024	691	0	133	1,581	1,167	3.82	4.5
Motors	MTR 412	WHS 00827	EVAP	EEM - RI	223	16	207	512	345	0	-67	791	584	3.82	4.5
Motors	MTR 410	WHS 00827	EVAP	EEM RI	223	16	207	512	345	0	-67	791	584	3.82	4.5
Motors	MTR 256	DOR - 00404	EVAP	EEM RI	223	16	207	512	345	0	67	791	584	3.82	4.5
Motors	MTR 261	DINING 00254	EVAP	EEM RI	223	16	207	515	348	0	74	789	582	3.81	4.5

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 336	PLT BLDG 00253	EVAP	EEM RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR 335	PLT BLDG 00253	EVAP	EEM RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR 260	DINING - 00254	EVAP	EEM RI	223	16	207	515	348	0	74	789	582	3.81	4.5
Motors	MTR 354	SHOP 00367	EVAP	EEM RI	1,115	80	1,035	2,592	1,749	0	405	3,935	2,900	3.80	4.5
Motors	MTR 153	ADMIN - 00513	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 171	ADMIN - 00570	EVAP	EEM - RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 361	SHOP ELC - 00581	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 401	WHS 00517	EVAP	EEM - RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 357	SHOP 00384	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 382	WHS 00342	EVAP	EEM RI	892	64	828	2,073	1,399	0	324	3,148	2,320	3.80	4.5
Motors	MTR 160	ADMIN - 00528	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 384	WHS - 00352	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 386	WHS - 00364	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 154	ADMIN - 00520	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 175	ADMIN 00583	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 157	ADMIN - 00526	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 118	ADMIN - 00415	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 97	01315	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 362	SHOP ELC 00616	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 294	MTRPOOL 00621	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 381	WHS 00342	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 355	SHOP 00367	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 415	WHS - 00860	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 296	MTRPOOL 00623	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 383	WHS 00344	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 262	DINING 00431	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 380	WHS 00333	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 242	CHAPEL - 00315	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 350	SHOP 00356	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 376	WHS - 00318	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 162	ADMIN - 00539	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 114	ADMIN - 00372	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 116	ADMIN - 00408	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 317	MTRPOOL - 00850	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 286	MTRPOOL - 00605	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 119	ADMIN - 00425	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 133	ADMIN - 00445	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	PMTR 28	DGR 00430	PMPMTR	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 320	MTRPOOL 00941	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 291	MTRPOOL - 00612	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 394	WHS 00470	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 141	ADMIN - 00464	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 292	MTRPOOL - 00614	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 340	PUMP - 00044	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 388	WHS 00364	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 280	MTRPOOL - 00600	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 137	ADMIN - 00453	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 344	REC 00338	EVAP	EEM RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 240	CHAPEL - 00212	EVAP	EEM - RI	446	32	414	1,037	700	0	162	1,574	1,160	3.80	4.5
Motors	MTR 310	MTRPOOL - 00837	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 309	MTRPOOL - 00832	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 358	SHOP - 00842	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 311	MTRPOOL - 00840	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 359	SHOP 00842	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 407	WHS 00584	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 333	MWR 01322	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 342	PUMP - 00838	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 360	SHOP ELC - 00581	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 405	WHS - 00545	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 416	WHS - 00860	EVAP	EEM - RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 399	WHS 00486	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 392	WHS 00462	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 393	WHS - 00462	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 385	WHS 00360	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 379	WHS 00333	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 377	WHS - 00318	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 363	SHOP WPN - 07602	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 413	WHS 00844	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 371	WHS - 00234	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 367	TRAING - 00496	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 368	TRAING - 00496	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 370	WHS 00024	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 387	WHS - 00364	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 374	WHS - 00318	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 375	WHS - 00318	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 414	WHS - 00840	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 406	WHS - 00558	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 396	WHS 00470	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 270	DINING 00560	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 324	MWR 00410	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 308	MTRPOOL - 00832	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 300	MTRPOOL - 00646	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 352	SHOP 00357	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 331	MWR 01322	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 323	MWR - 00340	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 325	MWR 00450	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 400	WHS 00486	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 326	MWR 00556	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 408	WHS 00585	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 353	SHOP 00357	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5
Motors	MTR 332	MWR 01322	EVAP	EEM RI	223	16	207	518	350	0	81	787	580	3.80	4.5

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources, Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 283	MTRPOOL - 00600	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 267	DINING 00449	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 255	DOR 00404	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 402	WHS - 00531	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 403	WHS - 00531	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 356	SHOP - 00384	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 351	SHOP - 00357	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 298	MTRPOOL - 00639	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 313	MTRPOOL - 00840	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 164	ADMIN 00543	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 151	ADMIN 00508	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 152	ADMIN 00510	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 158	ADMIN 00527	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 161	ADMIN 00529	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 169	ADMIN 00534	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 146	ADMIN 00497	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 172	ADMIN - 00578	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 173	ADMIN 00579	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 174	ADMIN - 00580	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 176	ADMIN 00604	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 149	ADMIN 00504	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 145	ADMIN 00483	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 186	ADMIN 06201	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 115	ADMIN 00372	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 101	ADMIN 00157	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 104	ADMIN 00237	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 112	ADMIN 00320	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 113	ADMIN 00372	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 121	ADMIN 00428	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 144	ADMIN 00479	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 125	ADMIN 00437	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 138	ADMIN 00454	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 140	ADMIN 00458	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 142	ADMIN - 00464	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 182	ADMIN 00988	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 177	ADMIN 00604	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 187	ADMIN 07600	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 297	MTRPOOL - 00626	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 284	MTRPOOL - 00605	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 272	FUELDSP - 00950	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 285	MTRPOOL - 00605	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 265	DINING 00447	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 287	MTRPOOL - 00605	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 295	MTRPOOL - 00621	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 314	MTRPOOL - 00847	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 288	MTRPOOL - 00608	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 289	MTRPOOL 00608	EVAP	EEM - RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 293	MTRPOOL 00620	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 290	MTRPOOL 00612	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 299	MTRPOOL - 00642	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 316	MTRPOOL - 00850	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 271	FUELDSP 00836	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 315	MTRPOOL 00847	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 302	MTRPOOL - 00650	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 247	CLINIC - 00245	EVAP	EEM RI	223	16	207	518	350	0	-81	787	580	3.80	4.5
Motors	MTR 268	DINING 00468	EVAP	EEM RI	1,338	96	1,242	3,110	2,099	0	-486	4,723	3,481	3.80	4.5
Motors	MTR 135	ADMIN - 00452	EVAP	EEM RI	1,338	96	1,242	3,110	2,099	0	-486	4,723	3,481	3.80	4.5
Motors	MTR 257	DOR - 00430	EVAP	EEM RI	1,338	96	1,242	3,110	2,099	0	-486	4,723	3,481	3.80	4.5
Motors	MTR 170	ADMIN 00564	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 120	ADMIN 00426	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 165	ADMIN 00544	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 312	MTRPOOL - 00840	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 127	ADMIN 00439	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 307	MTRPOOL 00830	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 123	ADMIN - 00433	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 139	ADMIN - 00458	EVAP	EEM RI	669	48	621	1,555	1,049	0	-243	2,361	1,740	3.80	4.5
Motors	MTR 185	ADMIN 06201	EVAP	EEM RI	446	32	414	1,049	708	0	-189	1,568	1,154	3.79	4.5
Motors	MTR 98	ADMIN 00101	EVAP	EEM RI	1,338	96	1,242	3,147	2,124	0	-567	4,704	3,462	3.79	4.5
Motors	MTR 334	OTHER - 00992	EVAP	EEM RI	223	16	207	525	354	0	-95	784	577	3.79	4.5
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat RI	9,180	0	9,180	31,845	2,129	0	710	34,705	25,525	3.78	4.6
Motors	MTR 339	PLT BLDG - 00263	EVAP	EEM RI	446	32	414	1,055	712	0	-202	1,565	1,151	3.78	4.6
Motors	MTR 338	PLT BLDG 00263	EVAP	EEM RI	223	16	207	528	356	0	-101	782	575	3.78	4.6
Heating	19	MTRPOOL 00650	Unit Heaters	Radiant Heat RI	2,120	0	2,120	5,480	433	0	2,056	7,969	5,849	3.76	4.6
Motors	PMTR 84	PUMP - 18005	PMPMTR	EEM RI	7,220	500	6,780	18,093	10,104	0	-2,781	25,416	18,636	3.75	4.6
Motors	MTR 420	ADMIN - 00439	Fan Motor	EEM RI	187	0	187	523	245	0	-67	701	514	3.75	4.6
Motors	MTR 419	ADMIN - 00433	Fan Motor	EEM RI	187	0	187	523	245	0	-67	701	514	3.75	4.6
Lighting	OSMT-5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls RI	4,536	265	4,271	12,635	NA	3,251	NA	15,886	11,615	3.72	4.6
DHW & AC	19	00237	AIR CONDITIONER	Install Desuperheater RI	1,852	0	1,852	3,462	5,103	861	839	6,865	5,013	3.71	4.6
Heating	2	HANGAR BD007	Unit Heaters	Radiant Heat RI	12,240	0	12,240	41,450	2,839	0	947	45,236	32,996	3.70	4.7
Heating	4	HANGAR BD009	Unit Heaters	Radiant Heat RI	12,240	0	12,240	41,450	2,839	0	947	45,236	32,996	3.70	4.7
Heating	42	SHOP - HD6DS	Unit Heaters	Radiant Heat RI	11,480	0	11,480	37,912	0	0	4,466	42,379	30,899	3.69	4.7
DHW & AC	30	00857	Chiller air cooled	Install Desuperheater - RI	3,685	0	3,685	2,320	13,608	861	-1,669	13,398	9,712	3.64	4.7
Wells	1		Well Pumps	Add New 500 kgal. Tank RI	210,500	0	210,500	442,299	275,857	4,305	51,131	764,981	554,481	3.63	4.7
Motors	PMTR 67	PLT BLDG 00253	PMPMTR	EEM RI	864	70	794	2,390	813	0	-318	2,884	2,090	3.63	4.7
Motors	PMTR 91	PUMP 00042	PMPMTR	EEM RI	1,147	90	1,057	2,957	1,261	0	-399	3,819	2,762	3.61	4.8
Motors	PMTR 90	PUMP 00044	PMPMTR	EEM RI	1,147	90	1,057	2,957	1,261	0	-399	3,819	2,762	3.61	4.8
Motors	MTR 183	ADMIN 00988	EVAP	EEM RI	207	15	192	427	228	0	24	691	499	3.60	4.8
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES RI	432,000	78,000	354,000	748,165	524,852	25,831	0	1,247,186	893,186	3.52	4.9
Motors	MTR 14	CLUB 00202	COMPMTR	EEM RI	187	0	187	479	245	0	-67	657	470	3.51	4.9
Motors	MTR 15	CLUB 00202	COMPMTR	EEM RI	748	0	748	1,917	982	0	-270	2,629	1,831	3.51	4.9
Motors	MTR 17	CLUB 00202	COMPMTR	EEM RI	748	0	748	1,917	982	0	-270	2,629	1,831	3.51	4.9

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 16	CLUB 00202	COMPMTR	EEM - RI	374	0	374	958	491	0	135	1,314	940	3.51	4.9
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater RI	2,952	0	2,952	2,282	10,206	861	1,337	10,290	7,338	3.49	4.9
Motors	MTR 42	CLUB 00202	CONDMTR	EEM - RI	187	0	187	474	245	0	67	652	465	3.49	4.9
Motors	MTR 184	ADMIN 00988	EVAP	EEM RI	414	30	384	826	598	0	150	1,334	950	3.47	5.0
Motors	MTR 301	MTRPOOL 00646	EVAP	EEM RI	414	30	384	826	598	0	150	1,334	950	3.47	5.0
Motors	PMTR 37	GROCERY 00920	PMPMTR	EEM - RI	207	15	192	443	299	0	75	667	475	3.47	5.0
Motors	MTR 181	ADMIN - 00988	EVAP	EEM RI	207	15	192	443	299	0	75	667	475	3.47	5.0
Motors	PMTR 35	GROCERY 00920	PMPMTR	EEM RI	207	15	192	443	299	0	75	667	475	3.47	5.0
DHW & A/C	28	00488	PKG A/C	Install Desuperheater RI	3,685	0	3,685	1,593	13,608	861	1,669	12,671	8,986	3.44	5.0
Motors	MTR 456	MTRPOOL 00857	Fan Motor	EEM RI	1,397	120	1,277	3,627	1,233	0	481	4,380	3,103	3.43	5.0
Motors	PMTR 83	PUMP - 18005	PMPMTR	EEM - RI	7,280	500	6,780	15,367	10,104	0	2,781	22,690	15,910	3.35	5.1
Motors	MTR 37	WHSCLD 00862	COMPMTR	EEM - RI	187	0	187	446	245	0	-67	624	437	3.34	5.2
Motors	PMTR 17c	BRK/ADM 00273	PMPMTR	VSD & EEM - RI	8,032	402	7,630	26,001	2,049	344	2,358	25,347	17,717	3.32	5.2
Motors	PMTR 16c	BRK/ADM 00273	PMPMTR	VSD & EEM - RI	8,032	402	7,630	26,001	2,049	344	2,358	25,347	17,717	3.32	5.2
Motors	PMTR 15c	BRK/ADM 00273	PMPMTR	VSD & EEM RI	4,016	201	3,815	13,000	1,024	172	1,179	12,673	8,859	3.32	5.2
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat RI	1,540	0	1,540	4,209	311	0	591	5,112	3,572	3.32	5.2
Motors	PMTR 19	BRK/ADM 00099	PMPMTR	EEM - RI	187	0	187	359	327	0	-67	619	432	3.31	5.2
Motors	MTR 13	WHS - 00552	AIRCOMP	EEM RI	414	30	384	685	736	0	150	1,271	887	3.31	5.2
Motors	PMTR 7c	ADMIN 00985	PMPMTR	VSD & EEM - RI	4,040	184	3,856	13,565	757	344	1,220	12,757	8,900	3.31	5.2
DHW & A/C	1	00013	CHILLER air cooled	Install Desuperheater RI	3,319	0	3,319	1,410	11,907	861	1,503	10,953	7,635	3.30	5.2
Motors	PMTR 18	BRK/ADM 00110	PMPMTR	EEM - RI	187	0	187	355	324	0	-67	412	425	3.27	5.3
Motors	PMTR 111	PUMP 05997	PMPMTR	EEM RI	5,795	450	5,345	11,541	8,065	0	2,184	17,422	12,077	3.26	5.3
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater RI	1,302	0	1,302	3,092	2,552	861	590	4,192	2,890	3.22	5.3
Motors	PMTR 65	PLT BLDG - 00253	PMPMTR	EEM RI	1,104	80	1,024	2,740	932	0	391	3,281	2,257	3.20	5.4
Motors	PMTR 69	PLT BLDG 00263	PMPMTR	EEM RI	1,104	80	1,024	2,740	932	0	391	3,281	2,257	3.20	5.4
Envelope	MWR	MWR		Weatherization - RI	1,364	0	1,364	2,786	1,540	0	0	4,326	2,960	3.17	5.4
Motors	MTR 526	Fam Housing	Heat System Fan	EEM RI	305,932	0	305,932	438,229	630,336	0	100,295	968,270	662,338	3.16	5.4
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	10,830	0	10,830	32,881	2,205	0	975	34,111	23,281	3.15	5.5
Motors	PMTR 115	PUMP - 00043	PMPMTR	EEM RI	3,588	270	3,318	7,445	4,194	0	1,285	10,354	7,036	3.12	5.5
Motors	PMTR 92	PUMP - 00044	PMPMTR	EEM - RI	3,588	270	3,318	7,379	4,194	0	1,285	10,288	6,970	3.10	5.6
Controls	MT 1		Thermostat	Night Setback - RI	150,400	0	150,400	427,670	104,982	0	-68,127	464,525	314,125	3.09	5.6
Motors	PMTR 99	PUMP - 00324	PMPMTR	EEM - RI	1,147	90	1,057	2,366	1,261	0	399	3,228	2,171	3.05	5.6
Motors	PMTR 2a	ADMIN - 00988	PMPMTR	EEM - RI	489	35	454	927	626	0	178	1,374	920	3.03	5.7
Heating	40	SHOP HDSDT	Unit Heaters	Radiant Heat - RI	19,120	0	19,120	54,595	0	0	2,445	57,041	37,921	2.98	5.8
Motors	PMTR 60c	PLT-BLDG 00263	PMPMTR	VSD & EEM RI	6,314	259	6,055	16,682	2,393	172	-1,867	17,035	10,980	2.81	6.1
Heating	8	MTRPOOL 00680	Unit Heaters	Radiant Heat RI	10,830	0	10,830	29,182	2,205	0	975	30,412	19,582	2.81	6.1
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	1,119	0	1,119	2,775	1,701	861	507	3,109	1,990	2.78	6.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	520	0	520	1,076	0	0	368	1,444	924	2.78	6.2
Heating	10	MTRPOOL 00626	Unit Heaters	Radiant Heat RI	1,700	0	1,700	4,209	346	0	101	4,655	2,955	2.74	6.3
Heating	11	MTRPOOL 00623	Unit Heaters	Radiant Heat - RI	1,700	0	1,700	4,209	346	0	101	4,655	2,955	2.74	6.3
Motors	PMTR 32	DINING - 00254	PMPMTR	EEM - RI	207	15	192	222	368	0	-75	515	323	2.68	6.4
Motors	MTR 449	GROCERY - 00920	Fan Motor	EEM RI	1,397	120	1,277	2,626	1,233	0	481	3,378	2,101	2.65	6.5
Motors	MTR 9	MTRPOOL 00873	AIRCOMP	EEM - RI	1,147	90	1,057	1,535	1,651	0	399	2,787	1,730	2.64	6.5
Motors	MTR 11	PUMP 00652	AIRCOMP	EEM - RI	1,147	90	1,057	1,535	1,651	0	399	2,787	1,730	2.64	6.5
Motors	PMTR 80	PUMP - 05590	PMPMTR	EEM - RI	9,174	550	8,624	12,208	13,473	0	3,230	22,450	13,826	2.60	6.6
Motors	PMTR 104	PUMP - 00700	PMPMTR	EEM RI	3,588	270	3,318	6,934	2,956	0	1,265	8,626	5,308	2.60	6.6
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater RI	1,632	0	1,632	1,720	4,082	861	739	4,202	2,570	2.57	6.7
Heating	18	MTRPOOL 00608	Unit Heaters	Radiant Heat - RI	2,560	0	2,560	3,858	260	0	2,460	6,578	4,018	2.57	6.7
Heating	29	MTRPOOL 00941	Unit Heaters	Radiant Heat - RI	2,560	0	2,560	4,428	260	0	1,857	6,544	3,984	2.56	6.7
Envelope	w/ 8B win only	Concrete Block: w/ 8B win only		Weatherization - RI	4,195	0	4,195	6,871	3,798	0	0	10,669	6,474	2.54	6.8
Motors	MTR 22	HOSPITL - 00166	COMPMTR	EEM - RI	489	35	454	909	416	0	178	1,147	693	2.53	6.8
Motors	MTR 447	GROCERY 00920	Fan Motor	EEM - RI	1,456	120	1,336	2,595	1,219	0	508	3,306	1,970	2.47	7.0
Motors	MTR 436a	CLINIC - 00171	Fan Motor	EEM - RI	728	60	668	1,298	610	0	254	1,653	985	2.47	7.0
Motors	MTR 450	GROCERY 00920	Fan Motor	EEM RI	728	60	668	1,298	610	0	254	1,653	985	2.47	7.0
Motors	MTR 481	REC - 00905	Fan Motor	EEM - RI	552	40	512	992	466	0	195	1,262	750	2.47	7.0
Motors	MTR 477	PUMP - 00324	Fan Motor	EEM RI	552	40	512	992	466	0	195	1,262	750	2.47	7.0
Motors	MTR 467a	MWR 01322	Fan Motor	EEM - RI	489	35	454	968	329	0	178	1,118	664	2.46	7.0
Motors	PMTR 59c	PLT BLDG - 00253	PMPMTR	VSD & EEM RI	8,032	331	7,701	19,621	2,049	344	2,358	18,967	11,266	2.46	7.0
Motors	MTR 524a	DOR - 00308	VENTLTR	EEM - RI	552	40	512	954	448	0	156	1,247	735	2.44	7.1
Motors	MTR 438a	CLINIC - 00171	Fan Motor	EEM - RI	1,794	135	1,659	3,147	1,478	0	632	3,992	2,333	2.41	7.2
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	1,852	0	1,852	1,053	5,103	861	839	4,456	2,604	2.41	7.2
Motors	PMTR 85	PUMP - 18005	PMPMTR	EEM - RI	7,280	500	6,780	8,931	10,104	0	2,781	16,254	9,474	2.40	7.2
Motors	PMTR 4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	1,957	66	1,891	4,689	626	172	422	4,521	2,630	2.39	7.2
Motors	PMTR 77	PUMP - 00324	PMPMTR	EEM - RI	1,147	90	1,057	2,684	236	0	399	2,521	1,464	2.39	7.2
Motors	PMTR 105	PUMP - 00652	PMPMTR	EEM - RI	489	35	454	810	445	0	178	1,077	623	2.37	7.3
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	1,376	0	1,376	1,851	2,892	861	623	3,259	1,883	2.37	7.3
HVAC	MT 3		Heat pump	2 speed compressor RI	240,507	0	240,507	342,991	334,687	0	108,943	568,735	328,228	2.36	7.3
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,612	311	0	1,192	7,115	4,055	2.33	7.4
Motors	PMTR 58	PLT-BLDG 00109	PMPMTR	EEM - RI	207	15	192	222	299	0	-75	446	254	2.32	7.4
Motors	MTR 19	GROCERY 00920	COMPMTR	EEM - RI	1,456	120	1,336	2,380	1,219	0	508	3,091	1,755	2.31	7.4
Motors	MTR 20	GROCERY - 00920	COMPMTR	EEM RI	728	60	668	1,190	610	0	254	1,545	877	2.31	7.4
Motors	MTR 18	GROCERY - 00920	COMPMTR	EEM RI	728	60	668	1,190	610	0	254	1,545	877	2.31	7.4
Motors	PMTR 24	BRK/ADM 00273	PMPMTR	EEM - RI	207	15	192	133	385	0	-75	443	251	2.31	7.5
Motors	MTR 21	GROCERY 00920	COMPMTR	EEM RI	9,384	680	8,704	15,460	7,919	0	3,320	20,058	11,354	2.30	7.5
Motors	MTR 329	MWR - 01322	EVAP	EEM - RI	187	0	187	296	199	0	67	427	240	2.29	7.5
Heating	12	MTRPOOL - 00821	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,480	311	0	1,192	6,983	3,923	2.28	7.5
Motors	MTR 49	WHSCLD 00842	CONDMTR	EEM - RI	187	0	187	264	230	0	-67	427	240	2.28	7.5
Motors	MTR 43	GROCERY 00920	CONDMTR	EEM RI	1,456	120	1,336	2,380	1,143	0	508	3,014	1,678	2.26	7.6
Motors	PMTR 26	CLINIC - 00171	PMPMTR	EEM RI	2,294	180	2,114	3,036	2,521	0	798	4,759	2,645	2.25	7.6
Motors	PMTR 27	CLINIC - 00171	PMPMTR	EEM RI	2,294	180	2,114	3,036	2,521	0	798	4,759	2,645	2.25	7.6
Envelope	MT 5		Black EDPM	Reflective roof RI	223,920	0	223,920	275,786	225,782	0	0	501,567	277,647	2.24	7.7
Motors	PMTR 78	PUMP - 05590	PMPMTR	EEM RI	9,174	550	8,624	7,508	11,586	0	711	18,383	9,759	2.13	8.1
Motors	PMTR 53a	PLT-BLDG 00263	PMPMTR	EEM - RI	1,794	135	1,659	1,773	2,393	0	432	3,533	1,874	2.13	8.1
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater RI	1,691	0	1,691	871	4,355	861	766	3,598	1,907	2.13	8.1
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater RI	1,691	0	1,691	871	4,355	841	766	3,598	1,907	2.13	8.1
Heating	27	MTRPOOL 00893	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,919	311	0	237	6,467	3,407	2.11	8.1
Heating	16	MTRPOOL 00850	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,450	311	0	671	6,462	3,402	2.11	8.2
Heating	14	MTRPOOL 00620	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,450	311	0	671	6,462	3,402	2.11	8.2
Motors	MTR 92	HOTEL 00904	COOL	EEM RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR 87	HOSPITL 00166	COOL	EEM RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR 93	HOTEL 00906	COOL	EEM RI	187	0	187	270	201	0	-79	392	205	2.10	8.2

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 91	HOTEL 00903	COOL	EEM - RI	187	0	187	270	201	0	79	392	205	2.10	8.2
Motors	MTR 86	HOSPITL - 00164	COOL	EEM - RI	187	0	187	270	201	0	-79	392	205	2.10	8.2
Motors	MTR 88	HOTEL - 00900	COOL	EEM RI	187	0	187	270	201	0	79	392	205	2.10	8.2
Motors	MTR 89	HOTEL 00901	COOL	EEM - RI	187	0	187	270	201	0	79	392	205	2.10	8.2
Motors	MTR 90	HOTEL - 00902	COOL	EEM - RI	187	0	187	270	201	0	79	392	205	2.10	8.2
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	27,480	0	27,480	60,819	3,730	0	-6,928	57,622	30,142	2.10	8.2
Motors	PMTR 107	PUMP - 00636	PMPMTR	EEM - RI	3,588	270	3,318	1,401	6,826	0	-1,290	6,937	3,619	2.09	8.2
Lighting	OS MT 4b	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	14,400	449	13,951	21,442	NA	6,986	NA	28,427	14,477	2.04	8.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	1,632	0	1,632	816	4,082	-861	-739	3,298	1,666	2.02	8.5
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater RI	1,632	0	1,632	816	4,082	-861	-739	3,298	1,666	2.02	8.5
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	4,600	0	4,600	8,768	467	0	-4	9,230	4,630	2.01	8.6
Motors	MTR 2	CLINIC - 00171	AIRCOMP	EEM RI	1,728	140	1,588	1,840	1,978	0	-437	3,181	1,593	2.00	8.6
Motors	PMTR 79	PUMP - 05590	PMPMTR	EEM - RI	9,174	550	8,624	6,898	13,473	0	3,230	17,140	8,516	1.99	8.7
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	9,180	0	9,180	16,572	934	0	710	18,217	9,037	1.98	8.7
Envelope	MT 8		Single pane window	Shade Screens - SE side RI	6,138	982	5,156	12,000	4,493	0	-6,317	10,177	5,021	1.97	8.7
Envelope		Metal Siding		Window Screen - SE side RI	12,640	2,022	10,618	24,712	9,253	0	-13,008	20,957	10,339	1.97	8.7
Envelope		Concrete Block: Barracks		Window Screen - SE side - RI	4,774	764	4,010	9,333	3,494	0	-4,912	7,914	3,905	1.97	8.7
Envelope		Concrete Block: Misc post 1980		Window Screen SE side RI	1,733	277	1,456	3,389	1,269	0	-1,784	2,874	1,418	1.97	8.7
Envelope		MOTORPOOL		Window Screen SE side RI	1,242	198	1,043	2,428	909	0	-1,278	2,059	1,016	1.97	8.7
Envelope		TRAINING		Window Screen SE side RI	403	64	338	788	295	0	-415	668	330	1.97	8.7
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen RI	67,503	10,800	56,703	131,973	49,413	0	-69,468	111,918	55,215	1.97	8.7
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen RI	63,078	10,092	52,985	123,321	46,173	0	-64,914	104,581	51,595	1.97	8.7
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	61,671	9,867	51,804	120,571	45,144	0	-63,466	102,249	50,445	1.97	8.7
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	47,436	7,590	39,846	92,741	34,724	0	-48,817	78,648	38,801	1.97	8.7
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	41,196	6,591	34,604	80,540	30,156	0	42,395	68,301	33,697	1.97	8.7
Envelope		U Shaped Bldgs: Barracks		Window Screen - SE side RI	32,879	5,261	27,619	64,281	24,068	0	33,836	54,513	26,894	1.97	8.7
Envelope		Masonite Siding: pre 1950		Window Screen SE side - RI	5,659	905	4,754	11,064	4,143	0	-5,824	9,383	4,629	1.97	8.7
Envelope		U Shaped Bldgs: Other		Window Screen - SE side RI	4,695	751	3,944	9,179	3,437	0	-4,831	7,784	3,840	1.97	8.7
Envelope		Concrete Block: w/ SE win only		Window Screen - SE side - RI	3,040	486	2,554	5,943	2,225	0	-3,128	5,040	2,487	1.97	8.7
Envelope		Concrete Block: Misc pre 1980		Window Screen - SE side RI	1,987	318	1,669	3,886	1,455	0	-2,045	3,295	1,626	1.97	8.7
Envelope		Masonite Siding: post 1950		Window Screen - SE side - RI	1,871	299	1,572	3,658	1,370	0	-1,926	3,102	1,531	1.97	8.7
Envelope		SHOP		Window Screen SE side RI	1,216	195	1,022	2,378	890	0	1,252	2,017	995	1.97	8.7
Envelope		DINING: MISC		Window Screen - SE side RI	740	118	622	1,447	542	0	762	1,227	605	1.97	8.7
Envelope		ADMIN: MISC pre 1964		Window Screen SE side RI	690	110	580	1,350	505	0	710	1,144	565	1.97	8.7
Envelope		BRK/ADM MISC		Window Screen - SE side RI	662	106	556	1,294	485	0	-681	1,098	542	1.97	8.7
Envelope		Wood Siding		Window Screen SE side RI	551	88	463	1,077	403	0	-567	913	450	1.97	8.7
Envelope		MWR		Window Screen - SE side RI	288	46	242	563	211	0	-296	477	235	1.97	8.7
Envelope		WHS		Window Screen - SE side - RI	254	41	213	497	186	0	-261	421	208	1.97	8.7
Envelope		SECURTY		Window Screen - SE side - RI	59	9	50	115	43	0	-61	98	48	1.97	8.7
Envelope		ADMIN: MISC post 1964		Window Screen - SE side RI	1,218	195	1,023	2,381	892	0	1,254	2,020	996	1.97	8.7
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	6,120	0	6,120	10,851	623	0	473	11,947	5,827	1.95	8.8
Motors	PMTR 52a	PLT BLDG - 00263	PMPMTR	EEM - RI	728	60	668	654	883	0	-254	1,283	615	1.92	9.0
Heating	38	SHOP AIR - BD006	Unit Heaters	Radiant Heat ROP	1,206	0	1,206	1,109	189	0	1,016	2,314	1,108	1.92	9.0
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat RI	5,360	0	5,360	10,193	545	0	581	10,157	4,797	1.89	9.1
Heating	39	SHOP HVY - BD005	Unit Heaters	Radiant Heat - ROP	2,005	0	2,005	1,774	314	0	1,695	3,783	1,778	1.89	9.1
Motors	MTR 444a	DINING - 00254	Fan Motor	EEM - RI	1,956	140	1,816	2,802	1,316	0	-714	3,404	1,588	1.87	9.2
Motors	MTR 486	WHS CLD - 00862	Fan Motor	EEM - RI	978	70	908	1,401	658	0	357	1,702	794	1.87	9.2
Motors	MTR 453e	HOSPITL - 00164	Fan Motor	VSD & EEM - RI	20,328	610	19,718	44,724	1,087	-172	-8,803	36,836	17,118	1.87	9.2
Motors	MTR 522a	DOR - 00308	VENTLTR	EEM - RI	489	35	454	677	318	0	147	848	394	1.87	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat RI	3,060	0	3,060	5,042	311	0	361	5,714	2,654	1.87	9.2
Motors	MTR 523a	DOR - 00308	VENTLTR	EEM - RI	489	35	454	665	312	0	131	846	392	1.86	9.2
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	19,305	0	19,305	17,843	13,850	0	4,024	35,737	16,432	1.85	9.3
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat RI	32,490	0	32,490	61,921	4,408	0	-8,194	58,136	25,646	1.79	9.6
Motors	MTR 527	Fam Housing	Cool System Fan	EEM - RI	305,932	0	305,932	320,322	326,239	0	-110,309	536,252	230,320	1.75	9.8
Motors	MTR 62	BRK/ADM - 00226	COOL	EEM - RI	14,025	0	14,025	14,685	14,956	0	-5,057	24,584	10,559	1.75	9.8
Motors	MTR 60	BRK/ADM - 00110	COOL	EEM - RI	3,740	0	3,740	3,916	3,988	0	-1,349	6,554	2,816	1.75	9.8
Motors	MTR 59	BRK/ADM - 00108	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	-1,079	5,245	2,253	1.75	9.8
Motors	MTR 56	BRK/ADM 00105	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	-1,079	5,245	2,253	1.75	9.8
Motors	MTR 61	BRK/ADM - 00111	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	-1,079	5,245	2,253	1.75	9.8
Motors	MTR 57	BRK/ADM - 00106	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	-1,079	5,245	2,253	1.75	9.8
Motors	MTR 58	BRK/ADM - 00107	COOL	EEM - RI	2,992	0	2,992	3,133	3,191	0	1,079	5,245	2,253	1.75	9.8
Motors	MTR 82	CLUB - 20018	COOL	EEM - RI	187	0	187	196	199	0	-67	328	141	1.75	9.8
Fam Hsg HVAC	2b			High Eff. Grnd Source HP - RI	7,086,917	0	7,086,917	8,254,164	4,037,704	281,903	-241,994	12,331,780	5,244,863	1.74	9.9
Motors	MTR 479a	REC - 00905	Fan Motor	EEM RI	489	35	454	700	267	0	178	789	335	1.74	9.9
Motors	MTR 480a	REC - 00905	Fan Motor	EEM - RI	489	35	454	700	267	0	178	789	335	1.74	9.9
Motors	MTR 478a	REC - 00905	Fan Motor	EEM - RI	489	35	454	700	267	0	-178	789	335	1.74	9.9
Motors	MTR 451e	HOSPITL - 00164	Fan Motor	VSD & EEM RI	39,916	1,175	38,741	83,670	1,261	-172	17,441	67,317	28,576	1.74	9.9
Motors	MTR 79	BRK/ADM - 00275	COOL	EEM - RI	1,309	0	1,309	1,378	1,403	0	-514	2,267	958	1.73	9.9
Motors	MTR 63	BRK/ADM 00226	COOL	EEM - RI	1,309	0	1,309	1,378	1,403	0	-514	2,267	958	1.73	9.9
Motors	MTR 66	BRK/ADM - 00261	COOL	EEM - RI	187	0	187	197	200	0	73	324	137	1.73	9.9
Motors	MTR 78	BRK/ADM 00275	COOL	EEM - RI	14,025	0	14,025	14,761	15,033	0	-5,502	24,292	10,267	1.73	9.9
Motors	MTR 77	BRK/ADM - 00273	COOL	EEM - RI	14,025	0	14,025	14,761	15,033	0	-5,502	24,292	10,267	1.73	9.9
Motors	MTR 76	BRK/ADM - 00273	COOL	EEM - RI	374	0	374	394	401	0	147	648	274	1.73	9.9
Motors	MTR 64	BRK/ADM 00226	COOL	EEM RI	374	0	374	394	401	0	-147	648	274	1.73	9.9
Motors	MTR 80	BRK/ADM - 00275	COOL	EEM RI	374	0	374	394	401	0	147	648	274	1.73	9.9
Motors	PMTR 116	PUMP - 00043	PMPMTR	EEM - RI	3,588	270	3,318	2,819	4,194	0	1,285	5,728	2,410	1.73	10.0
Motors	MTR 452e	HOSPITL - 00164	Fan Motor	VSD & EEM RI	27,032	804	26,228	56,367	813	-172	11,780	45,227	18,999	1.72	10.0
Motors	MTR 29	MTRPOOL - 00857	COMPMTR	EEM - RI	2,794	240	2,554	3,342	2,004	0	961	4,385	1,831	1.72	10.0
Motors	MTR 44	MTRPOOL - 00857	CONDMTR	EEM RI	2,912	240	2,672	3,301	2,226	0	1,017	4,572	1,900	1.71	10.1
Motors	MTR 75	BRK/ADM 00273	COOL	EEM RI	1,309	0	1,309	1,391	1,417	0	593	2,215	906	1.69	10.2
Motors	MTR 74	BRK/ADM 00267	COOL	EEM RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR 69	BRK/ADM 00264	COOL	EEM - RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR 68	BRK/ADM - 00262	COOL	EEM RI	187	0	187	199	202	0	85	316	129	1.69	10.2
Motors	MTR 72	BRK/ADM - 00265	COOL	EEM - RI	187	0	187	199	202	0	-85	316	129	1.69	10.2
Motors	MTR 70	BRK/ADM - 00264	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR 67	BRK/ADM - 00262	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR 71	BRK/ADM 00265	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR 73	BRK/ADM 00267	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR 65	BRK/ADM - 00261	COOL	EEM RI	13,277	0	13,277	14,110	14,371	0	-6,014	22,467	9,190	1.69	10.2
Motors	MTR 454e	HOSPITL - 00164	Fan Motor	VSD & EEM RI	52,878	1,541	51,317	108,821	1,233	172	23,167	86,714	35,397	1.69	10.2
Motors	MTR 423a	ADMIN - 00988	Fan Motor	EEM RI	1,456	120	1,336	1,468	1,219	0	508	2,178	842	1.63	10.6

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR 34	GROCERY 00920	power vents	EEM RI	1,104	80	1,024	1,122	932	0	391	1,663	639	1.62	10.6
Motors	PMTR 55a	PLT-BLDG 00253	PMPMTR	EEM RI	2,794	240	2,554	2,169	2,928	0	961	4,136	1,582	1.62	10.6
Motors	PMTR 56a	PLT-BLDG 00253	PMPMTR	EEM RI	2,794	240	2,554	2,169	2,928	0	961	4,136	1,582	1.62	10.6
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater RI	1,119	0	1,119	1,469	1,701	861	507	1,802	683	1.61	10.7
Motors	PMTR 74	PUMP - 00042	PMPMTR	EEM RI	978	70	908	1,158	658	0	-357	1,459	551	1.61	10.7
Motors	PMTR 75	PUMP - 00044	PMPMTR	EEM RI	489	35	454	579	329	0	178	730	276	1.61	10.7
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater RI	1,339	0	1,339	885	2,722	861	-607	2,139	801	1.60	10.8
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater RI	1,339	0	1,339	885	2,722	861	607	2,139	801	1.60	10.8
Motors	MTR 409	WHS 00818	EVAP	EEM RI	1,397	120	1,277	1,485	1,002	0	481	2,006	729	1.57	11.0
Motors	PMTR 25	BRK/ADM - 00273	PMPMTR	EEM RI	207	15	192	133	242	0	75	299	107	1.56	11.0
Motors	MTR 94	MTRPOOL 00680	COOL	EEM RI	187	0	187	146	197	0	55	228	101	1.54	11.2
Motors	PMTR 61c	PLT-BLDG - 00109	PMPMTR	VSD & EEM RI	4,040	132	3,908	6,782	757	344	1,220	5,974	2,066	1.53	11.3
Motors	MTR 85	DINING 00254	COOL	EEM RI	187	0	187	147	198	0	-61	284	97	1.52	11.3
Motors	PMTR 38	HOSPITL - 00166	PMPMTR	EEM RI	890	36	854	1,351	263	0	-326	1,288	434	1.51	11.4
Motors	MTR 81	CLINIC 00171	COOL	EEM RI	187	0	187	148	199	0	47	280	93	1.50	11.5
Motors	MTR 95	MTRPOOL - 00857	COOL	EEM RI	187	0	187	148	199	0	67	280	93	1.50	11.5
Motors	MTR 432a	BRK/ADM 00273	Fan Motor	EEM RI	489	35	454	525	329	0	178	676	222	1.49	11.6
Motors	MTR 433a	BRK/ADM - 00273	Fan Motor	EEM RI	489	35	454	525	329	0	178	676	222	1.49	11.6
Motors	MTR 12	SHOP - 00367	AIRCOMP	EEM RI	1,397	120	1,277	1,147	1,233	0	481	1,900	623	1.49	11.6
Motors	MTR 435a	BRK/ADM 00275	Fan Motor	EEM RI	489	35	454	550	344	0	-222	672	218	1.48	11.6
Motors	MTR 434a	BRK/ADM - 00275	Fan Motor	EEM - RI	489	35	454	550	344	0	222	672	218	1.48	11.6
Motors	MTR 8	MTRPOOL - 00646	AIRCOMP	EEM RI	516	20	496	446	480	0	194	731	235	1.47	11.7
Motors	MTR 96	WHS 20001	COOL	EEM RI	748	0	748	594	802	0	293	1,102	354	1.47	11.7
Motors	MTR 455c	HOSPITL - 00166	Fan Motor	VSD & EEM RI	13,008	351	12,657	23,945	358	344	5,346	18,612	5,955	1.47	11.7
Motors	MTR 282	MTRPOOL - 00600	EVAP	EEM RI	489	35	454	501	318	0	-178	660	206	1.45	11.8
Motors	MTR 99	ADMIN 00152	EVAP	EEM RI	552	40	512	561	378	0	195	744	232	1.45	11.9
Motors	MTR 54a	ADMIN 00988	COOL	EEM RI	552	40	512	581	392	0	232	741	229	1.45	11.9
Motors	MTR 53a	ADMIN 00988	COOL	EEM RI	552	40	512	581	392	0	232	741	229	1.45	11.9
Motors	MTR 55a	ADMIN 00988	COOL	EEM RI	552	40	512	581	392	0	232	741	229	1.45	11.9
Motors	MTR 83	DINING 00222	COOL	EEM RI	374	0	374	300	405	0	169	535	161	1.43	12.0
Motors	MTR 84	DINING 00222	COOL	EEM RI	374	0	374	300	405	0	-169	535	161	1.43	12.0
Motors	PMTR 29	DGR 00308	PMPMTR	EEM RI	552	40	512	506	420	0	195	731	219	1.43	12.1
T&D	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	18,725	0	18,725	8,831	2,843	0	14,964	26,637	7,912	1.42	12.1
T&D	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	90,621	0	90,621	43,477	15,165	0	69,037	127,679	37,058	1.41	12.2
T&D	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	18,725	0	18,725	8,060	2,396	0	14,964	25,420	6,695	1.36	12.7
Motors	MTR 509	BRK/ADM 00251	HEAT	EEM RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR 518	BRK/ADM - 00252	HEAT	EEM RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR 503	BRK/ADM 00250	HEAT	EEM - RI	5,423	0	5,423	7,768	1,328	0	1,778	7,318	1,895	1.35	12.8
Motors	MTR 515	BRK/ADM 00252	HEAT	EEM RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR 507	BRK/ADM 00251	HEAT	EEM - RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR 502	BRK/ADM 00250	HEAT	EEM RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR 499	BRK/ADM - 00249	HEAT	EEM RI	2,992	0	2,992	4,286	732	0	981	4,037	1,045	1.35	12.8
Motors	MTR 513	BRK/ADM 00251	HEAT	EEM RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR 520	BRK/ADM - 00252	HEAT	EEM - RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR 504	BRK/ADM - 00250	HEAT	EEM RI	748	0	748	1,071	183	0	245	1,009	261	1.35	12.8
Motors	MTR 498	BRK/ADM - 00249	HEAT	EEM RI	748	0	748	1,071	183	0	-245	1,009	261	1.35	12.8
Motors	MTR 495	BRK/ADM - 00249	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 516	BRK/ADM - 00252	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 496	BRK/ADM 00249	HEAT	EEM - RI	187	0	187	268	46	0	41	252	65	1.35	12.8
Motors	MTR 510	BRK/ADM 00251	HEAT	EEM - RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 514	BRK/ADM 00252	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 505	BRK/ADM 00250	HEAT	EEM RI	187	0	187	268	46	0	41	252	65	1.35	12.8
Motors	MTR 500	BRK/ADM 00250	HEAT	EEM - RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 501	BRK/ADM 00250	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 506	BRK/ADM 00250	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 511	BRK/ADM 00251	HEAT	EEM RI	187	0	187	268	46	0	41	252	65	1.35	12.8
Motors	MTR 493	BRK/ADM 00249	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 517	BRK/ADM 00252	HEAT	EEM RI	187	0	187	268	46	0	41	252	65	1.35	12.8
Motors	MTR 508	BRK/ADM 00251.	HEAT	EEM - RI	187	0	187	268	44	0	-41	252	65	1.35	12.8
Motors	MTR 512	BRK/ADM 00251	HEAT	EEM RI	187	0	187	268	44	0	-41	252	65	1.35	12.8
Motors	MTR 519	BRK/ADM 00252	HEAT	EEM RI	187	0	187	268	46	0	-41	252	65	1.35	12.8
Motors	MTR 497	BRK/ADM 00249	HEAT	EEM RI	187	0	187	268	46	0	41	252	65	1.35	12.8
Motors	MTR 521	MTRPOOL 00681	HEAT	EEM RI	187	0	187	261	46	0	55	252	65	1.35	12.8
Motors	MTR 50a	WHS CLD 00862	CONDMTR	EEM RI	1,104	80	1,024	1,002	757	0	391	1,368	344	1.34	12.9
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	25,395	0	25,395	9,928	3,365	0	20,460	33,753	8,357	1.33	13.0
Motors	MTR 494	BRK/ADM - 00249	HEAT	EEM RI	5,423	0	5,423	7,809	1,335	0	-1,955	7,188	1,765	1.33	13.0
Motors	MTR 491	BRK/ADM - 00110	HEAT	EEM RI	3,740	0	3,740	5,386	920	0	1,349	4,957	1,217	1.33	13.0
Motors	MTR 492	BRK/ADM 00111	HEAT	EEM RI	2,992	0	2,992	4,308	736	0	1,079	3,964	974	1.33	13.0
Motors	MTR 490	BRK/ADM 00108	HEAT	EEM RI	2,992	0	2,992	4,308	736	0	1,079	3,964	974	1.33	13.0
Motors	MTR 489	BRK/ADM 00107	HEAT	EEM - RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1.33	13.0
Motors	MTR 488	BRK/ADM 00106	HEAT	EEM RI	2,992	0	2,992	4,308	736	0	-1,079	3,966	974	1.33	13.0
Motors	MTR 487	BRK/ADM - 00105	HEAT	EEM RI	2,992	0	2,992	4,308	736	0	1,079	3,966	974	1.33	13.0
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	27,935	0	27,935	10,531	3,600	0	22,534	36,665	8,730	1.31	13.1
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	29,628	0	29,628	11,105	3,852	0	23,870	38,827	9,199	1.31	13.1
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	21,629	0	21,629	7,982	2,697	0	17,456	28,164	6,535	1.30	13.2
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,226	0	14,226	4,750	1,529	0	12,205	18,484	4,258	1.30	13.3
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	74,899	0	74,899	28,235	9,147	0	59,854	97,236	22,337	1.30	13.3
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	12,483	0	12,483	4,706	1,525	0	9,976	16,206	3,723	1.30	13.3
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	17,783	0	17,783	7,092	2,433	0	13,559	23,084	5,294	1.30	13.3
Motors	MTR 30	MWR 01322	COMPMTR	EEM RI	187	0	187	264	46	0	47	243	56	1.30	13.3
Motors	MTR 48	MWR 01322	CONDMTR	EEM RI	187	0	187	264	44	0	47	243	56	1.30	13.3
Motors	MTR 47	MWR 01322	CONDMTR	EEM RI	187	0	187	264	44	0	47	243	56	1.30	13.3
Motors	MTR 31	MWR 01322	COMPMTR	EEM RI	187	0	187	264	46	0	47	243	56	1.30	13.3
Motors	MTR 46	MWR 01322	CONDMTR	EEM RI	187	0	187	264	44	0	47	243	56	1.30	13.3
Motors	MTR 33	MWR 01322	COMPMTR	EEM RI	187	0	187	264	46	0	47	243	56	1.30	13.3
Motors	MTR 32	MWR 01322	COMPMTR	EEM RI	187	0	187	264	44	0	47	243	56	1.30	13.3
Motors	MTR 476	PLT-BLDG 00263	Fan Motor	EEM RI	489	35	454	700	62	0	178	584	130	1.29	13.4
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	40,348	0	40,348	12,912	4,262	0	34,692	51,865	11,516	1.29	13.4
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	12,105	0	12,105	3,873	1,278	0	10,407	15,559	3,455	1.29	13.4
T&D	21h		Transformer	Amorphous Core Imprvd Windings (No Load & Load Loss Reduction) ROP	89,189	0	89,189	30,956	10,377	0	72,459	113,791	24,602	1.28	13.5
T&D	7h		Transformer	Amorphous Core Imprvd Windings (No Load & Load Loss Reduction) ROP	20,506	0	20,806	7,056	2,344	0	17,095	26,494	5,690	1.27	13.5

Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
TAD	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	69,040	0	69,040	24,430	7,786	0	55,357	87,573	18,533	1.27	13.6
TAD	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	22,249	0	22,249	6,814	2,612	0	18,446	27,872	5,623	1.25	13.7
TAD	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,009	0	13,009	4,223	1,376	0	10,635	16,235	3,226	1.25	13.8
Motors	PMTR 13a	BRK/ADM - 00273	PMPMTR	EEM RI	728	60	668	539	549	0	254	833	165	1.25	13.8
TAD	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROP	432,951	0	432,951	100,787	60,130	0	379,082	540,000	107,049	1.25	13.8
TAD	46h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	9,647	0	9,647	2,670	905	0	8,321	11,896	2,249	1.23	14.0
Motors	PMTR 3c	ADMIN 00988	PMPMTR	VSD & EEM RI	4,920	92	4,828	7,305	731	172	1,924	5,940	1,112	1.23	14.0
TAD	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	6,064	0	6,064	1,618	553	0	5,235	7,406	1,342	1.22	14.1
TAD	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	9,647	0	9,647	2,560	888	0	8,321	11,769	2,122	1.22	14.1
TAD	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	8,216	0	8,216	2,147	725	0	7,103	9,975	1,759	1.21	14.2
TAD	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	28,452	0	28,452	7,594	2,460	0	24,409	34,463	6,011	1.21	14.2
TAD	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	43,258	0	43,258	13,124	4,171	0	34,972	52,266	9,008	1.21	14.3
TAD	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	21,629	0	21,629	6,562	2,086	0	17,486	26,133	4,504	1.21	14.3
TAD	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	7,210	0	7,210	2,187	695	0	5,829	8,711	1,501	1.21	14.3
Motors	MTR 426a	ADMIN 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR 430a	ADMIN 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR 422a	ADMIN 00988	Fan Motor	EEM RI	489	35	454	396	329	0	-178	547	93	1.20	14.3
Motors	MTR 429a	ADMIN 00988	Fan Motor	EEM RI	489	35	454	396	329	0	178	547	93	1.20	14.3
Motors	MTR 421a	ADMIN 00988	Fan Motor	EEM RI	489	35	454	396	329	0	-178	547	93	1.20	14.3
Motors	MTR 425a	ADMIN 00988	Fan Motor	EEM - RI	489	35	454	396	329	0	-178	547	93	1.20	14.3
TAD	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	156,603	0	156,603	45,884	15,392	0	126,168	187,444	30,841	1.20	14.4
TAD	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	8,465	0	8,465	2,480	832	0	6,820	10,132	1,667	1.20	14.4
TAD	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	39,346	0	39,346	9,668	3,241	0	34,125	47,034	7,688	1.20	14.4
TAD	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	23,711	0	23,711	5,693	1,891	0	20,720	28,304	4,594	1.19	14.4
TAD	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	64,557	0	64,557	16,174	5,155	0	55,507	76,835	12,277	1.19	14.5
TAD	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	11,794	0	11,794	3,156	1,042	0	9,812	14,010	2,216	1.19	14.5
TAD	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	24,709	0	24,709	5,679	1,851	0	21,520	29,050	4,341	1.18	14.6
TAD	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	11,180	0	11,180	3,487	1,103	0	8,531	13,121	1,941	1.17	14.7
TAD	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	11,508	0	11,508	3,127	1,011	0	9,350	13,487	1,979	1.17	14.7
TAD	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	8,631	0	8,631	2,345	758	0	7,012	10,115	1,484	1.17	14.7
TAD	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	25,623	0	25,623	7,543	2,566	0	19,546	29,655	4,032	1.16	14.9
TAD	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	24,273	0	24,273	6,168	1,854	0	19,945	27,967	3,694	1.15	14.9
TAD	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	22,539	0	22,539	5,728	1,722	0	18,520	25,969	3,430	1.15	14.9
TAD	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	5,201	0	5,201	1,322	397	0	4,274	5,993	792	1.15	14.9
TAD	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	28,186	0	28,186	7,173	2,258	0	23,043	32,475	4,289	1.15	14.9
TAD	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	23,850	0	23,850	6,070	1,911	0	19,498	27,479	3,629	1.15	14.9
TAD	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	49,299	0	49,299	10,589	3,365	0	42,618	56,572	7,274	1.15	15.0
TAD	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	25,725	0	25,725	5,336	1,790	0	22,189	29,315	3,590	1.14	15.1
TAD	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	9,647	0	9,647	2,001	671	0	8,321	10,993	1,346	1.14	15.1
TAD	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	39,346	0	39,346	7,568	2,447	0	34,125	44,140	4,794	1.12	15.4
TAD	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,115	0	13,115	2,523	816	0	11,375	14,713	1,598	1.12	15.4
TAD	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	6,558	0	6,558	1,261	408	0	5,687	7,357	799	1.12	15.4
TAD	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	29,651	0	29,651	5,516	1,719	0	25,824	33,059	3,408	1.11	15.4
TAD	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	10,483	0	10,483	1,348	433	0	9,909	11,686	1,203	1.11	15.4
TAD	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	63,420	0	63,420	8,272	2,885	0	59,303	70,460	7,041	1.11	15.5
TAD	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	12,684	0	12,684	1,654	577	0	11,861	14,092	1,408	1.11	15.5
TAD	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	8,920	0	8,920	1,096	342	0	8,438	9,896	976	1.11	15.5
TAD	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	11,855	0	11,855	2,133	641	0	10,360	13,134	1,279	1.11	15.5
TAD	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	2,635	0	2,635	474	142	0	2,302	2,919	284	1.11	15.5
TAD	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,178	0	13,178	2,374	748	0	11,477	14,599	1,421	1.11	15.5
TAD	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,480	0	13,480	3,390	1,176	0	10,281	14,848	1,369	1.10	15.6
Motors	MTR 111	ADMIN 00281	EVAP	EEM - RI	552	40	512	452	305	0	195	562	50	1.10	15.7
TAD	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,395	0	16,395	1,928	739	0	15,315	17,983	1,587	1.10	15.7
TAD	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	1,801	0	1,801	291	94	0	1,583	1,968	167	1.09	15.8
TAD	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,218	0	14,218	1,511	512	0	13,465	15,488	1,270	1.09	15.8
Motors	PMTR 12a	BRK/ADM 00273	PMPMTR	EEM RI	728	60	668	486	495	0	254	727	59	1.09	15.8
TAD	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	8,937	0	8,937	916	313	0	8,466	9,695	758	1.08	15.9
TAD	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,218	0	14,218	1,449	503	0	13,465	15,416	1,198	1.08	15.9
TAD	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	6,055	0	6,055	608	205	0	5,739	6,551	497	1.08	15.9
Motors	PMTR 31a	DINING 00254	PMPMTR	EEM - RI	1,456	120	1,336	734	1,219	0	508	1,445	109	1.08	15.9
TAD	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	38,439	0	38,439	3,940	1,276	0	36,334	41,550	3,111	1.08	15.9
TAD	78h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	39,836	0	39,836	4,318	1,481	0	37,254	43,054	3,218	1.08	15.9
TAD	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	19,918	0	19,918	2,159	741	0	18,627	21,527	1,609	1.08	15.9
TAD	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	9,665	0	9,665	912	306	0	9,171	10,388	724	1.07	16.0
TAD	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	68,386	0	68,386	6,579	2,097	0	64,692	73,368	4,982	1.07	16.1
TAD	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	26,072	0	26,072	2,679	884	0	24,384	27,948	1,876	1.07	16.1
Motors	MTR 274	GROCERY - 00920	EVAP	EEM RI	1,467	105	1,362	1,188	802	0	535	1,455	93	1.07	16.1
TAD	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	7,283	0	7,283	643	209	0	6,921	7,773	490	1.07	16.1
TAD	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	22,640	0	22,640	2,096	863	0	21,176	24,135	1,495	1.07	16.2
TAD	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	12,110	0	12,110	999	317	0	11,477	12,793	684	1.06	16.3
TAD	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	10,091	0	10,091	832	265	0	9,564	10,641	570	1.06	16.3
TAD	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	6,055	0	6,055	499	159	0	5,739	6,397	342	1.06	16.3
TAD	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	40,284	0	40,284	3,209	1,076	0	38,150	42,436	2,151	1.05	16.3
Motors	MTR 273	GROCERY 00920	EVAP	EEM RI	1,467	105	1,362	1,226	827	0	623	1,431	69	1.05	16.4
TAD	68h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	12,519	0	12,519	1,061	336	0	11,711	13,108	589	1.05	16.4
TAD	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	6,259	0	6,259	531	168	0	5,855	6,554	294	1.05	16.4
TAD	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	9,959	0	9,959	804	310	0	9,314	10,427	468	1.05	16.4
TAD	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	9,665	0	9,665	714	231	0	9,171	10,115	451	1.05	16.5
TAD	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	9,665	0	9,665	714	231	0	9,171	10,115	451	1.05	16.5
TAD	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	6,443	0	6,443	476	154	0	6,114	6,743	300	1.05	16.5
TAD	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	7,173	0	7,173	574	195	0	6,709	7,478	306	1.04	16.5
TAD	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	2,912	0	2,912	201	60	0	2,771	3,032	120	1.04	16.5
TAD	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	18,208	0	18,208	1,260	397	0	17,303	18,959	751	1.04	16.5
Motors	MTR 472a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 465a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 468a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 463a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 470a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 471a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
Motors	MTR 473a	MWR 01322	Fan Motor	EEM RI	516	20	496	526	179	0	194	511	15	1.03	16.7
TAD	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	60,374	0	60,374	4,128	1,432	0	56,470	62,011	1,657	1.03	16.8

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	DINING HALLS-05	DINING HALLS	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R 38	212	NA	212	21,637	0	21,637	21,425	101.90	0.2
Hot Water	COMMISSARIES	COMMISSARIES	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	13	NA	13	1,197	0	1,197	1,183	89.30	0.2
Hot Water	CLUBS-03	CLUBS	Other Fuels Central Boiler	LPG Wrap Tank w/ Insulation, LFSHs, Aerators	30	NA	30	2,240	0	2,240	2,211	75.90	0.3
Lights	SECURITY-03	SECURITY	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	326	NA	326	15,066	4,442	19,508	19,182	59.90	0.3
Hot Water	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	Electric Central Boiler	Electric Boiler Wrap Tank w/ Insulation, LFSHs, Aerators	7	NA	7	364	0	364	357	52.70	0.3
Lights	SECURITY-02	SECURITY	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	376	NA	376	12,914	5,123	18,037	17,662	48.00	0.4
Lights	SECURITY-01	SECURITY	IN8. INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	4	NA	4	132	35	167	163	42.60	0.4
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	5	NA	5	167	36	203	198	42.30	0.4
Lights	COMMISSARIES	COMMISSARIES	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	11	NA	11	350	99	449	438	40.60	0.4
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	1	NA	1	38	0	38	37	40.50	0.3
Hot Water	MILITARY OTHER-05	MILITARY OTHER	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	19	NA	19	727	0	727	709	39.20	0.5
Hot Water	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Other Fuels Central Boiler	LPG. Wrap Tank w/ Insulation, LFSHs, Aerators	6	NA	6	238	0	238	232	38.80	0.2
Hot Water	ADMINISTRATION 08	ADMINISTRATION	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	80	NA	80	2,839	0	2,839	2,759	35.60	0.6
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	36	NA	36	978	273	1,251	1,214	34.30	0.5
Lights	ADMINISTRATION 04	ADMINISTRATION	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	16	NA	16	391	91	482	465	30.10	0.6
Lights	SHOPS-03	SHOPS	IN8: INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	31	NA	31	659	208	867	836	28.00	0.6
Lights	MWR-03	MORALE-WELFARE RECREATION	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	2	NA	2	37	8	45	44	27.50	0.7
Lights	ADMINISTRATION 03	ADMINISTRATION	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	101	NA	101	2,098	617	2,715	2,615	26.90	0.7
Roof	SHOPS-04	SHOPS	Roof Insulation R-Value 5.00	Attic Ceiling Increase insulation by R-19	1,802	NA	1,802	48,218	0	48,218	46,415	26.80	0.8
Hot Water	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	53	NA	53	1,334	0	1,334	1,281	25.10	0.1
Lights	WAREHOUSE-12	WAREHOUSE	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	270	NA	270	5,499	1,257	6,756	6,485	25.00	0.7
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	2	NA	2	43	14	57	55	24.30	0.7
Roof	SECURITY-01	SECURITY	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R 19	13	NA	13	320	0	320	306	24.10	0.8
Lights	RECREATION-02	RECREATION	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	8	NA	8	137	48	185	177	23.70	0.7
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	14	NA	14	251	84	335	320	23.60	0.8
Roof	RECREATION-02	RECREATION	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R-30	2,247	NA	2,247	52,651	0	52,651	50,405	23.40	0.8
Hot Water	DINING HALLS-06	DINING HALLS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	134	NA	134	3,101	0	3,101	2,967	23.20	0.9
Lights	CHAPEL-01	CHAPEL	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	69	NA	69	1,184	281	1,465	1,396	21.30	0.8
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	IN8. INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	1,529	NA	1,529	25,270	6,043	31,313	29,784	20.50	0.9
Lights	WAREHOUSE-02	WAREHOUSE	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	276	NA	276	4,080	1,283	5,363	5,087	19.50	0.9
Lights	MILITARY OTHER-04	MILITARY OTHER	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	66	NA	66	977	306	1,283	1,218	19.50	0.9
Lights	WAREHOUSE-01	WAREHOUSE	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	613	NA	613	9,017	2,854	11,871	11,258	19.40	0.9
Hot Water	BARRACKS-07	BARRACKS	Hot Water (Generated) Steam Central Hxer.	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	1,159	NA	1,159	22,330	0	22,330	21,171	19.30	1.1
Roof	HANGER	HANGAR	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R-30	382	NA	382	7,267	0	7,267	6,886	19.00	1.1
Roof	WAREHOUSE-06	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling. Increase insulation by R-19	283	NA	283	5,389	0	5,389	5,106	19.00	1.1
Hot Water	ADMINISTRATION 09	ADMINISTRATION	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	67	NA	67	1,219	0	1,219	1,151	18.10	0.3
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	24	NA	24	329	107	436	412	18.00	1.0
Hot Water	BARRACKS-02	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	661	NA	661	11,704	0	11,704	11,042	17.70	1.0
Hot Water	FH-DUPLEX 03	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	3,028	NA	3,028	52,926	0	52,926	49,898	17.50	0.4
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	IN8 INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	89	NA	89	1,171	352	1,523	1,434	17.10	1.0
Lights	RECREATION-03	RECREATION	IN8. INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	208	NA	208	2,440	1,085	3,525	3,318	16.90	1.1
Hot Water	BARRACKS-04	BARRACKS	Hot Water (Generated) Steam Central Hxer	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	199	NA	199	3,199	0	3,199	3,001	16.10	0.8
Lights	SHOPS-04	SHOPS	MV8· MERC 1000 PEND	HS19: HPS 400 PEND	384	NA	384	5,979	146	6,125	5,740	16.00	1.1
Lights	FH-DUPLEX 03	DUPLEX	IN8. INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	312	NA	312	3,891	1,001	4,892	4,580	15.70	1.2
Lights	CHAPEL-02	CHAPEL	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	318	NA	318	3,651	1,301	4,952	4,633	15.60	1.2
Lights	FH DUPLEX-01	DUPLEX	IN8 INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	854	NA	854	9,940	2,739	12,679	11,825	14.80	1.2
Lights	ADMINISTRATION 03	ADMINISTRATION	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	113	NA	113	1,314	293	1,607	1,493	14.20	1.3
Hot Water	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	9	NA	9	130	0	130	121	14.20	0.4
Hot Water	RECREATION-04	RECREATION	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	33	NA	33	461	0	461	428	14.10	1.5
Lights	SHOPS-04	SHOPS	IN6: INC 2-60 CEIL	FL182: CFL 2-13 + BLST UNIT	29	NA	29	332	77	409	379	14.00	1.3
Roof	WAREHOUSE 12	WAREHOUSE	Roof Insulation R Value 0.00	Suspended Ceiling Increase insulation by R 30	715	NA	715	9,672	0	9,672	8,957	13.50	1.4
Lights	FH 3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	IN8. INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	1,311	NA	1,311	13,207	4,203	17,410	16,099	13.30	1.3
Lights	ADMINISTRATION 04	ADMINISTRATION	IN6. INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	18	NA	18	195	43	238	220	13.30	1.4
Roof	BARRACKS-04	BARRACKS	Roof Insulation R Value 0.00	Suspended Ceiling: Increase insulation by R-19	1,657	NA	1,657	21,735	0	21,735	20,078	13.10	1.5
Hot Water	MWR-05	MORALE-WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	51	NA	51	657	0	657	606	12.90	0.8
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	IN8. INC 75 CEIL	FL175. CFL 27 INTEGRAL UNIT	7	NA	7	65	21	86	80	12.90	1.4
Lights	COMMISSARIES	COMMISSARIES	IN5. INC 60 CEIL	FL181. CFL 13 + BLST UNIT	19	NA	19	204	43	247	228	12.70	1.4
Lights	FH 3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	IN8: INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	2,217	NA	2,217	20,675	7,109	27,784	25,567	12.50	1.4
Lights	ADMINISTRATION 07	ADMINISTRATION	IN6: INC 2-60 CEIL	FL182· CFL 2-13 + BLST UNIT	65	NA	65	638	157	795	730	12.20	1.5
Lights	SHOPS-03	SHOPS	IN6· INC 2 60 CEIL	FL182 CFL 2-13 + BLST UNIT	18	NA	18	162	53	215	198	12.10	1.5
Lights	ADMINISTRATION 08	ADMINISTRATION	IN6 INC 2-60 CEIL	FL182. CFL 2-13 + BLST UNIT	67	NA	67	634	160	794	728	11.90	1.5
Lights	CLINIC-02	CLINIC	IN6· INC 2 60 CEIL	FL182. CFL 2 13 + BLST UNIT	9	NA	9	76	27	103	95	11.90	1.5
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN6 INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	39	NA	39	365	97	462	423	11.80	1.5
Lights	ADMINISTRATION 07a	ADMINISTRATION	IN6· INC 2-60 CEIL	FL182. CFL 2 13 + BLST UNIT	16	NA	16	148	38	186	171	11.80	1.5
Lights	FH DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN8. INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	517	NA	517	4,389	1,658	6,047	5,530	11.70	1.5
Lights	COMMISSARIES	COMMISSARIES	IN11: INC 100 CEIL	FL189. CFL 2 15 CEIL FIXT	13	NA	13	140	13	153	140	11.40	1.6
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189. CFL 2 15 CEIL FIXT	9	NA	9	93	9	102	92	11.40	1.6
Lights	SECURITY-03	SECURITY	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	383	NA	383	3,981	364	4,345	3,963	11.30	1.6
Lights	MWR-06	MORALE-WELFARE RECREATION	IN6: INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	33	NA	33	306	66	372	339	11.30	1.6
Roof	CHAPEL 01	CHAPEL	Roof Insulation R-Value 11.00	Attic Ceiling Increase insulation by R 38	208	NA	208	2,317	0	2,317	2,110	11.20	1.7
Lights	GUEST HOUSES 01	SINGLE FAMILY DETACHED HOUSE	IN8. INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	6	NA	6	49	20	69	63	11.20	1.6
Lights	SHOPS 05	SHOPS	IN6 INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	42	NA	42	359	111	470	428	11.10	1.6
Lights	STORAGE-01	STORAGE	IN8 INC 75 CEIL	FL175· CFL 27 INTEGRAL UNIT	865	NA	865	6,563	2,921	9,484	8,619	11.00	1.6
Lights	ADMINISTRATION 03a	ADMINISTRATION	IN6 INC 2-60 CEIL	FL182 CFL 2 13 + BLST UNIT	3	NA	3	22	7	29	26	11.00	1.6
Lights	STORAGE-02	STORAGE	IN8 INC 75 CEIL	FL175 CFL 27 INTEGRAL UNIT	3,970	NA	3,970	29,941	13,404	43,345	39,374	10.90	1.6
Lights	DINING HALLS-04	DINING HALLS	IN5 INC 60 CEIL	FL181 CFL 13 + BLST UNIT	62	NA	62	557	125	682	620	10.90	1.6
Lights	MWR-07	MORALE-WELFARE RECREATION	IN6 INC 2 60 CEIL	FL182 CFL 2 13 + BLST UNIT	50	NA	50	446	100	546	496	10.90	1.6
Roof	SCHOOL TRAINING-03	SCHOOLS and/or TRAINING	Roof Insulation R Value 11.00	Attic Ceiling Increase Insulation by R 8	310	NA	310	3,359	0	3,359	3,049	10.80	1.9
Lights	CLUBS-02	CLUBS	IN5 INC 60 CEIL	FL181 CFL 13 + BLST UNIT	47	NA	47	415	97	512	465	10.80	1.7
Lights	ADMINISTRATION 03	ADMINISTRATION	IN5 INC 60 CEIL	FL181 CFL 13 + BLST UNIT	148	NA	148	1,314	262	1,576	1,428	10.70	1.7
Hot Water	MWR-04	MORALE WELFARE RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/ Insulation LFSHs, Aerators	53	NA	53	571	0	571	517	10.70	1.6

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Roof	MWR-04	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	341	NA	341	3,562	0	3,562	3,222	10.50	2.0
Lights	COMMISSARIES	COMMISSARIES	EX2: EXIT - INC (2x15)	EX6· EXIT - LED	72	NA	72	224	525	749	677	10.50	1.7
Lights	FH 3 OR MORE-01	MULTI FAMILY 3 OR MORE UNIT	IN8. INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	475	NA	475	3,368	1,522	4,890	4,416	10.30	1.7
Lights	MWR-02	MORALE-WELFARE-RECREATION	IN6: INC 2-60 CEIL	FL182: CFL 2 13 + BLST UNIT	22	NA	22	184	45	229	206	10.20	1.8
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN6: INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	16	NA	16	121	39	160	145	10.10	1.8
Lights	DINING HALLS-04	DINING HALLS	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	92	NA	92	813	102	915	823	9.90	1.8
Lights	ADMINISTRATION-04	ADMINISTRATION	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	23	NA	23	195	38	233	210	9.90	1.8
Hot Water	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	3	NA	3	33	0	33	29	9.90	0.6
Lights	FH DETACHED-03	SINGLE FAMILY DETACHED HOUSE	IN8: INC 75 CEIL	FL175: CFL 27 INTEGRAL UNIT	116	NA	116	761	373	1,134	1,017	9.80	1.8
Lights	HOSPITAL	HOSPITAL	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	1,303	NA	1,303	11,399	1,241	12,640	11,337	9.70	1.9
Lights	CLUBS-03	CLUBS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	74	NA	74	573	137	710	637	9.70	1.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	14	NA	14	114	16	130	116	9.30	1.9
Lights	CLINIC-02	CLINIC	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	27	NA	27	191	59	250	223	9.20	1.9
Hot Water	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	11	NA	11	97	0	97	87	9.20	0.6
Lights	SHOPS-04	SHOPS	FL2: FL 2X4 3F40T12 STD1,2	FL236. FL 2X4 3F32T8 ELC3	20	NA	20	168	16	184	164	9.10	2.0
Lights	SECURITY-02	SECURITY	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	442	NA	442	3,573	420	3,993	3,551	9.00	2.0
Lights	SHOPS-03	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	47	NA	47	324	96	420	373	9.00	2.0
Roof	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R-38	239	NA	239	2,130	0	2,130	1,891	8.90	2.0
Lights	SHOPS-04	SHOPS	IN12: INC 2-100 CEIL	HS12. HPS 50 PEND	39	NA	39	284	66	350	311	8.90	2.0
Hot Water	BARRACKS-05	BARRACKS	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	28	NA	28	246	0	246	218	8.80	2.4
Hot Water	BARRACKS-04	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	229	NA	229	1,999	0	1,999	1,770	8.70	2.4
Hot Water	FH-DUPLEX-01	DUPLEX	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	3,731	NA	3,731	31,409	0	31,409	27,678	8.40	0.5
Lights	ADMINISTRATION-06a	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2 15 CEIL FIXT	32	NA	32	235	33	268	236	8.40	2.2
Roof	BARRACKS-03	BARRACKS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	557	NA	557	4,653	0	4,653	4,096	8.30	2.5
Lights	RECREATION-02	RECREATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	192	NA	192	1,246	341	1,587	1,395	8.30	2.2
Lights	SHOPS-05	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	28	NA	28	176	50	226	198	8.20	2.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	3	NA	3	22	6	28	25	8.20	2.2
Lights	ELECTRONICS-03	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	315	NA	315	2,328	221	2,549	2,234	8.10	2.2
Lights	SHOPS-06	SHOPS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	15	NA	15	92	26	118	104	8.10	2.2
Lights	BARRACKS-07	BARRACKS	IN6· INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	897	NA	897	5,166	1,890	7,056	6,158	7.90	2.3
Lights	HOSPITAL	HOSPITAL	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	847	NA	847	5,924	763	6,687	5,840	7.90	2.3
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL2: FL 2X4 3F40T12 STD1,2	FL236· FL 2X4 3F32T8 ELC3	14	NA	14	98	9	107	93	7.80	2.4
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	33	NA	33	196	56	252	218	7.60	2.4
Roof	DININU HALLS-04	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	756	NA	756	5,677	0	5,677	4,921	7.50	2.5
Lights	ADMINISTRATION-05	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	371	NA	371	2,477	316	2,793	2,422	7.50	2.4
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	62	NA	62	424	43	467	405	7.50	2.4
Hot Water	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Central Boiler	LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	48	NA	48	357	0	357	310	7.50	2.8
Hot Water	DINING HALLS-01	DINING HALLS	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	125	NA	125	933	0	933	808	7.50	0.7
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL81: FL 2X4 2F40T12ES STD2	FL105 FL 2X4 2F40T12ES ELC2	9	NA	9	57	7	64	55	7.50	2.5
Lights	SHOPS-03	SHOPS	MH36: MH 250 HE PEND	LS4 LPS-90 PEND	2,135	NA	2,135	13,641	2,200	15,841	13,706	7.40	2.4
Hot Water	BARRACKS-06	BARRACKS	Other Fuels Central Boiler	LPG. Wrap Tank w/ Insulation, LFSHs, Aerators	258	NA	258	1,907	0	1,907	1,649	7.40	2.8
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	106	NA	106	661	120	781	675	7.40	2.4
Lights	MILITARY OTHER-03	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	24	NA	24	126	50	176	152	7.40	2.4
Hot Water	WAREHOUSE-06	WAREHOUSE	Electric SHW Heater	Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	16	NA	16	117	0	117	101	7.40	0.7
Lights	WAREHOUSE-07	WAREHOUSE	FL158. FL 1X8 4F96T12HO STD2 REF	LS6. LPS 180 PEND	1,076	NA	1,076	7,497	409	7,906	6,830	7.30	2.5
Lights	WAREHOUSE-05	WAREHOUSE	IN30: INC 300 PEND	LS2 LPS 35 PEND	766	NA	766	5,015	616	5,631	4,865	7.30	2.5
Roof	DINING HALLS-06	DINING HALLS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-38	784	NA	784	5,565	0	5,565	4,780	7.10	2.7
Lights	SHOPS-04	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5. LPS 135 PEND	620	NA	620	4,263	117	4,380	3,760	7.10	2.6
Lights	CLINIC-01	CLINIC	FL2· FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	240	NA	240	1,544	157	1,701	1,460	7.10	2.6
Lights	ADMINISTRATION-01	ADMINISTRATION	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	72	NA	72	399	109	508	436	7.10	2.5
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	52	NA	52	314	51	365	314	7.10	2.5
Lights	WAREHOUSE-08	WAREHOUSE	FL158. FL 1X8 4F96T12HO STD2 REF	LS6. LPS 180 PEND	175	NA	175	1,148	66	1,214	1,040	7.00	2.6
Lights	SECURITY-03	SECURITY	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	152	NA	152	742	316	1,058	906	7.00	2.6
Lights	ADMINISTRATION-06	ADMINISTRATION	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	113	NA	113	680	115	795	682	7.00	2.6
Hot Water	BARRACKS-03	BARRACKS	Other Fuels Central Boiler	LPG: Wrap Tank w/ Insulation, LFSHs, Aerators	158	NA	158	1,111	0	1,111	953	7.00	1.5
Lights	MWR-05	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	51	NA	51	248	105	353	303	7.00	2.6
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	51	NA	51	247	105	352	302	7.00	2.6
Lights	CLINIC-01	CLINIC	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	463	NA	463	2,943	260	3,203	2,740	6.90	2.6
Lights	CLUBS-03	CLUBS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	79	NA	79	386	165	551	472	6.90	2.6
Roof	CLINIC-02	CLINIC	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 19	65	NA	65	446	0	446	381	6.90	3.0
Lights	MWR-07	MORALE-WELFARE RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	60	NA	60	288	125	413	353	6.90	2.6
Lights	DINING HALLS-04	DINING HALLS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	244	105	349	298	6.90	2.6
Lights	WAREHOUSE 11	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	25	NA	25	123	53	176	150	6.90	2.6
Lights	WAREHOUSE 12	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	25	NA	25	122	53	175	150	6.90	2.6
Roof	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Roof Insulation R-Value 0.00	Attic Ceiling Increase insulation by R 30	9,223	NA	9,223	62,291	0	62,291	53,068	6.80	2.9
Lights	ADMINISTRATION-04	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6 EXIT - LED	152	NA	152	711	316	1,027	875	6.80	2.6
Lights	MWR-03	MORALE WELFARE-RECREATION	EX1: EXIT INC (2x20)	EX6: EXIT - LED	128	NA	128	603	267	870	741	6.80	2.6
Lights	RECREATION-04	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	51	NA	51	238	105	343	293	6.80	2.6
Lights	ADMINISTRATION-09	ADMINISTRATION	EX1: EXIT INC (2x20)	EX6. EXIT - LED	927	NA	927	4,250	1,928	6,178	5,252	6.70	2.7
Lights	COMMISSARIES	COMMISSARIES	FL3: FL 2X4 2F40T12 STD2	FL51· FL 2X4 2F32T8 ELC2	32	NA	32	193	21	214	183	6.70	2.7
Lights	MWR-05	MORALE WELFARE RECREATION	FL4 FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	21	NA	21	123	17	140	119	6.70	2.8
Hot Water	HOSPITAL	HOSPITAL	Other Fuels Central Boiler	LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators	482	NA	482	3,181	0	3,181	2,699	6.60	2.0
Lights	ADMINISTRATION-07	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	156	NA	156	699	325	1,024	868	6.60	2.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	EX1: EXIT INC (2x20)	EX6 EXIT LED	51	NA	51	230	105	335	285	6.60	2.7
Lights	SHOPS-03	SHOPS	FL61. FL 1X8 4F96T12 STD2	LS5 LPS 135 PEND	317	NA	317	1,980	88	2,068	1,752	6.50	2.8
Lights	ADMINISTRATION-02	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT LED	304	NA	304	1,351	632	1,983	1,680	6.50	2.7
Lights	SHOPS-03	SHOPS	IN1· INC 40 CEIL	FL178. CFL 9 + BLST UNIT	73	NA	73	365	112	477	403	6.50	2.7
Lights	ADMINISTRATION-06a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6. EXIT LED	51	NA	51	225	105	330	280	6.50	2.8
Lights	CHAPEL-01	CHAPEL	EX1. EXIT INC (2x20)	EX6 EXIT LED	51	NA	51	222	105	327	277	6.50	2.7
Lights	MWR-06	MORALE WELFARE RECREATION	EX1· EXIT INC (2x20)	EX6 EXIT LED	40	NA	40	174	82	256	217	6.50	2.7
Lights	COMMISSARIES	COMMISSARIES	FL61 FL 1X8 4F96T12 STD2	FL130 FL 1X8 4F96T12ES ELC2 REF	61	NA	61	381	5	386	326	6.40	2.9

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	MWR-05a	MORALE-WELFARE-RECREATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	218	105	323	273	6.40	2.8
Lights	CLINIC-02	CLINIC	IN1. INC 40 CEIL	FL178· CFL 9 + BLST UNIT	5	NA	5	24	8	32	28	6.40	2.8
Lights	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	FL6. FL 2X2 2F40T12U STD2	FL54· FL 2X2 2F32T8U ELC2	2	NA	2	11	1	12	10	6.40	2.8
Lights	SHOPS-04	SHOPS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	47	NA	47	260	34	294	247	6.30	2.9
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL1 FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	25	NA	25	147	13	160	135	6.30	2.9
Lights	DINING HALLS-05	DINING HALLS	EX1: EXIT - INC (2x20)	EX6. EXIT LED	11	NA	11	47	23	70	59	6.30	2.8
Lights	SHOPS-05	SHOPS	IN29 INC 200 PEND	HS12. HPS 50 PEND	493	NA	493	2,631	427	3,058	2,565	6.20	2.9
Lights	MWR-02	MORALE-WELFARE RECREATION	EX1· EXIT - INC (2x20)	EX6 EXIT LED	405	NA	405	1,691	843	2,534	2,128	6.20	2.9
Lights	ADMINISTRATION-05	ADMINISTRATION	EX1 EXIT - INC (2x20)	EX6 EXIT LED	405	NA	405	1,683	843	2,526	2,121	6.20	2.9
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	EX1· EXIT - INC (2x20)	EX6. EXIT - LED	380	NA	380	1,575	791	2,366	1,985	6.20	2.9
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN6 INC 2-60 CEIL	FL182. CFL 2 13 + BLST UNIT	372	NA	372	1,655	660	2,315	1,942	6.20	2.9
Lights	FH-DUPLEX-02	DUPLEX	IN6 INC 2 60 CEIL	FL182: CFL 2-13 + BLST UNIT	168	NA	168	749	298	1,047	879	6.20	2.9
Lights	CLINIC-01	CLINIC	EX1: EXIT - INC (2x20)	EX6 EXIT LED	57	NA	57	237	118	355	298	6.20	2.9
Lights	CLUBS-02	CLUBS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	51	NA	51	208	106	314	263	6.20	2.9
Lights	CLUBS-01	CLUBS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	18	NA	18	88	27	115	97	6.20	2.9
Lights	SHOPS-05	SHOPS	FL61: FL 1X8 4F96T12 STD2	LS5· LPS 135 PEND	3,048	NA	3,048	18,057	576	18,633	15,585	6.10	3.0
Lights	SHOPS-07	SHOPS	EX1: EXIT - INC (2x20)	EX6 EXIT LED	203	NA	203	813	422	1,235	1,032	6.10	2.9
Lights	ADMINISTRATION-07a	ADMINISTRATION	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	38	NA	38	155	79	234	196	6.10	2.9
Lights	DINING HALLS-06	DINING HALLS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	34	NA	34	138	72	210	175	6.10	2.9
Hot Water	GUEST HOUSES-02	MILITARY MOBILE HOMES	Electric SHW Heater	0 76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	288	NA	288	1,757	0	1,757	1,469	6.10	0.2
Wall	DINING HALLS-04	DINING HALLS	Wall Insulation R-Value 0 00	Interior Masonry Surface Increase Insulation by R-10.9	782	NA	782	4,673	0	4,673	3,891	6.00	3.1
Lights	BARRACKS-04	BARRACKS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	324	NA	324	1,255	673	1,928	1,604	6.00	3.0
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	EX1· EXIT - INC (2x20)	EX6 EXIT - LED	76	NA	76	299	158	457	381	6.00	3.0
Lights	ELECTRONICS-03	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	25	NA	25	100	53	153	127	6.00	3.0
Lights	MWR-03	MORALE-WELFARE RECREATION	FL2: FL 2X4 3F40T12 STD1,2	FL236. FL 2X4 3F32T8 ELC3	9	NA	9	48	8	56	46	6.00	3.0
Lights	ADMINISTRATION-01	ADMINISTRATION	IN11· INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	8	NA	8	40	7	47	39	6.00	3.0
Lights	SHOPS-05	SHOPS	FL2· FL 2X4 3F40T12 STD1,2	FL236: FL 2X4 3F32T8 ELC3	1,312	NA	1,312	6,665	1,024	7,689	6,377	5.90	3.1
Lights	BARRACKS-07	BARRACKS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	1,233	NA	1,233	4,714	2,564	7,278	6,045	5.90	3.0
Lights	ADMINISTRATION-04	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	927	NA	927	5,217	216	5,433	4,506	5.90	3.1
Lights	COMMISSARIES	COMMISSARIES	FL79. FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	539	NA	539	2,786	411	3,197	2,658	5.90	3.0
Lights	BARRACKS-07	BARRACKS	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	504	NA	504	2,254	712	2,966	2,462	5.90	3.0
Lights	HOSPITAL	HOSPITAL	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	380	NA	380	1,467	791	2,258	1,878	5.90	3.0
Lights	BARRACKS-06	BARRACKS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	110	NA	110	420	230	650	539	5.90	3.0
Lights	ADMINISTRATION-02	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	4,506	NA	4,506	25,018	1,050	26,068	21,562	5.80	3.1
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	1,267	NA	1,267	4,665	2,635	7,300	6,033	5.80	3.1
Wall	MWR-05	MORALE-WELFARE RECREATION	Wall Insulation R-Value 5 32	Interior Masonry Surface· Increase Insulation by R-10 9	686	NA	686	3,948	0	3,948	3,262	5.80	3.2
Lights	STORAGE-01	STORAGE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	583	NA	583	2,179	1,212	3,391	2,808	5.80	3.1
Lights	DINING HALLS-01	DINING HALLS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	101	NA	101	378	211	589	488	5.80	3.1
Lights	MILITARY OTHER-05	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	101	NA	101	378	211	589	488	5.80	3.1
Lights	ELECTRONICS-02	ELECTRONICS	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	76	NA	76	281	158	439	363	5.80	3.1
Lights	BARRACKS-02	BARRACKS	IN5. INC 60 CEIL	FL181: CFL 13 + BLST UNIT	2,094	NA	2,094	8,956	2,959	11,915	9,821	5.70	3.1
Lights	WAREHOUSE-01	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT LED	988	NA	988	3,622	2,055	5,677	4,689	5.70	3.1
Lights	MILITARY OTHER-01	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	963	NA	963	3,446	2,003	5,449	4,486	5.70	3.1
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	473	NA	473	2,356	328	2,684	2,211	5.70	3.2
Lights	SHOPS-02	SHOPS	EX1. EXIT - INC (2x20)	EX6· EXIT - LED	431	NA	431	1,580	896	2,476	2,045	5.70	3.1
Lights	SHOPS-03	SHOPS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	431	NA	431	1,562	896	2,458	2,027	5.70	3.1
Lights	DINING HALLS-03	DINING HALLS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	355	NA	355	1,296	738	2,034	1,679	5.70	3.1
Lights	WAREHOUSE-02	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	177	NA	177	647	369	1,016	838	5.70	3.1
Lights	WAREHOUSE-10	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	76	NA	76	278	158	436	360	5.70	3.1
Lights	WAREHOUSE-09	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	76	NA	76	278	158	436	360	5.70	3.1
Lights	RECREATION-01	RECREATION·	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	76	NA	76	277	158	435	359	5.70	3.1
Lights	RECREATION-01	RECREATION	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	76	NA	76	277	158	435	359	5.70	3.1
Lights	WAREHOUSE-03	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	76	NA	76	273	158	431	355	5.70	3.1
Lights	WAREHOUSE-04	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	186	105	291	240	5.70	3.1
Lights	RECREATION-03	RECREATION	EX1. EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	185	105	290	240	5.70	3.1
Lights	CLINIC-01	CLINIC	FL3· FL 2X4 2F40T12 STD2	FL51. FL 2X4 2F32T8 ELC2	43	NA	43	221	26	247	204	5.70	3.2
Lights	CLUBS-01	CLUBS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	20	NA	20	72	42	114	94	5.70	3.1
Lights	ELECTRONICS-01	ELECTRONICS	IN5 INC 60 CEIL	FL181: CFL 13 + BLST UNIT	9	NA	9	37	12	49	40	5.70	3.2
Hot Water	ELECTRONICS-03	ELECTRONICS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	7	NA	7	41	0	41	34	5.70	0.8
Lights	WAREHOUSE-07	WAREHOUSE	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	4,400	NA	4,400	22,260	2,568	24,828	20,428	5.60	3.2
Lights	BARRACKS-02	BARRACKS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	1,622	NA	1,622	5,732	3,373	9,105	7,483	5.60	3.2
Lights	WAREHOUSE-05	WAREHOUSE	IN11: INC 100 CEIL	FL189· CFL 2-15 CEIL FIXT	1,178	NA	1,178	5,861	687	6,548	5,371	5.60	3.2
Lights	MILITARY OTHER-02	MILITARY OTHER	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	912	NA	912	3,201	1,897	5,098	4,186	5.60	3.2
Lights	WAREHOUSE-05	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	684	NA	684	2,407	1,423	3,830	3,146	5.60	3.2
Lights	SECURITY-02	SECURITY	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	304	NA	304	1,084	632	1,716	1,413	5.60	3.2
Lights	ADMINISTRATION-06	ADMINISTRATION	EX1· EXIT - INC (2x20)	EX6 EXIT - LED	304	NA	304	1,058	632	1,690	1,386	5.60	3.2
Lights	SHOPS-05	SHOPS	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	253	NA	253	883	527	1,410	1,156	5.60	3.2
Lights	CLINIC-01	CLINIC	FL4· FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	91	NA	91	455	55	510	419	5.60	3.2
Hot Water	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	Electric SHW Heater	0.76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	277	NA	277	1,546	0	1,546	1,270	5.60	1.0
Lights	WAREHOUSE-08	WAREHOUSE	EX1. EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	178	105	283	232	5.60	3.2
Lights	WAREHOUSE-06	WAREHOUSE	EX1 EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	177	105	282	232	5.60	3.2
Lights	CHAPEL-02	CHAPEL	EX1: EXIT - INC (2x20)	EX6 EXIT - LED	51	NA	51	177	105	282	231	5.60	3.2
Lights	ADMINISTRATION-03a	ADMINISTRATION	EX1. EXIT - INC (2x20)	EX6 EXIT - LED	25	NA	25	88	53	141	115	5.60	3.2
Hot Water	MWR-02	MORALE WELFARE-RECREATION	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	40	NA	40	224	0	224	184	5.60	0.8
Lights	MWR-07	MORALE-WELFARE-RECREATION	FL1. FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	2,047	NA	2,047	9,968	1,197	11,165	9,118	5.50	3.3
Lights	MWR-06	MORALE WELFARE-RECREATION	FL1 FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	1,350	NA	1,350	6,598	789	7,387	6,038	5.50	3.3
Hot Water	FH 3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	3,360	NA	3,360	18,568	0	18,568	15,208	5.50	1.2
Lights	WAREHOUSE-08	WAREHOUSE	IN11 INC 100 CEIL	FL189 CFL 2 15 CEIL FIXT	714	NA	714	3,517	416	3,933	3,220	5.50	3.3
Lights	BARRACKS-03	BARRACKS	EX1 EXIT - INC (2x20)	EX6 EXIT LED	304	NA	304	1,029	632	1,661	1,357	5.50	3.2
Lights	ADMINISTRATION-01	ADMINISTRATION	EX1 EXIT - INC (2x20)	EX6 EXIT - LED	101	NA	101	343	211	556	454	5.50	3.2
Lights	LABS-01	LABS	EX1 EXIT INC (2x20)	EX6 EXIT LED	76	NA	76	258	158	416	340	5.50	3.2

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non-Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	ADMINISTRATION-08	ADMINISTRATION	EX1· EXIT - INC (2x20)	EX6. EXIT - LED	53	NA	53	184	111	295	242	5.50	3.2
Lights	SHOPS-06	SHOPS	EX1· EXIT - INC (2x20)	EX6: EXIT - LED	51	NA	51	173	105	278	228	5.50	3.2
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL62. FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	14	NA	14	73	4	77	63	5.50	3.4
Hot Water	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	5	NA	5	28	0	28	23	5.50	1.0
Lights	ADMINISTRATION-03	ADMINISTRATION	EX1· EXIT - INC (2x20)	EX6: EXIT - LED	3,193	NA	3,193	10,712	6,641	17,353	14,160	5.40	3.3
Wall	HANGER	HANGAR	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-13	1,181	NA	1,181	6,366	0	6,366	5,186	5.40	3.8
Lights	CLINIC-02	CLINIC	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	760	NA	760	2,498	1,581	4,079	3,319	5.40	3.3
Lights	WAREHOUSE-12	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	319	NA	319	1,540	187	1,727	1,408	5.40	3.3
Lights	BARRACKS-03	BARRACKS	IN15· INC 60 TABLE LAMP	FL181: CFL 13 + BLST UNIT	207	NA	207	831	293	1,124	917	5.40	3.3
Lights	RECREATION-04	RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	92	NA	92	434	65	499	407	5.40	3.3
Lights	BARRACKS-01	BARRACKS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	66	NA	66	263	93	356	291	5.40	3.3
Lights	DINING HALLS-04	DINING HALLS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	26	NA	26	126	16	142	115	5.40	3.4
Roof	WAREHOUSE-07	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	1,744	NA	1,744	9,186	0	9,186	7,442	5.30	3.8
Lights	SHOPS-07	SHOPS	FL3. FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	572	NA	572	2,640	410	3,050	2,478	5.30	3.4
Roof	MWR-05	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	524	NA	524	2,771	0	2,771	2,247	5.30	3.5
Lights	DINING HALLS-05	DINING HALLS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	52	NA	52	244	30	274	223	5.30	3.4
Lights	LABS-02	LABS	EX1: EXIT - INC (2x20)	EX6: EXIT LED	25	NA	25	83	53	136	110	5.30	3.3
Lights	MWR-04	MORALE-WELFARE-RECREATION	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	253	NA	253	780	527	1,307	1,054	5.20	3.4
Lights	RECREATION-04	RECREATION	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	177	NA	177	790	124	914	737	5.20	3.5
Lights	BARRACKS-01	BARRACKS	EX1· EXIT - INC (2x20)	EX6: EXIT - LED	51	NA	51	158	105	263	213	5.20	3.4
Lights	MWR 07	MORALE-WELFARE-RECREATION	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	27	NA	27	116	22	138	111	5.20	3.5
Lights	HANGER	HANGAR	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	25	NA	25	78	53	131	105	5.20	3.4
Lights	BARRACKS-05	BARRACKS	EX1: EXIT - INC (2x20)	EX6· EXIT - LED	10	NA	10	32	21	53	43	5.20	3.4
Lights	MILITARY OTHER-05	MILITARY OTHER	FL4 FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	270	NA	270	1,184	201	1,385	1,114	5.10	3.5
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	EX1 EXIT - INC (2x20)	EX6: EXIT - LED	127	NA	127	385	264	649	522	5.10	3.4
Lights	RECREATION-02	RECREATION	FL79. FL 2X4 4F40T12ES STD2	FL232: FL 2X4 3F40T12 ELC3	43	NA	43	168	51	219	177	5.10	3.4
Lights	BARRACKS-03	BARRACKS	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	12	NA	12	54	10	64	51	5.10	3.5
Heating	MWR-07	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	8	NA	8	38	0	38	31	5.10	4.1
Hot Water	MILITARY OTHER-03	MILITARY OTHER	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	2	NA	2	11	0	11	9	5.10	1.1
Lights	FH DUPLEX-03	DUPLEX	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	7,576	NA	7,576	27,582	10,251	37,833	30,258	5.00	3.6
Lights	RECREATION-01	RECREATION	IN5· INC 60 CEIL	FL181: CFL 13 + BLST UNIT	311	NA	311	1,146	397	1,543	1,233	5.00	3.6
Lights	RECREATION 01	RECREATION	IN5. INC 60 CEIL	FL181· CFL 13 + BLST UNIT	311	NA	311	1,146	397	1,543	1,233	5.00	3.6
Lights	DINING HALLS-06	DINING HALLS	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	160	NA	160	710	94	804	644	5.00	3.6
Lights	RECREATION-02	RECREATION	EX1: EXIT - INC (2x20)	EX6: EXIT - LED	25	NA	25	74	52	126	102	5.00	3.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL1. FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	5,836	NA	5,836	25,387	3,030	28,417	22,581	4.90	3.7
Lights	CLUBS-02	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	537	NA	537	2,293	333	2,626	2,089	4.90	3.7
Lights	COMMISSARIES	COMMISSARIES	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	511	NA	511	2,437	79	2,516	2,006	4.90	3.7
Lights	WAREHOUSE-07	WAREHOUSE	IN29: INC 200 PEND	HS12: HPS 50 PEND	348	NA	348	1,500	205	1,705	1,357	4.90	3.7
Lights	SHOPS-03	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52· FL 1X4 2F32T8 ELC2	440	NA	440	1,857	269	2,126	1,686	4.80	3.7
Lights	MWR-03	MORALE-WELFARE-RECREATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	329	NA	329	1,306	266	1,572	1,243	4.80	3.8
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	136	NA	136	585	71	656	519	4.80	3.7
Roof	LABS 02	LABS	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-19	123	NA	123	588	0	588	465	4.80	4.3
Lights	CLINIC-02	CLINIC	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	122	NA	122	510	74	584	462	4.80	3.8
Lights	WAREHOUSE-07	WAREHOUSE	EX1: EXIT - INC (2x20)	EX6. EXIT - LED	51	NA	51	136	105	241	191	4.80	3.6
Lights	MWR 06	MORALE-WELFARE-RECREATION	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	18	NA	18	71	14	85	68	4.80	3.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL6· FL 2X2 2F40T12U STD2	FL54. FL 2X2 2F32T8U ELC2	15	NA	15	62	8	70	55	4.80	3.8
Heating	BARRACKS-03	BARRACKS	Other Fuels Conv Boiler	Add Automatic Electric Damper	19	NA	19	93	0	93	73	4.80	2.3
Lights	SHOPS-05	SHOPS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	1,808	NA	1,808	7,262	1,296	8,558	6,750	4.70	3.8
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	549	NA	549	1,815	742	2,557	2,008	4.70	3.8
Lights	BARRACKS-02	BARRACKS	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	522	NA	522	2,049	404	2,453	1,931	4.70	3.8
Lights	FH DUPLEX-02	DUPLEX	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	248	NA	248	837	336	1,173	924	4.70	3.8
Lights	SHOPS-04	SHOPS	MV5: MERC 250 PEND	LS4: LPS 90 PEND	216	NA	216	1,034	-20	1,014	798	4.70	3.9
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	IN5: INC 60 CEIL	FL181· CFL 13 + BLST UNIT	163	NA	163	542	220	762	599	4.70	3.8
Lights	SHOPS-05	SHOPS	IN28. INC 150 PEND	HS11: HPS 35 PEND	114	NA	114	454	81	535	421	4.70	3.8
Lights	ADMINISTRATION 04	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	92	NA	92	421	12	433	341	4.70	3.9
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	EX1. EXIT - INC (2x20)	EX6: EXIT - LED	51	NA	51	135	105	240	190	4.70	3.7
Lights	FH 3 OR MORE-03	MULTI FAMILY 3 OR MORE UNIT	IN5. INC 60 CEIL	FL181. CFL 13 + BLST UNIT	6,328	NA	6,328	20,534	8,562	29,096	22,769	4.60	3.9
Lights	FH-DUPLEX-01	DUPLEX	IN5: INC 60 CEIL	FL181. CFL 13 + BLST UNIT	4,123	NA	4,123	13,632	5,430	19,062	14,939	4.60	3.8
Lights	ADMINISTRATION-03	ADMINISTRATION	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	581	NA	581	2,300	345	2,645	2,064	4.60	4.0
Hot Water	FH DUPLEX-02	DUPLEX	Other Fuels SHW Heater	0 85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	1,238	NA	1,238	5,702	0	5,702	4,464	4.60	1.0
Lights	ADMINISTRATION 04	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	296	NA	296	1,327	39	1,366	1,071	4.60	3.9
Lights	ADMINISTRATION-04	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237 FL 2X4 3F32T8 ELC3 REF	278	NA	278	1,204	72	1,276	999	4.60	3.9
Lights	ADMINISTRATION 06a	ADMINISTRATION	FL3· FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	128	NA	128	499	90	589	460	4.60	3.9
Lights	SHOPS 07	SHOPS	FL4; FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	38	NA	38	148	27	175	137	4.60	3.9
Roof	CLUBS-03	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling· Increase insulation by R-38	1,810	NA	1,810	8,129	0	8,129	6,319	4.50	4.1
Roof	CLUBS-02	CLUBS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 30	911	NA	911	4,066	0	4,066	3,155	4.50	4.1
Wall	CHAPEL-01	CHAPEL	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R-6 5	300	NA	300	1,336	0	1,336	1,036	4.50	4.2
Roof	WAREHOUSE-08	WAREHOUSE	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	283	NA	283	1,283	0	1,283	1,001	4.50	4.5
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181. CFL 13 + BLST UNIT	150	NA	150	471	197	668	518	4.50	4.0
Lights	BARRACKS-01	BARRACKS	IN11 INC 100 CEIL	FL189 CFL 2-15 CEIL FIXT	16	NA	16	62	13	75	58	4.50	3.9
Lights	WAREHOUSE-05	WAREHOUSE	IN29. INC 200 PEND	HS12: HPS 50 PEND	894	NA	894	3,391	526	3.917	3,023	4.40	4.1
Lights	CLUBS-03	CLUBS	FL79. FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	836	NA	836	3,146	569	3,715	2,879	4.40	4.0
Lights	FH DUPLEX-01	DUPLEX	IN11: INC 100 CEIL	FL189. CFL 2 15 CEIL FIXT	540	NA	540	1,834	542	2,376	1,837	4.40	4.1
Lights	FH DUPLEX-02	DUPLEX	IN1 INC 40 CEIL	FL178. CFL 9 + BLST·UNIT	49	NA	49	161	54	215	166	4.40	4.2
Lights	MWR 05a	MORALE-WELFARE RECREATION	FL4· FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	6	NA	6	20	5	25	19	4.40	4.1
Lights	SCHOOL/TRAINING-02	SCHOOLS and/or TRAINING	FL1· FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	1,819	NA	1,819	6,967	860	7,827	6,008	4.30	4.2
Lights	FH-3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	1,401	NA	1,401	4,653	1,407	6,060	4,659	4.30	4.1
Roof	GUEST HOUSES-02	MILITARY MOBILE HOMES	Roof Insulation R-Value 8.69	Attic Ceiling Increase insulation by R 30	565	NA	565	2,406	0	2,406	1,841	4.30	4.5
Roof	ADMINISTRATION-07a	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R-38	542	NA	542	2,322	0	2,322	1,780	4.30	4.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL1. FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	351	NA	351	1,409	85	1,494	1,143	4.30	4.2
Lights	ELECTRONICS-02	ELECTRONICS	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	246	NA	246	1,008	60	1,068	821	4.30	4.2

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	RECREATION 04	RECREATION	FL79 FL 2X4 4F40T12ES STD2	FL237 FL 2X4 3F32T8 ELC3 REF	158	NA	158	564	107	671	514	4.30	4.2
Lights	ADMINISTRATION 02	ADMINISTRATION	FL4. FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	152	NA	152	641	20	661	509	4.30	4.2
Lights	MILITARY OTHER 03	MILITARY OTHER	FL79 FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	97	NA	97	392	28	420	324	4.30	4.2
Lights	WAREHOUSE 08	WAREHOUSE	IN29. INC 200 PEND	HS12: HPS 50 PEND	57	NA	57	210	33	243	186	4.30	4.2
Hot Water	ADMINISTRATION 03	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	148	NA	148	633	0	633	486	4.30	1.1
Lights	WAREHOUSE 07	WAREHOUSE	FL2: FL 2X4 3F40T12 STD1,2	FL236 FL 2X4 3F32T8 ELC3	30	NA	30	105	25	130	100	4.30	4.1
Lights	WAREHOUSE 08	WAREHOUSE	FL2. FL 2X4 3F40T12 STD1,2	FL236 FL 2X4 3F32T8 ELC3	5	NA	5	17	4	21	16	4.30	4.2
Lights	FH-3 OR MORE 02	MULTI FAMILY 3 OR MORE UNIT	IN5. INC 60 CEIL	FL181· CFL 13 + BLST UNIT	10,703	NA	10,703	30,134	14,483	44,617	33,914	4.20	4.2
Roof	SCHOOL/TRAINING 02	SCHOOLS and/or TRAINING	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R 38	1,567	NA	1,567	6,645	0	6,645	5,078	4.20	4.3
Roof	SHOPS 03	SHOPS	Roof Insulation R-Value 20 05	Suspended Ceiling. Increase Insulation by R-8	1,445	NA	1,445	6,074	0	6,074	4,629	4.20	4.9
Lights	LABS 01	LABS	FL1· FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	414	NA	414	1,646	100	1,746	1,332	4.20	4.3
Lights	WAREHOUSE 05	WAREHOUSE	FL61. FL 1X8 4F96T12 STD2	LS5: LPS 135 PEND	252	NA	252	1,028	44	1,072	820	4.20	4.3
Lights	LABS 02	LABS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	208	NA	208	825	50	875	667	4.20	4.3
Lights	MILITARY OTHER 04	MILITARY OTHER	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	77	NA	77	279	45	324	247	4.20	4.3
Hot Water	BARRACKS 01	BARRACKS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSHs, Aerators	22	NA	22	93	0	93	71	4.20	1.1
Lights	FH DETACHED 03	SINGLE FAMILY DETACHED HOUSE	IN5: INC 60 CEIL	FL181 CFL 13 + BLST UNIT	2,819	NA	2,819	7,788	3,815	11,603	8,784	4.10	4.3
Lights	FH-DETACHED 01	SINGLE FAMILY DETACHED HOUSE	IN5· INC 60 CEIL	FL181: CFL 13 + BLST UNIT	2,496	NA	2,496	6,868	3,287	10,155	7,660	4.10	4.3
Lights	ADMINISTRATION 03	ADMINISTRATION	FL3. FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	1,865	NA	1,865	6,615	1,107	7,722	5,857	4.10	4.4
Lights	WAREHOUSE 01	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	724	NA	724	2,568	424	2,992	2,269	4.10	4.4
Lights	ADMINISTRATION 06	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	454	NA	454	1,550	318	1,868	1,415	4.10	4.4
Lights	WAREHOUSE 02	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237 FL 2X4 3F32T8 ELC3 REF	325	NA	325	1,151	190	1,341	1,017	4.10	4.4
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	297	NA	297	1,028	175	1,203	906	4.10	4.4
Lights	CLUBS 01	CLUBS	FL79: FL 2X4 4F40T12ES STD2	FL232· FL 2X4 3F40T12 ELC3	111	NA	111	308	147	455	344	4.10	4.4
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	44	NA	44	151	26	177	133	4.10	4.4
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	14	NA	14	47	8	55	42	4.10	4.4
Roof	WAREHOUSE 05	WAREHOUSE	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R-8	1,918	NA	1,918	7,633	0	7,633	5,714	4.00	5.2
Lights	SCHOOL/TRAINING 03	SCHOOLS and/or TRAINING	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	1,870	NA	1,870	6,596	910	7,506	5,636	4.00	4.5
Lights	ADMINISTRATION 03	ADMINISTRATION	FL13: FL 2X4 4F40T12 EEF2	FL237: FL 2X4 3F32T8 ELC3 REF	1,751	NA	1,751	6,060	985	7,045	5,294	4.00	4.5
Lights	FH-3 OR MORE 01	MULTI-FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	300	NA	300	897	301	1,198	898	4.00	4.5
Lights	WAREHOUSE 05	WAREHOUSE	FL1: FL 2X4 4F40T12 STD2	FL237. FL 2X4 3F32T8 ELC3 REF	183	NA	183	623	107	730	547	4.00	4.5
Lights	CLINIC 02	CLINIC	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	119	NA	119	401	75	476	357	4.00	4.5
Lights	SHOPS 06	SHOPS	FL79 FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	1,605	NA	1,605	5,113	1,096	6,209	4,603	3.90	4.7
Lights	BARRACKS 07	BARRACKS	FL1: FL 2X4 4F40T12 STD2	FL237: FL 2X4 3F32T8 ELC3 REF	166	NA	166	607	39	646	480	3.90	4.6
Roof	MWR 05a	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 11.00	Attic Ceiling· Increase insulation by R-38	150	NA	150	582	0	582	432	3.90	4.8
Lights	COMMISSARIES	COMMISSARIES	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	143	NA	143	465	86	551	408	3.90	4.7
Lights	CLUBS 02	CLUBS	FL62. FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	109	NA	109	397	27	424	315	3.90	4.7
Lights	SHOPS 03	SHOPS	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	92	NA	92	300	58	358	266	3.90	4.6
Lights	DINING HALLS 05	DINING HALLS	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	81	NA	81	248	68	316	235	3.90	4.6
Lights	CHAPEL 01	CHAPEL	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	67	NA	67	214	46	260	193	3.90	4.6
Lights	ADMINISTRATION 03a	ADMINISTRATION	FL13· FL 2X4 4F40T12 EEF2	FL237. FL 2X4 3F32T8 ELC3 REF	41	NA	41	138	23	161	120	3.90	4.6
Hot Water	CHAPEL 02	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	23	NA	23	90	0	90	66	3.90	1.2
Lights	ADMINISTRATION 09	ADMINISTRATION	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	37,610	NA	37,610	131,691	10,686	142,377	104,767	3.80	4.8
Lights	FH-3 OR MORE 01	MULTI-FAMILY 3 OR MORE UNIT	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	2,292	NA	2,292	5,598	3,018	8,616	6,324	3.80	4.7
Lights	SHOPS 03	SHOPS	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	1,954	NA	1,954	7,568	-146	7,422	5,468	3.80	4.8
Lights	SHOPS 07	SHOPS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	931	NA	931	2,764	783	3,547	2,616	3.80	4.7
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	FL79: FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	392	NA	392	1,282	222	1,504	1,113	3.80	4.7
Wall	SHOPS 04	SHOPS	Wall Insulation R-Value 0 00	Blow-in Insulation Increase Insulation by R-6 5	1,170	NA	1,170	4,285	0	4,285	3,115	3.70	5.9
Roof	ADMINISTRATION 03	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R-11	1,158	NA	1,158	4,262	0	4,262	3,105	3.70	5.5
Lights	FH-3 OR MORE 03	MULTI FAMILY 3 OR MORE UNIT	IN11: INC 100 CEIL	FL189. CFL 2-15 CEIL FIXT	828	NA	828	2,198	832	3,030	2,201	3.70	4.9
Roof	WAREHOUSE 09	WAREHOUSE	Roof Insulation R-Value 20.05	Suspended Ceiling. Increase Insulation by R 8	306	NA	306	1,129	0	1,129	823	3.70	5.5
Lights	DINING HALLS 06	DINING HALLS	FL82· FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	250	NA	250	720	209	929	680	3.70	4.8
Lights	CLINIC 02	CLINIC	FL82· FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	212	NA	212	604	182	786	574	3.70	4.8
Lights	CLUBS 03	CLUBS	FL62. FL 1X8 2F96T12 STD2	FL131· FL 1X8 2F96T12ES ELC2 REF	170	NA	170	598	32	630	460	3.70	4.9
Lights	EXCHANGE FACILITIES 01	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	86	NA	86	270	52	322	236	3.70	4.8
Lights	RECREATION 04	RECREATION	FL62· FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	35	NA	35	122	7	129	94	3.70	4.9
Hot Water	MWR 04	MORALE-WELFARE-RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	22	NA	22	79	0	79	57	3.70	1.3
Hot Water	ADMINISTRATION 06	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	14	NA	14	53	0	53	38	3.70	1.3
Hot Water	ADMINISTRATION 04	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	8	NA	8	31	0	31	22	3.70	1.3
Lights	ADMINISTRATION 05	ADMINISTRATION	FL3. FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	1,487	NA	1,487	5,177	225	5,402	3,915	3.60	5.0
Heating	BARRACKS 04	BARRACKS	Hot Water (Generated) Fan Coil	New Conventional Individual Building LPG Boiler	994	NA	994	3,613	0	3,613	2,620	3.60	3.4
Lights	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	EX1: EXIT - INC (2x20)	EX7 EXIT - SELF LUMINOUS	102	NA	102	261	105	366	265	3.60	5.0
Lights	WAREHOUSE 03	WAREHOUSE	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	87	NA	87	247	71	318	230	3.60	4.9
Lights	MWR 04	MORALE WELFARE RECREATION	FL4 FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	36	NA	36	102	29	131	95	3.60	4.9
Lights	DINING HALLS 05	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	29	NA	29	99	7	106	77	3.60	5.0
Hot Water	ADMINISTRATION 01	ADMINISTRATION	Electric SHW Heater	0 76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	41	NA	41	150	0	150	108	3.60	1.5
Hot Water	RECREATION 02	RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	25	NA	25	90	0	90	65	3.60	1.3
Lights	ADMINISTRATION 08	ADMINISTRATION	FL79 FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	10,367	NA	10,367	33,596	2,946	36,542	26,175	3.50	5.1
Roof	COMMISSARIES	COMMISSARIES	Roof Insulation R Value 8.90	Suspended Ceiling: Increase insulation by R-38	4,081	NA	4,081	14,472	0	14,472	10,392	3.50	5.1
Lights	WAREHOUSE 05	WAREHOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	711	NA	711	1,933	575	2,508	1,797	3.50	5.1
Lights	MWR 02	MORALE-WELFARE RECREATION	FL79. FL 2X4 4F40T12ES STD2	FL237· FL 2X4 3F32T8 ELC3 REF	520	NA	520	1,507	329	1,836	1,316	3.50	5.1
Roof	EXCHANGE FACILITIES 03	EXCHANGE FACILITIES	Roof Insulation R-Value 20 05	Suspended Ceiling Increase Insulation by R 8	396	NA	396	1,376	0	1,376	979	3.50	5.9
Lights	WAREHOUSE 11	WAREHOUSE	FL62. FL 1X8 2F96T12 STD2	LS3. LPS 55 PEND	163	NA	163	575	-9	566	404	3.50	5.2
Lights	EXCHANGE FACILITIES 02	EXCHANGE FACILITIES	FL79 FL 2X4 4F40T12ES STD2	FL237. FL 2X4 3F32T8 ELC3 REF	148	NA	148	435	84	519	371	3.50	5.1
Lights	SHOPS 03	SHOPS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	124	NA	124	326	107	433	309	3.50	5.1
Lights	SCHOOL/TRAINING 01	SCHOOLS and/or TRAINING	FL1 FL 2X4 4F40T12 STD2	FL237· FL 2X4 3F32T8 ELC3 REF	106	NA	106	324	50	374	268	3.50	5.1
Lights	COMMISSARIES	COMMISSARIES	FL5: FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	65	NA	65	187	39	226	162	3.50	5.2
Lights	SHOPS 03	SHOPS	FL81 FL 2X4 2F40T12ES STD2	FL105 FL 2X4 2F40T12ES ELC2	62	NA	62	163	54	217	155	3.50	5.1
Hot Water	SCHOOL TRAINING 03	SCHOOLS and/or TRAINING	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	78	NA	78	276	0	276	197	3.50	1.3
Hot Water	MILITARY OTHER 01	MILITARY OTHER	Electric SHW Heater	Replace Existing Water Heater w/ a 0 76 LPG Water Heater (COM)	19	NA	19	66	0	66	47	3.50	1.6
Hot Water	SHOPS 02	SHOPS	Electric SHW Heater	Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	14	NA	14	48	0	48	35	3.50	0.8
Lights	ADMINISTRATION 01	ADMINISTRATION	FL3 FL 2X4 2F40T12 STD2	FL51 FL 2X4 2F32T8 ELC2	297	NA	297	972	45	1,017	719	3.40	5.3

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	SHOPS-04	SHOPS	EX1: EXIT - INC (2x20)	EX7: EXIT - SELF LUMINOUS	204	NA	204	481	211	691	487	3.40	5.3
Lights	ADMINISTRATION-01	ADMINISTRATION	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	130	NA	130	421	20	441	311	3.40	5.3
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	IN1: INC 40 CEIL	FL178 CFL 9 + BLST UNIT	109	NA	109	247	120	367	258	3.40	5.3
Lights	COMMISSARIES	COMMISSARIES	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	13	NA	13	32	11	43	31	3.40	5.3
Heating	CHAPEL-02	CHAPEL	Other Fuels Conv Boiler	Add Automatic Electric Damper	12	NA	12	41	0	41	29	3.40	3.9
Hot Water	MWR-05a	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	9	NA	9	32	0	32	23	3.40	1.3
Hot Water	ADMINISTRATION-06a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	9	NA	9	31	0	31	22	3.40	1.3
Hot Water	LABS-02	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	2	NA	2	8	0	8	6	3.40	1.4
Roof	ADMINISTRATION-05	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R-19	2,329	NA	2,329	7,733	0	7,733	5,404	3.30	6.2
Wall	WAREHOUSE-12	WAREHOUSE	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R-13	774	NA	774	2,548	0	2,548	1,774	3.30	5.6
Hot Water	FH-3 OR MORE-01	MULTI-FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	2,854	NA	2,854	9,441	0	9,441	6,587	3.30	1.4
Wall	WAREHOUSE-06	WAREHOUSE	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	732	NA	732	2,390	0	2,390	1,658	3.30	6.4
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	265	NA	265	675	211	886	622	3.30	5.4
Lights	DINING HALLS-06	DINING HALLS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	90	NA	90	274	22	296	207	3.30	5.5
Roof	ADMINISTRATION-03a	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase Insulation by R 8	43	NA	43	141	0	141	98	3.30	6.2
Hot Water	SHOPS-05	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank	61	NA	61	204	0	204	142	3.30	1.4
Hot Water	LABS-01	LABS	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators	4	NA	4	14	0	14	10	3.30	1.4
Hot Water	CLUBS-01	CLUBS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	2	NA	2	5	0	5	3	3.30	1.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	1,932	NA	1,932	4,716	1,542	6,258	4,326	3.20	5.6
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL6: FL 2X2 2F40T12U STD2	FL54: FL 2X2 2F32T8U ELC2	688	NA	688	1,838	358	2,196	1,508	3.20	5.7
Lights	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	652	NA	652	1,691	394	2,085	1,432	3.20	5.6
Lights	WAREHOUSE-07	WAREHOUSE	FL80. FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	292	NA	292	741	187	928	636	3.20	5.6
Lights	RECREATION-02	RECREATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	137	NA	137	323	109	432	295	3.20	5.6
Hot Water	DINING HALLS-03	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	315	NA	315	1,017	0	1,017	702	3.20	1.4
Hot Water	DINING HALLS-04	DINING HALLS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp	291	NA	291	938	0	938	647	3.20	1.4
Hot Water	WAREHOUSE-07	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp.	16	NA	16	51	0	51	35	3.20	1.4
Hot Water	CHAPEL-01	CHAPEL	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	14	NA	14	46	0	46	32	3.20	1.4
Hot Water	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp.	4	NA	4	11	0	11	8	3.20	1.4
Lights	FH DETACHED-01	SINGLE FAMILY DETACHED HOUSE	IN11: INC 100 CEIL	FL189: CFL 2-15 CEIL FIXT	327	NA	327	677	328	1,005	678	3.10	5.6
Lights	ADMINISTRATION-04	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	307	NA	307	883	71	954	647	3.10	5.8
Lights	BARRACKS-07	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	137	NA	137	401	20	421	284	3.10	5.9
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	50	NA	50	122	34	156	106	3.10	5.7
Hot Water	SECURITY-02	SECURITY	Electric SHW Heater	0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	113	NA	113	344	0	344	232	3.10	1.8
Hot Water	WAREHOUSE-05	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	96	NA	96	300	0	300	204	3.10	1.5
Lights	CLINIC-02	CLINIC	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	25	NA	25	73	5	78	53	3.10	5.8
Hot Water	WAREHOUSE-12	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	9	NA	9	29	0	29	20	3.10	1.5
Hot Water	WAREHOUSE-08	WAREHOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	9	NA	9	29	0	29	20	3.10	1.5
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	1,830	NA	1,830	3,543	1,999	5,542	3,712	3.00	5.9
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	204	NA	204	570	47	617	413	3.00	6.0
Lights	FH DUPLEX-02	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	116	NA	116	260	86	346	230	3.00	6.1
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	53	NA	53	116	42	158	105	3.00	6.0
Lights	WAREHOUSE-08	WAREHOUSE	FL80. FL 2X4 3F40T12ES STD1,2	FL57: FL 2X4 2F32T8 ELC2 REF	47	NA	47	111	30	141	94	3.00	6.0
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	45	NA	45	101	36	137	91	3.00	5.9
Hot Water	SHOPS-04	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	24	NA	24	71	0	71	47	3.00	1.6
Heating	ADMINISTRATION-03a	ADMINISTRATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	4	NA	4	13	0	13	9	3.00	7.0
Roof	FH-DUPLEX-01	DUPLEX	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R-30	15,236	NA	15,236	43,777	0	43,777	28,541	2.90	6.6
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	IN5: INC 60 CEIL	FL181: CFL 13 + BLST UNIT	2,856	NA	2,856	5,217	3,111	8,328	5,473	2.90	6.1
Lights	FH-DUPLEX-03	DUPLEX	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	632	NA	632	1,377	469	1,846	1,214	2.90	6.1
Lights	ADMINISTRATION-08	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105. FL 2X4 2F40T12ES ELC2	542	NA	542	1,445	125	1,570	1,029	2.90	6.2
Lights	HANGER	HANGAR	HS17: HPS 250 PEND	LS5: LPS 135 PEND	347	NA	347	1,068	-48	1,020	674	2.90	6.2
Lights	SHOPS-07	SHOPS	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	186	NA	186	421	113	534	348	2.90	6.3
Lights	ADMINISTRATION-07a	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105. FL 2X4 2F40T12ES ELC2	162	NA	162	439	37	476	314	2.90	6.1
Lights	CLINIC-01	CLINIC	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	53	NA	53	123	32	155	103	2.90	6.1
Hot Water	CLINIC-02	CLINIC	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSHs, Aerators	49	NA	49	141	0	141	92	2.90	1.6
Heating	MWR-06	MORALE-WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	6	NA	6	18	0	18	12	2.90	7.1
Roof	BARRACKS-07	BARRACKS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R 19	3,157	NA	3,157	8,957	0	8,957	5,799	2.80	6.9
Cooling	HOSPITAL	HOSPITAL	Electric Conv Chiller	Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling)	4,855	NA	4,855	13,705	0	13,705	8,850	2.80	3.1
Lights	WAREHOUSE-05	WAREHOUSE	FL79. FL 2X4 4F40T12ES STD2	FL237: FL 2X4 3F32T8 ELC3 REF	1,040	NA	1,040	2,289	657	2,946	1,907	2.80	6.3
Lights	ADMINISTRATION-07	ADMINISTRATION	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	837	NA	837	2,180	193	2,373	1,536	2.80	6.4
Lights	ADMINISTRATION-07	ADMINISTRATION	FL81: FL 2X4 2F40T12ES STD2	FL105: FL 2X4 2F40T12ES ELC2	667	NA	667	1,726	154	1,880	1,213	2.80	6.4
Wall	ADMINISTRATION-04	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	536	NA	536	1,507	0	1,507	971	2.80	6.6
Roof	ADMINISTRATION-04	ADMINISTRATION	Roof Insulation R-Value 0.00	Suspended Ceiling: Increase insulation by R 38	492	NA	492	1,364	0	1,364	872	2.80	6.7
Lights	CHAPEL-02	CHAPEL	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	311	NA	311	660	215	875	564	2.80	6.4
Lights	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	FL5. FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	64	NA	64	144	37	181	117	2.80	6.4
Lights	RECREATION-02	RECREATION	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	55	NA	55	111	44	155	100	2.80	6.2
Lights	RECREATION-04	RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	11	NA	11	24	6	30	20	2.80	6.3
Lights	MILITARY OTHER-02	MILITARY OTHER	FL82· FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	761	NA	761	1,394	687	2,081	1,321	2.70	6.5
Lights	MILITARY OTHER-01	MILITARY OTHER	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	596	NA	596	1,083	539	1,627	1,030	2.70	6.5
Lights	WAREHOUSE-05	WAREHOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	434	NA	434	770	392	1,162	728	2.70	6.6
Lights	ADMINISTRATION-08	ADMINISTRATION	FL82: FL 1X4 2F40T12ES STD2	FL106· FL 1X4 2F40T12ES ELC2	232	NA	232	584	54	638	405	2.70	6.6
Lights	BARRACKS-04	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	36	NA	36	93	5	98	63	2.70	6.6
Lights	MWR-03	MORALE-WELFARE-RECREATION	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	17	NA	17	34	14	48	30	2.70	6.5
Heating	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Other Fuels Conv Boiler	Add Automatic Electric Damper	10	NA	10	27	0	27	17	2.70	7.8
Heating	RECREATION-04	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	8	NA	8	20	0	20	13	2.70	7.9
Hot Water	ADMINISTRATION-01	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp.	35	NA	35	95	0	95	60	2.70	1.0
Wall	FH-DUPLEX-01	DUPLEX	Wall Insulation R Value 0.00	Blow-in Insulation: Increase Insulation by R 6.5	13,205	NA	13,205	34,368	0	34,368	21,162	2.60	7.3
Lights	BARRACKS-02	BARRACKS	FL4. FL 1X4 2F40T12 STD2	FL52. FL 1X4 2F32T8 ELC2	2,361	NA	2,361	5,812	347	6,159	3,797	2.60	6.9
Lights	BARRACKS-02	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	2,361	NA	2,361	5,812	347	6,159	3,797	2.60	6.9
Hot Water	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	3,306	NA	3,306	8,719	0	8,719	5,413	2.60	1.8
Hot Water	SHOPS-03	SHOPS	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	706	NA	706	1,826	0	1,826	1,120	2.60	1.8
Lights	WAREHOUSE-05	WAREHOUSE	FL81: FL 2X4 2F40T12ES STD2	FL105 FL 2X4 2F40T12ES ELC2	145	NA	145	249	131	380	235	2.60	6.8

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	14	NA	14	25	10	35	21	2.60	6.9
Lights	BARRACKS-06	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL28: FL 1X4 2F40T12 ELC2	10	NA	10	23	2	25	16	2.60	7.0
Lights	WAREHOUSE-05	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	4,395	NA	4,395	11,193	-235	10,958	6,563	2.50	7.3
Roof	ADMINISTRATION-07	ADMINISTRATION	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase insulation by R-30	1,744	NA	1,744	4,376	0	4,376	2,632	2.50	7.4
Lights	WAREHOUSE-10	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	442	NA	442	1,148	-24	1,124	682	2.50	7.2
Lights	WAREHOUSE-09	WAREHOUSE	FL62: FL 1X8 2F96T12 STD2	LS3. LPS 55 PEND	368	NA	368	952	20	932	564	2.50	7.2
Lights	FH-DETACHED-02	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	257	NA	257	449	190	639	383	2.50	7.2
Roof	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R-19	49	NA	49	121	0	121	72	2.50	7.4
Lights	SCHOOL/TRAINING-03	SCHOOLS and/or TRAINING	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	557	NA	557	1,153	179	1,332	774	2.40	7.5
Lights	ADMINISTRATION-01	ADMINISTRATION	FL62. FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	306	NA	306	750	2	748	443	2.40	7.4
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	235	NA	235	390	174	564	329	2.40	7.4
Roof	CLUBS-01	CLUBS	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R-8	135	NA	135	319	0	319	184	2.40	8.6
Lights	BARRACKS-01	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	74	NA	74	169	11	180	106	2.40	7.4
Lights	BARRACKS-01	BARRACKS	FL3: FL 2X4 2F40T12 STD2	FL51: FL 2X4 2F32T8 ELC2	74	NA	74	169	11	180	106	2.40	7.4
Lights	CLUBS-01	CLUBS	FL62: FL 1X8 2F96T12 STD2	FL131: FL 1X8 2F96T12ES ELC2 REF	43	NA	43	87	17	104	61	2.40	7.6
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL4. FL 1X4 2F40T12 STD2	FL52: FL 1X4 2F32T8 ELC2	12	NA	12	21	9	30	17	2.40	7.5
Hot Water	MWR-07	MORALE WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators	17	NA	17	40	0	40	23	2.40	0.8
Wall	RECREATION-02	RECREATION	Wall Insulation R-Value 7.00	Blow-in Insulation: Increase Insulation by R-2.4	1,226	NA	1,226	2,813	0	2,813	1,587	2.30	8.2
Roof	MWR-03	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	716	NA	716	1,661	0	1,661	945	2.30	8.0
Lights	FH-DUPLEX-03	DUPLEX	FL82. FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	514	NA	514	780	399	1,179	665	2.30	7.8
Hot Water	WAREHOUSE-09	WAREHOUSE	Electric SHW Heater	0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp	8	NA	8	20	0	20	11	2.30	1.6
Hot Water	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp	1,527	NA	1,527	3,427	0	3,427	1,900	2.20	2.9
Lights	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	FL5: FL 1X4 1F40T12 STD1	FL29: FL 1X4 1F40T12 ELC1	103	NA	103	167	59	226	123	2.20	8.1
Roof	SHOPS-02	SHOPS	Roof Insulation R-Value 8.69	Attic Ceiling: Increase insulation by R-19	1,951	NA	1,951	4,181	0	4,181	2,230	2.10	8.9
Roof	RECREATION-04	RECREATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	1,309	NA	1,309	2,762	0	2,762	1,453	2.10	8.8
Roof	EXCHANGE FACILITIES-04	EXCHANGE FACILITIES	Roof Insulation R-Value 8.90	Suspended Ceiling: Increase Insulation by R-8	642	NA	642	1,325	0	1,325	683	2.10	8.8
Lights	WAREHOUSE-06	WAREHOUSE	FL5: FL 1X4 1F40T12 STD1	FL29. FL 1X4 1F40T12 ELC1	295	NA	295	386	228	614	319	2.10	8.5
Lights	BARRACKS-05	BARRACKS	FL4: FL 1X4 2F40T12 STD2	FL52 FL 1X4 2F32T8 ELC2	1	NA	1	2	0	2	1	2.10	8.4
Wall	BARRACKS-04	BARRACKS	Wall Insulation R-Value 7.00	Blow in Insulation: Increase Insulation by R-2.4	1,810	NA	1,810	3,640	0	3,640	1,830	2.00	9.6
Wall	CLUBS-02	CLUBS	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R 10.9	1,551	NA	1,551	3,038	0	3,038	1,487	2.00	9.4
Hot Water	FH-3 OR MORE-02	MULTI FAMILY 3 OR MORE UNIT	Other Fuels SHW Heater	0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp	19,513	NA	19,513	39,378	0	39,378	19,865	2.00	0.5
Roof	MILITARY OTHER-01	MILITARY OTHER	Roof Insulation R-Value 0.00	Attic Ceiling: Increase insulation by R-11	282	NA	282	575	0	575	293	2.00	10.1
Lights	BARRACKS-06	BARRACKS	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	200	NA	200	354	49	403	203	2.00	9.0
Heating	MWR-04	MORALE WELFARE-RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	21	NA	21	41	0	41	20	2.00	8.7
Lights	BARRACKS-04	BARRACKS	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	587	NA	587	992	144	1,136	549	1.90	9.3
Wall	EXCHANGE FACILITIES-01	EXCHANGE FACILITIES	Wall Insulation R-Value 8.79	Blow-in Insulation: Increase Insulation by R-6.5	291	NA	291	544	0	544	253	1.90	9.7
Lights	FH-DETACHED-03	SINGLE FAMILY DETACHED HOUSE	FL82 FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	191	NA	191	206	148	354	163	1.90	9.6
Lights	CLUBS-03	CLUBS	FL117: FL 1X8 1F96T12ES STD1	FL123: FL 1X8 1F96T12ES EEF1	143	NA	143	173	94	267	124	1.90	9.5
Lights	CLUBS-02	CLUBS	FL117: FL 1X8 1F96T12ES STD1	FL123: FL 1X8 1F96T12ES EEF1	92	NA	92	114	64	178	86	1.90	9.2
Roof	MILITARY OTHER-04	MILITARY OTHER	Roof Insulation R-Value 7.15	Attic Ceiling: Increase insulation by R 19	58	NA	58	113	0	113	54	1.90	10.7
Lights	GUEST HOUSES-02	MILITARY MOBILE HOMES	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	11	NA	11	13	9	22	10	1.90	9.1
Lights	COMMISSARIES	COMMISSARIES	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	862	NA	862	1,613	-42	1,571	709	1.80	10.0
Roof	DINING HALLS-03	DINING HALLS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	407	NA	407	740	0	740	333	1.80	11.4
Lights	COMMISSARIES	COMMISSARIES	HS15: HPS 150 PEND	LS4: LPS 90 PEND	369	NA	369	730	-64	666	297	1.80	10.1
Roof	SECURITY-03	SECURITY	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R-30	215	NA	215	396	0	396	182	1.80	9.9
Lights	GUEST HOUSES-01	SINGLE FAMILY DETACHED HOUSE	FL82: FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	10	NA	10	10	8	18	8	1.80	10.1
Hot Water	ADMINISTRATION-07a	ADMINISTRATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp	24	NA	24	43	0	43	19	1.80	2.6
Lights	BARRACKS-02	BARRACKS	FL82. FL 1X4 2F40T12ES STD2	FL106: FL 1X4 2F40T12ES ELC2	1,693	NA	1,693	2,462	415	2,877	1,184	1.70	10.5
Roof	ADMINISTRATION-01	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	234	NA	234	409	0	409	175	1.70	11.9
Wall	ELECTRONICS-03	ELECTRONICS	Wall Insulation R-Value 0.00	Interior Masonry Surface. Increase Insulation by R-4.3	253	NA	253	426	0	426	173	1.70	11.5
Wall	SCHOOL/TRAINING-01	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow in Insulation. Increase Insulation by R-6.5	180	NA	180	313	0	313	133	1.70	10.5
Lights	BARRACKS-05	BARRACKS	FL82. FL 1X4 2F40T12ES STD2	FL106. FL 1X4 2F40T12ES ELC2	19	NA	19	27	5	32	13	1.70	10.4
Wall	CHAPEL-02	CHAPEL	Wall Insulation R-Value 5.32	Interior Masonry Surface: Increase Insulation by R-4.3	532	NA	532	852	0	852	320	1.60	12.9
Lights	SHOPS-04	SHOPS	FL63: FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	421	NA	421	559	123	682	261	1.60	11.1
Lights	BARRACKS-01	BARRACKS	FL82: FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	53	NA	53	74	13	87	34	1.60	10.8
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	FL62: FL 1X8 2F96T12 STD2	FL74: FL 1X8 2F96T12 ELC2	4,700	NA	4,700	4,381	2,467	6,848	2,147	1.50	12.2
Roof	BARRACKS-02	BARRACKS	Roof Insulation R-Value 20.05	Suspended Ceiling. Increase Insulation by R-8	4,249	NA	4,249	6,372	0	6,372	2,123	1.50	13.4
Roof	ADMINISTRATION-08	ADMINISTRATION	Roof Insulation R Value 20.05	Suspended Ceiling. Increase insulation by R-19	1,638	NA	1,638	2,516	0	2,516	878	1.50	12.1
Lights	DINING HALLS-03	DINING HALLS	FL63. FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	1,211	NA	1,211	1,403	403	1,806	595	1.50	12.1
Wall	ADMINISTRATION-02	ADMINISTRATION	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	1,067	NA	1,067	1,555	0	1,555	488	1.50	12.9
Lights	RECREATION-04	RECREATION	HS14. HPS 100 PEND	LS3: LPS 55 PEND	289	NA	289	424	16	440	151	1.50	11.9
Roof	EXCHANGE FACILITIES-02	EXCHANGE FACILITIES	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	258	NA	258	383	0	383	125	1.50	14.0
Roof	MILITARY OTHER-03	MILITARY OTHER	Roof Insulation R Value 20.05	Suspended Ceiling: Increase insulation by R 30	228	NA	228	338	0	338	111	1.50	12.3
Wall	SECURITY-01	SECURITY	Wall Insulation R-Value 5.32	Interior Masonry Surface: Increase Insulation by R 10.9	217	NA	217	326	0	326	109	1.50	12.1
Roof	ADMINISTRATION-06	ADMINISTRATION	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	195	NA	195	294	0	294	99	1.50	13.9
Roof	SHOPS-06	SHOPS	Roof Insulation R Value 8.69	Attic Ceiling: Increase Insulation by R-8	135	NA	135	206	0	206	71	1.50	13.5
Lights	PROD/PROCESS-02	PRODUCTION and/or PROCESS	FL82 FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	123	NA	123	93	87	180	57	1.50	12.1
Roof	ELECTRONICS-03	ELECTRONICS	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R-8	102	NA	102	157	0	157	55	1.50	12.4
Lights	MWR-06	MORALE WELFARE RECREATION	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	57	NA	57	45	40	85	27	1.50	12.0
Roof	ADMINISTRATION-09	ADMINISTRATION	Roof Insulation R Value 30.00	Attic Ceiling: Increase insulation by R 19	5,119	NA	5,119	6,975	0	6,975	1,856	1.40	13.4
Lights	ADMINISTRATION-03	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126: FL 1X8 1F96T12ES EEF1 REF	3,160	NA	3,160	3,343	992	4,335	1,175	1.40	13.1
Roof	SHOPS-05	SHOPS	Roof Insulation R-Value 0.00	Suspended Ceiling. Increase insulation by R-19	2,077	NA	2,077	2,979	0	2,979	902	1.40	14.5
Lights	SHOPS-05	SHOPS	FL63: FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	746	NA	746	847	218	1,065	319	1.40	12.6
Lights	BARRACKS-07	BARRACKS	FL5. FL 1X4 1F40T12 STD1	FL29 FL 1X4 1F40T12 ELC1	503	NA	503	653	56	709	206	1.40	12.7
Lights	DINING HALLS-01	DINING HALLS	FL63 FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	417	NA	417	464	139	603	186	1.40	12.4
Lights	ADMINISTRATION-04	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	502	NA	502	651	28	679	178	1.40	13.3
Lights	PROD/PROCESS-01	PRODUCTION and/or PROCESS	FL82 FL 1X4 2F40T12ES STD2	FL106 FL 1X4 2F40T12ES ELC2	192	NA	192	130	132	262	70	1.40	13.0
Lights	MWR-07	MORALE-WELFARE RECREATION	FL63 FL 1X8 1F96T12 STD1	FL126. FL 1X8 1F96T12ES EEF1 REF	151	NA	151	193	12	205	55	1.40	13.3
Roof	BARRACKS-01	BARRACKS	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 11	142	NA	142	195	0	195	54	1.40	14.9
Lights	ADMINISTRATION-03a	ADMINISTRATION	FL63 FL 1X8 1F96T12 STD1	FL126 FL 1X8 1F96T12ES EEF1 REF	74	NA	74	77	23	100	26	1.40	13.2
Heating	RECREATION-02	RECREATION	Other Fuels Conv Boiler	Add Automatic Electric Damper	25	NA	25	33	0	33	9	1.40	8.0

Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy & Demand Savings (1994 $)	Annualized Value of Non Annual O&M Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Wall	FH-DETACHED-01	SINGLE FAMILY DETACHED HOUSE	Wall Insulation R-Value 0.00	Blow in Insulation: Increase Insulation by R-6.5	12,166	NA	12,166	16,073	0	16,073	3,907	1.30	14.8
Lights	PROD PROCESS-02	PRODUCTION and/or PROCESS	FL62: FL 1X8 2F96T12 STD2	LS3: LPS 55 PEND	6,592	NA	6,592	6,766	1,714	8,480	1,889	1.30	14.0
Cooling	ADMINISTRATION-07	ADMINISTRATION	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	7,235	NA	7,235	9,604	0	9,604	2,369	1.30	7.7
Roof	STORAGE-02	STORAGE	Roof Insulation R-Value 0.00	Attic Ceiling Increase Insulation by R-8	3,270	NA	3,270	4,162	0	4,162	892	1.30	14.7
Wall	HOSPITAL	HOSPITAL	Wall Insulation R-Value 0.00	Interior Masonry Surface Increase Insulation by R-4.3	2,493	NA	2,493	3,145	0	3,145	652	1.30	15.6
Cooling	CLINIC-01	CLINIC	Electric Conv Chiller	Air-Cooled Reciprocating Chiller (75 to 200 tons cooling)	2,412	NA	2,412	3,180	0	3,180	768	1.30	8.8
Wall	SCHOOL-TRAINING-03	SCHOOLS and/or TRAINING	Wall Insulation R-Value 0.00	Blow-in Insulation Increase Insulation by R-6.5	1,129	NA	1,129	1,445	0	1,445	316	1.30	16.1
Heating	HOSPITAL	HOSPITAL	Other Fuels Conv Boiler	Add Automatic Electric Damper	23	NA	23	31	0	31	8	1.30	9.3
Heating	CLUBS-03	CLUBS	Other Fuels Conv Boiler	Add Automatic Electric Damper	7	NA	7	8	0	8	2	1.30	16.5
Hot Water	MILITARY OTHER-04	MILITARY OTHER	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp	10	NA	10	13	0	13	3	1.30	3.6
Roof	FH DUPLEX-03	DUPLEX	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	18,256	NA	18,256	22,234	0	22,234	3,978	1.20	15.5
Roof	FH 3 OR MORE-01	MULTI FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 11.00	Attic Ceiling: Increase insulation by R 19	2,936	NA	2,936	3,453	0	3,453	517	1.20	17.2
Wall	CLINIC-02	CLINIC	Wall Insulation R-Value 0.00	Blow-in Insulation: Increase Insulation by R-6.5	1,474	NA	1,474	1,767	0	1,767	293	1.20	17.4
Lights	BARRACKS-02	BARRACKS	FL94: FL 1X4 2F40T12ES EEF2	FL106: FL 1X4 2F40T12ES ELC2	869	NA	869	826	247	1,073	204	1.20	14.5
Roof	ADMINISTRATION-02	ADMINISTRATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	838	NA	838	1,013	0	1,013	175	1.20	15.3
Roof	MWR-07	MORALE-WELFARE RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R 19	773	NA	773	916	0	916	142	1.20	15.7
Wall	EXCHANGE FACILITIES-03	EXCHANGE FACILITIES	Wall Insulation R-Value 0.00	Interior Masonry Surface Increase Insulation by R-4.3	619	NA	619	724	0	724	105	1.20	18.0
Lights	WAREHOUSE-07	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	30	NA	30	16	21	37	7	1.20	14.4
Lights	BARRACKS-01	BARRACKS	FL94: FL 1X4 2F40T12ES EEF2	FL106 FL 1X4 2F40T12ES ELC2	27	NA	27	25	8	33	5	1.20	15.0
Lights	WAREHOUSE-08	WAREHOUSE	FL63: FL 1X8 1F96T12 STD1	FL75: FL 1X8 1F96T12 ELC1	5	NA	5	2	3	5	1	1.20	14.7
Hot Water	MWR-03	MORALE-WELFARE RECREATION	Other Fuels SHW Heater	Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp.	29	NA	29	33	0	33	4	1.20	3.2
Roof	FH-3 OR MORE-03	MULTI-FAMILY 3 OR MORE UNIT	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-19	8,106	NA	8,106	9,306	0	9,306	1,200	1.10	16.3
Wall	BARRACKS-02	BARRACKS	Wall Insulation R-Value 0.00	Blow in Insulation: Increase Insulation by R 6.5	6,287	NA	6,287	6,732	0	6,732	445	1.10	19.3
Roof	CHAPEL-02	CHAPEL	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase Insulation by R 8	340	NA	340	378	0	378	38	1.10	18.8
Roof	MWR-06	MORALE-WELFARE-RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling Increase insulation by R-19	510	NA	510	540	0	540	30	1.10	17.3
Cooling	GUEST HOUSES-02	MILITARY MOBILE HOMES	Electric Package Unit	Split System Residential AC Unit (1.5 to 5.4167 tons cooling)	3,296	NA	3,296	3,702	0	3,702	406	1.10	0.9
Roof	CLINIC-01	CLINIC	Roof Insulation R-Value 20.05	Suspended Ceiling: Increase insulation by R 19	125	NA	125	134	0	134	9	1.10	17.6
Cooling	MWR-02	MORALE-WELFARE-RECREATION	Electric Air Cool Heat Pump	Air to Air Heat Pump with Supplementary Electric Heat Coil	5,004	NA	5,004	5,209	0	5,209	205	1.00	4.4
Wall	WAREHOUSE-09	WAREHOUSE	Wall Insulation R-Value 8.79	Blow in Insulation: Increase Insulation by R-2.4	1,092	NA	1,092	1,146	0	1,146	53	1.00	20.1
Roof	WAREHOUSE-01	WAREHOUSE	Roof Insulation R-Value 0.00	Attic Ceiling: Increase Insulation by R 8	505	NA	505	524	0	524	19	1.00	19.3
Wall	ADMINISTRATION-06	ADMINISTRATION	Wall Insulation R-Value 0.00	Interior Masonry Surface: Increase Insulation by R-4.3	930	NA	930	938	0	938	7	1.00	20.9
Roof	MWR-02	MORALE-WELFARE RECREATION	Roof Insulation R-Value 30.00	Attic Ceiling: Increase insulation by R-11	336	NA	336	343	0	343	7	1.00	17.8

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	1	Bldg 253	250 ton chiller	Reset chilled and condenser water temps RI	2	0	2	6,775	4,939	30	0	11,684	11,683	6,707.11	0.0
AC	2	Bldg 263	554 ton chiller	Reset chilled and condenser water temps RI	2	0	2	6,029	5,472	30	0	11,472	11,470	6,584.96	0.0
AC	3	Bldg 273	200 ton chiller	Reset chilled and condenser water temps RI	2	0	2	6,133	1,976	30	0	8,078	8,077	4,637.24	0.0
TAD		Substation	Sub. Transformers	Conservation Voltage Reduction RI	58	0	58	39,042	17,148	0	0	56,190	56,131	967.62	0.0
HVAC	6	MtrPool	Programmable T-Stat	Night Setback RI	161	0	161	24,498	123	0	73	24,549	24,388	152.64	0.1
Lighting	OS 8b	Highbay	T8 Lighting	T8 + Occupancy Controls RI	962	288	673	50,212	0	13,304	0	63,515	62,842	94.36	0.2
Envelope	MT 12		Leaky	Weatherization RI	521	0	521	26,363	11,800	0	0	38,162	37,642	73.29	0.2
HVAC	4	Commstn	Programmable T-Stat	Night Setback RI	121	0	121	8,034	63	0	55	8,043	7,922	66.68	0.3
HVAC	3	Clinic	Programmable T-Stat	Night Setback RI	121	0	121	6,634	76	0	55	6,656	6,535	55.18	0.3
HVAC	1	Admin	Programmable T-Stat	Night Setback RI	1,164	0	1,166	54,223	271	0	528	53,966	52,800	46.28	0.4
Envelope		Masonite Siding post 1950		Weatherization RI	426	0	426	12,647	7,001	0	0	19,668	19,242	46.17	0.4
Lighting	OS 7b	Hallway	T8 Lighting	T8 + Occupancy Controls RI	953	286	667	22,283	0	5,671	0	27,954	27,287	41.89	0.4
HVAC	2	Chapel	Programmable T-Stat	Night Setback RI	60	0	60	2,163	13	0	27	2,149	2,089	35.63	0.5
Envelope		Metal Siding		Weatherization RI	792	0	792	17,184	9,498	0	0	26,682	25,890	33.69	0.5
Lighting	OS 4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	836	251	585	14,980	0	3,901	0	18,881	18,296	32.26	0.5
Envelope	Other	U Shaped Bldgs Other		Weatherization RI	310	0	310	6,409	3,542	0	0	9,952	9,642	32.15	0.5
Envelope		Masonite Siding pre 1950		Weatherization RI	1,488	0	1,488	30,668	16,950	0	0	47,618	46,131	32.01	0.5
Lighting	OS 3b	Conference	T8 Lighting	T8 + Occupancy Controls RI	343	103	240	6,041	0	1,551	0	7,592	7,352	31.63	0.5
Envelope	Admin	ADMIN MISC pre 1964		Weatherization RI	519	0	519	9,350	5,168	0	0	14,518	13,999	27.99	0.6
HVAC	5	DOR	Programmable T-Stat	Night Setback RI	221	0	221	5,573	54	0	100	5,527	5,306	24.99	0.7
Envelope	Barracks	U Shaped Bldgs Barracks		Weatherization RI	1,655	0	1,655	24,035	13,284	0	0	37,319	35,664	22.55	0.8
Envelope		Wood Siding		Weatherization RI	105	0	105	1,453	803	0	0	2,256	2,150	21.45	0.8
HVAC	8	Trning	Programmable T-Stat	Night Setback RI	342	0	342	6,999	119	0	130	6,988	6,646	20.45	0.8
Envelope	Misc pre 1980	Concrete Block Misc pre 1980		Weatherization RI	295	0	295	3,635	2,009	0	0	5,645	5,349	19.11	0.9
Envelope		WHS		Weatherization RI	144	0	144	1,743	963	0	0	2,706	2,562	18.79	0.9
Envelope	Shop	SHOP		Weatherization RI	278	0	278	3,337	1,845	0	0	5,182	4,904	18.67	0.9
Envelope	Barracks	Concrete Block: Barracks		Weatherization RI	603	0	603	6,869	3,796	0	0	10,665	10,062	17.70	1.0
Envelope	Family Housing	1964, 1965, 1966		Weatherization RI	1,829	0	1,829	20,194	11,161	0	0	31,355	29,526	17.14	1.0
Lighting	OS MT 3b	MT Conference	T8 Lighting	T8 + Occupancy Controls RI	343	75	268	3,582	0	925	0	4,506	4,239	16.83	1.0
Lighting	OS 2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls RI	2,613	562	2,052	26,795	0	7,428	0	34,222	32,171	16.68	1.0
Envelope	Family Housing	1963		Weatherization RI	3,171	0	3,171	33,090	18,288	0	0	51,378	48,207	16.20	1.1
Envelope	Dining	DINING: MISC		Weatherization - RI	335	0	335	3,407	1,883	0	0	5,290	4,955	15.77	1.1
Envelope	Motorpool	MOTORPOOL		Weatherization RI	105	0	105	1,044	577	0	0	1,621	1,516	15.46	1.1
DHW & A/C	13	00166	CHILLER air cooled	Install Desuperheater - RI	1,534	0	1,534	16,588	6,915	50	695	22,758	21,224	14.84	1.2
Envelope	Misc post 1980	Concrete Block: Misc post 1980		Weatherization RI	559	0	559	5,025	2,777	0	0	7,802	7,244	13.97	1.2
Envelope	Family Housing	1961		Weatherization RI	3,482	0	3,482	30,268	16,728	0	0	46,996	43,514	13.50	1.3
Motors	PMTR 44	HOSPITL 00166	PMPMTR	EEM - RI	85	7	78	866	169	0	30	1,005	928	12.96	1.3
Motors	PMTR 43	HOSPITL 00166	PMPMTR	EPM - RI	42	3	39	433	84	0	15	503	464	12.96	1.3
TAD	A	Substation	Capacitor Bank	Power Factor Correction to Unity RI	1,834	0	1,834	983	22,677	-6	0	23,654	21,819	12.89	1.3
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater RI	86	0	86	891	198	50	39	1,000	914	11.59	1.5
Motors	MTR 485	WHS CLD 00862	Fan Motor	EEM - RI	24	2	22	219	43	0	9	254	231	11.37	1.5
Motors	PMTR 71	POOL OT 00328	PMPMTR	EEM RI	12	1	11	110	21	0	4	127	116	11.37	1.5
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater RI	180	0	180	1,539	632	50	82	2,039	1,860	11.33	1.5
Envelope	Admin	ADMIN: MISC post 1964		Weatherization - RI	159	0	159	1,135	628	0	0	1,763	1,604	11.11	1.5
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater RI	223	0	223	1,661	830	50	101	2,340	2,118	10.52	1.6
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	261	0	261	1,872	1,008	50	-118	2,711	2,450	10.39	1.7
Lighting	DLC MT 2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls RI	987	296	691	4,831	0	2,129	0	6,959	6,268	10.07	1.7
Motors	PMTR 42	HOSPITL 00166	PMPMTR	EEM - RI	64	5	59	500	97	0	23	575	516	9.67	1.8
Envelope	Training	TRAINING		Weatherization RI	237	0	237	1,382	764	0	0	2,146	1,909	9.06	1.9
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	214	0	214	1,289	790	50	97	1,933	1,719	9.03	1.9
Envelope	Bck/Adm	BRK/ADM MISC		Weatherization - RI	135	0	135	781	432	0	0	1,213	1,078	9.01	1.9
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	267	0	267	2,120	163	0	104	2,387	2,119	8.93	1.9
HVAC	7	Shop Elc	Programmable T-Stat	Night Setback - RI	80	0	80	742	10	0	-36	716	636	8.90	1.9
Motors	MTR 35e	REC - 00905	COMPMTR	VSD & EEM - RI	398	69	329	2,796	120	10	113	2,793	2,464	8.48	2.0
DHW & A/C	8	00037	PKG A/C	Install Desuperheater RI	150	0	150	806	494	50	48	1,182	1,032	7.87	2.2
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater RI	120	0	120	686	356	50	55	935	817	7.79	2.2
Motors	PMTR 72	POOL-OT - 00328	PMPMTR	EEM RI	11	0	11	73	14	0	-4	84	73	7.69	2.2
Motors	PMTR 73	POOL OT - 00328	PMPMTR	EEM - RI	11	0	11	73	14	0	-4	84	73	7.49	2.2
Motors	PMTR 70	POOL-OT - 00328	PMPMTR	EEM - RI	11	0	11	73	14	0	-4	84	73	7.49	2.2
DHW & A/C	31	00905	CHILLER air cooled	Install Desuperheater RI	214	0	214	957	790	-50	97	1,601	1,387	7.48	2.3
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater RI	108	0	108	606	296	-50	-49	803	696	7.47	2.3
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	108	0	108	606	296	50	-49	803	696	7.47	2.3
Envelope	Family Housing	1983		Weatherization - RI	2,617	0	2,617	12,521	6,920	0	0	19,441	16,824	7.43	2.3
Motors	PMTR 94	PUMP - 00044	PMPMTR	EEM - RI	208	16	193	1,250	244	0	75	1,419	1,227	7.37	2.3
Motors	PMTR 93	PUMP - 00044	PMPMTR	EEM - RI	208	16	193	1,250	244	0	75	1,419	1,227	7.37	2.3
Envelope	MT 9		Single pane window	Shade Screens - SW side - RI	356	57	299	1,317	1,244	0	367	2,194	1,895	7.33	2.4
Envelope		Metal Siding		Window Screen - SW side RI	734	117	617	2,712	2,562	0	755	4,518	3,902	7.33	2.4
Envelope		Concrete Block: Misc post 1980		Window Screen - SW side RI	101	16	85	372	351	0	104	620	535	7.33	2.4
Envelope		Masonite Siding: pre 1950		Window Screen - SW side RI	1,045	167	878	3,862	3,649	0	1,076	6,434	5,556	7.33	2.4
Envelope		ADMIN: MISC post 1964		Window Screen - SW side RI	283	45	238	1,045	988	0	291	1,742	1,504	7.33	2.4
Envelope		U Shaped Bldgs: Other		Window Screen - SW side RI	273	44	229	1,007	952	0	281	1,678	1,449	7.33	2.4
Envelope		BRK/ADM MISC		Window Screen - SW side RI	154	25	129	568	537	0	158	947	817	7.33	2.4
Envelope		Wood Siding		Window Screen - SW side - RI	128	20	107	472	446	0	132	787	680	7.33	2.4
Envelope		TRAINING		Window Screen - SW side RI	94	15	79	346	327	0	96	576	498	7.33	2.4
Envelope		WHS		Window Screen - SW side - RI	59	9	50	218	206	0	41	363	314	7.33	2.4
Envelope		Concrete Block: Barracks		Window Screen - SW side RI	373	60	313	1,377	1,301	0	384	2,294	1,981	7.33	2.4
Envelope		MOTORPOOL		Window Screen - SW side RI	288	46	242	1,066	1,007	0	297	1,775	1,533	7.33	2.4
Envelope		SHOP		Window Screen - SW side RI	283	45	237	1,044	986	0	291	1,739	1,502	7.33	2.4
Envelope		U Shaped Bldgs. Barracks		Window Screen - SW side RI	1,909	305	1,604	7,053	6,664	0	1,965	11,752	10,149	7.33	2.4
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	1,548	251	1,317	5,792	5,473	0	1,614	9,651	8,334	7.33	2.4
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	1,465	234	1,231	5,412	5,114	0	1,508	9,019	7,788	7.33	2.4
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen RI	1,102	176	926	4,070	3,846	0	1,134	6,782	5,857	7.33	2.4
Envelope		DINING, MISC		Window Screen - SW side RI	172	28	144	635	600	0	177	1,058	914	7.33	2.4
Envelope		ADMIN: MISC pre 1964		Window Screen SW side RI	160	26	135	592	560	0	165	987	852	7.33	2.4
Envelope		Concrete Block Misc pre 1980		Window Screen - SW side RI	115	18	97	426	403	0	119	710	613	7.33	2.4
Envelope		SECURITY		Window Screen SW side RI	14	2	12	51	48	0	14	84	73	7.33	2.4
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen RI	1,443	231	1,212	5,332	5,038	0	1,485	8,884	7,671	7.33	2.4
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen RI	957	153	804	3,535	3,340	0	985	5,890	5,086	7.33	2.4
Envelope		Masonite Siding post 1950		Window Screen SW side RI	419	67	352	1,548	1,462	0	431	2,579	2,227	7.33	2.4

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Envelope		MWR		Window Screens SW side RI	67	11	56	247	233	0	69	412	355	7.33	2.4
Heating	20	MTRPOOL 00612	Unit Heaters	Radiant Heat - RI	99	0	99	580	40	0	95	716	617	7.25	2.4
Envelope	Family Housing	1984		Weatherization - RI	2,002	0	2,002	9,301	5,141	0	0	14,442	12,440	7.21	2.4
Motors	MTR 474	MWR - 01322	Fan Motor	EEM - RI	36	3	33	189	64	0	13	240	206	7.16	2.4
Motors	MTR 469	MWR - 01322	Fan Motor	EEM - RI	12	1	11	63	21	0	-4	80	69	7.16	2.4
Heating	17	MTRPOOL 00840	Unit Heaters	Radiant Heat - RI	355	0	355	2,270	181	0	78	2,529	2,173	7.12	2.4
Motors	MTR 34c	REC - 00905	COMPMTR	VSD & EEM - RI	398	60	338	2,397	103	10	113	2,377	2,039	7.04	2.4
Motors	PMTR 66	PLT BLDG 00253	PMPMTR	EEM - RI	50	4	46	247	84	0	18	313	267	6.79	2.5
Lighting	OS 6b	Restroom	T8 Lighting	T8 + Occupancy Controls RI	1,572	156	1,416	7,465	0	1,998	0	9,463	8,047	6.68	2.6
Motors	PMTR 88	PUMP 00044	PMPMTR	EEM - RI	85	7	78	442	86	0	30	499	421	6.43	2.7
Lighting	OS 5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	263	25	238	1,213	0	311	0	1,524	1,286	6.40	2.7
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater RI	469	0	469	1,281	1,976	50	213	2,994	2,524	6.38	2.7
DHW & A/C	10	00037	PKG A/C	Install Desuperheater RI	108	0	108	484	296	-50	-49	681	574	6.33	2.7
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	108	0	108	484	296	50	-49	681	574	6.33	2.7
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	44	0	44	208	65	0	-2	272	228	6.17	2.8
Motors	MTR 440	DGR - 00308	Fan Motor	EEM - RI	26	2	24	102	48	0	-3	147	123	6.12	2.8
Motors	MTR 439	DGR - 00308	Fan Motor	EEM - RI	39	3	36	160	75	0	14	221	184	6.12	2.8
Motors	MTR 475	PLT-BLDG 00253	Fan Motor	EEM - RI	26	2	24	106	50	0	9	147	123	6.12	2.8
Motors	PMTR 117	REC 00905	PMPMTR	EEM - RI	13	1	12	53	25	0	5	74	61	6.12	2.8
Motors	MTR 446	DINING - 00254	Fan Motor	EEM - RI	13	1	12	53	25	0	5	74	61	6.12	2.8
Vehicles	Conversion	Vehicles		CNG Vehicles	118,869	0	118,869	330,325	1,484	376,047	0	704,887	586,018	5.93	2.9
Motors	PMTR 120	WHSCLD - 00862	refrigeration unit	EEM - RI	301	24	277	1,454	283	0	-111	1,626	1,349	5.88	2.9
Motors	PMTR 121	WHSCLD 00862	refrigeration unit	EEM - RI	151	12	138	727	142	0	-55	813	675	5.88	2.9
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	178	0	178	891	72	0	69	1,033	855	5.81	3.0
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - RI	208	16	193	794	396	0	-75	1,116	923	5.79	3.0
Motors	PMTR 6c	ADMIN 00988	PMPMTR	VSD & EEM - RI	289	19	270	1,546	101	-10	85	1,552	1,281	5.74	3.0
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	134	0	134	655	54	0	52	761	628	5.70	3.0
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater - RI	86	0	86	381	198	-50	39	490	404	5.68	3.0
Motors	PMTR 86	PUMP - 00324	PMPMTR	EEM - RI	81	7	74	292	156	0	28	420	345	5.66	3.0
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	248	0	248	615	948	-50	-112	1,401	1,153	5.65	3.0
Motors	MTR-437a	CLINIC 00171	Fan Motor	EEM - RI	67	5	61	251	118	0	-23	345	284	5.62	3.1
Motors	MTR 484	WHS - 00474	Fan Motor	EEM - RI	24	2	22	91	43	0	-9	125	101	5.61	3.1
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - RI	12	1	11	46	21	0	-4	63	51	5.61	3.1
Motors	MTR 482	TRAING - 01202	Fan Motor	EEM - RI	12	1	11	46	21	0	-4	63	51	5.61	3.1
Motors	PMTR 119	REC - 00362	PMPMTR	EEM - RI	12	1	11	46	21	0	-4	63	51	5.61	3.1
Motors	MTR 445	DINING - 00254	Fan Motor	EEM - RI	12	1	11	46	21	0	-4	63	51	5.61	3.1
Motors	MTR 441	DGR - 00308	Fan Motor	EEM - RI	12	1	11	46	21	0	-4	63	51	5.61	3.1
Motors	MTR 442	DINING - 00254	Fan Motor	EEM - RI	72	5	67	273	128	0	26	375	308	5.61	3.1
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	99	0	99	446	0	0	95	541	443	5.48	3.1
Motors	MTR 6	HOSPITL - 00166	AIRCOMP	EEM - RI	85	7	78	324	126	0	-30	421	343	5.42	3.2
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - RI	208	16	193	721	396	0	75	1,042	849	5.41	3.2
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	24	0	24	107	0	0	24	131	106	5.35	3.2
Envelope	MT-11a		None	Crawl Space Insulation: R 19 RI	7,245	0	7,245	24,461	14,300	0	0	38,761	31,516	5.35	3.2
Motors	PMTR 89	PUMP - 00044	PMPMTR	EEM - RI	85	7	78	363	71	0	30	405	327	5.22	3.3
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	59	0	59	244	18	0	43	306	246	5.16	3.3
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	139	0	139	384	445	-50	-63	715	576	5.13	3.4
Motors	MTR 483	TRAING - 01202	Fan Motor	EEM - RI	11	0	11	40	19	0	-4	55	45	5.11	3.4
Heating	24	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	89	0	89	390	27	0	34	452	362	5.05	3.4
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	86	0	86	322	198	-50	-39	431	345	4.99	3.4
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	129	0	129	354	395	-50	-58	641	512	4.98	3.5
Motors	PMTR 122	WHSCLD - 00862	PMPMTR	EEM RI	24	2	22	76	43	0	-9	110	88	4.93	3.5
Motors	PMTR 81	PUMP - 00044	PMPMTR	EEM - RI	67	5	61	212	113	0	-23	302	240	4.92	3.5
Motors	MTR-457	MWR 01313	Fan Motor	EEM RI	22	0	22	84	29	0	8	104	83	4.81	3.6
Motors	MTR 460	MWR - 01313	Fan Motor	EEM - RI	11	0	11	42	14	0	-4	52	41	4.81	3.6
Motors	MTR 461	MWR - 01322	Fan Motor	EEM - RI	11	0	11	42	14	0	-4	52	41	4.81	3.6
Motors	MTR 462	MWR - 01322	Fan Motor	EEM RI	11	0	11	42	14	0	4	52	41	4.81	3.6
Motors	MTR 464	MWR - 01322	Fan Motor	EEM RI	11	0	11	42	14	0	4	52	41	4.81	3.6
Motors	MTR 466	MWR - 01322	Fan Motor	EEM - RI	11	0	11	42	14	0	-4	52	41	4.81	3.6
Motors	PMTR 100	PUMP - 00700	PMPMTR	EEM - RI	159	12	148	642	125	0	-57	710	562	4.81	3.6
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM RI	159	12	148	642	125	0	-57	710	562	4.81	3.6
Motors	PMTR 103	PUMP - 00700	PMPMTR	EEM RI	159	12	148	642	125	0	57	710	562	4.81	3.6
Motors	PMTR 102	PUMP - 00700	PMPMTR	EEM RI	159	12	148	642	125	0	-57	710	562	4.81	3.6
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	214	0	214	354	790	50	97	998	784	4.66	3.7
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	222	0	222	762	52	0	215	1,028	806	4.63	3.7
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 199	BRK/ADM - 00252	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 197	BRK/ADM - 00251	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 200	BRK/ADM 00252	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 195	BRK/ADM - 00250	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 198	BRK/ADM - 00251	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 196	BRK/ADM - 00250	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 193	BRK/ADM - 00249	EVAP	EEM - RI	13	1	12	40	20	0	-4	56	44	4.62	3.7
Motors	MTR 238	BRK/ADM - 00534	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - RI	78	6	72	239	122	0	-28	333	261	4.62	3.7
Motors	MTR 214	BRK/ADM 00416	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 222	BRK/ADM - 00434	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 191	BRK/ADM - 00103	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 223	BRK/ADM - 00440	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 224	BRK/ADM 00448	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 239	BRK/ADM 00540	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 232	BRK/ADM 00514	EVAP	EEM RI	78	6	72	239	122	0	-28	333	261	4.62	3.7
Motors	MTR-233	BRK/ADM 00516	EVAP	EEM RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 234	BRK/ADM 00518	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 237	BRK/ADM 00530	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 190	BRK/ADM 00102	EVAP	EEM - RI	78	6	72	239	122	0	28	333	261	4.62	3.7
Motors	MTR 212	BRK/ADM 00413	EVAP	EEM RI	52	4	48	160	81	0	19	222	174	4.62	3.7
Motors	MTR 194	BRK/ADM 00249	EVAP	EEM RI	13	1	12	40	20	0	5	55	43	4.62	3.7
Motors	MTR 250	CLUB 00202	EVAP	EEM - RI	13	1	12	40	20	0	5	55	43	4.62	3.7

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 189	BRK/ADM 00098	EVAP	EEM RI	13	1	12	40	20	0	5	55	43	4.62	3.7
Motors	MTR 248	CLUB - 00021	EVAP	EEM RI	26	2	24	80	41	0	10	111	87	4.61	3.7
Motors	MTR 188	BRK/ADM 00014	EVAP	EEM RI	13	1	12	40	20	0	5	55	43	4.61	3.7
Motors	MTR 230	BRK/ADM 00511	EVAP	EEM RI	65	5	60	202	103	0	27	277	217	4.61	3.7
Motors	MTR 234	BRK/ADM 00523	EVAP	EEM RI	78	6	72	242	123	0	33	333	260	4.61	3.7
Motors	MTR 201	BRK/ADM 00261	EVAP	EEM RI	13	1	12	41	21	0	6	55	43	4.61	3.7
Motors	MTR 203	BRK/ADM 00262	EVAP	EEM RI	13	1	12	41	21	0	4	55	43	4.61	3.7
Motors	MTR 210	BRK/ADM - 00267	EVAP	EEM RI	13	1	12	41	21	0	6	55	43	4.61	3.7
Motors	MTR 204	BRK/ADM - 00262	EVAP	EEM RI	13	1	12	41	21	0	6	55	43	4.61	3.7
Motors	MTR 205	BRK/ADM 00264	EVAP	EEM RI	13	1	12	41	21	0	6	55	43	4.61	3.7
Motors	MTR 206	BRK/ADM 00264	EVAP	EEM RI	13	1	12	41	21	0	4	55	43	4.61	3.7
Motors	MTR 207	BRK/ADM 00265	EVAP	EEM RI	13	1	12	41	21	0	4	55	43	4.61	3.7
Motors	MTR 208	BRK/ADM - 00265	EVAP	EEM RI	13	1	12	41	21	0	6	55	43	4.61	3.7
Motors	MTR 209	BRK/ADM - 00267	EVAP	EEM RI	13	1	12	41	21	0	4	55	43	4.61	3.7
Motors	MTR 211	BRK/ADM - 00412	EVAP	EEM - RI	285	20	264	893	455	0	129	1,219	954	4.61	3.7
Motors	PMTR 5e	ADMIN - 00988	PMPMTR	VSD & EEM RI	182	10	172	768	38	10	55	740	569	4.31	4.0
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat RI	89	0	89	318	27	0	34	380	290	4.25	4.1
Motors	PMTR 110	PUMP 05996	PMPMTR	EEM - RI	337	26	310	969	468	0	127	1,311	1,000	4.22	4.1
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat RI	70	0	70	219	69	0	6	293	223	4.21	4.1
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater RI	146	0	146	247	474	50	66	605	459	4.15	4.2
Motors	PMTR 113	PUMP - 00319	PMPMTR	EEM RI	250	19	231	685	358	0	92	951	719	4.11	4.2
Motors	PMTR 112	PUMP - 00319	PMPMTR	EEM RI	250	19	231	672	358	0	92	938	707	4.06	4.2
Motors	MTR 428	ADMIN - 00988	Fan Motor	EEM RI	142	10	132	491	96	0	52	534	402	4.05	4.2
Motors	PMTR 40	HOSPITL - 00166	PMPMTR	EEM RI	57	4	53	196	38	0	21	214	161	4.05	4.2
Motors	PMTR 39	HOSPITL - 00166	PMPMTR	EEM RI	57	4	53	196	38	0	21	214	161	4.05	4.2
Motors	PMTR 41	HOSPITL - 00166	PMPMTR	EEM RI	28	2	26	98	19	0	10	107	80	4.05	4.2
Motors	PMTR 82	PUMP - 00324	PMPMTR	EEM RI	12	1	11	46	4	0	4	45	34	4.05	4.3
Lighting	DLC 1b	Small Office	T8 Lighting	T8 + Daylighting Controls RI	3,492	879	2,613	6,531	0	3,956	0	10,486	7,873	4.01	4.3
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM RI	533	32	501	1,388	782	0	188	1,983	1,482	3.96	4.3
Motors	MTR 39	ADMIN 00985	CONDMTR	EEM RI	26	2	24	54	50	0	9	94	70	3.92	4.4
Motors	MTR 38	ADMIN - 00985	CONDMTR	EEM RI	13	1	12	27	25	0	5	47	35	3.92	4.4
Motors	PMTR 108	PUMP - 00652	PMPMTR	EEM RI	208	16	193	422	396	0	75	744	551	3.86	4.5
Motors	MTR 258	DOR - 00909	EVAP	EEM - RI	13	1	12	29	20	0	2	46	34	3.86	4.5
Motors	MTR 417	WHB - 00934	EVAP	EEM - RI	39	3	36	87	59	0	8	139	103	3.85	4.5
Motors	MTR 259	DOR 00909	EVAP	EEM RI	26	2	24	59	40	0	6	92	68	3.84	4.5
Motors	PMTR-30	DOR 00430	PMPMTR	EEM RI	12	1	11	26	21	0	4	43	32	3.83	4.5
Motors	MTR 424	ADMIN 00988	Fan Motor	EEM RI	12	1	11	26	21	0	4	43	32	3.83	4.5
Motors	MTR 431	ADMIN 00988	Fan Motor	EEM RI	72	5	67	154	128	0	26	256	190	3.83	4.5
Envelope	MT 10		Single pane window	Shade Screens - NW side - RI	356	0	356	893	838	0	367	1,365	1,008	3.83	4.5
Envelope		U Shaped Bldgs Barracks		Window Screen NW Side RI	824	0	824	2,063	1,937	0	848	3,153	2,330	3.83	4.5
Envelope		Concrete Block: Barracks		Window Screen NW Side - RI	277	0	277	695	653	0	286	1,062	785	3.83	4.5
Envelope		U Shaped Bldgs: Other		Window Screen NW Side - RI	118	0	118	295	277	0	121	450	333	3.83	4.5
Envelope		Masonite Siding: post 1950		Window Screen NW Side - RI	105	0	105	262	246	0	108	401	296	3.83	4.5
Envelope		TRAINING		Window Screen NW Side - RI	23	0	23	59	55	0	-24	90	66	3.83	4.5
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen RI	1,568	0	1,568	3,928	3,688	0	1,614	6,003	4,435	3.83	4.5
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen RI	1,465	0	1,465	3,671	3,447	0	1,508	5,609	4,144	3.83	4.5
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen RI	1,433	0	1,433	3,590	3,371	0	1,475	5,487	4,053	3.83	4.5
Envelope		Metal Siding		Window Screen - NW Side - RI	762	0	762	1,909	1,792	0	784	2,917	2,155	3.83	4.5
Envelope		Concrete Block: Misc -pre 1980		Window Screen - NW Side - RI	115	0	115	289	271	0	119	442	326	3.83	4.5
Envelope		SHOP		Window Screen - NW Side RI	71	0	71	177	166	0	73	270	200	3.83	4.5
Envelope		DINING: MISC		Window Screen - NW Side - RI	43	0	43	108	101	0	-44	165	122	3.83	4.5
Envelope		BRK/ADM MISC		Window Screen - NW Side - RI	38	0	38	96	90	0	40	147	109	3.83	4.5
Envelope		Wood Siding		Window Screen - NW Side - RI	32	0	32	80	75	0	33	122	90	3.83	4.5
Envelope		MWR		Window Screen - NW Side RI	17	0	17	42	39	0	17	64	47	3.83	4.5
Envelope		WHB		Window Screen - NW Side - RI	15	0	15	37	35	0	15	56	42	3.83	4.5
Envelope		SECURTY		Window Screen - NW Side RI	3	0	3	9	8	0	-4	13	10	3.83	4.5
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen - RI	1,102	0	1,102	2,760	2,592	0	1,134	4,218	3,117	3.83	4.5
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side RI	277	0	277	694	652	0	285	1,061	784	3.83	4.5
Envelope		MOTORPOOL		Window Screen NW Side - RI	72	0	72	181	170	0	74	276	204	3.83	4.5
Envelope		ADMIN: MISC pre 1964		Window Screen - NW Side RI	40	0	40	100	94	0	41	153	113	3.83	4.5
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen - RI	957	0	957	2,397	2,251	0	985	3,663	2,707	3.83	4.5
Envelope		Concrete Block: Misc -post 1980		Window Screen - NW Side RI	101	0	101	252	237	0	104	385	285	3.83	4.5
Envelope		ADMIN: MISC post 1964		Window Screen - NW Side - RI	71	0	71	177	166	0	73	271	200	3.83	4.5
Motors	MTR 128	ADMIN 00441	EVAP	EEM RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 164	ADMIN - 00544	EVAP	EEM RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 150	ADMIN - 00504	EVAP	EEM RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 148	ADMIN - 00499	EVAP	EEM - RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 132	ADMIN 00444	EVAP	EEM - RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 245	CLINIC 00242	EVAP	EEM - RI	26	2	24	59	40	0	7	92	68	3.83	4.5
Motors	MTR 156	ADMIN 00524	EVAP	EEM RI	78	6	72	177	120	0	21	276	204	3.83	4.5
Motors	MTR 124	ADMIN - 00436	EVAP	EEM - RI	39	3	36	89	60	0	10	138	102	3.83	4.5
Motors	MTR 246	CLINIC - 00245	EVAP	EEM - RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 347	SECURTY - 00326	EVAP	EEM - RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 159	ADMIN - 00528	EVAP	EEM - RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 163	ADMIN - 00543	EVAP	EEM RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 130	ADMIN 00443	EVAP	EEM - RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 147	ADMIN - 00498	EVAP	EEM RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 155	ADMIN 00521	EVAP	EEM - RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 131	ADMIN 00443	EVAP	EEM RI	13	1	12	30	20	0	3	46	34	3.83	4.5
Motors	MTR 25	HOTEL - 00902	COMPMTR	EEM - RI	43	0	43	125	57	0	16	166	123	3.82	4.5
Motors	MTR 23	HOTEL - 00900	COMPMTR	EEM RI	43	0	43	125	57	0	16	164	123	3.82	4.5
Motors	MTR 24	HOTEL 00901	COMPMTR	EEM - RI	43	0	43	125	57	0	16	164	123	3.82	4.5
Motors	MTR 26	HOTEL - 00903	COMPMTR	EEM RI	43	0	43	125	57	0	16	164	123	3.82	4.5
Motors	MTR 28	HOTEL 00906	COMPMTR	EEM - RI	43	0	43	125	57	0	16	166	123	3.82	4.5
Motors	MTR 27	HOTEL 00904	COMPMTR	EEM - RI	33	0	33	93	43	0	12	125	92	3.82	4.5
Motors	MTR 103	ADMIN - 00237	EVAP	EEM RI	104	7	96	238	160	0	31	367	271	3.82	4.5
Motors	MTR 411	WHB - 00827	EVAP	EEM - RI	39	3	36	89	60	0	12	138	102	3.82	4.5
Motors	MTR 105	ADMIN - 00241	EVAP	EEM - RI	39	3	36	89	60	0	12	138	102	3.82	4.5
Motors	MTR 304	MTRPOOL 00650	EVAP	EEM RI	26	2	24	59	40	0	8	92	68	3.82	4.5

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings-to-Investment Ratio	Discounted Payback Period
Motors	MTR 306	MTRPOOL - 00681	EVAP	EEM RI	26	2	24	59	40	0	8	92	68	3.82	4.5
Motors	MTR 254	DOR 00308	EVAP	EEM RI	26	2	24	59	40	0	8	92	68	3.82	4.5
Motors	MTR 412	WHS 00827	EVAP	EEM - RI	13	1	12	30	20	0	4	46	34	3.82	4.5
Motors	MTR 410	WHS - 00827	EVAP	EEM RI	13	1	12	30	20	0	4	46	34	3.82	4.5
Motors	MTR 256	DOR - 00404	EVAP	EEM RI	13	1	12	30	20	0	4	46	34	3.82	4.5
Motors	MTR 261	DINING - 00254	EVAP	EEM RI	13	1	12	30	20	0	4	46	34	3.81	4.5
Motors	MTR 336	PLT BLDG 00253	EVAP	EEM RI	13	1	12	30	20	0	4	46	34	3.81	4.5
Motors	MTR 335	PLT-BLDG 00253	EVAP	EEM - RI	13	1	12	30	20	0	4	46	34	3.81	4.5
Motors	MTR 260	DINING - 00254	EVAP	EEM RI	13	1	12	30	20	0	4	46	34	3.81	4.5
Motors	MTR 354	SHOP - 00367	EVAP	EEM RI	65	5	60	151	102	0	-24	229	168	3.80	4.5
Motors	MTR 153	ADMIN - 00513	EVAP	EEM RI	52	4	48	120	81	0	19	183	135	3.80	4.5
Motors	MTR 171	ADMIN 00570	EVAP	EEM - RI	52	4	48	120	81	0	19	183	135	3.80	4.5
Motors	MTR 361	SHOP ELC - 00681	EVAP	EEM - RI	52	4	48	120	81	0	-19	183	135	3.80	4.5
Motors	MTR 401	WHS - 00517	EVAP	EEM RI	52	4	48	120	81	0	19	183	135	3.80	4.5
Motors	MTR 357	SHOP 00384	EVAP	EEM - RI	52	4	48	120	81	0	-19	183	135	3.80	4.5
Motors	MTR 382	WHS - 00342	EVAP	EEM RI	52	4	48	120	81	0	-19	183	135	3.80	4.5
Motors	MTR 160	ADMIN - 00528	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 384	WHS - 00352	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 386	WHS - 00364	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 154	ADMIN - 00520	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 175	ADMIN - 00583	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 157	ADMIN - 00526	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 118	ADMIN - 00415	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 97	01315	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 362	SHOP ELC - 00616	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 294	MTRPOOL - 00621	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 381	WHS - 00342	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 355	SHOP 00367	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 415	WHS 00860	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 296	MTRPOOL 00623	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 383	WHS 00344	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 262	DINING - 00431	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 380	WHS - 00333	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 242	CHAPEL - 00315	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 350	SHOP - 00356	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 376	WHS - 00318	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 162	ADMIN - 00539	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 114	ADMIN - 00372	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 116	ADMIN - 00408	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 317	MTRPOOL 00850	EVAP	EEM RI	26	2	24	60	41	0	-9	91	67	3.80	4.5
Motors	MTR 286	MTRPOOL - 00605	EVAP	EEM - RI	26	2	24	60	41	0	-9	91	67	3.80	4.5
Motors	MTR 119	ADMIN - 00425	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 133	ADMIN - 00445	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	PMTR 28	DOR - 00430	PMPMTR	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 320	MTRPOOL - 00941	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 291	MTRPOOL - 00612	EVAP	EEM RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 394	WHS 00470	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 141	ADMIN - 00464	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 292	MTRPOOL - 00614	EVAP	EEM - RI	26	2	24	60	41	0	-9	91	67	3.80	4.5
Motors	MTR 340	PUMP - 00044	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 388	WHS - 00364	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 280	MTRPOOL 00600	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 137	ADMIN - 00453	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 344	REC - 00338	EVAP	EEM - RI	26	2	24	60	41	0	-9	91	67	3.80	4.5
Motors	MTR 240	CHAPEL - 00212	EVAP	EEM - RI	26	2	24	60	41	0	9	91	67	3.80	4.5
Motors	MTR 310	MTRPOOL - 00837	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 309	MTRPOOL 00832	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 358	SHOP 00842	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 311	MTRPOOL - 00840	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 359	SHOP 00842	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 407	WHS - 00584	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 333	MWR - 01322	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 342	PUMP - 00838	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 340	SHOP ELC 02221	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 405	WHS 00545	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 416	WHS - 00860	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 399	WHS 00486	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 392	WHS - 00462	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 393	WHS - 00462	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 385	WHS 00360	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 379	WHS - 00333	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 377	WHS - 00318	EVAP	EEM - RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 363	SHOP-WPN - 07602	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 413	WHS - 00844	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 371	WHS - 00234	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 367	TRAING 00496	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 368	TRAING - 00496	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 370	WHS - 00024	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 387	WHS - 00364	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 374	WHS - 00318	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 375	WHS - 00318	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 414	WHS - 00860	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 406	WHS 00558	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 396	WHS - 00470	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 270	DINING - 00560	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 324	MWR 00410	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 308	MTRPOOL 00832	EVAP	EEM RI	13	1	12	30	20	0	-5	46	34	3.80	4.5
Motors	MTR 300	MTRPOOL - 00646	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 352	SHOP - 00357	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings-to-Investment Ratio	Discounted Payback Period
Motors	MTR 331	MWR 01322	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 323	MWR 00340	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 325	MWR 00480	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 400	WHS 00486	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 326	MWR 00556	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 408	WHS 00585	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 353	SHOP 00357	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 332	MWR 01322	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 283	MTRPOOL 00600	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 267	DINING 00449	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 255	DOR - 00404	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 402	WHS 00531	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 403	WHS 00531	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 356	SHOP 00384	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 351	SHOP 00357	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 298	MTRPOOL 00639	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 313	MTRPOOL 00840	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 164	ADMIN - 00543	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 151	ADMIN 00508	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-152	ADMIN 00510	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 158	ADMIN 00527	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 161	ADMIN - 00529	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 169	ADMIN - 00554	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 146	ADMIN - 00497	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 172	ADMIN - 00578	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-173	ADMIN 00579	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 174	ADMIN - 00580	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 149	ADMIN - 00504	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 145	ADMIN - 00483	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 186	ADMIN - 06201	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 115	ADMIN - 00372	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 101	ADMIN - 00157	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 104	ADMIN - 00237	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 112	ADMIN 00320	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-125	ADMIN - 00437	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-138	ADMIN 00454	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 140	ADMIN - 00458	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 142	ADMIN 00464	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 182	ADMIN - 00928	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 177	ADMIN - 00604	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 187	ADMIN - 07600	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 297	MTRPOOL - 00626	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 284	MTRPOOL - 00605	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 272	PUBLDSP - 00950	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 285	MTRPOOL - 00605	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 287	MTRPOOL - 00605	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 314	MTRPOOL - 00847	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 288	MTRPOOL - 00608	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 289	MTRPOOL - 00608	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 293	MTRPOOL - 00620	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 299	MTRPOOL - 00642	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 316	MTRPOOL - 00850	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 271	PUBLDSP - 00836	EVAP	EEM - RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 315	MTRPOOL - 00847	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 247	CLINIC - 00245	EVAP	EEM RI	13	1	12	30	20	0	5	46	34	3.80	4.5
Motors	MTR 268	DINING - 00468	EVAP	EEM - RI	78	6	72	181	122	0	28	274	202	3.80	4.5
Motors	MTR 135	ADMIN - 00452	EVAP	EEM RI	78	6	72	181	122	0	28	274	202	3.80	4.5
Motors	MTR 257	DOR - 00430	EVAP	EEM - RI	78	6	72	181	122	0	28	274	202	3.80	4.5
Motors	MTR 170	ADMIN - 00564	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 120	ADMIN - 00426	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 165	ADMIN - 00544	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 312	MTRPOOL - 00840	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR-127	ADMIN - 00439	EVAP	EEM RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 307	MTRPOOL - 00830	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 123	ADMIN - 00433	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 139	ADMIN - 00458	EVAP	EEM - RI	39	3	36	90	61	0	14	137	101	3.80	4.5
Motors	MTR 185	ADMIN - 06201	EVAP	EEM - RI	26	2	24	61	41	0	11	91	67	3.79	4.5
Motors	MTR 98	ADMIN - 00101	EVAP	EEM RI	78	6	72	183	123	0	33	273	201	3.79	4.5
Motors	MTR 334	OTHER - 00992	EVAP	'EEM RI	13	1	12	30	21	0	5	46	34	3.79	4.5
Heating	3	HANGAR BD008	Unit Heaters	Radiant Heat RI	533	0	533	1,850	124	0	41	2,015	1,482	3.78	4.6
Motors	MTR 339	PLT BLDG - 00263	EVAP	EEM RI	26	2	24	61	41	0	12	91	67	3.78	4.6
Motors	MTR 338	PLT-BLDG 00263	EVAP	EEM - RI	13	1	12	31	21	0	6	45	33	3.78	4.6
Heating	19	MTRPOOL 00650	Unit Heaters	Radiant Heat - RI	123	0	123	318	25	0	119	463	340	3.76	4.6
Motors	PMTR 84	PUMP - 18005	PMPMTR	EEM RI	423	29	394	1,051	587	0	162	1,476	1,082	3.75	4.6
Motors	MTR 420	ADMIN 00439	Fan Motor	EEM - RI	11	0	11	30	14	0	4	41	30	3.75	4.6
Motors	MTR-419	ADMIN 00433	Fan Motor	EEM - RI	11	0	11	30	14	0	4	41	30	3.75	4.6
Lighting	OS MT 56	MT Copy Room	T8 Lighting	T8 + Occupancy Controls RI	263	15	248	734	0	189	0	923	674	3.72	4.6
DHW & A-C	19	00237	AIR CONDITIONER	Install Desuperheater RI	108	0	108	201	296	50	49	399	291	3.71	4.6
Heating	2	HANGAR BD007	Unit Heaters	Radiant Heat RI	711	0	711	2,407	165	0	55	2,627	1,916	3.70	4.7
Heating	4	HANGAR BD009	Unit Heaters	Radiant Heat RI	711	0	711	2,407	165	0	55	2,627	1,916	3.70	4.7
Heating	42	SHOP HDSDS	Unit Heaters	Radiant Heat RI	667	0	667	2,202	0	0	259	2,461	1,794	3.69	4.7

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
DHW & A/C	30	00857	Chiller air cooled	Install Desuperheater - RI	214	0	214	135	790	-50	97	778	564	3.64	4.7
Wells	1		Well Pumps	Add New 500 kgal Tank RI	12,224	0	12,224	25,654	16,019	250	2,969	44,422	32,199	3.63	4.7
Motors	PMTR 67	PLT-BLDG 00253	PMPMTR	EEM RI	50	4	46	139	47	0	-18	167	121	3.63	4.7
Motors	PMTR 91	PUMP - 00042	PMPMTR	EEM RI	67	5	61	172	73	0	-23	222	160	3.61	4.8
Motors	PMTR 90	PUMP - 00044	PMPMTR	EEM - RI	67	5	61	172	73	0	-23	222	160	3.61	4.8
Motors	MTR 183	ADMIN 00988	EVAP	EEM RI	12	1	11	25	17	0	-1	40	29	3.60	4.8
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES - RI	25,084	4,529	20,557	43,446	30,478	1,500	0	72,424	51,867	3.52	4.9
Motors	MTR 14	CLUB - 00202	COMPMTR	EEM RI	11	0	11	28	14	0	-4	38	27	3.51	4.9
Motors	MTR-15	CLUB 00202	COMPMTR	EEM RI	43	0	43	111	57	0	-16	153	109	3.51	4.9
Motors	MTR 17	CLUB - 00202	COMPMTR	EEM RI	43	0	43	111	57	0	-16	153	109	3.51	4.9
Motors	MTR 16	CLUB - 00202	COMPMTR	EEM RI	22	0	22	56	29	0	-8	76	55	3.51	4.9
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	171	0	171	133	593	-50	-78	598	426	3.49	4.9
Motors	MTR 42	CLUB - 00202	CONDMTR	EEM RI	11	0	11	28	14	0	-4	38	27	3.49	4.9
Motors	MTR 184	ADMIN - 00988	EVAP	EEM RI	24	2	22	51	35	0	-9	77	55	3.47	5.0
Motors	MTR 301	MTRPOOL - 00646	EVAP	EEM - RI	24	2	22	51	35	0	-9	77	55	3.47	5.0
Motors	PMTR 37	GROCERY - 00920	PMPMTR	EEM RI	12	1	11	26	17	0	-4	39	28	3.47	5.0
Motors	MTR 181	ADMIN - 00988	EVAP	EEM - RI	12	1	11	26	17	0	-4	39	28	3.47	5.0
Motors	PMTR 35	GROCERY - 00920	PMPMTR	EEM - RI	12	1	11	26	17	0	-4	39	28	3.47	5.0
DHW & A/C	28	00488	PKG A/C	Install Desuperheater - RI	214	0	214	93	790	-50	97	716	522	3.44	5.0
Motors	MTR 456	MTRPOOL 00857	Fan Motor	EEM RI	81	7	74	211	72	0	-28	254	180	3.43	5.0
Motors	PMTR 83	PUMP - 18005	PMPMTR	EEM - RI	423	29	394	892	587	0	-162	1,318	924	3.35	5.1
Motors	MTR-37	WHS-CLD - 00862	COMPMTR	EEM - RI	11	0	11	26	14	0	-4	36	25	3.34	5.2
Motors	PMTR 17c	BRK/ADM - 00273	PMPMTR	VSD & EEM RI	466	23	443	1,510	119	-20	-137	1,472	1,029	3.32	5.2
Motors	PMTR 16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	466	23	443	1,510	119	-20	-137	1,472	1,029	3.32	5.2
Motors	PMTR 15c	BRK/ADM - 00273	PMPMTR	VSD & EEM RI	233	12	222	755	59	-10	-68	736	514	3.32	5.2
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	89	0	89	244	18	0	34	297	207	3.32	5.2
Motors	PMTR 19	BRK/ADM - 00099	PMPMTR	EEM RI	11	0	11	21	19	0	-4	36	25	3.31	5.2
Motors	MTR 13	WHS - 00552	AIRCOMP	EEM - RI	24	2	22	40	43	0	-9	74	51	3.31	5.2
Motors	PMTR 7c	ADMIN - 00985	PMPMTR	VSD & EEM - RI	235	11	224	788	44	-20	-71	741	517	3.31	5.2
DHW & A/C	1	00013	CHILLER air cooled	Install Desuperheater RI	193	0	193	82	691	-50	-87	636	443	3.30	5.2
Motors	PMTR 18	BRK/ADM - 00110	PMPMTR	EEM - RI	11	0	11	21	19	0	-4	36	25	3.27	5.3
Motors	PMTR 111	PUMP - 05997	PMPMTR	EEM RI	337	26	310	670	468	0	-127	1,012	701	3.26	5.3
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	76	0	76	180	148	-50	-34	243	168	3.22	5.3
Motors	PMTR 45	PLT-BLDG - 00253	PMPMTR	EEM - RI	64	5	59	159	54	0	-23	191	131	3.20	5.4
Motors	PMTR 49	PLT-BLDG 00263	PMPMTR	EEM - RI	64	5	59	159	54	0	-23	191	131	3.20	5.4
Envelope	MWR	MWR		Weatherization RI	79	0	79	162	89	0	0	251	172	3.17	5.4
Motors	MTR 526	Fan Housing	Heat System Fan	EEM - RI	17,765	0	17,765	25,448	36,603	0	-5,824	56,227	38,462	3.16	5.4
Heating	7	MTRPOOL 00681	Unit Heaters	Radiant Heat - RI	629	0	629	1,909	128	0	-57	1,981	1,352	3.15	5.5
Motors	PMTR 115	PUMP - 00043	PMPMTR	EEM - RI	208	16	193	432	244	0	-75	601	409	3.12	5.5
Motors	PMTR 92	PUMP - 00044	PMPMTR	EEM RI	208	16	193	428	244	0	-75	597	405	3.10	5.6
Controls	MT 1		Thermostat	Night Setback RI	8,734	0	8,734	24,835	6,096	0	-3,956	26,975	18,241	3.09	5.6
Motors	PMTR 99	PUMP - 00324	PMPMTR	EEM - RI	67	5	61	137	73	0	-23	187	126	3.05	5.6
Motors	PMTR 2a	ADMIN - 00988	PMPMTR	EEM RI	28	2	26	54	36	0	-10	80	53	3.03	5.7
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	1,110	0	1,110	3,170	0	0	142	3,312	2,202	2.98	5.8
Motors	PMTR 60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM RI	367	15	352	969	139	-10	-108	989	638	2.81	6.1
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat RI	629	0	629	1,695	128	0	-57	1,766	1,137	2.81	6.1
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	65	0	65	161	99	-50	-29	181	116	2.78	6.2
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	30	0	30	62	0	0	21	84	54	2.78	6.2
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	99	0	99	244	20	0	6	270	172	2.74	6.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	99	0	99	244	20	0	6	270	172	2.74	6.3
Motors	PMTR 32	DINING - 00254	PMPMTR	EEM RI	12	1	11	13	21	0	-4	30	19	2.68	6.4
Motors	MTR-449	GROCERY - 00920	Fan Motor	EEM - RI	81	7	74	152	72	0	-28	196	122	2.65	6.5
Motors	MTR-9	MTRPOOL 00873	AIRCOMP	EEM - RI	67	5	61	89	96	0	-23	162	100	2.64	6.5
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM RI	67	5	61	89	96	0	-23	162	100	2.64	6.5
Motors	PMTR 80	PUMP - 05590	PMPMTR	EEM - RI	533	32	501	709	782	0	-188	1,304	803	2.60	6.6
Motors	PMTR 104	PUMP - 00700	PMPMTR	EEM - RI	208	16	193	403	172	0	-73	501	308	2.60	6.6
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	95	0	95	100	237	-50	-43	244	149	2.57	6.7
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat RI	149	0	149	224	15	0	143	382	233	2.57	6.7
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	149	0	149	257	15	0	108	380	231	2.56	6.7
Envelope	w/ SB win only	Concrete Block: w/ SB win only		Weatherization - RI	244	0	244	399	221	0	0	620	376	2.54	6.8
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - RI	28	2	26	53	24	0	-10	67	40	2.53	6.8
Motors	MTR 447	GROCERY - 00920	Fan Motor	EEM RI	85	7	78	151	71	0	-30	192	114	2.47	7.0
Motors	MTR 436a	CLINIC - 00171	Fan Motor	EEM - RI	42	3	39	75	35	0	-15	96	57	2.47	7.0
Motors	MTR 450	GROCERY - 00920	Fan Motor	EEM RI	42	3	39	75	35	0	-15	96	57	2.47	7.0
Motors	MTR 481	REC - 00905	Fan Motor	EEM - RI	32	2	30	58	27	0	-11	73	44	2.47	7.0
Motors	MTR 477	PUMP - 00324	Fan Motor	EEM - RI	32	2	30	58	27	0	-11	73	44	2.47	7.0
Motors	MTR 467a	MWR - 01322	Fan Motor	EEM - RI	28	2	26	54	19	0	-10	65	39	2.46	7.0
Motors	PMTR-59c	PLT-BLDG - 00253	PMPMTR	VSD & EEM RI	466	19	447	1,139	119	-20	-137	1,101	654	2.46	7.0
Motors	MTR 524a	DGR - 00308	VENTLTR	EEM RI	32	2	30	55	26	0	-9	72	43	2.44	7.1
Motors	MTR 438a	CLINIC - 00171	Fan Motor	EEM RI	104	8	96	183	86	0	-37	232	135	2.41	7.2
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	108	0	108	61	296	-50	-49	259	151	2.41	7.2
Motors	PMTR 85	PUMP - 18005	PMPMTR	EEM RI	423	29	394	519	587	0	-162	944	550	2.40	7.2
Motors	PMTR 4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	114	4	110	272	56	10	-36	263	153	2.39	7.2
Motors	PMTR 77	PUMP - 00324	PMPMTR	EEM - RI	67	5	61	156	14	0	-23	146	85	2.39	7.2
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM - RI	28	2	26	47	26	0	-10	63	36	2.37	7.3
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	80	0	80	108	168	-50	-36	189	109	2.37	7.3
HVAC	MT 3		Heat pump	2-speed compressor - RI	13,966	0	13,966	19,917	19,435	0	-4,326	33,026	19,060	2.36	7.3
Heating	15	MTRPOOL 00605	Unit Heaters	Radiant Heat RI	178	0	178	326	18	0	69	413	235	2.33	7.4
Motors	PMTR 58	PLT-BLDG - 00109	PMPMTR	EEM RI	12	1	11	13	17	0	-4	26	15	2.32	7.4
Motors	MTR 19	GROCERY 00920	COMPMTR	EEM RI	85	7	78	138	71	0	-30	179	102	2.31	7.4
Motors	MTR 20	GROCERY 00920	COMPMTR	EEM RI	42	3	39	69	35	0	-15	90	51	2.31	7.4
Motors	MTR 18	GROCERY 00920	COMPMTR	EEM RI	42	3	39	69	35	0	-15	90	51	2.31	7.4
Motors	PMTR 24	BRK/ADM 00273	PMPMTR	EEM - RI	12	1	11	8	22	0	-4	26	15	2.31	7.5
Motors	MTR 21	GROCERY 00920	COMPMTR	EEM RI	545	39	505	898	460	0	-193	1,165	659	2.30	7.5
Motors	MTR 329	MWR 01322	EVAP	EEM RI	11	0	11	17	12	0	-4	25	14	2.29	7.5
Heating	12	MTRPOOL 00621	Unit Heaters	Radiant Heat - RI	178	0	178	318	18	0	69	406	228	2.28	7.5
Motors	MTR 49	WHS-CLD 00862	CONDMTR	EEM RI	11	0	11	15	13	0	-4	25	14	2.28	7.5
Motors	MTR 43	GROCERY 00920	CONDMTR	EEM RI	85	7	78	138	66	0	-30	175	97	2.26	7.6
Motors	PMTR 26	CLINIC - 00171	PMPMTR	EEM - RI	133	10	123	176	146	0	-46	276	154	2.25	7.6

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	PMTR 27	CLINIC 00171	PMPMTR	EEM RI	133	10	123	176	146	0	46	276	154	2.25	7.6
Envelope	MT 5		Black EPDM	Reflective roof RI	13,003	0	13,003	16,015	13,111	0	0	29,126	16,123	2.24	7.7
Motors	PMTR 78	PUMP 05590	PMPMTR	EEM RI	533	32	501	436	673	0	41	1,067	567	2.13	8.1
Motors	PMTR 53a	PLT BLDG 00263	PMPMTR	EEM RI	104	8	96	103	139	0	37	205	109	2.13	8.1
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater RI	98	0	98	51	253	50	44	209	111	2.13	8.1
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	98	0	98	51	253	50	44	209	111	2.13	8.1
Heating	27	MTRPOOL 00893	Unit Heaters	Radiant Heat RI	178	0	178	344	18	0	14	376	198	2.11	8.1
Heating	16	MTRPOOL 00850	Unit Heaters	Radiant Heat RI	178	0	178	318	18	0	39	375	198	2.11	8.1
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat RI	178	0	178	318	18	0	39	375	198	2.11	8.2
Motors	MTR 92	HOTEL - 00904	COOL	EEM RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 87	HOSPITL - 00166	COOL	EEM - RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 93	HOTEL - 00906	COOL	EEM - RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 91	HOTEL - 00903	COOL	EEM - RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 86	HOSPITL - 00166	COOL	EEM RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 83	HOTEL 00900	COOL	EEM - RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 89	HOTEL - 00901	COOL	EEM RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Motors	MTR 90	HOTEL - 00902	COOL	EEM - RI	11	0	11	16	12	0	5	23	12	2.10	8.2
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat RI	1,596	0	1,596	3,532	217	0	402	3,346	1,750	2.10	8.2
Motors	PMTR 107	PUMP - 00636	PMPMTR	EEM RI	208	16	193	81	396	0	75	403	210	2.09	8.2
Lighting	05 MT 4h	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	836	26	810	1,245	0	406	0	1,651	841	2.04	8.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater RI	95	0	95	47	237	50	43	192	97	2.02	8.5
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater - RI	95	0	95	47	237	50	43	192	97	2.02	8.5
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat RI	267	0	267	509	27	0	0	536	269	2.01	8.6
Motors	MTR 2	CLINIC - 00171	AIRCOMP	EEM - RI	100	8	92	107	115	0	37	185	93	2.00	8.6
Motors	PMTR 79	PUMP 05590	PMPMTR	EEM - RI	533	32	501	401	782	0	188	995	495	1.99	8.7
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat RI	533	0	533	962	54	0	41	1,058	525	1.98	8.7
Envelope	MT 8		Single pane window	Shade Screens SE side RI	356	57	299	697	261	0	367	591	292	1.97	8.7
Envelope		Metal Siding		Window Screen SE side - RI	734	117	617	1,435	537	0	755	1,217	600	1.97	8.7
Envelope		Concrete Block: Barracks		Window Screen SE side RI	277	44	233	542	203	0	285	460	227	1.97	8.7
Envelope		Concrete Block: Misc post 1980		Window Screen - SE side RI	101	16	85	197	74	0	104	167	82	1.97	8.7
Envelope		MOTORPOOL		Window Screen SE side RI	72	12	61	141	53	0	74	120	59	1.97	8.7
Envelope		TRAINING		Window Screen SE side RI	23	4	20	46	17	0	24	39	19	1.97	8.7
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen RI	3,920	627	3,293	7,664	2,869	0	4,034	6,499	3,206	1.97	8.7
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	3,663	586	3,077	7,161	2,681	0	3,770	6,073	2,996	1.97	8.7
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen RI	3,581	573	3,008	7,002	2,622	0	-3,685	5,938	2,929	1.97	8.7
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen RI	2,755	441	2,314	5,385	2,016	0	2,835	4,567	2,253	1.97	8.7
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen RI	2,392	383	2,009	4,677	1,751	0	2,462	3,966	1,957	1.97	8.7
Envelope		U Shaped Bldgs: Barracks		Window Screen SE side RI	1,909	305	1,604	3,733	1,398	0	1,965	3,166	1,562	1.97	8.7
Envelope		Masonite Siding: pre 1950		Window Screen SE side RI	329	53	276	642	241	0	338	545	269	1.97	8.7
Envelope		U Shaped Bldgs: Other		Window Screen SE side RI	273	44	229	533	200	0	281	452	223	1.97	8.7
Envelope		Concrete Block: w/ SE win only		Window Screen SE side RI	177	28	148	345	129	0	182	293	144	1.97	8.7
Envelope		Concrete Block: Misc pre 1980		Window Screen SE side RI	115	18	97	226	84	0	-119	191	94	1.97	8.7
Envelope		Masonite Siding, post 1950		Window Screen SE side RI	109	17	91	212	80	0	112	180	89	1.97	8.7
Envelope		SHOP		Window Screen SE side RI	71	11	59	138	52	0	73	117	58	1.97	8.7
Envelope		DINING: MISC		Window Screen SE side RI	43	7	36	84	31	0	44	71	35	1.97	8.7
Envelope		ADMIN: MISC pre 1964		Window Screen SE side RI	40	6	34	78	29	0	41	66	33	1.97	8.7
Envelope		BRK/ADM MISC		Window Screen SE side - RI	38	6	32	75	28	0	40	64	31	1.97	8.7
Envelope		Wood Siding		Window Screen SE side RI	32	5	27	63	23	0	33	53	26	1.97	8.7
Envelope		MWR		Window Screen SE side RI	17	3	14	33	12	0	17	28	14	1.97	8.7
Envelope		WHS		Window Screen SE side RI	15	2	12	29	11	0	15	24	12	1.97	8.7
Envelope		SECURITY		Window Screen SE side RI	3	1	3	7	3	0	-4	6	3	1.97	8.7
Envelope		ADMIN: MISC post 1964		Window Screen - SE side - RI	71	11	59	138	52	0	73	117	58	1.97	8.7
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat RI	355	0	355	630	36	0	27	694	338	1.95	8.8
Motors	PMTR 52a	PLT-BLDG - 00263	PMPMTR	EEM RI	42	3	39	38	51	0	15	74	36	1.92	9.0
Heating	38	SHOP AIR BD006	Unit Heaters	Radiant Heat ROP	70	0	70	64	11	0	59	134	64	1.92	9.0
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat RI	311	0	311	592	32	0	34	590	279	1.89	9.1
Heating	39	SHOP HVY - BD005	Unit Heaters	Radiant Heat ROP	116	0	116	103	18	0	98	220	103	1.89	9.1
Motors	MTR 444a	DINING - 00254	Fan Motor	EEM RI	114	8	105	163	76	0	41	198	92	1.87	9.2
Motors	MTR 456	WHS-CLD - 00862	Fan Motor	EEM - RI	57	4	53	81	38	0	21	99	46	1.87	9.2
Motors	MTR 453o	HOSPITL - 00166	Fan Motor	VSD & EEM RI	1,180	35	1,145	2,597	63	10	511	2,139	994	1.87	9.2
Motors	MTR 522a	DOR - 00308	VENTLTR	EEM - RI	28	2	26	39	18	0	9	49	23	1.87	9.2
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat RI	178	0	178	293	18	0	21	332	154	1.87	9.2
Motors	MTR 523a	DOR - 00308	VENTLTR	EEM - RI	28	2	26	39	18	0	8	49	23	1.86	9.2
TAD	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	1,121	0	1,121	1,037	804	0	234	2,075	954	1.85	9.3
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat RI	1,887	0	1,887	3,596	256	0	-476	3,376	1,489	1.79	9.6
Motors	MTR 527	Fam Housing	Cool System Fan	EEM RI	17,765	0	17,765	18,601	18,945	0	6,406	31,140	13,375	1.75	9.8
Motors	MTR 62	BRK/ADM - 00226	COOL	EEM - RI	814	0	814	853	868	0	294	1,428	613	1.75	9.8
Motors	MTR 60	BRK/ADM - 00110	COOL	EEM - RI	217	0	217	227	232	0	78	381	164	1.75	9.8
Motors	MTR 59	BRK/ADM - 00108	COOL	EEM RI	174	0	174	182	185	0	-63	305	131	1.75	9.8
Motors	MTR 56	BRK/ADM - 00105	COOL	EEM RI	174	0	174	182	185	0	-63	305	131	1.75	9.8
Motors	MTR 41	BRK/ADM - 00111	COOL	EEM RI	174	0	174	182	185	0	-63	305	131	1.75	9.8
Motors	MTR 57	BRK/ADM 00106	COOL	EEM - RI	174	0	174	182	185	0	-63	305	131	1.75	9.8
Motors	MTR 58	BRK/ADM - 00107	COOL	EEM - RI	174	0	174	182	185	0	-63	305	131	1.75	9.8
Motors	MTR 82	CLUB - 20018	COOL	EEM - RI	11	0	11	11	12	0	-4	19	8	1.75	9.8
Fam. Hsg. HVAC	26			High Eff Grnd Source HP RI	411,535	0	411,535	479,316	234,468	16,370	14,052	716,102	304,567	1.74	9.9
Motors	MTR 479a	REC 00905	Fan Motor	EEM - RI	28	2	26	41	16	0	10	46	19	1.74	9.9
Motors	MTR 480a	REC 00905	Fan Motor	EEM - RI	28	2	26	41	16	0	10	46	19	1.74	9.9
Motors	MTR 478a	REC 00905	Fan Motor	EEM RI	28	2	26	41	16	0	10	46	19	1.74	9.9
Motors	MTR 451c	HOSPITL - 00166	Fan Motor	VSD & EEM RI	2,318	68	2,250	4,859	73	10	1,013	3,909	1,659	1.74	9.9
Motors	MTR 79	BRK/ADM - 00275	COOL	EEM RI	76	0	76	80	81	0	30	132	56	1.73	9.9
Motors	MTR 63	BRK/ADM - 00226	COOL	EEM RI	76	0	76	80	81	0	30	132	56	1.73	9.9
Motors	MTR 66	BRK/ADM 00261	COOL	EEM - RI	11	0	11	11	12	0	-4	19	8	1.73	9.9
Motors	MTR 78	BRK/ADM 00275	COOL	EEM - RI	814	0	814	857	873	0	320	1,411	596	1.73	9.9
Motors	MTR 77	BRK/ADM 00273	COOL	EEM - RI	814	0	814	857	873	0	320	1,411	596	1.73	9.9
Motors	MTR 76	BRK/ADM 00273	COOL	EEM RI	22	0	22	23	23	0	9	38	16	1.73	9.9
Motors	MTR 64	BRK/ADM - 00226	COOL	EEM - RI	22	0	22	23	23	0	9	38	16	1.73	9.9
Motors	MTR 80	BRK/ADM - 00275	COOL	EEM RI	22	0	22	23	23	0	9	38	16	1.73	9.9
Motors	PMTR 116	PUMP - 00043	PMPMTR	EEM RI	208	16	193	164	244	0	75	333	140	1.73	10.0
Motors	MTR 452c	HOSPITL 00166	Fan Motor	VSD & EEM RI	1,570	47	1,523	3,273	47	10	484	2,626	1,103	1.72	10.0

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Motors	MTR 29	MTRPOOL 00857	CONDMTR	EEM RI	162	14	148	194	116	0	56	255	106	1.72	10.0
Motors	MTR 44	MTRPOOL 00857	CONDMTR	EEM RI	169	14	155	192	133	0	59	266	110	1.71	10.1
Motors	MTR 75	BRK/ADM 00273	COOL	EEM RI	76	0	76	81	82	0	34	129	53	1.69	10.2
Motors	MTR 74	BRK/ADM - 00267	COOL	EEM RI	11	0	11	12	12	0	5	18	8	1.69	10.2
Motors	MTR 69	BRK/ADM - 00264	COOL	EEM RI	11	0	11	12	12	0	5	18	8	1.69	10.2
Motors	MTR 68	BRK/ADM - 00262	COOL	EEM RI	11	0	11	12	12	0	5	18	8	1.69	10.2
Motors	MTR 72	BRK/ADM - 00265	COOL	EEM RI	11	0	11	12	12	0	5	18	8	1.69	10.2
Motors	MTR 70	BRK/ADM - 00264	COOL	EEM RI	771	0	771	819	834	0	349	1,305	534	1.69	10.2
Motors	MTR 67	BRK/ADM - 00262	COOL	EEM RI	771	0	771	819	834	0	349	1,305	534	1.69	10.2
Motors	MTR 71	BRK/ADM - 00265	COOL	EEM RI	771	0	771	819	834	0	349	1,305	534	1.69	10.2
Motors	MTR 73	BRK/ADM - 00267	COOL	EEM RI	771	0	771	819	834	0	349	1,305	534	1.69	10.2
Motors	MTR 65	BRK/ADM - 00261	COOL	EEM RI	771	0	771	819	834	0	349	1,305	534	1.69	10.2
Motors	MTR 454c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	3,071	91	2,980	6,319	72	10	1,345	5,015	2,055	1.69	10.2
Motors	MTR 423a	ADMIN 00988	Fan Motor	EEM RI	85	7	78	85	71	0	30	126	49	1.63	10.6
Motors	PMTR 34	GROCERY - 00920	power vents	EEM RI	64	5	59	65	54	0	23	97	37	1.62	10.6
Motors	PMTR 55a	PLT-BLDG - 00253	PMPMTR	EEM RI	162	14	148	126	170	0	54	240	92	1.62	10.6
Motors	PMTR 56a	PLT-BLDG - 00253	PMPMTR	EEM RI	162	14	148	124	170	0	56	240	92	1.62	10.6
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater - RI	65	0	65	85	99	50	29	105	40	1.61	10.7
Motors	PMTR 74	PUMP - 00042	PMPMTR	EEM RI	57	4	53	67	38	0	21	85	32	1.61	10.7
Motors	PMTR 75	PUMP - 00044	PMPMTR	EEM RI	28	2	26	34	19	0	10	42	16	1.41	10.7
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater RI	78	0	78	51	158	50	35	124	46	1.60	10.8
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater - RI	78	0	78	51	158	50	35	124	46	1.60	10.8
Motors	MTR 409	WHS 00818	EVAP	EEM RI	81	7	74	86	58	0	28	117	42	1.57	11.0
Motors	PMTR 25	BRK/ADM - 00273	PMPMTR	EEM RI	12	1	11	8	14	0	4	17	6	1.56	11.0
Motors	MTR 94	MTRPOOL - 00680	COOL	EEM RI	11	0	11	8	11	0	3	17	6	1.54	11.2
Motors	PMTR 41c	PLT-BLDG 00109	PMPMTR	VSD & EEM - RI	235	8	227	394	44	20	71	347	120	1.53	11.3
Motors	MTR 85	DINING 00254	COOL	EEM RI	11	0	11	9	12	0	4	16	6	1.52	11.3
Motors	PMTR 38	HOSPITL - 00166	PMPMTR	EEM RI	52	2	50	78	15	0	19	75	25	1.51	11.4
Motors	MTR 81	CLINIC 00171	COOL	EEM RI	11	0	11	9	12	0	4	16	5	1.50	11.5
Motors	MTR 95	MTRPOOL - 00857	COOL	EEM RI	11	0	11	9	12	0	4	16	5	1.50	11.5
Motors	MTR 432a	BRK/ADM - 00273	Fan Motor	EEM - RI	28	2	26	30	19	0	10	39	13	1.49	11.6
Motors	MTR 433a	BRK/ADM - 00273	Fan Motor	EEM RI	28	2	26	30	19	0	10	39	13	1.49	11.6
Motors	MTR 12	SHOP - 00367	AIRCOMP	EEM RI	81	7	74	67	72	0	28	110	36	1.49	11.6
Motors	MTR 435a	BRK/ADM - 00275	Fan Motor	EEM - RI	28	2	26	32	20	0	13	39	13	1.48	11.6
Motors	MTR 434a	BRK/ADM - 00275	Fan Motor	EEM RI	28	2	26	32	20	0	13	39	13	1.48	11.6
Motors	MTR 8	MTRPOOL 00646	AIRCOMP	EEM RI	30	1	29	26	28	0	11	42	14	1.47	11.7
Motors	MTR 96	WHS - 20001	COOL	EEM - RI	43	0	43	34	47	0	17	64	21	1.47	11.7
Motors	MTR 455a	HOSPITL - 00166	Fan Motor	VSD & EEM RI	755	20	735	1,390	21	20	310	1,081	346	1.47	11.7
Motors	MTR 282	MTRPOOL 00600	EVAP	EEM RI	28	2	26	29	20	0	10	38	12	1.45	11.8
Motors	MTR 99	ADMIN 00152	EVAP	EEM RI	32	2	30	33	22	0	11	43	13	1.45	11.9
Motors	MTR 54a	ADMIN 00988	COOL	EEM - RI	32	2	30	34	23	0	13	43	13	1.45	11.9
Motors	MTR 53a	ADMIN - 00988	COOL	EEM RI	32	2	30	34	23	0	13	43	13	1.45	11.9
Motors	MTR 55a	ADMIN 00988	COOL	EEM - RI	32	2	30	34	23	0	13	43	13	1.45	11.9
Motors	MTR 83	DINING 00222	COOL	EEM - RI	22	0	22	17	24	0	10	31	9	1.43	12.0
Motors	MTR 84	DINING - 00222	COOL	EEM - RI	22	0	22	17	24	0	10	31	9	1.43	12.0
Motors	PMTR 29	DOR 00308	PMPMTR	EEM - RI	32	2	30	29	24	0	11	42	13	1.43	12.1
TAD	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	1,087	0	1,087	513	165	0	869	1,547	459	1.42	12.1
TAD	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	5,262	0	5,262	2,525	881	0	4,009	7,414	2,152	1.41	12.2
TAD	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	1,087	0	1,087	468	139	0	869	1,476	389	1.36	12.7
Motors	MTR 509	BRK/ADM - 00251	HEAT	EEM - RI	315	0	315	451	77	0	103	425	110	1.35	12.8
Motors	MTR 518	BRK/ADM - 00252	HEAT	EEM - RI	315	0	315	451	77	0	103	425	110	1.35	12.8
Motors	MTR 503	BRK/ADM - 00250	HEAT	EEM - RI	315	0	315	451	77	0	103	425	110	1.35	12.8
Motors	MTR 515	BRK/ADM - 00252	HEAT	EEM - RI	174	0	174	249	43	0	57	234	61	1.35	12.8
Motors	MTR 507	BRK/ADM - 00251	HEAT	EEM - RI	174	0	174	249	43	0	57	234	61	1.35	12.8
Motors	MTR 502	BRK/ADM - 00250	HEAT	EEM RI	174	0	174	249	43	0	57	234	61	1.35	12.8
Motors	MTR 499	BRK/ADM - 00249	HEAT	EEM - RI	174	0	174	249	43	0	57	234	61	1.35	12.8
Motors	MTR 513	BRK/ADM - 00251	HEAT	EEM - RI	43	0	43	62	11	0	14	59	15	1.35	12.8
Motors	MTR 520	BRK/ADM 00252	HEAT	EEM - RI	43	0	43	62	11	0	14	59	15	1.35	12.8
Motors	MTR 504	BRK/ADM - 00250	HEAT	EEM RI	43	0	43	62	11	0	14	59	15	1.35	12.8
Motors	MTR 498	BRK/ADM - 00249	HEAT	EEM - RI	43	0	43	62	11	0	14	59	15	1.35	12.8
Motors	MTR 495	BRK/ADM - 00249	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 516	BRK/ADM - 00252	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 496	BRK/ADM - 00249	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 510	BRK/ADM - 00251	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 514	BRK/ADM - 00252	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 505	BRK/ADM - 00250	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 500	BRK/ADM - 00250	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 501	BRK/ADM 00250	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 506	BRK/ADM - 00250	HEAT	EEM - RI	11	0	11	14	3	0	4	15	4	1.35	12.8
Motors	MTR 511	BRK/ADM - 00251	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 493	BRK/ADM - 00249	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 517	BRK/ADM - 00252	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 508	BRK/ADM - 00251	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 512	BRK/ADM - 00251	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 519	BRK/ADM - 00252	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 497	BRK/ADM - 00249	HEAT	EEM - RI	11	0	11	16	3	0	4	15	4	1.35	12.8
Motors	MTR 521	MTRPOOL - 00681	HEAT	EEM - RI	11	0	11	15	3	0	3	15	4	1.35	12.8
Motors	MTR 50a	WHSCLD - 00862	CONDMTR	EEM - RI	64	5	59	58	44	0	21	79	20	1.34	12.9
TAD	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	1,475	0	1,475	577	195	0	1,188	1,960	485	1.33	13.0
Motors	MTR 494	BRK/ADM - 00249	HEAT	EEM - RI	315	0	315	453	77	0	114	417	103	1.33	13.0
Motors	MTR 491	BRK/ADM - 00110	HEAT	EEM - RI	217	0	217	313	53	0	78	288	71	1.33	13.0
Motors	MTR 492	BRK/ADM - 00111	HEAT	EEM - RI	174	0	174	250	43	0	43	230	57	1.33	13.0
Motors	MTR 490	BRK/ADM - 00108	HEAT	EEM - RI	174	0	174	250	43	0	43	230	57	1.33	13.0
Motors	MTR 489	BRK/ADM 00107	HEAT	EEM - RI	174	0	174	250	43	0	43	230	57	1.33	13.0
Motors	MTR 488	BRK/ADM - 00106	HEAT	EEM - RI	174	0	174	250	43	0	43	230	57	1.33	13.0
Motors	MTR 487	BRK/ADM 00105	HEAT	EEM - RI	174	0	174	250	43	0	43	230	57	1.33	13.0
TAD	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROF	1,622	0	1,622	612	209	0	1,309	2,129	507	1.31	13.1
TAD	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROF	1,720	0	1,720	645	224	0	1,384	2,255	534	1.31	13.1
TAD	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROF	1,256	0	1,256	464	157	0	1,015	1,636	380	1.30	13.2

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
T&D	63b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	826	0	826	276	89	0	709	1,073	247	1.30	13.3
T&D	59b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	4,349	0	4,349	1,640	531	0	3,476	5,646	1,297	1.30	13.3
T&D	65b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	725	0	725	273	89	0	579	941	216	1.30	13.3
T&D	81b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,033	0	1,033	412	141	0	787	1,340	308	1.30	13.3
Motors	MTR 30	MWR 01322	COMPMTR	EEM RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 48	MWR - 01322	CONDMTR	EEM - RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 47	MWR 01322	CONDMTR	EEM RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 31	MWR 01322	COMPMTR	EEM RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 46	MWR 01322	CONDMTR	EEM RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 33	MWR 01322	COMPMTR	EEM - RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 32	MWR - 01322	COMPMTR	EEM - RI	11	0	11	15	3	0	4	14	3	1.30	13.3
Motors	MTR 476	PLT BLDG 00263	Fan Motor	EEM RI	28	2	26	41	4	0	10	34	8	1.29	13.4
T&D	56b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	2,343	0	2,343	750	247	0	2,015	3,012	669	1.29	13.4
T&D	58b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	703	0	703	225	74	0	604	904	201	1.29	13.4
T&D	21b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	5,179	0	5,179	1,798	603	0	4,208	6,608	1,429	1.28	13.5
T&D	7b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,208	0	1,208	410	136	0	993	1,539	330	1.27	13.5
T&D	53b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	4,009	0	4,009	1,419	452	0	3,215	5,085	1,076	1.27	13.6
T&D	85b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,292	0	1,292	396	152	0	1,071	1,618	327	1.25	13.7
T&D	14b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	755	0	755	245	80	0	618	943	187	1.25	13.8
Motors	PMTR 13a	BRK/ADM 00273	PMPMTR	EEM - RI	42	3	39	31	32	0	15	48	10	1.25	13.8
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROP	25,141	0	25,141	5,853	3,492	0	22,013	31,358	6,216	1.25	13.8
T&D	46b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	560	0	560	155	53	0	483	691	131	1.23	14.0
Motors	PMTR 3c	ADMIN 00988	PMPMTR	VSD & EEM - RI	286	5	280	424	42	10	112	345	65	1.23	14.0
T&D	40b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	352	0	352	94	32	0	304	430	78	1.22	14.1
T&D	51b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	560	0	560	149	52	0	483	683	123	1.22	14.1
T&D	33b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	477	0	477	125	42	0	412	579	102	1.21	14.2
T&D	60b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	1,652	0	1,652	441	143	0	1,417	2,001	349	1.21	14.2
T&D	29b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	2,512	0	2,512	762	242	0	2,031	3,035	523	1.21	14.3
T&D	37b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	1,256	0	1,256	381	121	0	1,015	1,518	262	1.21	14.3
T&D	35b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	419	0	419	127	40	0	338	506	87	1.21	14.3
Motors	MTR 426a	ADMIN 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
Motors	MTR 430a	ADMIN 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
Motors	MTR 422a	ADMIN 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
Motors	MTR 429a	ADMIN 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
Motors	MTR 421a	ADMIN - 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
Motors	MTR 425a	ADMIN 00988	Fan Motor	EEM - RI	28	2	26	23	19	0	10	32	5	1.20	14.3
T&D	42b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	9,094	0	9,094	2,664	894	0	7,327	10,885	1,791	1.20	14.4
T&D	48b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	492	0	492	144	48	0	396	588	97	1.20	14.4
T&D	22b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	2,285	0	2,285	561	188	0	1,982	2,731	446	1.20	14.4
T&D	6b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,377	0	1,377	331	110	0	1,203	1,644	267	1.19	14.4
T&D	54b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	3,749	0	3,749	939	299	0	3,223	4,462	713	1.19	14.5
T&D	77b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	685	0	685	183	60	0	570	814	129	1.19	14.5
T&D	13b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,435	0	1,435	330	107	0	1,250	1,687	252	1.18	14.6
T&D	69b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	649	0	649	202	64	0	495	762	113	1.17	14.7
T&D	18b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	668	0	668	182	59	0	543	783	115	1.17	14.7
T&D	24b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	501	0	501	136	44	0	407	587	86	1.17	14.7
T&D	71b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,488	0	1,488	438	149	0	1,135	1,722	234	1.16	14.9
T&D	8b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,410	0	1,410	358	108	0	1,158	1,624	214	1.15	14.9
T&D	2b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,309	0	1,309	333	100	0	1,075	1,508	199	1.15	14.9
T&D	9b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	302	0	302	77	23	0	248	348	46	1.15	14.9
T&D	12b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,637	0	1,637	417	131	0	1,338	1,886	249	1.15	14.9
T&D	16b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,385	0	1,385	352	111	0	1,132	1,596	211	1.15	14.9
T&D	30b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	2,863	0	2,863	615	195	0	2,475	3,285	422	1.15	15.0
T&D	43b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,494	0	1,494	310	104	0	1,288	1,702	208	1.14	15.1
T&D	49b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	560	0	560	116	39	0	483	638	78	1.14	15.1
T&D	27b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	2,285	0	2,285	439	142	0	1,982	2,563	278	1.12	15.4
T&D	19b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	762	0	762	146	47	0	661	854	93	1.12	15.4
T&D	25b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	381	0	381	73	24	0	330	427	46	1.12	15.4
T&D	17b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	1,722	0	1,722	320	100	0	1,500	1,920	198	1.11	15.4
T&D	64b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	609	0	609	78	25	0	575	679	70	1.11	15.4
T&D	84b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	3,683	0	3,683	480	168	0	3,444	4,092	409	1.11	15.5
T&D	82b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	737	0	737	96	34	0	689	818	82	1.11	15.5
T&D	57b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	518	0	518	64	21	0	490	575	57	1.11	15.5
T&D	3b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	688	0	688	124	37	0	602	763	74	1.11	15.5
T&D	5b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	153	0	153	28	8	0	134	169	16	1.11	15.5
T&D	11b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	765	0	765	138	43	0	666	848	83	1.11	15.5
T&D	74b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	783	0	783	197	68	0	597	862	79	1.10	15.6
Motors	MTR 111	ADMIN - 00231	EVAP	EEM - RI	32	2	30	26	18	0	-11	33	3	1.10	15.7
T&D	86b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	952	0	952	112	43	0	889	1,044	92	1.10	15.7
T&D	1b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	105	0	105	17	5	0	92	114	10	1.09	15.8
T&D	47b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	826	0	826	88	30	0	782	899	74	1.09	15.8
Motors	PMTR 12a	BRK/ADM - 00273	PMPMTR	EEM - RI	42	3	39	28	29	0	15	42	3	1.09	15.8
T&D	41b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	519	0	519	53	18	0	492	563	44	1.08	15.9
T&D	52b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	826	0	826	84	29	0	782	895	70	1.08	15.9
T&D	34b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	352	0	352	35	12	0	333	380	29	1.08	15.9
Motors	PMTR 31a	DINING 00254	PMPMTR	EEM - RI	85	7	78	43	71	0	30	84	6	1.08	15.9
T&D	61b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	2,232	0	2,232	229	74	0	2,110	2,413	181	1.08	15.9
T&D	78b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	2,313	0	2,313	251	86	0	2,163	2,500	187	1.08	15.9
T&D	80b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,157	0	1,157	125	43	0	1,082	1,250	93	1.08	15.9
T&D	23b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	561	0	561	53	18	0	533	603	42	1.07	16.0
T&D	55b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	3,971	0	3,971	382	122	0	3,757	4,260	289	1.07	16.1
T&D	76b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,514	0	1,514	156	51	0	1,416	1,623	109	1.07	16.1
Motors	MTR 274	GROCERY 00930	EVAP	EEM RI	85	6	79	69	47	0	31	85	5	1.07	16.1
T&D	15b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	423	0	423	37	12	0	402	451	28	1.07	16.1
T&D	75b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	1,315	0	1,315	122	50	0	1,230	1,402	87	1.07	16.2
T&D	38b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	703	0	703	58	18	0	666	743	40	1.06	16.3
T&D	31b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	586	0	586	45	15	0	555	619	33	1.06	16.3
T&D	36b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	352	0	352	29	9	0	333	371	20	1.06	16.3
T&D	44b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	2,339	0	2,339	186	63	0	2,215	2,444	125	1.05	16.3

Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
Annualized Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings-to-Investment Ratio	Discounted Payback Period
Motors	MTR 573	GROCERY 00920	EVAP	EEM - RI	85	6	79	71	48	0	36	83	4	1.05	16.4
TAD	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	727	0	727	62	19	0	680	761	34	1.05	16.4
TAD	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	363	0	363	31	10	0	340	381	17	1.05	16.4
TAD	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	578	0	578	47	18	0	541	605	27	1.05	16.4
TAD	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	561	0	561	41	13	0	533	587	26	1.05	16.5
TAD	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	561	0	561	41	13	0	533	587	26	1.05	16.5
TAD	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	374	0	374	28	9	0	355	392	17	1.05	16.5
TAD	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	417	0	417	33	11	0	390	434	18	1.04	16.5
TAD	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	169	0	169	12	4	0	161	176	7	1.04	16.5
TAD	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	1,057	0	1,057	73	23	0	1,005	1,101	44	1.04	16.5
Motors	MTR 472a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 465a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 468a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 463a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 470a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 471a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
Motors	MTR 473a	MWR - 01322	Fan Motor	EEM - RI	30	1	29	31	10	0	11	30	1	1.03	16.7
TAD	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	3,506	0	3,506	240	83	0	3,279	3,602	96	1.03	16.8

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
AC	1	Bldg 253	250 ton chiller	Reset chilled and condenser water temps - RI	334	450	334	450	201,183	6,707.11	6,707.11	0.0
AC	2	Bldg 263	554 ton chiller	Reset chilled and condenser water temps - RI	632	949	632	949	398,702	6,646.03	6,584.96	0.0
AC	3	Bldg 273	200 ton chiller	Reset chilled and condenser water temps - RI	935	1,129	935	1,129	537,789	5,976.43	4,637.24	0.0
T&D		Substation	Sub Transformers	Conservation Voltage Reduction - RI	3,029	3,257	3,029	3,257	1,504,413	1,381.20	967.62	0.0
HVAC	6	MtrPool	Programmable T-Stat	Night Setback - RI	6,468	3,303	6,468	3,303	1,924,389	499.60	152.64	0.0
Lighting	OS-8b	Highbay	T8 Lighting	T8 + Occupancy Controls - RI	8,530	3,303	8,530	3,303	3,006,578	195.58	94.36	0.1
Envelope	MT-12		Leaky	Weatherization - RI	9,771	4,207	9,771	4,207	3,654,795	150.67	73.29	0.1
HVAC	4	Comcstn	Programmable T-Stat	Night Setback - RI	10,735	4,231	10,735	4,231	3,791,219	144.09	66.68	0.1
HVAC	3	Clinic	Programmable T-Stat	Night Setback - RI	11,379	4,259	11,379	4,259	3,903,763	137.62	55.18	0.1
HVAC	1	Admin	Programmable T-Stat	Night Setback - RI	18,963	4,360	18,963	4,360	4,813,010	99.93	46.28	0.2
Envelope		Masonite Siding: post 1950		Weatherization - RI	19,717	4,856	19,717	4,856	5,144,374	92.88	46.17	0.2
Lighting	OS-7b	Hallway	T8 Lighting	T8 + Occupancy Controls - RI	20,632	4,856	20,632	4,856	5,614,271	84.20	41.89	0.2
HVAC	2	Chapel	Programmable T-Stat	Night Setback - RI	20,907	4,861	20,907	4,861	5,650,239	83.46	35.63	0.2
Envelope		Metal Siding		Weatherization - RI	21,931	5,533	21,931	5,533	6,096,081	75.20	33.69	0.2
Lighting	OS-4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	22,546	5,533	22,546	5,533	6,411,151	70.51	32.26	0.2
Envelope	Other	U Shaped Bldgs: Other		Weatherization - RI	22,928	5,784	22,928	5,784	6,577,196	68.41	32.15	0.3
Envelope		Masonite Siding pre 1950		Weatherization - RI	24,755	6,984	24,755	6,984	7,371,598	60.84	32.01	0.3
Lighting	OS-3b	Conference	T8 Lighting	T8 + Occupancy Controls - RI	25,003	6,984	25,003	6,984	7,498,206	59.89	31.63	0.3
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization - RI	25,560	7,349	25,560	7,349	7,739,278	57.80	27.99	0.3
HVAC	5	DGR	Programmable T-Stat	Night Setback - RI	26,115	7,369	26,115	7,369	7,830,645	56.91	24.99	0.3
Envelope	Barracks	U Shaped Bldgs: Barracks		Weatherization - RI	27,546	8,310	27,546	8,310	8,444,796	51.10	22.55	0.3
Envelope		Wood Siding		Weatherization - RI	27,633	8,366	27,633	8,366	8,481,829	50.78	21.45	0.3
HVAC	8	Traing	Programmable T-Stat	Night Setback - RI	28,046	8,411	28,046	8,411	8,596,283	49.77	20.45	0.3
Envelope	Misc -pre 1980	Concrete Block: Misc -pre 1980		Weatherization - RI	28,263	8,553	28,263	8,553	8,688,400	48.91	19.11	0.4
Envelope		WHS		Weatherization - RI	28,367	8,621	28,367	8,621	8,732,522	48.51	18.79	0.4
Envelope	Shop	SHOP		Weatherization - RI	28,565	8,752	28,565	8,752	8,816,978	47.75	18.67	0.4
Envelope	Barracks	Concrete Block: Barracks		Weatherization - RI	28,975	9,021	28,975	9,021	8,990,255	46.18	17.70	0.4
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	30,178	9,811	30,178	9,811	9,498,712	42.21	17.14	0.4
Lighting	OS-MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	30,325	9,811	30,325	9,811	9,571,703	41.71	16.83	0.4
Lighting	OS-2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	31,425	9,811	31,425	9,811	10,125,709	38.44	16.68	0.4
Envelope	Family Housing	1963		Weatherization - RI	33,396	11,105	33,396	11,105	10,955,873	34.71	16.20	0.5
Envelope	Dining	DINING MSIC		Weatherization - RI	33,599	11,239	33,599	11,239	11,041,197	34.38	15.77	0.5
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	33,661	11,279	33,661	11,279	11,067,310	34.27	15.46	0.5
DHW & A/C	13	00166	CHILLER-air cooled	Install Desuperheater - RI	35,840	11,909	35,840	11,909	11,432,796	32.84	14.84	0.5
Envelope	Misc -post 1980	Concrete Block: Misc -post 1980		Weatherization - RI	36,139	12,106	36,139	12,106	11,557,537	32.35	13.97	0.5
Envelope	Family Housing	1961		Weatherization - RI	37,942	13,290	37,942	13,290	12,306,882	29.71	13.50	0.6
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - RI	37,998	13,313	37,998	13,313	12,322,859	29.66	12.96	0.6
Motors	PMTR-43	HOSPITL - 00166	PMPMTR	EEM - RI	38,026	13,324	38,026	13,324	12,330,847	29.64	12.96	0.6
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity - RI	38,079	14,800	38,079	14,800	12,706,592	28.49	12.89	0.6
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater - RI	38,189	14,818	38,189	14,818	12,722,323	28.44	11.59	0.6
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - RI	38,202	14,823	38,202	14,823	12,726,305	28.42	11.37	0.6
Motors	PMTR-71	POOL-OT - 00328	PMPMTR	EEM - RI	38,209	14,826	38,209	14,826	12,728,295	28.42	11.37	0.6
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	38,399	14,883	38,399	14,883	12,760,318	28.30	11.33	0.6
Envelope	Admin	ADMIN: MISC post 1964		Weatherization - RI	38,466	14,928	38,466	14,928	12,787,945	28.20	11.11	0.6
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	38,684	15,003	38,684	15,003	12,824,414	28.06	10.52	0.6
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	38,927	15,095	38,927	15,095	12,866,608	27.89	10.39	0.6
Lighting	DLC-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls - RI	39,126	15,095	39,126	15,095	12,974,554	27.46	10.07	0.6
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - RI	39,159	15,108	39,159	15,108	12,983,436	27.42	9.67	0.6
Envelope	Training	TRAINING		Weatherization - RI	39,241	15,162	39,241	15,162	13,016,309	27.27	9.06	0.6
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	39,400	15,234	39,400	15,234	13,045,906	27.14	9.03	0.6
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	39,446	15,265	39,446	15,265	13,064,469	27.05	9.01	0.6
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	39,724	15,316	39,724	15,316	13,100,967	26.89	8.93	0.6
HVAC	7	Shop-Elc	Programmable T-Stat	Night Setback - RI	39,776	15,320	39,776	15,320	13,111,913	26.84	8.90	0.6
Motors	MTR-35c	REC - 00905	COMPMTR	VSD & EEM - RI	39,929	15,339	39,929	15,339	13,154,345	26.64	8.48	0.6
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	40,029	15,384	40,029	15,384	13,172,110	26.54	7.87	0.6
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	40,113	15,416	40,113	15,416	13,186,184	26.47	7.79	0.7
Motors	PMTR-72	POOL-OT - 00328	PMPMTR	EEM - RI	40,118	15,418	40,118	15,418	13,187,435	26.46	7.69	0.7
Motors	PMTR-73	POOL-OT - 00328	PMPMTR	EEM - RI	40,122	15,420	40,122	15,420	13,188,686	26.46	7.69	0.7
Motors	PMTR-70	POOL-OT - 00328	PMPMTR	EEM - RI	40,127	15,422	40,127	15,422	13,189,937	26.45	7.69	0.7
DHW & A/C	31	00905	CHILLER-air cooled	Install Desuperheater - RI	40,282	15,494	40,282	15,494	13,213,818	26.31	7.48	0.7
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater - RI	40,357	15,521	40,357	15,521	13,225,798	26.25	7.47	0.7
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	40,431	15,548	40,431	15,548	13,237,778	26.18	7.47	0.7
Envelope	Family Housing	1983		Weatherization - RI	41,177	16,037	41,177	16,037	13,527,497	24.70	7.43	0.7
Motors	PMTR-94	PUMP - 00044	PMPMTR	EEM - RI	41,274	16,076	41,274	16,076	13,548,621	24.60	7.37	0.7
Motors	PMTR-93	PUMP - 00044	PMPMTR	EEM - RI	41,371	16,115	41,371	16,115	13,569,745	24.50	7.37	0.7
Envelope	MT-9		Single pane window	Shade Screens - SW side - RI	41,408	16,184	41,408	16,184	13,602,371	24.35	7.33	0.7
Envelope		Metal Siding		Window Screen - SW side - RI	41,485	16,326	41,485	16,326	13,669,559	24.04	7.33	0.7
Envelope		Concrete Block Misc -post 1980		Window Screen - SW side - RI	41,495	16,346	41,495	16,346	13,678,772	24.00	7.33	0.7
Envelope		Masonite Siding pre 1950		Window Screen - SW side - RI	41,604	16,548	41,604	16,548	13,774,457	23.59	7.33	0.7
Envelope		ADMIN MISC post 1964		Window Screen - SW side - RI	41,634	16,603	41,634	16,603	13,800,355	23.48	7.33	0.7

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Envelope		U Shaped Bldgs: Other		Window Screen - SW side - RI	41,662	16,656	41,662	16,656	13,825,309	23.38	7.33	0.7
Envelope		BRK/ADM MISC		Window Screen - SW side - RI	41,678	16,685	41,678	16,685	13,839,387	23.32	7.33	0.7
Envelope		Wood Siding		Window Screen - SW side - RI	41,692	16,710	41,692	16,710	13,851,095	23.27	7.33	0.7
Envelope		TRAINING		Window Screen - SW side - RI	41,702	16,728	41,702	16,728	13,859,662	23.24	7.33	0.7
Envelope		WHS		Window Screen - SW side - RI	41,708	16,740	41,708	16,740	13,865,065	23.22	7.33	0.7
Envelope		Concrete Block: Barracks		Window Screen - SW side - RI	41,747	16,812	41,747	16,812	13,899,176	23.08	7.33	0.7
Envelope		MOTORPOOL		Window Screen - SW side - RI	41,777	16,867	41,777	16,867	13,925,578	22.98	7.33	0.7
Envelope		SHOP		Window Screen - SW side - RI	41,806	16,922	41,806	16,922	13,951,440	22.88	7.33	0.8
Envelope		U Shaped Bldgs: Barracks		Window Screen - SW side - RI	42,005	17,292	42,005	17,292	14,126,205	22.23	7.33	0.8
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	42,169	17,595	42,169	17,595	14,269,726	21.74	7.33	0.8
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	42,322	17,879	42,322	17,879	14,403,838	21.31	7.33	0.8
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen - RI	42,436	18,092	42,436	18,092	14,504,694	21.00	7.33	0.8
Envelope		DINING: MSIC		Window Screen - SW side - RI	42,454	18,125	42,454	18,125	14,520,428	20.96	7.33	0.8
Envelope		ADMIN: MISC pre 1964		Window Screen - SW side - RI	42,471	18,156	42,471	18,156	14,535,104	20.91	7.33	0.8
Envelope		Concrete Block: Misc -pre 1980		Window Screen - SW side - RI	42,483	18,178	42,483	18,178	14,545,669	20.88	7.33	0.8
Envelope		SECURTY		Window Screen - SW side - RI	42,485	18,181	42,485	18,181	14,546,923	20.88	7.33	0.8
Envelope	Family Housing	Southwest, 1961 Vintage		Window Screen - RI	42,635	18,460	42,635	18,460	14,679,030	20.50	7.33	0.8
Envelope	Family Housing	Southwest, 1964, 1965, 1966 Vintage		Window Screen - RI	42,735	18,645	42,735	18,645	14,766,618	20.26	7.33	0.8
Envelope		Masonite Siding: post 1950		Window Screen - SW side - RI	42,779	18,727	42,779	18,727	14,804,967	20.16	7.33	0.9
Envelope		MWR		Window Screen - SW side - RI	42,786	18,739	42,786	18,739	14,811,086	20.15	7.33	0.9
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - RI	42,862	18,752	42,862	18,752	14,821,718	20.12	7.25	0.9
Envelope	Family Housing	1984		Weatherization - RI	43,416	19,116	43,416	19,116	15,035,940	19.57	7.21	0.9
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - RI	43,424	19,124	43,424	19,124	15,039,490	19.56	7.16	0.9
Motors	MTR-469	MWR - 01322	Fan Motor	EEM - RI	43,427	19,127	43,427	19,127	15,040,673	19.56	7.16	0.9
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - RI	43,724	19,183	43,724	19,183	15,078,102	19.46	7.12	0.9
Motors	MTR-34c	REC - 00905	COMPMTR	VSD & EEM - RI	43,855	19,200	43,855	19,200	15,113,215	19.38	7.04	0.9
Motors	PMTR-66	PLT-BLDG - 00253	PMPMTR	EEM - RI	43,867	19,211	43,867	19,211	15,117,812	19.36	6.79	0.9
Lighting	OS-6b	Restroom	T8 Lighting	T8 + Occupancy Controls - RI	44,173	19,211	44,173	19,211	15,256,394	19.00	6.68	0.9
Motors	PMTR-88	PUMP - 00044	PMPMTR	EEM - RI	44,204	19,224	44,204	19,224	15,263,651	18.98	6.43	0.9
Lighting	OS-5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	44,254	19,224	44,254	19,224	15,285,800	18.92	6.40	0.9
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater - RI	44,412	19,404	44,412	19,404	15,329,271	18.80	6.38	0.9
DHW & A/C	10	00037	PKG A/C	Install Desuperheater - RI	44,472	19,431	44,472	19,431	15,339,149	18.77	6.33	0.9
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	44,531	19,458	44,531	19,458	15,349,026	18.75	6.33	0.9
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	44,547	19,478	44,547	19,478	15,352,952	18.74	6.17	0.9
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - RI	44,551	19,485	44,551	19,485	15,355,072	18.73	6.12	0.9
Motors	MTR-439	DGR - 00308	Fan Motor	EEM - RI	44,558	19,494	44,558	19,494	15,358,249	18.72	6.12	0.9
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - RI	44,562	19,501	44,562	19,501	15,360,367	18.72	6.12	0.9
Motors	PMTR-117	REC - 00905	PMPMTR	EEM - RI	44,564	19,504	44,564	19,504	15,361,426	18.71	6.12	0.9
Motors	MTR-446	DINING - 00254	Fan Motor	EEM - RI	44,567	19,507	44,567	19,507	15,362,485	18.71	6.12	0.9
Vehicles	Conversion	Vehicles		CNG Vehicles	59,205	19,327	59,205	19,327	25,454,134	9.73	5.93	1.8
Motors	PMTR-120	WHS-CLD - 00862	refrigeration unit	EEM - RI	59,310	19,369	59,310	19,369	25,477,373	9.73	5.88	1.8
Motors	PMTR-121	WHS-CLD - 00862	refrigeration unit	EEM - RI	59,363	19,391	59,363	19,391	25,488,992	9.72	5.88	1.8
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	59,480	19,413	59,480	19,413	25,503,714	9.72	5.81	1.8
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - RI	59,534	19,469	59,534	19,469	25,519,611	9.72	5.79	1.8
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	59,587	19,478	59,587	19,478	25,541,673	9.71	5.74	1.8
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	59,673	19,495	59,673	19,495	25,552,484	9.71	5.70	1.8
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater - RI	59,720	19,513	59,720	19,513	25,559,434	9.70	5.68	1.8
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - RI	59,739	19,534	59,739	19,534	25,565,383	9.70	5.66	1.8
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	59,815	19,621	59,815	19,621	25,585,233	9.70	5.65	1.8
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM - RI	59,826	19,637	59,826	19,637	25,590,121	9.70	5.62	1.8
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - RI	59,830	19,642	59,830	19,642	25,591,890	9.69	5.61	1.8
Motors	PMTR-118	REC - 00322	PMPMTR	EEM - RI	59,832	19,645	59,832	19,645	25,592,775	9.69	5.61	1.8
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - RI	59,834	19,648	59,834	19,648	25,593,659	9.69	5.61	1.8
Motors	PMTR-119	REC - 00362	PMPMTR	EEM - RI	59,836	19,650	59,836	19,650	25,594,544	9.69	5.61	1.8
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - RI	59,838	19,653	59,838	19,653	25,595,429	9.69	5.61	1.8
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - RI	59,840	19,656	59,840	19,656	25,596,313	9.69	5.61	1.8
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - RI	59,851	19,672	59,851	19,672	25,601,621	9.69	5.61	1.8
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	59,883	19,672	59,883	19,672	25,609,244	9.69	5.48	1.8
Motors	MTR-6	HOSPITL - 00166	AIRCOMP	EEM - RI	59,905	19,689	59,905	19,689	25,615,152	9.69	5.42	1.8
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - RI	59,954	19,745	59,954	19,745	25,629,780	9.68	5.41	1.8
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	59,962	19,745	59,962	19,745	25,631,609	9.68	5.35	1.8
Envelope	MT-11a		None	Crawl Space Insulation. R-19 - RI	60,963	20,784	60,963	20,784	26,174,330	9.51	5.35	1.8
Motors	PMTR-89	PUMP - 00044	PMPMTR	EEM - RI	60,990	20,794	60,990	20,794	26,179,964	9.50	5.22	1.8
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	61,022	20,800	61,022	20,800	26,184,208	9.50	5.16	1.8
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	61,056	20,841	61,056	20,841	26,194,120	9.50	5.13	1.8
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - RI	61,057	20,843	61,057	20,843	26,194,889	9.50	5.11	1.8
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	61,108	20,851	61,108	20,851	26,201,127	9.50	5.05	1.8
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	61,148	20,869	61,148	20,869	26,207,061	9.49	4.99	1.8
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	61,188	20,905	61,188	20,905	26,215,884	9.49	4.98	1.8
Motors	PMTR-122	WHS-CLD - 00862	PMPMTR	EEM - RI	61,192	20,911	61,192	20,911	26,217,392	9.49	4.93	1.8

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - RI	61,207	20,926	61,207	20,926	26,221,533	9.49	4.92	1.8
Motors	MTR-457	MWR - 01313	Fan Motor	EEM - RI	61,210	20,930	61,210	20,930	26,222,958	9.49	4.81	1.8
Motors	MTR-460	MWR - 01313	Fan Motor	EEM - RI	61,212	20,932	61,212	20,932	26,223,671	9.49	4.81	1.8
Motors	MTR-461	MWR - 01322	Fan Motor	EEM - RI	61,214	20,934	61,214	20,934	26,224,384	9.49	4.81	1.8
Motors	MTR-462	MWR - 01322	Fan Motor	EEM - RI	61,216	20,935	61,216	20,935	26,225,097	9.49	4.81	1.8
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - RI	61,218	20,937	61,218	20,937	26,225,810	9.49	4.81	1.8
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - RI	61,219	20,939	61,219	20,939	26,226,522	9.49	4.81	1.8
Motors	PMTR-100	PUMP - 00700	PMPMTR	EEM - RI	61,270	20,959	61,270	20,959	26,236,202	9.48	4.81	1.8
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM - RI	61,320	20,980	61,320	20,980	26,245,881	9.48	4.81	1.8
Motors	PMTR-103	PUMP - 00700	PMPMTR	EEM - RI	61,371	21,000	61,371	21,000	26,255,560	9.48	4.81	1.8
Motors	PMTR-102	PUMP - 00700	PMPMTR	EEM - RI	61,421	21,020	61,421	21,020	26,265,239	9.47	4.81	1.8
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	61,461	21,092	61,461	21,092	26,278,736	9.47	4.66	1.8
Heating	1	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	61,567	21,108	61,567	21,108	26,292,617	9.46	4.63	1.8
Motors	MTR-202	BRK/ADM - 00261	EVAP	EEM - RI	61,568	21,110	61,568	21,110	26,293,367	9.46	4.62	1.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - RI	61,570	21,111	61,570	21,111	26,294,116	9.46	4.62	1.8
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - RI	61,571	21,113	61,571	21,113	26,294,865	9.46	4.62	1.8
Motors	MTR-200	BRK/ADM - 00252	EVAP	EEM - RI	61,573	21,115	61,573	21,115	26,295,615	9.46	4.62	1.8
Motors	MTR-195	BRK/ADM - 00250	EVAP	EEM - RI	61,575	21,116	61,575	21,116	26,296,364	9.46	4.62	1.8
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - RI	61,576	21,118	61,576	21,118	26,297,113	9.46	4.62	1.8
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - RI	61,578	21,119	61,578	21,119	26,297,862	9.46	4.62	1.8
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - RI	61,580	21,121	61,580	21,121	26,298,612	9.46	4.62	1.8
Motors	MTR-238	BRK/ADM - 00534	EVAP	EEM - RI	61,589	21,131	61,589	21,131	26,303,104	9.46	4.62	1.8
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM - RI	61,599	21,140	61,599	21,140	26,307,596	9.45	4.62	1.8
Motors	MTR-214	BRK/ADM - 00416	EVAP	EEM - RI	61,609	21,150	61,609	21,150	26,312,087	9.45	4.62	1.8
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - RI	61,619	21,159	61,619	21,159	26,316,579	9.45	4.62	1.8
Motors	MTR-191	BRK/ADM - 00103	EVAP	EEM - RI	61,628	21,169	61,628	21,169	26,321,071	9.45	4.62	1.8
Motors	MTR-223	BRK/ADM - 00440	EVAP	EEM - RI	61,638	21,178	61,638	21,178	26,325,563	9.45	4.62	1.8
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM - RI	61,648	21,188	61,648	21,188	26,330,055	9.44	4.62	1.8
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM - RI	61,658	21,197	61,658	21,197	26,334,547	9.44	4.62	1.8
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - RI	61,667	21,207	61,667	21,207	26,339,039	9.44	4.62	1.8
Motors	MTR-232	BRK/ADM - 00514	EVAP	EEM - RI	61,677	21,217	61,677	21,217	26,343,530	9.44	4.62	1.8
Motors	MTR-233	BRK/ADM - 00516	EVAP	EEM - RI	61,687	21,226	61,687	21,226	26,348,022	9.44	4.62	1.8
Motors	MTR-234	BRK/ADM - 00518	EVAP	EEM - RI	61,696	21,236	61,696	21,236	26,352,514	9.43	4.62	1.8
Motors	MTR-237	BRK/ADM - 00530	EVAP	EEM - RI	61,706	21,245	61,706	21,245	26,357,006	9.43	4.62	1.8
Motors	MTR-190	BRK/ADM - 00102	EVAP	EEM - RI	61,716	21,255	61,716	21,255	26,361,498	9.43	4.62	1.8
Motors	MTR-212	BRK/ADM - 00413	EVAP	EEM - RI	61,722	21,261	61,722	21,261	26,364,492	9.43	4.62	1.8
Motors	MTR-194	BRK/ADM - 00249	EVAP	EEM - RI	61,724	21,263	61,724	21,263	26,365,241	9.43	4.62	1.8
Motors	MTR-250	CLUB - 00202	EVAP	EEM - RI	61,726	21,264	61,726	21,264	26,365,990	9.43	4.62	1.8
Motors	MTR-189	BRK/ADM - 00098	EVAP	EEM - RI	61,727	21,266	61,727	21,266	26,366,738	9.43	4.62	1.8
Motors	MTR-248	CLUB - 00021	EVAP	EEM - RI	61,731	21,269	61,731	21,269	26,368,235	9.43	4.61	1.8
Motors	MTR-188	BRK/ADM - 00014	EVAP	EEM - RI	61,732	21,271	61,732	21,271	26,368,983	9.43	4.61	1.8
Motors	MTR-230	BRK/ADM - 00511	EVAP	EEM - RI	61,740	21,279	61,740	21,279	26,372,720	9.43	4.61	1.8
Motors	MTR-236	BRK/ADM - 00523	EVAP	EEM - RI	61,750	21,288	61,750	21,288	26,377,206	9.42	4.61	1.8
Motors	MTR-201	BRK/ADM - 00261	EVAP	EEM - RI	61,752	21,290	61,752	21,290	26,377,953	9.42	4.61	1.8
Motors	MTR-203	BRK/ADM - 00262	EVAP	EEM - RI	61,753	21,291	61,753	21,291	26,378,700	9.42	4.61	1.8
Motors	MTR-210	BRK/ADM - 00267	EVAP	EEM - RI	61,755	21,293	61,755	21,293	26,379,447	9.42	4.61	1.8
Motors	MTR-204	BRK/ADM - 00262	EVAP	EEM - RI	61,757	21,295	61,757	21,295	26,380,194	9.42	4.61	1.8
Motors	MTR-205	BRK/ADM - 00264	EVAP	EEM - RI	61,758	21,296	61,758	21,296	26,380,941	9.42	4.61	1.8
Motors	MTR-206	BRK/ADM - 00264	EVAP	EEM - RI	61,760	21,298	61,760	21,298	26,381,688	9.42	4.61	1.8
Motors	MTR-207	BRK/ADM - 00265	EVAP	EEM - RI	61,761	21,299	61,761	21,299	26,382,435	9.42	4.61	1.8
Motors	MTR-208	BRK/ADM - 00265	EVAP	EEM - RI	61,763	21,301	61,763	21,301	26,383,182	9.42	4.61	1.8
Motors	MTR-209	BRK/ADM - 00267	EVAP	EEM - RI	61,765	21,302	61,765	21,302	26,383,929	9.42	4.61	1.8
Motors	MTR-211	BRK/ADM - 00412	EVAP	EEM - RI	61,800	21,337	61,800	21,337	26,400,364	9.41	4.61	1.8
Motors	PMTR-5c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	61,827	21,341	61,827	21,341	26,410,155	9.41	4.31	1.8
Heating	24	MTRPOOL - 00639	Unit Heaters	Radiant Heat - RI	61,869	21,350	61,869	21,350	26,415,154	9.41	4.25	1.8
Motors	PMTR-110	PUMP - 05996	PMPMTR	EEM - RI	61,941	21,422	61,941	21,422	26,432,382	9.40	4.22	1.8
Heating	34	SHOP - 20018	Unit Heaters	Radiant Heat - RI	61,957	21,443	61,957	21,443	26,436,229	9.40	4.21	1.8
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater - RI	61,985	21,486	61,985	21,486	26,444,131	9.39	4.15	1.8
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - RI	62,036	21,542	62,036	21,542	26,456,519	9.39	4.11	1.8
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - RI	62,087	21,598	62,087	21,598	26,468,689	9.38	4.05	1.8
Motors	MTR-428	ADMIN - 00988	Fan Motor	EEM - RI	62,121	21,612	62,121	21,612	26,475,619	9.37	4.05	1.8
Motors	PMTR-40	HOSPITL - 00166	PMPMTR	EEM - RI	62,135	21,617	62,135	21,617	26,478,391	9.37	4.05	1.8
Motors	PMTR-39	HOSPITL - 00166	PMPMTR	EEM - RI	62,149	21,623	62,149	21,623	26,481,163	9.37	4.05	1.8
Motors	PMTR-41	HOSPITL - 00166	PMPMTR	EEM - RI	62,155	21,625	62,155	21,625	26,482,549	9.37	4.05	1.8
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - RI	62,157	21,627	62,157	21,627	26,483,134	9.37	4.05	1.8
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls - RI	62,425	21,627	62,425	21,627	26,618,720	9.30	4.01	1.9
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM - RI	62,528	21,746	62,528	21,746	26,644,241	9.28	3.96	1.9
Motors	MTR-39	ADMIN - 00985	CONDMTR	EEM - RI	62,532	21,753	62,532	21,753	26,645,452	9.28	3.92	1.9
Motors	MTR-38	ADMIN - 00985	CONDMTR	EEM - RI	62,534	21,756	62,534	21,756	26,646,057	9.28	3.92	1.9
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM - RI	62,562	21,811	62,562	21,811	26,655,549	9.27	3.86	1.9

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-258	DGR - 00909	EVAP	EEM - RI	62,564	21,813	62,564	21,813	26,656,141	9.27	3.86	1.9
Motors	MTR-417	WHS - 00934	EVAP	EEM - RI	62,567	21,818	62,567	21,818	26,657,909	9.27	3.85	1.9
Motors	MTR-259	DGR - 00909	EVAP	EEM - RI	62,569	21,821	62,569	21,821	26,659,084	9.27	3.84	1.9
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - RI	62,570	21,824	62,570	21,824	26,659,628	9.27	3.83	1.9
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - RI	62,571	21,826	62,571	21,826	26,660,172	9.27	3.83	1.9
Motors	MTR-431	ADMIN - 00988	Fan Motor	EEM - RI	62,577	21,843	62,577	21,843	26,663,437	9.27	3.83	1.9
Envelope	MT-10		Single pane window	Shade Screens - NW side - RI	62,602	21,889	62,602	21,889	26,680,799	9.26	3.83	1.9
Envelope		U Shaped Bldgs- Barracks		Window Screen - NW Side - RI	62,661	21,996	62,661	21,996	26,720,915	9.24	3.83	1.9
Envelope		Concrete Block: Barracks		Window Screen - NW Side - RI	62,681	22,032	62,681	22,032	26,734,428	9.23	3.83	1.9
Envelope		U Shaped Bldgs- Other		Window Screen - NW Side - RI	62,690	22,047	62,690	22,047	26,740,156	9.22	3.83	1.9
Envelope		Masonite Siding, post 1950		Window Screen - NW Side - RI	62,697	22,061	62,697	22,061	26,745,258	9.22	3.83	1.9
Envelope		TRAINING		Window Screen - NW Side - RI	62,699	22,064	62,699	22,064	26,746,398	9.22	3.83	1.9
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	62,812	22,267	62,812	22,267	26,822,769	9.18	3.83	1.9
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen - RI	62,917	22,458	62,917	22,458	26,894,134	9.14	3.83	1.9
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen - RI	63,020	22,644	63,020	22,644	26,963,937	9.10	3.83	1.9
Envelope		Metal Siding		Window Screen - NW Side - RI	63,075	22,743	63,075	22,743	27,001,047	9.08	3.83	1.9
Envelope		Concrete Block- Misc -pre 1980		Window Screen - NW Side - RI	63,084	22,758	63,084	22,758	27,006,669	9.07	3.83	1.9
Envelope		SHOP		Window Screen - NW Side - RI	63,089	22,767	63,089	22,767	27,010,109	9.07	3.83	1.9
Envelope		DINING MSIC		Window Screen - NW Side - RI	63,092	22,773	63,092	22,773	27,012,203	9.07	3.83	1.9
Envelope		BRK/ADM MISC		Window Screen - NW Side - RI	63,095	22,778	63,095	22,778	27,014,075	9.07	3.83	1.9
Envelope		Wood Siding		Window Screen - NW Side - RI	63,097	22,782	63,097	22,782	27,015,633	9.07	3.83	1.9
Envelope		MWR		Window Screen - NW Side - RI	63,098	22,784	63,098	22,784	27,016,447	9.07	3.83	1.9
Envelope		WHS		Window Screen - NW Side - RI	63,099	22,786	63,099	22,786	27,017,166	9.07	3.83	1.9
Envelope		SECURTY		Window Screen - NW Side - RI	63,099	22,786	63,099	22,786	27,017,332	9.07	3.83	1.9
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen - RI	63,179	22,929	63,179	22,929	27,071,001	9.04	3.83	1.9
Envelope		Masonite Siding- pre 1950		Window Screen - NW Side - RI	63,199	22,965	63,199	22,965	27,084,495	9.03	3.83	1.9
Envelope		MOTORPOOL		Window Screen - NW Side - RI	63,204	22,975	63,204	22,975	27,088,008	9.03	3.83	1.9
Envelope		ADMIN. MISC pre 1964		Window Screen - NW Side - RI	63,207	22,980	63,207	22,980	27,089,960	9.03	3.83	1.9
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen - RI	63,275	23,104	63,275	23,104	27,136,568	9.00	3.83	1.9
Envelope		Concrete Block- Misc -post 1980		Window Screen - NW Side - RI	63,283	23,117	63,283	23,117	27,141,471	9.00	3.83	1.9
Envelope		ADMIN: MISC post 1964		Window Screen - NW Side - RI	63,288	23,127	63,288	23,127	27,144,916	9.00	3.83	1.9
Motors	MTR-128	ADMIN - 00441	EVAP	EEM - RI	63,290	23,130	63,290	23,130	27,146,087	9.00	3.83	1.9
Motors	MTR-166	ADMIN - 00544	EVAP	EEM - RI	63,292	23,133	63,292	23,133	27,147,258	9.00	3.83	1.9
Motors	MTR-150	ADMIN - 00504	EVAP	EEM - RI	63,294	23,136	63,294	23,136	27,148,429	9.00	3.83	1.9
Motors	MTR-148	ADMIN - 00499	EVAP	EEM - RI	63,297	23,139	63,297	23,139	27,149,600	8.99	3.83	1.9
Motors	MTR-132	ADMIN - 00444	EVAP	EEM - RI	63,299	23,142	63,299	23,142	27,150,771	8.99	3.83	1.9
Motors	MTR-245	CLINIC - 00242	EVAP	EEM - RI	63,301	23,146	63,301	23,146	27,151,941	8.99	3.83	1.9
Motors	MTR-156	ADMIN - 00524	EVAP	EEM - RI	63,308	23,155	63,308	23,155	27,155,454	8.99	3.83	1.9
Motors	MTR-124	ADMIN - 00436	EVAP	EEM - RI	63,311	23,160	63,311	23,160	27,157,210	8.99	3.83	1.9
Motors	MTR-246	CLINIC - 00245	EVAP	EEM - RI	63,312	23,162	63,312	23,162	27,157,796	8.99	3.83	1.9
Motors	MTR-347	SECURTY - 00326	EVAP	EEM - RI	63,313	23,163	63,313	23,163	27,158,381	8.99	3.83	1.9
Motors	MTR-159	ADMIN - 00528	EVAP	EEM - RI	63,314	23,165	63,314	23,165	27,158,967	8.99	3.83	1.9
Motors	MTR-163	ADMIN - 00543	EVAP	EEM - RI	63,315	23,166	63,315	23,166	27,159,552	8.99	3.83	1.9
Motors	MTR-130	ADMIN - 00443	EVAP	EEM - RI	63,316	23,168	63,316	23,168	27,160,137	8.99	3.83	1.9
Motors	MTR-147	ADMIN - 00498	EVAP	EEM - RI	63,318	23,170	63,318	23,170	27,160,723	8.99	3.83	1.9
Motors	MTR-155	ADMIN - 00521	EVAP	EEM - RI	63,319	23,171	63,319	23,171	27,161,308	8.99	3.83	1.9
Motors	MTR-131	ADMIN - 00443	EVAP	EEM - RI	63,320	23,173	63,320	23,173	27,161,894	8.99	3.83	1.9
Motors	MTR-25	HOTEL - 00902	COMPMTR	EEM - RI	63,327	23,180	63,327	23,160	27,164,004	8.99	3.82	1.9
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - RI	63,335	23,187	63,335	23,187	27,166,115	8.99	3.82	1.9
Motors	MTR-24	HOTEL - 00901	COMPMTR	EEM - RI	63,342	23,194	63,342	23,194	27,168,226	8.98	3.82	1.9
Motors	MTR-26	HOTEL - 00903	COMPMTR	EEM - RI	63,350	23,201	63,350	23,201	27,170,337	8.98	3.82	1.9
Motors	MTR-28	HOTEL - 00906	COMPMTR	EEM - RI	63,357	23,209	63,357	23,209	27,172,448	8.98	3.82	1.9
Motors	MTR-27	HOTEL - 00904	COMPMTR	EEM - RI	63,363	23,214	63,363	23,214	27,174,031	8.98	3.82	1.9
Motors	MTR-103	ADMIN - 00237	EVAP	EEM - RI	63,372	23,227	63,372	23,227	27,178,699	8.98	3.82	1.9
Motors	MTR-411	WHS - 00827	EVAP	EEM - RI	63,375	23,231	63,375	23,231	27,180,450	8.98	3.82	1.9
Motors	MTR-105	ADMIN - 00241	EVAP	EEM - RI	63,379	23,236	63,379	23,236	27,182,201	8.98	3.82	1.9
Motors	MTR-304	MTRPOOL - 00680	EVAP	EEM - RI	63,381	23,239	63,381	23,239	27,183,368	8.98	3.82	1.9
Motors	MTR-306	MTRPOOL - 00681	EVAP	EEM - RI	63,383	23,243	63,383	23,243	27,184,535	8.98	3.82	1.9
Motors	MTR-254	DGR - 00308	EVAP	EEM - RI	63,385	23,246	63,385	23,246	27,185,703	8.98	3.82	1.9
Motors	MTR-412	WHS - 00827	EVAP	EEM - RI	63,386	23,247	63,386	23,247	27,186,286	8.97	3.82	1.9
Motors	MTR-410	WHS - 00827	EVAP	EEM - RI	63,387	23,249	63,387	23,249	27,186,870	8.97	3.82	1.9
Motors	MTR-256	DGR - 00404	EVAP	EEM - RI	63,388	23,251	63,388	23,251	27,187,453	8.97	3.82	1.9
Motors	MTR-261	DINING - 00254	EVAP	EEM - RI	63,390	23,252	63,390	23,252	27,188,035	8.97	3.81	1.9
Motors	MTR-336	PLT-BLDG - 00253	EVAP	EEM - RI	63,391	23,254	63,391	23,254	27,188,617	8.97	3.81	1.9
Motors	MTR-335	PLT-BLDG - 00253	EVAP	EEM - RI	63,392	23,255	63,392	23,255	27,189,199	8.97	3.81	1.9
Motors	MTR-260	DINING - 00254	EVAP	EEM - RI	63,393	23,257	63,393	23,257	27,189,781	8.97	3.81	1.9
Motors	MTR-354	SHOP - 00367	EVAP	EEM - RI	63,398	23,265	63,398	23,265	27,192,681	8.97	3.80	1.9
Motors	MTR-153	ADMIN - 00513	EVAP	EEM - RI	63,403	23,271	63,403	23,271	27,195,001	8.97	3.80	1.9
Motors	MTR-171	ADMIN - 00570	EVAP	EEM - RI	63,407	23,278	63,407	23,278	27,197,322	8.97	3.80	1.9
Motors	MTR-361	SHOP-ELC - 00581	EVAP	EEM - RI	63,412	23,284	63,412	23,284	27,199,642	8.97	3.80	1.9

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-401	WHS - 00517	EVAP	EEM - RI	63,416	23,290	63,416	23,290	27,201,963	8.97	3.80	1.9
Motors	MTR-357	SHOP - 00384	EVAP	EEM - RI	63,420	23,297	63,420	23,297	27,204,283	8.97	3.80	1.9
Motors	MTR-382	WHS - 00342	EVAP	EEM - RI	63,425	23,303	63,425	23,303	27,206,603	8.96	3.80	1.9
Motors	MTR-160	ADMIN - 00528	EVAP	EEM - RI	63,427	23,306	63,427	23,306	27,207,763	8.96	3.80	1.9
Motors	MTR-384	WHS - 00352	EVAP	EEM - RI	63,429	23,309	63,429	23,309	27,208,924	8.96	3.80	1.9
Motors	MTR-386	WHS - 00364	EVAP	EEM - RI	63,431	23,313	63,431	23,313	27,210,084	8.96	3.80	1.9
Motors	MTR-154	ADMIN - 00520	EVAP	EEM - RI	63,434	23,316	63,434	23,316	27,211,244	8.96	3.80	1.9
Motors	MTR-175	ADMIN - 00583	EVAP	EEM - RI	63,436	23,319	63,436	23,319	27,212,404	8.96	3.80	1.9
Motors	MTR-157	ADMIN - 00526	EVAP	EEM - RI	63,438	23,322	63,438	23,322	27,213,564	8.96	3.80	1.9
Motors	MTR-118	ADMIN - 00415	EVAP	EEM - RI	63,440	23,325	63,440	23,325	27,214,724	8.96	3.80	1.9
Motors	MTR-97	01315	EVAP	EEM - RI	63,442	23,329	63,442	23,329	27,215,885	8.96	3.80	1.9
Motors	MTR-362	SHOP-ELC - 00616	EVAP	EEM - RI	63,445	23,332	63,445	23,332	27,217,045	8.96	3.80	1.9
Motors	MTR-294	MTRPOOL - 00621	EVAP	EEM - RI	63,447	23,335	63,447	23,335	27,218,205	8.96	3.80	1.9
Motors	MTR-381	WHS - 00342	EVAP	EEM - RI	63,449	23,338	63,449	23,338	27,219,365	8.96	3.80	1.9
Motors	MTR-355	SHOP - 00367	EVAP	EEM - RI	63,451	23,341	63,451	23,341	27,220,525	8.96	3.80	1.9
Motors	MTR-415	WHS - 00860	EVAP	EEM - RI	63,453	23,344	63,453	23,344	27,221,686	8.96	3.80	1.9
Motors	MTR-296	MTRPOOL - 00623	EVAP	EEM - RI	63,456	23,348	63,456	23,348	27,222,846	8.96	3.80	1.9
Motors	MTR-383	WHS - 00344	EVAP	EEM - RI	63,458	23,351	63,458	23,351	27,224,006	8.95	3.80	1.9
Motors	MTR-262	DINING - 00431	EVAP	EEM - RI	63,460	23,354	63,460	23,354	27,225,166	8.95	3.80	1.9
Motors	MTR-380	WHS - 00333	EVAP	EEM - RI	63,462	23,357	63,462	23,357	27,226,326	8.95	3.80	1.9
Motors	MTR-242	CHAPEL - 00315	EVAP	EEM - RI	63,465	23,360	63,465	23,360	27,227,486	8.95	3.80	1.9
Motors	MTR-350	SHOP - 00356	EVAP	EEM - RI	63,467	23,364	63,467	23,364	27,228,647	8.95	3.80	1.9
Motors	MTR-376	WHS - 00318	EVAP	EEM - RI	63,469	23,367	63,469	23,367	27,229,807	8.95	3.80	1.9
Motors	MTR-162	ADMIN - 00539	EVAP	EEM - RI	63,471	23,370	63,471	23,370	27,230,967	8.95	3.80	1.9
Motors	MTR-114	ADMIN - 00372	EVAP	EEM - RI	63,473	23,373	63,473	23,373	27,232,127	8.95	3.80	1.9
Motors	MTR-116	ADMIN - 00408	EVAP	EEM - RI	63,476	23,376	63,476	23,376	27,233,287	8.95	3.80	1.9
Motors	MTR-317	MTRPOOL - 00850	EVAP	EEM - RI	63,478	23,379	63,478	23,379	27,234,448	8.95	3.80	1.9
Motors	MTR-286	MTRPOOL - 00605	EVAP	EEM - RI	63,480	23,383	63,480	23,383	27,235,608	8.95	3.80	1.9
Motors	MTR-119	ADMIN - 00425	EVAP	EEM - RI	63,482	23,386	63,482	23,386	27,236,768	8.95	3.80	1.9
Motors	MTR-133	ADMIN - 00445	EVAP	EEM - RI	63,484	23,389	63,484	23,389	27,237,928	8.95	3.80	1.9
Motors	PMTR-28	DGR - 00430	PMPMTR	EEM - RI	63,487	23,392	63,487	23,392	27,239,088	8.95	3.80	1.9
Motors	MTR-320	MTRPOOL - 00941	EVAP	EEM - RI	63,489	23,395	63,489	23,395	27,240,248	8.95	3.80	1.9
Motors	MTR-291	MTRPOOL - 00612	EVAP	EEM - RI	63,491	23,399	63,491	23,399	27,241,409	8.95	3.80	1.9
Motors	MTR-394	WHS - 00470	EVAP	EEM - RI	63,493	23,402	63,493	23,402	27,242,569	8.94	3.80	1.9
Motors	MTR-141	ADMIN - 00464	EVAP	EEM - RI	63,495	23,405	63,495	23,405	27,243,729	8.94	3.80	1.9
Motors	MTR-292	MTRPOOL - 00614	EVAP	EEM - RI	63,498	23,408	63,498	23,408	27,244,889	8.94	3.80	1.9
Motors	MTR-340	PUMP - 00044	EVAP	EEM - RI	63,500	23,411	63,500	23,411	27,246,049	8.94	3.80	1.9
Motors	MTR-388	WHS - 00364	EVAP	EEM - RI	63,502	23,414	63,502	23,414	27,247,210	8.94	3.80	1.9
Motors	MTR-280	MTRPOOL - 00600	EVAP	EEM - RI	63,504	23,418	63,504	23,418	27,248,370	8.94	3.80	1.9
Motors	MTR-137	ADMIN - 00453	EVAP	EEM - RI	63,506	23,421	63,506	23,421	27,249,530	8.94	3.80	1.9
Motors	MTR-344	REC - 00338	EVAP	EEM - RI	63,509	23,424	63,509	23,424	27,250,690	8.94	3.80	1.9
Motors	MTR-240	CHAPEL - 00212	EVAP	EEM - RI	63,511	23,427	63,511	23,427	27,251,850	8.94	3.80	1.9
Motors	MTR-310	MTRPOOL - 00837	EVAP	EEM - RI	63,512	23,429	63,512	23,429	27,252,430	8.94	3.80	1.9
Motors	MTR-309	MTRPOOL - 00832	EVAP	EEM - RI	63,513	23,430	63,513	23,430	27,253,010	8.94	3.80	1.9
Motors	MTR-358	SHOP - 00842	EVAP	EEM - RI	63,514	23,432	63,514	23,432	27,253,591	8.94	3.80	1.9
Motors	MTR-311	MTRPOOL - 00840	EVAP	EEM - RI	63,515	23,434	63,515	23,434	27,254,171	8.94	3.80	1.9
Motors	MTR-359	SHOP - 00842	EVAP	EEM - RI	63,516	23,435	63,516	23,435	27,254,751	8.94	3.80	1.9
Motors	MTR-407	WHS - 00584	EVAP	EEM - RI	63,517	23,437	63,517	23,437	27,255,331	8.94	3.80	1.9
Motors	MTR-333	MWR - 01322	EVAP	EEM - RI	63,519	23,438	63,519	23,438	27,255,911	8.94	3.80	1.9
Motors	MTR-342	PUMP - 00838	EVAP	EEM - RI	63,520	23,440	63,520	23,440	27,256,491	8.94	3.80	1.9
Motors	MTR-360	SHOP-ELC - 00581	EVAP	EEM - RI	63,521	23,442	63,521	23,442	27,257,071	8.94	3.80	1.9
Motors	MTR-405	WHS - 00545	EVAP	EEM - RI	63,522	23,443	63,522	23,443	27,257,651	8.94	3.80	1.9
Motors	MTR-416	WHS - 00860	EVAP	EEM - RI	63,523	23,445	63,523	23,445	27,258,231	8.94	3.80	1.9
Motors	MTR-399	WHS - 00486	EVAP	EEM - RI	63,524	23,446	63,524	23,446	27,258,811	8.94	3.80	1.9
Motors	MTR-392	WHS - 00462	EVAP	EEM - RI	63,525	23,448	63,525	23,448	27,259,391	8.94	3.80	1.9
Motors	MTR-393	WHS - 00462	EVAP	EEM - RI	63,526	23,450	63,526	23,450	27,259,972	8.94	3.80	1.9
Motors	MTR-385	WHS - 00360	EVAP	EEM - RI	63,527	23,451	63,527	23,451	27,260,552	8.94	3.80	1.9
Motors	MTR-379	WHS - 00333	EVAP	EEM - RI	63,528	23,453	63,528	23,453	27,261,132	8.93	3.80	1.9
Motors	MTR-377	WHS - 00318	EVAP	EEM - RI	63,530	23,454	63,530	23,454	27,261,712	8.93	3.80	1.9
Motors	MTR-363	SHOP-WPN - 07602	EVAP	EEM - RI	63,531	23,456	63,531	23,456	27,262,292	8.93	3.80	1.9
Motors	MTR-413	WHS - 00844	EVAP	EEM - RI	63,532	23,457	63,532	23,457	27,262,872	8.93	3.80	1.9
Motors	MTR-371	WHS - 00234	EVAP	EEM - RI	63,533	23,459	63,533	23,459	27,263,452	8.93	3.80	1.9
Motors	MTR-367	TRAING - 00496	EVAP	EEM - RI	63,534	23,461	63,534	23,461	27,264,032	8.93	3.80	1.9
Motors	MTR-368	TRAING - 00496	EVAP	EEM - RI	63,535	23,462	63,535	23,462	27,264,612	8.93	3.80	1.9
Motors	MTR-370	WHS - 00024	EVAP	EEM - RI	63,536	23,464	63,536	23,464	27,265,192	8.93	3.80	1.9
Motors	MTR-387	WHS - 00364	EVAP	EEM - RI	63,537	23,465	63,537	23,465	27,265,772	8.93	3.80	1.9
Motors	MTR-374	WHS - 00318	EVAP	EEM - RI	63,538	23,467	63,538	23,467	27,266,353	8.93	3.80	1.9
Motors	MTR-375	WHS - 00318	EVAP	EEM - RI	63,539	23,469	63,539	23,469	27,266,933	8.93	3.80	1.9
Motors	MTR-414	WHS - 00860	EVAP	EEM - RI	63,541	23,470	63,541	23,470	27,267,513	8.93	3.80	1.9
Motors	MTR-406	WHS - 00558	EVAP	EEM - RI	63,542	23,472	63,542	23,472	27,268,093	8.93	3.80	1.9

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-396	WHS - 00470	EVAP	EEM - RI	63,543	23,473	63,543	23,473	27,268,673	8 93	3 80	1 9
Motors	MTR-270	DINING - 00560	EVAP	EEM - RI	63,544	23,475	63,544	23,475	27,269,253	8 93	3 80	1 9
Motors	MTR-324	MWR - 00410	EVAP	EEM - RI	63,545	23,477	63,545	23,477	27,269,833	8 93	3 80	1 9
Motors	MTR-308	MTRPOOL - 00832	EVAP	EEM - RI	63,546	23,478	63,546	23,478	27,270,413	8 93	3 80	1 9
Motors	MTR-300	MTRPOOL - 00646	EVAP	EEM - RI	63,547	23,480	63,547	23,480	27,270,993	8 93	3 80	1 9
Motors	MTR-352	SHOP - 00357	EVAP	EEM - RI	63,548	23,481	63,548	23,481	27,271,573	8 93	3 80	1.9
Motors	MTR-331	MWR - 01322	EVAP	EEM - RI	63,549	23,483	63,549	23,483	27,272,153	8 93	3 80	1 9
Motors	MTR-323	MWR - 00340	EVAP	EEM - RI	63,550	23,485	63,550	23,485	27,272,734	8 93	3 80	1 9
Motors	MTR-325	MWR - 00480	EVAP	EEM - RI	63,552	23,486	63,552	23,486	27,273,314	8 93	3 80	1 9
Motors	MTR-400	WHS - 00486	EVAP	EEM - RI	63,553	23,488	63,553	23,488	27,273,894	8 93	3 80	1 9
Motors	MTR-326	MWR - 00556	EVAP	EEM - RI	63,554	23,489	63,554	23,489	27,274,474	8 93	3 80	1.9
Motors	MTR-408	WHS - 00585	EVAP	EEM - RI	63,555	23,491	63,555	23,491	27,275,054	8 93	3 80	1 9
Motors	MTR-353	SHOP - 00357	EVAP	EEM - RI	63,556	23,492	63,556	23,492	27,275,634	8 93	3 80	1 9
Motors	MTR-332	MWR - 01322	EVAP	EEM - RI	63,557	23,494	63,557	23,494	27,276,214	8 93	3 80	1 9
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - RI	63,558	23,496	63,558	23,496	27,276,794	8 93	3 80	1 9
Motors	MTR-267	DINING - 00449	EVAP	EEM - RI	63,559	23,497	63,559	23,497	27,277,374	8 93	3 80	1 9
Motors	MTR-255	DGR - 00404	EVAP	EEM - RI	63,560	23,499	63,560	23,499	27,277,954	8 93	3 80	1 9
Motors	MTR-402	WHS - 00531	EVAP	EEM - RI	63,562	23,500	63,562	23,500	27,278,534	8 93	3 80	1 9
Motors	MTR-403	WHS - 00531	EVAP	EEM - RI	63,563	23,502	63,563	23,502	27,279,115	8 93	3 80	1 9
Motors	MTR-356	SHOP - 00384	EVAP	EEM - RI	63,564	23,504	63,564	23,504	27,279,695	8 92	3 80	1 9
Motors	MTR-351	SHOP - 00357	EVAP	EEM - RI	63,565	23,505	63,565	23,505	27,280,275	8 92	3 80	1 9
Motors	MTR-298	MTRPOOL - 00639	EVAP	EEM - RI	63,566	23,507	63,566	23,507	27,280,855	8 92	3 80	1 9
Motors	MTR-313	MTRPOOL - 00840	EVAP	EEM - RI	63,567	23,508	63,567	23,508	27,281,435	8 92	3 80	1 9
Motors	MTR-164	ADMIN - 00543	EVAP	EEM - RI	63,568	23,510	63,568	23,510	27,282,015	8 92	3 80	1.9
Motors	MTR-151	ADMIN - 00508	EVAP	EEM - RI	63,569	23,512	63,569	23,512	27,282,595	8 92	3 80	1 9
Motors	MTR-152	ADMIN - 00510	EVAP	EEM - RI	63,570	23,513	63,570	23,513	27,283,175	8 92	3 80	1.9
Motors	MTR-158	ADMIN - 00527	EVAP	EEM - RI	63,571	23,515	63,571	23,515	27,283,755	8 92	3 80	1 9
Motors	MTR-161	ADMIN - 00529	EVAP	EEM - RI	63,573	23,516	63,573	23,516	27,284,335	8 92	3 80	1.9
Motors	MTR-169	ADMIN - 00554	EVAP	EEM - RI	63,574	23,518	63,574	23,518	27,284,915	8 92	3 80	1 9
Motors	MTR-146	ADMIN - 00497	EVAP	EEM - RI	63,575	23,520	63,575	23,520	27,285,496	8 92	3.80	1.9
Motors	MTR-172	ADMIN - 00578	EVAP	EEM - RI	63,576	23,521	63,576	23,521	27,286,076	8 92	3 80	1.9
Motors	MTR-173	ADMIN - 00579	EVAP	EEM - RI	63,577	23,523	63,577	23,523	27,286,656	8 92	3 80	1.9
Motors	MTR-174	ADMIN - 00580	EVAP	EEM - RI	63,578	23,524	63,578	23,524	27,287,236	8 92	3 80	1.9
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - RI	63,579	23,526	63,579	23,526	27,287,816	8 92	3 80	1 9
Motors	MTR-149	ADMIN - 00504	EVAP	EEM - RI	63,580	23,527	63,580	23,527	27,288,396	8 92	3 80	1 9
Motors	MTR-145	ADMIN - 00483	EVAP	EEM - RI	63,581	23,529	63,581	23,529	27,288,976	8 92	3 80	1 9
Motors	MTR-186	ADMIN - 06201	EVAP	EEM - RI	63,582	23,531	63,582	23,531	27,289,556	8 92	3.80	1.9
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - RI	63,584	23,532	63,584	23,532	27,290,136	8 92	3 80	1.9
Motors	MTR-101	ADMIN - 00157	EVAP	EEM - RI	63,585	23,534	63,585	23,534	27,290,716	8.92	3 80	1 9
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - RI	63,586	23,535	63,586	23,535	27,291,296	8 92	3 80	1.9
Motors	MTR-112	ADMIN - 00320	EVAP	EEM - RI	63,587	23,537	63,587	23,537	27,291,876	8 92	3 80	1 9
Motors	MTR-113	ADMIN - 00372	EVAP	EEM - RI	63,588	23,539	63,588	23,539	27,292,457	8 92	3 80	1 9
Motors	MTR-121	ADMIN - 00428	EVAP	EEM - RI	63,589	23,540	63,589	23,540	27,293,037	8 92	3 80	1.9
Motors	MTR-144	ADMIN - 00479	EVAP	EEM - RI	63,590	23,542	63,590	23,542	27,293,617	8 92	3 80	1.9
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - RI	63,591	23,543	63,591	23,543	27,294,197	8 92	3 80	1.9
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - RI	63,592	23,545	63,592	23,545	27,294,777	8 92	3 80	1.9
Motors	MTR-140	ADMIN - 00458	EVAP	EEM - RI	63,593	23,547	63,593	23,547	27,295,357	8 92	3 80	1 9
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - RI	63,595	23,548	63,595	23,548	27,295,937	8 92	3 80	1.9
Motors	MTR-182	ADMIN - 00988	EVAP	EEM - RI	63,596	23,550	63,596	23,550	27,296,517	8 92	3 80	1.9
Motors	MTR-177	ADMIN - 00604	EVAP	EEM - RI	63,597	23,551	63,597	23,551	27,297,097	8 92	3 80	1.9
Motors	MTR-187	ADMIN - 07600	EVAP	EEM - RI	63,598	23,553	63,598	23,553	27,297,677	8 92	3 80	1 9
Motors	MTR-297	MTRPOOL - 00626	EVAP	EEM - RI	63,599	23,555	63,599	23,555	27,298,257	8 92	3 80	1.9
Motors	MTR-284	MTRPOOL - 00605	EVAP	EEM - RI	63,600	23,556	63,600	23,556	27,298,838	8 91	3 80	1.9
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM - RI	63,601	23,558	63,601	23,558	27,299,418	8 91	3 80	1 9
Motors	MTR-285	MTRPOOL - 00605	EVAP	EEM - RI	63,602	23,559	63,602	23,559	27,299,998	8 91	3 80	1.9
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	63,603	23,561	63,603	23,561	27,300,578	8 91	3.80	1.9
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - RI	63,605	23,563	63,605	23,563	27,301,158	8 91	3 80	1 9
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM - RI	63,606	23,564	63,606	23,564	27,301,738	8 91	3 80	1 9
Motors	MTR-314	MTRPOOL - 00847	EVAP	EEM - RI	63,607	23,566	63,607	23,566	27,302,318	8 91	3 80	1.9
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - RI	63,608	23,567	63,608	23,567	27,302,898	8 91	3 80	1 9
Motors	MTR-289	MTRPOOL - 00608	EVAP	EEM - RI	63,609	23,569	63,609	23,569	27,303,478	8 91	3 80	1 9
Motors	MTR-293	MTRPOOL - 00620	EVAP	EEM - RI	63,610	23,570	63,610	23,570	27,304,058	8 91	3 80	1 9
Motors	MTR-290	MTRPOOL - 00612	EVAP	EEM - RI	63,611	23,572	63,611	23,572	27,304,638	8 91	3 80	1 9
Motors	MTR-299	MTRPOOL - 00642	EVAP	EEM - RI	63,612	23,574	63,612	23,574	27,305,219	8 91	3 80	1 9
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM - RI	63,613	23,575	63,613	23,575	27,305,799	8 91	3 80	1.9
Motors	MTR-271	FUELDSP - 00836	EVAP	EEM - RI	63,614	23,577	63,614	23,577	27,306,379	8 91	3 80	1 9
Motors	MTR-315	MTRPOOL - 00847	EVAP	EEM - RI	63,616	23,578	63,616	23,578	27,306,959	8 91	3 80	1 9
Motors	MTR-302	MTRPOOL - 00650	EVAP	EEM - RI	63,617	23,580	63,617	23,580	27,307,539	8 91	3 80	1 9
Motors	MTR-247	CLINIC - 00245	EVAP	EEM - RI	63,618	23,582	63,618	23,582	27,308,119	8 91	3 80	1 9
Motors	MTR-268	DINING - 00468	EVAP	EEM - RI	63,624	23,591	63,624	23,591	27,311,600	8 91	3 80	1 9

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-135	ADMIN - 00452	EVAP	EEM - RI	63,631	23,601	63,631	23,601	27,315,080	8.91	3.80	1.9
Motors	MTR-257	DGR - 00430	EVAP	EEM - RI	63,638	23,610	63,638	23,610	27,318,561	8.90	3.80	1.9
Motors	MTR-170	ADMIN - 00564	EVAP	EEM - RI	63,641	23,615	63,641	23,615	27,320,301	8.90	3.80	1.9
Motors	MTR-120	ADMIN - 00426	EVAP	EEM - RI	63,644	23,620	63,644	23,620	27,322,041	8.90	3.80	1.9
Motors	MTR-165	ADMIN - 00544	EVAP	EEM - RI	63,647	23,625	63,647	23,625	27,323,781	8.90	3.80	1.9
Motors	MTR-312	MTRPOOL - 00840	EVAP	EEM - RI	63,651	23,629	63,651	23,629	27,325,522	8.90	3.80	1.9
Motors	MTR-127	ADMIN - 00439	EVAP	EEM - RI	63,654	23,634	63,654	23,634	27,327,262	8.90	3.80	1.9
Motors	MTR-307	MTRPOOL - 00830	EVAP	EEM - RI	63,657	23,639	63,657	23,639	27,329,002	8.90	3.80	1.9
Motors	MTR-123	ADMIN - 00433	EVAP	EEM - RI	63,661	23,644	63,661	23,644	27,330,743	8.90	3.80	1.9
Motors	MTR-139	ADMIN - 00458	EVAP	EEM - RI	63,664	23,648	63,664	23,648	27,332,483	8.90	3.80	1.9
Motors	MTR-185	ADMIN - 06201	EVAP	EEM - RI	63,666	23,652	63,666	23,652	27,333,637	8.90	3.79	1.9
Motors	MTR-98	ADMIN - 00101	EVAP	EEM - RI	63,673	23,661	63,673	23,661	27,337,099	8.89	3.79	1.9
Motors	MTR-334	OTHER - 00992	EVAP	EEM - RI	63,674	23,663	63,674	23,663	27,337,676	8.89	3.79	1.9
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - RI	63,930	23,702	63,930	23,702	27,363,200	8.88	3.78	1.9
Motors	MTR-339	PLT-BLDG - 00263	EVAP	EEM - RI	63,932	23,705	63,932	23,705	27,364,351	8.88	3.78	1.9
Motors	MTR-338	PLT-BLDG - 00263	EVAP	EEM - RI	63,934	23,706	63,934	23,706	27,364,927	8.88	3.78	1.9
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - RI	63,975	23,714	63,975	23,714	27,370,776	8.88	3.76	1.9
Motors	PMTR-84	PUMP - 18005	PMPMTR	EEM - RI	64,053	23,804	64,053	23,804	27,389,411	8.87	3.75	1.9
Motors	MTR-420	ADMIN - 00439	Fan Motor	EEM - RI	64,054	23,805	64,054	23,805	27,389,925	8.87	3.75	1.9
Motors	MTR-419	ADMIN - 00433	Fan Motor	EEM - RI	64,055	23,807	64,055	23,807	27,390,438	8.87	3.75	1.9
Lighting	OS-MT-5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	64,086	23,807	64,086	23,807	27,402,053	8.86	3.72	1.9
DHW & A/C	19	00237	AIR CONDITIONER	Install Desuperheater - RI	64,108	23,834	64,108	23,834	27,407,066	8.86	3.71	1.9
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - RI	64,441	23,886	64,441	23,886	27,440,062	8.84	3.70	1.9
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - RI	64,775	23,938	64,775	23,938	27,473,059	8.82	3.70	2.0
Heating	42	SHOP - HDSDS	Unit Heaters	Radiant Heat - RI	64,936	23,938	64,936	23,938	27,503,957	8.80	3.69	2.0
DHW & A/C	30	00857	Chiller-air cooled	Install Desuperheater - RI	64,948	24,010	64,948	24,010	27,513,669	8.80	3.64	2.0
Wells	1		Well Pumps	Add New 500 kgal Tank - RI	64,948	25,107	64,948	25,107	28,068,151	8.51	3.63	2.0
Motors	PMTR-67	PLT-BLDG - 00253	PMPMTR	EEM - RI	64,955	25,114	64,955	25,114	28,070,241	8.51	3.63	2.0
Motors	PMTR-91	PUMP - 00042	PMPMTR	EEM - RI	64,967	25,125	64,967	25,125	28,073,003	8.51	3.61	2.0
Motors	PMTR-90	PUMP - 00044	PMPMTR	EEM - RI	64,980	25,135	64,980	25,135	28,075,766	8.50	3.61	2.0
Motors	MTR-183	ADMIN - 00988	EVAP	EEM - RI	64,980	25,137	64,980	25,137	28,076,265	8.50	3.60	2.0
Central Chillers	2		Existing Chillers·	Connect B/253 & B/263, Add TES - RI	66,080	27,246	66,080	27,246	28,969,451	8.07	3.52	2.1
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - RI	66,081	27,248	66,081	27,248	28,969,921	8.07	3.51	2.1
Motors	MTR-15	CLUB - 00202	COMPMTR	EEM - RI	66,088	27,255	66,088	27,255	28,971,801	8.07	3.51	2.1
Motors	MTR-17	CLUB - 00202	COMPMTR	EEM - RI	66,094	27,263	66,094	27,263	28,973,682	8.07	3.51	2.1
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - RI	66,097	27,266	66,097	27,266	28,974,622	8.07	3.51	2.1
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	66,109	27,320	66,109	27,320	28,981,960	8.07	3.49	2.1
Motors	MTR-42	CLUB - 00202	CONDMTR	EEM - RI	66,110	27,322	66,110	27,322	28,982,425	8.07	3.49	2.1
Motors	MTR-184	ADMIN - 00988	EVAP	EEM - RI	66,112	27,325	66,112	27,325	28,983,376	8.07	3.47	2.1
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - RI	66,114	27,327	66,114	27,327	28,984,326	8.07	3.47	2.1
Motors	PMTR-37	GROCERY - 00920	PMPMTR	EEM - RI	66,115	27,329	66,115	27,329	28,984,801	8.07	3.47	2.1
Motors	MTR-181	ADMIN - 00988	EVAP	EEM - RI	66,116	27,330	66,116	27,330	28,985,276	8.07	3.47	2.1
Motors	PMTR-35	GROCERY - 00920	PMPMTR	EEM - RI	66,117	27,331	66,117	27,331	28,985,751	8.07	3.47	2.1
DHW & A/C	28	00488	PKG A/C	Install Desuperheater - RI	66,127	27,403	66,127	27,403	28,994,737	8.06	3.44	2.1
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - RI	66,139	27,415	66,139	27,415	28,997,840	8.06	3.43	2.1
Motors	PMTR-83	PUMP - 18005	PMPMTR	EEM - RI	66,205	27,504	66,205	27,504	29,013,750	8.05	3.35	2.1
Motors	MTR-37	WHS-CLD - 00862	COMPMTR	EEM - RI	66,206	27,506	66,206	27,506	29,014,187	8.05	3.34	2.1
Motors	PMTR-17c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	66,264	27,517	66,264	27,517	29,031,904	8.04	3.32	2.1
Motors	PMTR-16c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	66,322	27,528	66,322	27,528	29,049,621	8.04	3.32	2.1
Motors	PMTR-15c	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	66,351	27,533	66,351	27,533	29,058,480	8.03	3.32	2.1
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	66,383	27,539	66,383	27,539	29,062,051	8.03	3.32	2.1
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - RI	66,384	27,541	66,384	27,541	29,062,483	8.03	3.31	2.1
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - RI	66,386	27,547	66,386	27,547	29,063,370	8.03	3.31	2.1
Motors	PMTR-7c	ADMIN - 00985	PMPMTR	VSD & EEM - RI	66,413	27,551	66,413	27,551	29,072,270	8.02	3.31	2.1
DHW & A/C	1	00013	CHILLER-air cooled	Install Desuperheater - RI	66,419	27,614	66,419	27,614	29,079,905	8.02	3.30	2.1
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - RI	66,420	27,616	66,420	27,616	29,080,330	8.02	3.27	2.1
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - RI	66,470	27,688	66,470	27,688	29,092,407	8.01	3.26	2.1
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	66,499	27,702	66,499	27,702	29,095,297	8.01	3.22	2.1
Motors	PMTR-65	PLT-BLDG - 00253	PMPMTR	EEM - RI	66,507	27,710	66,507	27,710	29,097,554	8.01	3.20	2.1
Motors	PMTR-69	PLT-BLDG - 00263	PMPMTR	EEM - RI	66,515	27,718	66,515	27,718	29,099,810	8.01	3.20	2.1
Envelope	MWR	MWR		Weatherization - RI	66,525	27,724	66,525	27,724	29,102,771	8.01	3.17	2.2
Motors	MTR-526	Fam Housing	Heat System Fan	EEM - RI	68,264	29,191	68,264	29,191	29,765,108	7.68	3.16	2.2
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	68,514	29,231	68,514	29,231	29,788,390	7.67	3.15	2.2
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - RI	68,548	29,270	68,548	29,270	29,795,426	7.66	3.12	2.2
Motors	PMTR-92	PUMP - 00044	PMPMTR	EEM - RI	68,581	29,309	68,581	29,309	29,802,396	7.66	3.10	2.2
Controls	MT-1		Thermostat	Night Setback - RI	70,089	31,495	70,089	31,495	30,116,521	7.51	3.09	2.3
Motors	PMTR-99	PUMP - 00324	PMPMTR	EEM - RI	70,099	31,506	70,099	31,506	30,118,691	7.51	3.05	2.3
Motors	PMTR-2a	ADMIN - 00988	PMPMTR	EEM - RI	70,101	31,509	70,101	31,509	30,119,612	7.51	3.03	2.3
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	70,333	31,509	70,333	31,509	30,157,532	7.49	2.98	2.3
Motors	PMTR-60c	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	70,366	31,521	70,366	31,521	30,168,313	7.48	2.81	2.3

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - RI	70,588	31,561	70,588	31,561	30,188,095	7.47	2.81	2.3
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	70,608	31,570	70,608	31,570	30,190,084	7.47	2.78	2.3
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	70,612	31,570	70,612	31,570	30,191,008	7.47	2.78	2.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	70,644	31,576	70,644	31,576	30,193,964	7.47	2.74	2.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	70,676	31,583	70,676	31,583	30,196,919	7.47	2.74	2.3
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - RI	70,677	31,585	70,677	31,585	30,197,242	7.47	2.68	2.3
Motors	MTR-449	GROCERY - 00920	Fan Motor	EEM - RI	70,684	31,597	70,684	31,597	30,199,343	7.47	2.65	2.3
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM - RI	70,688	31,610	70,688	31,610	30,201,073	7.47	2.64	2.3
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM - RI	70,692	31,624	70,692	31,624	30,202,804	7.46	2.64	2.3
Motors	PMTR-80	PUMP - 05590	PMPMTR	EEM - RI	70,745	31,743	70,745	31,743	30,216,630	7.46	2.60	2.3
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - RI	70,776	31,771	70,776	31,771	30,221,938	7.45	2.60	2.3
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	70,785	31,792	70,785	31,792	30,224,508	7.45	2.57	2.3
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat - RI	70,814	31,797	70,814	31,797	30,228,526	7.45	2.57	2.3
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	70,848	31,802	70,848	31,802	30,232,510	7.44	2.56	2.3
Envelope	w/ SE win only	Concrete Block: w/ SE win only		Weatherization - RI	70,871	31,817	70,871	31,817	30,238,984	7.44	2.54	2.3
Motors	MTR-22	HOSPITL - 00166	COMPMTR	EEM - RI	70,875	31,821	70,875	31,821	30,239,677	7.44	2.53	2.3
Motors	MTR-447	GROCERY - 00920	Fan Motor	EEM - RI	70,882	31,831	70,882	31,831	30,241,647	7.44	2.47	2.3
Motors	MTR-436a	CLINIC - 00171	Fan Motor	EEM - RI	70,886	31,837	70,886	31,837	30,242,632	7.44	2.47	2.3
Motors	MTR-450	GROCERY - 00920	Fan Motor	EEM - RI	70,890	31,842	70,890	31,842	30,243,616	7.44	2.47	2.3
Motors	MTR-481	REC - 00905	Fan Motor	EEM - RI	70,892	31,846	70,892	31,846	30,244,367	7.44	2.47	2.3
Motors	MTR-477	PUMP - 00324	Fan Motor	EEM - RI	70,895	31,850	70,895	31,850	30,245,117	7.44	2.47	2.3
Motors	MTR-467a	MWR - 01322	Fan Motor	EEM - RI	70,898	31,853	70,898	31,853	30,245,781	7.44	2.46	2.3
Motors	PMTR-59c	PLT-BLDG - 00253	PMPMTR	VSD & EEM - RI	70,937	31,863	70,937	31,863	30,257,047	7.43	2.46	2.3
Motors	MTR-524a	DGR - 00308	VENTLTR	EEM - RI	70,940	31,867	70,940	31,867	30,257,782	7.43	2.44	2.3
Motors	MTR-438a	CLINIC - 00171	Fan Motor	EEM - RI	70,949	31,881	70,949	31,881	30,260,115	7.42	2.41	2.3
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	70,956	31,908	70,956	31,908	30,262,719	7.42	2.41	2.3
Motors	PMTR-85	PUMP - 18005	PMPMTR	EEM - RI	70,995	31,998	70,995	31,998	30,272,192	7.42	2.40	2.3
Motors	PMTR-4c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	71,004	32,000	71,004	32,000	30,274,822	7.41	2.39	2.3
Motors	PMTR-77	PUMP - 00324	PMPMTR	EEM - RI	71,012	32,006	71,012	32,006	30,276,287	7.41	2.39	2.3
Motors	PMTR-105	PUMP - 00652	PMPMTR	EEM - RI	71,015	32,009	71,015	32,009	30,276,910	7.41	2.37	2.3
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater - RI	71,027	32,025	71,027	32,025	30,278,793	7.41	2.37	2.3
HVAC	MT-3		Heat pump	2-speed compressor - RI	72,159	33,443	72,159	33,443	30,607,022	7.17	2.36	2.4
Heating	15	MTRPOOL - 00605	Unit Heaters	Radiant Heat - RI	72,202	33,449	72,202	33,449	30,611,076	7.16	2.33	2.4
Motors	PMTR-58	PLT-BLDG - 00109	PMPMTR	EEM - RI	72,202	33,450	72,202	33,450	30,611,330	7.16	2.32	2.4
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM - RI	72,211	33,461	72,211	33,461	30,613,085	7.16	2.31	2.4
Motors	MTR-20	GROCERY - 00920	COMPMTR	EEM - RI	72,216	33,466	72,216	33,466	30,613,962	7.16	2.31	2.4
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM - RI	72,221	33,471	72,221	33,471	30,614,839	7.16	2.31	2.4
Motors	PMTR-24	BRK/ADM - 00273	PMPMTR	EEM - RI	72,221	33,473	72,221	33,473	30,615,090	7.16	2.31	2.4
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM - RI	72,281	33,540	72,281	33,540	30,626,445	7.15	2.30	2.4
Motors	MTR-329	MWR - 01322	EVAP	EEM - RI	72,282	33,541	72,282	33,541	30,626,685	7.15	2.29	2.4
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - RI	72,323	33,547	72,323	33,547	30,630,609	7.15	2.28	2.4
Motors	MTR-49	WHS-CLD - 00862	CONDMTR	EEM - RI	72,324	33,548	72,324	33,548	30,630,848	7.15	2.28	2.4
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM - RI	72,334	33,557	72,334	33,557	30,632,527	7.15	2.26	2.4
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM - RI	72,341	33,579	72,341	33,579	30,635,172	7.14	2.25	2.4
Motors	PMTR-27	CLINIC - 00171	PMPMTR	EEM - RI	72,349	33,601	72,349	33,601	30,637,817	7.14	2.25	2.4
Envelope	MT-5		Black EDPM	Reflective roof - RI	72,915	34,285	72,915	34,285	30,915,465	6.93	2.24	2.5
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM - RI	72,953	34,404	72,953	34,404	30,925,223	6.92	2.13	2.5
Motors	PMTR-53a	PLT-BLDG - 00263	PMPMTR	EEM - RI	72,957	34,416	72,957	34,416	30,927,097	6.92	2.13	2.5
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater - RI	72,962	34,439	72,962	34,439	30,929,005	6.92	2.13	2.5
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	72,968	34,462	72,968	34,462	30,930,912	6.92	2.13	2.5
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - RI	73,013	34,468	73,013	34,468	30,934,319	6.92	2.11	2.5
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - RI	73,055	34,473	73,055	34,473	30,937,721	6.91	2.11	2.5
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - RI	73,096	34,479	73,096	34,479	30,941,123	6.91	2.11	2.5
Motors	MTR-92	HOTEL - 00904	COOL	EEM - RI	73,097	34,480	73,097	34,480	30,941,329	6.91	2.10	2.5
Motors	MTR-87	HOSPITL - 00166	COOL	EEM - RI	73,098	34,481	73,098	34,481	30,941,534	6.91	2.10	2.5
Motors	MTR-93	HOTEL - 00906	COOL	EEM - RI	73,099	34,482	73,099	34,482	30,941,740	6.91	2.10	2.5
Motors	MTR-91	HOTEL - 00903	COOL	EEM - RI	73,099	34,483	73,099	34,483	30,941,945	6.91	2.10	2.5
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - RI	73,100	34,484	73,100	34,484	30,942,150	6.91	2.10	2.5
Motors	MTR-88	HOTEL - 00900	COOL	EEM - RI	73,101	34,485	73,101	34,485	30,942,356	6.91	2.10	2.5
Motors	MTR-89	HOTEL - 00901	COOL	EEM - RI	73,102	34,485	73,102	34,485	30,942,561	6.91	2.10	2.5
Motors	MTR-90	HOTEL - 00902	COOL	EEM - RI	73,103	34,486	73,103	34,486	30,942,767	6.91	2.10	2.5
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	73,565	34,554	73,565	34,554	30,972,909	6.88	2.10	2.5
Motors	PMTR-107	PUMP - 00636	PMPMTR	EEM - RI	73,570	34,610	73,570	34,610	30,976,528	6.88	2.09	2.5
Lighting	OS-MT-4b	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls - RI	73,621	34,610	73,621	34,610	30,991,005	6.87	2.04	2.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	73,627	34,631	73,627	34,631	30,992,671	6.87	2.02	2.5
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater - RI	73,632	34,653	73,632	34,653	30,994,337	6.87	2.02	2.5
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	73,699	34,661	73,699	34,661	30,998,967	6.86	2.01	2.5
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - RI	73,703	34,678	73,703	34,678	31,000,560	6.86	2.00	2.5
Motors	PMTR-79	PUMP - 05590	PMPMTR	EEM - RI	73,733	34,797	73,733	34,797	31,009,076	6.85	1.99	2.5
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	73,859	34,814	73,859	34,814	31,018,113	6.84	1.98	2.5

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Envelope	MT-8		Single pane window	Shade Screens - SE side - RI	73,896	34,837	73,896	34,837	31,023,134	6 84	1 97	2 5
Envelope		Metal Siding		Window Screen - SE side - RI	73,972	34,883	73,972	34,883	31,033,473	6 83	1 97	2 5
Envelope		Concrete Block Barracks		Window Screen - SE side - RI	74,000	34,900	74,000	34,900	31,037,378	6 83	1 97	2 5
Envelope		Concrete Block Misc -post 1980		Window Screen - SE side - RI	74,011	34,907	74,011	34,907	31,038,796	6 82	1 97	2 5
Envelope		MOTORPOOL		Window Screen - SE side RI	74,018	34,911	74,018	34,911	31,039,812	6 82	1 97	2 5
Envelope		TRAINING		Window Screen - SE side - RI	74,021	34,913	74,021	34,913	31,040,141	6 82	1 97	2 5
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen - RI	74,425	35,159	74,425	35,159	31,093,356	6 77	1 97	2 5
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	74,804	35,389	74,804	35,389	31,146,952	6 73	1 97	2 6
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	75,173	35,614	75,173	35,614	31,197,397	6 68	1 97	2 6
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	75,458	35,788	75,458	35,788	31,236,198	6 65	1 97	2 6
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	75,705	35,938	75,705	35,938	31 269,895	6 62	1 97	2 6
Envelope		U Shaped Bldgs Barracks		Window Screen - SE side - RI	75,902	36,058	75,902	36,058	31,296,789	6 59	1 97	2 6
Envelope		Masonite Siding: pre 1950		Window Screen - SE side - RI	75,936	36,079	75,936	36,079	31,301,418	6 59	1 97	2 6
Envelope		U Shaped Bldgs: Other		Window Screen - SE side - RI	75,964	36,096	75,964	36,096	31,305,259	6 59	1 97	2 6
Envelope		Concrete Block w/ SE win only		Window Screen - SE side - RI	75,982	36,107	75,982	36,107	31,307,745	6 59	1 97	2 6
Envelope		Concrete Block Misc -pre 1980		Window Screen - SE side - RI	75,994	36,114	75,994	36,114	31,309,371	6 58	1 97	2 6
Envelope		Masonite Siding: post 1950		Window Screen - SE side - RI	76,006	36,121	76,006	36,121	31,310,902	6 58	1 97	2 6
Envelope		SHOP		Window Screen - SE side - RI	76,013	36,125	76,013	36,125	31,311,896	6 58	1 97	2 6
Envelope		DINING MSIC		Window Screen - SE side - RI	76,017	36,128	76,017	36,128	31,312,502	6 58	1 97	2 6
Envelope		ADMIN MISC pre 1964		Window Screen - SE side - RI	76,021	36,131	76,021	36,131	31,313,066	6 58	1 97	2 6
Envelope		BRK/ADM MISC		Window Screen - SE side - RI	76,025	36,133	76,025	36,133	31,313,608	6 58	1 97	2 6
Envelope		Wood Siding		Window Screen - SE side - RI	76,029	36,135	76,029	36,135	31,314,058	6 58	1 97	2 6
Envelope		MWR		Window Screen - SE side - RI	76,030	36,136	76,030	36,136	31,314,294	6 58	1 97	2 6
Envelope		WHS		Window Screen - SE side - RI	76,032	36,137	76,032	36,137	31,314,502	6 58	1 97	2 6
Envelope		SECURTY		Window Screen - SE side - RI	76,032	36,137	76,032	36,137	31,314,550	6 58	1 97	2 6
Envelope		ADMIN MISC post 1964		Window Screen - SE side - RI	76,040	36,142	76 040	36,142	31,315,546	6 58	1 97	2 6
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	76,122	36,153	76,122	36,153	31,321,373	6 57	1 95	2 6
Motors	PMTR-52a	PLT-BLDG - 00263	PMPMTR	EEM - RI	76,123	36,157	76,123	36,157	31,321,988	6 57	1 92	2 6
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - ROF	76,123	36,157	76,135	36,163	31,323,096	6 57	1 92	2 6
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - RI	76,201	36,167	76,213	36,173	31,327,893	6 57	1 89	2 6
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - ROF	76,201	36,167	76,231	36,182	31,329,671	6.57	1 89	2 6
Motors	MTR-444a	DINING - 00254	Fan Motor	EEM - RI	76,209	36,178	76,239	36,193	31,331,259	6 56	1 87	2 6
Motors	MTR-486	WHS-CLD - 00862	Fan Motor	EEM - RI	76,212	36,184	76,243	36,199	31,332,053	6 56	1 87	2 6
Motors	MTR-453c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	76,363	36,192	76,394	36,208	31,349,171	6 55	1 87	2 6
Motors	MTR-522a	DGR - 00308	VENTLTR	EEM - RI	76,365	36,195	76,396	36,210	31,349,565	6 55	1 87	2 6
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - RI	76,404	36,201	76,434	36,216	31,352,219	6 54	1 87	2 6
Motors	MTR-523a	DGR - 00308	VENTLTR	EEM - RI	76,405	36,203	76,436	36,219	31,352,612	6 54	1 86	2 6
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI	76,461	36,307	76,491	36,322	31,369,044	6 53	1 85	2 6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat - RI	76,931	36,387	76,962	36,403	31,394,690	6 50	1 79	2 6
Motors	MTR-527	Fam Housing	Cool System Fan	EEM - RI	77,680	37,854	77,710	37,869	31,625,010	6 26	1 75	2 8
Motors	MTR-62	BRK/ADM - 00226	COOL	EEM - RI	77,714	37,921	77,745	37,937	31,635,569	6 25	1 75	2 8
Motors	MTR-60	BRK/ADM - 00110	COOL	EEM - RI	77,723	37,939	77,754	37,955	31,638,384	6 25	1 75	2 8
Motors	MTR-59	BRK/ADM - 00108	COOL	EEM - RI	77,731	37,954	77,761	37,969	31,640,637	6 24	1 75	2 8
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM - RI	77,738	37,968	77,768	37,983	31,642,889	6 24	1 75	2 8
Motors	MTR-61	BRK/ADM - 00111	COOL	EEM - RI	77,745	37,982	77,776	37,998	31,645,142	6 24	1 75	2 8
Motors	MTR-57	BRK/ADM - 00106	COOL	EEM - RI	77,753	37,997	77,783	38,012	31,647,395	6 24	1 75	2 8
Motors	MTR-58	BRK/ADM - 00107	COOL	EEM - RI	77,760	38,011	77,790	38,026	31,649,647	6 24	1 75	2 8
Motors	MTR-82	CLUB - 20018	COOL	EEM - RI	77,760	38,012	77,791	38,027	31,649,788	6 24	1 75	2 8
Fam. Hsg. HVAC	2b			High Eff. Grnd Source HP - RI	154,439	53,237	154,469	53,253	36,894,651	3 81	1 74	4 5
Motors	MTR-479a	REC - 00905	Fan Motor	EEM - RI	154,441	53,239	154,471	53,254	36,894,986	3 81	1 74	4 5
Motors	MTR-480a	REC - 00905	Fan Motor	EEM - RI	154,443	53,240	154,473	53,256	36,895,322	3 81	1 74	4 5
Motors	MTR-478a	REC - 00905	Fan Motor	EEM - RI	154,445	53,242	154,475	53,257	36,895,657	3 81	1 74	4 5
Motors	MTR-451c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	154,727	53,252	154,757	53,268	36,924,234	3 80	1 74	4 5
Motors	MTR-79	BRK/ADM - 00275	COOL	EEM - RI	154,730	53,259	154,761	53,274	36,925,192	3 80	1 73	4 5
Motors	MTR-63	BRK/ADM - 00226	COOL	EEM - RI	154,733	53,265	154,764	53,280	36,926,150	3 80	1 73	4 5
Motors	MTR-66	BRK/ADM - 00261	COOL	EEM - RI	154,734	53,266	154,764	53,281	36,926,287	3 80	1 73	4 5
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - RI	154,768	53,333	154,798	53,348	36,936,554	3 80	1 73	4 5
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - RI	154,803	53,400	154,833	53,416	36,946,820	3 80	1 73	4 5
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - RI	154,803	53,402	154,834	53,418	36,947,094	3 80	1 73	4 5
Motors	MTR-64	BRK/ADM - 00226	COOL	EEM - RI	154,804	53,404	154,835	53,419	36,947,368	3 80	1 73	4 5
Motors	MTR-80	BRK/ADM - 00275	COOL	EEM - RI	154,805	53,406	154,836	53,421	36,947,642	3 80	1 73	4 5
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - RI	154,818	53,445	154,848	53,460	36,950,051	3 80	1 73	4 5
Motors	MTR-452c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	155,008	53,452	155,039	53,467	36,969,050	3 79	1 72	4 5
Motors	MTR-29	MTRPOOL - 00857	COMPMTR	EEM - RI	155,023	53,463	155,053	53,478	36,970,881	3 79	1 72	4 5
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - RI	155,037	53,481	155,067	53,496	36,972,781	3 79	1 71	4 5
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - RI	155,040	53,487	155 070	53,502	36,973,687	3 79	1 69	4 5
Motors	MTR-74	BRK/ADM - 00267	COOL	EEM - RI	155,041	53,488	155,071	53,503	36,973,816	3 79	1 69	4 5
Motors	MTR-69	BRK/ADM - 00264	COOL	EEM - RI	155,041	53,489	155,071	53,504	36,973,946	3 79	1 69	4 5
Motors	MTR-68	BRK/ADM - 00262	COOL	EEM - RI	155,042	53,490	155,072	53,505	36,974,075	3 79	1 69	4 5
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - RI	155,042	53,491	155,072	53,506	36,974,205	3 79	1 69	4 5

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM - RI	155,074	53,554	155,105	53,570	36,983,394	3.79	1.69	4.5
Motors	MTR-67	BRK/ADM - 00262	COOL	EEM - RI	155,107	53,618	155,137	53,633	36,992,584	3.79	1.69	4.5
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - RI	155,139	53,682	155,170	53,697	37,001,773	3.79	1.69	4.5
Motors	MTR-73	BRK/ADM - 00267	COOL	EEM - RI	155,172	53,745	155,202	53,761	37,010,963	3.78	1.69	4.6
Motors	MTR-65	BRK/ADM - 00261	COOL	EEM - RI	155,204	53,809	155,235	53,824	37,020,153	3.78	1.69	4.6
Motors	MTR-454c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	155,572	53,820	155,602	53,836	37,055,550	3.77	1.69	4.6
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - RI	155,575	53,831	155,606	53,846	37,056,392	3.77	1.63	4.6
Motors	PMTR-34	GROCERY - 00920	power vents	EEM - RI	155,578	53,839	155,608	53,854	37,057,031	3.77	1.62	4.6
Motors	PMTR-55a	PLT-BLDG - 00253	PMPMTR	EEM - RI	155,583	53,854	155,614	53,869	37,058,613	3.77	1.62	4.6
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - RI	155,589	53,869	155,619	53,885	37,060,195	3.77	1.62	4.6
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater - RI	155,596	53,878	155,627	53,894	37,060,877	3.77	1.61	4.6
Motors	PMTR-74	PUMP - 00042	PMPMTR	EEM - RI	155,601	53,884	155,631	53,899	37,061,428	3.77	1.61	4.6
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - RI	155,603	53,887	155,634	53,902	37,061,704	3.77	1.61	4.6
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater - RI	155,608	53,901	155,638	53,916	37,062,504	3.77	1.60	4.6
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater - RI	155,612	53,915	155,643	53,931	37,063,305	3.77	1.60	4.6
Motors	MTR-409	WHS - 00818	EVAP	EEM - RI	155,616	53,921	155,647	53,936	37,064,034	3.77	1.57	4.6
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM - RI	155,617	53,922	155,647	53,938	37,064,141	3.77	1.56	4.6
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM - RI	155,617	53,923	155,647	53,939	37,064,243	3.77	1.54	4.6
Motors	PMTR-61c	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	155,631	53,927	155,661	53,943	37,066,309	3.77	1.53	4.6
Motors	MTR-85	DINING - 00254	COOL	EEM - RI	155,631	53,928	155,661	53,944	37,066,406	3.77	1.52	4.6
Motors	PMTR-38	HOSPITL - 00166	PMPMTR	EEM - RI	155,637	53,931	155,667	53,946	37,066,840	3.77	1.51	4.6
Motors	MTR-81	CLINIC - 00171	COOL	EEM - RI	155,637	53,931	155,667	53,947	37,066,933	3.77	1.50	4.6
Motors	MTR-95	MTRPOOL - 00857	COOL	EEM - RI	155,637	53,932	155,668	53,948	37,067,026	3.77	1.50	4.6
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - RI	155,639	53,935	155,669	53,950	37,067,247	3.77	1.49	4.6
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - RI	155,640	53,938	155,670	53,953	37,067,469	3.77	1.49	4.6
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - RI	155,643	53,949	155,674	53,964	37,068,092	3.77	1.49	4.6
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - RI	155,645	53,952	155,675	53,967	37,068,310	3.77	1.48	4.6
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - RI	155,646	53,955	155,677	53,970	37,068,528	3.77	1.48	4.6
Motors	MTR-8	MTRPOOL - 00646	AIRCOMP	EEM - RI	155,647	53,958	155,678	53,974	37,068,764	3.77	1.47	4.6
Motors	MTR-96	WHS - 20001	COOL	EEM - RI	155,649	53,962	155,679	53,977	37,069,118	3.77	1.47	4.6
Motors	MTR-455c	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	155,730	53,965	155,760	53,980	37,075,073	3.77	1.47	4.6
Motors	MTR-282	MTRPOOL - 00600	EVAP	EEM - RI	155,731	53,967	155,761	53,982	37,075,279	3.77	1.45	4.6
Motors	MTR-99	ADMIN - 00152	EVAP	EEM - RI	155,732	53,969	155,762	53,984	37,075,511	3.77	1.45	4.6
Motors	MTR-54a	ADMIN - 00988	COOL	EEM - RI	155,733	53,971	155,764	53,986	37,075,740	3.77	1.45	4.6
Motors	MTR-53a	ADMIN - 00988	COOL	EEM - RI	155,735	53,973	155,765	53,988	37,075,969	3.77	1.45	4.6
Motors	MTR-55a	ADMIN - 00988	COOL	EEM - RI	155,736	53,975	155,767	53,990	37,076,198	3.77	1.45	4.6
Motors	MTR-83	DINING - 00222	COOL	EEM - RI	155,737	53,976	155,767	53,992	37,076,359	3.77	1.43	4.6
Motors	MTR-84	DINING - 00222	COOL	EEM - RI	155,737	53,978	155,768	53,994	37,076,520	3.77	1.43	4.6
Motors	PMTR-29	DOR - 00308	PMPMTR	EEM - RI	155,739	53,982	155,769	53,997	37,076,739	3.77	1.43	4.6
T&D	62h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	155,739	53,982	155,800	54,021	37,084,652	3.76	1.42	4.6
T&D	83h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	155,739	53,982	155,950	54,147	37,121,710	3.75	1.41	4.6
T&D	67h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	155,739	53,982	155,978	54,168	37,128,405	3.74	1.36	4.6
Motors	MTR-509	BRK/ADM - 00251	HEAT	EEM - RI	155,770	54,008	156,009	54,194	37,130,300	3.74	1.35	4.6
Motors	MTR-518	BRK/ADM - 00252	HEAT	EEM - RI	155,800	54,034	156,039	54,220	37,132,195	3.74	1.35	4.6
Motors	MTR-503	BRK/ADM - 00250	HEAT	EEM - RI	155,831	54,060	156,070	54,246	37,134,090	3.74	1.35	4.6
Motors	MTR-515	BRK/ADM - 00252	HEAT	EEM - RI	155,848	54,074	156,087	54,260	37,135,135	3.74	1.35	4.6
Motors	MTR-507	BRK/ADM - 00251	HEAT	EEM - RI	155,865	54,089	156,104	54,274	37,136,180	3.74	1.35	4.6
Motors	MTR-502	BRK/ADM - 00250	HEAT	EEM - RI	155,882	54,103	156,121	54,289	37,137,226	3.74	1.35	4.6
Motors	MTR-499	BRK/ADM - 00249	HEAT	EEM - RI	155,899	54,117	156,138	54,303	37,138,271	3.74	1.35	4.6
Motors	MTR-513	BRK/ADM - 00251	HEAT	EEM - RI	155,904	54,121	156,142	54,307	37,138,533	3.74	1.35	4.6
Motors	MTR-520	BRK/ADM - 00252	HEAT	EEM - RI	155,908	54,124	156,147	54,310	37,138,794	3.74	1.35	4.6
Motors	MTR-504	BRK/ADM - 00250	HEAT	EEM - RI	155,912	54,128	156,151	54,314	37,139,055	3.74	1.35	4.6
Motors	MTR-498	BRK/ADM - 00249	HEAT	EEM - RI	155,916	54,132	156,155	54,317	37,139,317	3.74	1.35	4.6
Motors	MTR-495	BRK/ADM - 00249	HEAT	EEM - RI	155,917	54,133	156,156	54,318	37,139,382	3.74	1.35	4.6
Motors	MTR-516	BRK/ADM - 00252	HEAT	EEM - RI	155,918	54,133	156,157	54,319	37,139,447	3.74	1.35	4.6
Motors	MTR-496	BRK/ADM - 00249	HEAT	EEM - RI	155,919	54,134	156,158	54,320	37,139,513	3.74	1.35	4.6
Motors	MTR-510	BRK/ADM - 00251	HEAT	EEM - RI	155,921	54,135	156,159	54,321	37,139,578	3.74	1.35	4.6
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - RI	155,922	54,136	156,161	54,322	37,139,643	3.74	1.35	4.6
Motors	MTR-505	BRK/ADM - 00250	HEAT	EEM - RI	155,923	54,137	156,162	54,323	37,139,709	3.74	1.35	4.6
Motors	MTR-500	BRK/ADM - 00250	HEAT	EEM - RI	155,924	54,138	156,163	54,324	37,139,774	3.74	1.35	4.6
Motors	MTR-501	BRK/ADM - 00250	HEAT	EEM - RI	155,925	54,139	156,164	54,325	37,139,839	3.74	1.35	4.6
Motors	MTR-506	BRK/ADM - 00250	HEAT	EEM - RI	155,926	54,140	156,165	54,326	37,139,905	3.74	1.35	4.6
Motors	MTR-511	BRK/ADM - 00251	HEAT	EEM - RI	155,927	54,141	156,166	54,326	37,139,970	3.74	1.35	4.6
Motors	MTR-493	BRK/ADM - 00249	HEAT	EEM - RI	155,928	54,141	156,167	54,327	37,140,035	3.74	1.35	4.6
Motors	MTR-517	BRK/ADM - 00252	HEAT	EEM - RI	155,929	54,142	156,168	54,328	37,140,101	3.74	1.35	4.6
Motors	MTR-508	BRK/ADM - 00251	HEAT	EEM - RI	155,930	54,143	156,169	54,329	37,140,166	3.74	1.35	4.6
Motors	MTR-512	BRK/ADM - 00251	HEAT	EEM - RI	155,931	54,144	156,170	54,330	37,140,231	3.74	1.35	4.6
Motors	MTR-519	BRK/ADM - 00252	HEAT	EEM - RI	155,932	54,145	156,171	54,331	37,140,297	3.74	1.35	4.6
Motors	MTR-497	BRK/ADM - 00249	HEAT	EEM - RI	155,933	54,146	156,172	54,332	37,140,362	3.74	1.35	4.6
Motors	MTR-521	MTRPOOL - 00681	HEAT	EEM - RI	155,934	54,147	156,173	54,333	37,140,427	3.74	1.35	4.6

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-50a	WHS-CLD - 00862	CONDMTR	EEM - RI	155,939	54,151	156,178	54,337	37,140,771	3.74	1.34	4.6
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	155,939	54,151	156,212	54,365	37,149,128	3.73	1.33	4.6
Motors	MTR-494	BRK/ADM - 00249	HEAT	EEM - RI	155,970	54,177	156,243	54,391	37,150,893	3.73	1.33	4.6
Motors	MTR-491	BRK/ADM - 00110	HEAT	EEM - RI	155,991	54,195	156,264	54,409	37,152,111	3.73	1.33	4.6
Motors	MTR-492	BRK/ADM - 00111	HEAT	EEM - RI	156,008	54,209	156,281	54,423	37,153,085	3.73	1.33	4.6
Motors	MTR-490	BRK/ADM - 00108	HEAT	EEM - RI	156,025	54,223	156,298	54,437	37,154,059	3.73	1.33	4.6
Motors	MTR-489	BRK/ADM - 00107	HEAT	EEM - RI	156,042	54,238	156,315	54,452	37,155,033	3.73	1.33	4.6
Motors	MTR-488	BRK/ADM - 00106	HEAT	EEM - RI	156,059	54,252	156,332	54,466	37,156,006	3.73	1.33	4.6
Motors	MTR-487	BRK/ADM - 00105	HEAT	EEM - RI	156,076	54,267	156,349	54,480	37,156,980	3.73	1.33	4.6
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,386	54,510	37,165,711	3.72	1.31	4.6
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,424	54,543	37,174,910	3.72	1.31	4.6
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,452	54,565	37,181,445	3.72	1.30	4.6
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,482	54,589	37,185,703	3.71	1.30	4.6
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,580	54,666	37,208,040	3.70	1.30	4.7
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,596	54,679	37,211,763	3.70	1.30	4.7
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,076	54,267	156,621	54,699	37,217,059	3.69	1.30	4.7
Motors	MTR-30	MWR - 01322	COMPMTR	EEM - RI	156,077	54,267	156,622	54,700	37,217,114	3.69	1.30	4.7
Motors	MTR-48	MWR - 01322	CONDMTR	EEM - RI	156,078	54,268	156,623	54,701	37,217,170	3.69	1.30	4.7
Motors	MTR-47	MWR - 01322	CONDMTR	EEM - RI	156,079	54,269	156,624	54,702	37,217,225	3.69	1.30	4.7
Motors	MTR-31	MWR - 01322	COMPMTR	EEM - RI	156,080	54,270	156,625	54,702	37,217,281	3.69	1.30	4.7
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - RI	156,081	54,271	156,626	54,703	37,217,336	3.69	1.30	4.7
Motors	MTR-33	MWR - 01322	COMPMTR	EEM - RI	156,082	54,272	156,627	54,704	37,217,392	3.69	1.30	4.7
Motors	MTR-32	MWR - 01322	COMPMTR	EEM - RI	156,083	54,273	156,628	54,705	37,217,447	3.69	1.30	4.7
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - RI	156,085	54,274	156,630	54,706	37,217,577	3.69	1.29	4.7
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,713	54,773	37,229,093	3.69	1.29	4.7
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,738	54,793	37,232,548	3.69	1.29	4.7
T&D	21h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,845	54,879	37,257,150	3.67	1.28	4.7
T&D	7h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,869	54,899	37,262,841	3.67	1.27	4.7
T&D	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,954	54,965	37,281,374	3.65	1.27	4.7
T&D	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	156,997	55,005	37,286,996	3.65	1.25	4.7
T&D	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,085	54,274	157,012	55,016	37,290,222	3.65	1.25	4.7
Motors	PMTR-13a	BRK/ADM - 00273	PMPMTR	EEM - RI	156,087	54,277	157,014	55,019	37,290,388	3.65	1.25	4.7
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF	156,087	54,277	157,643	55,916	37,397,437	3.58	1.25	4.8
T&D	46h		Transformer	Amorphous Core/Imprvd Windings (No Load-& Load Loss Reduction) - ROF	156,087	54,277	157,660	55,930	37,399,686	3.58	1.23	4.8
Motors	PMTR-3c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	156,101	54,281	157,675	55,934	37,400,798	3.57	1.23	4.8
T&D	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,685	55,942	37,402,141	3.57	1.22	4.8
T&D	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,702	55,956	37,404,262	3.57	1.22	4.8
T&D	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,716	55,967	37,406,021	3.57	1.21	4.8
T&D	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,765	56,006	37,412,032	3.57	1.21	4.8
T&D	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,810	56,041	37,421,040	3.56	1.21	4.8
T&D	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,833	56,058	37,425,544	3.56	1.21	4.8
T&D	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,101	54,281	157,840	56,064	37,427,045	3.55	1.21	4.8
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - RI	156,102	54,283	157,841	56,067	37,427,138	3.55	1.20	4.8
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - RI	156,103	54,286	157,842	56,070	37,427,230	3.55	1.20	4.8
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - RI	156,104	54,289	157,843	56,072	37,427,323	3.55	1.20	4.8
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - RI	156,105	54,292	157,844	56,075	37,427,416	3.55	1.20	4.8
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM - RI	156,106	54,294	157,845	56,078	37,427,509	3.55	1.20	4.8
Motors	MTR-425a	ADMIN - 00988	Fan Motor	EEM - RI	156,107	54,297	157,846	56,081	37,427,602	3.55	1.20	4.8
T&D	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,005	56,209	37,458,442	3.53	1.20	4.9
T&D	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,013	56,216	37,460,109	3.53	1.20	4.9
T&D	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,075	56,267	37,467,798	3.52	1.20	4.9
T&D	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,112	56,296	37,472,391	3.52	1.19	4.9
T&D	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,216	56,377	37,484,669	3.51	1.19	4.9
T&D	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,236	56,393	37,486,885	3.51	1.19	4.9
T&D	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,273	56,422	37,491,226	3.50	1.18	4.9
T&D	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,285	56,431	37,493,167	3.50	1.17	4.9
T&D	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,296	56,439	37,495,146	3.50	1.17	4.9
T&D	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,304	56,446	37,496,630	3.50	1.17	4.9
T&D	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,330	56,467	37,500,662	3.49	1.16	4.9
T&D	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,351	56,483	37,504,356	3.49	1.15	4.9
T&D	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,371	56,497	37,507,786	3.49	1.15	4.9
T&D	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,376	56,501	37,508,577	3.49	1.15	4.9
T&D	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,401	56,520	37,512,866	3.48	1.15	4.9
T&D	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,422	56,536	37,516,495	3.48	1.15	5.0
T&D	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,490	56,588	37,523,768	3.47	1.15	5.0
T&D	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,524	56,616	37,527,358	3.47	1.14	5.0
T&D	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,537	56,627	37,528,704	3.46	1.14	5.0
T&D	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,586	56,665	37,533,499	3.46	1.12	5.0
T&D	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,602	56,677	37,535,097	3.46	1.12	5.0
T&D	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,610	56,684	37,535,896	3.46	1.12	5.0

Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative First Year Energy Savings (MBtu)	Cumulative First Year Demand Savings (kW-mo)	Cumulative Full Implementation Energy Savings (MBtu)	Cumulative Full Implementation Demand Savings (kW-mo)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
T&D	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,646	56,711	37,539,304	3.45	1.11	5.0
T&D	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,676	56,735	37,540,507	3.45	1.11	5.0
T&D	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,864	56,893	37,547,547	3.44	1.11	5.0
T&D	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,901	56,924	37,548,955	3.44	1.11	5.0
T&D	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,926	56,944	37,549,931	3.44	1.11	5.0
T&D	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,940	56,954	37,551,210	3.43	1.11	5.0
T&D	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,943	56,956	37,551,494	3.43	1.11	5.0
T&D	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,958	56,968	37,552,915	3.43	1.11	5.0
T&D	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,107	54,297	158,970	56,978	37,554,284	3.43	1.10	5.0
Motors	MTR-111	ADMIN - 00281	EVAP	EEM - RI	156,108	54,299	158,971	56,980	37,554,334	3.43	1.10	5.0
T&D	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,108	54,299	159,015	57,020	37,555,921	3.43	1.10	5.0
T&D	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,108	54,299	159,017	57,021	37,556,088	3.43	1.09	5.0
T&D	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,108	54,299	159,051	57,049	37,557,358	3.42	1.09	5.0
Motors	PMTR-12a	BRK/ADM - 00273	PMPMTR	EEM - RI	156,110	54,301	159,052	57,052	37,557,418	3.42	1.09	5.0
T&D	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,110	54,301	159,073	57,069	37,558,176	3.42	1.08	5.0
T&D	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,110	54,301	159,106	57,097	37,559,374	3.42	1.08	5.0
T&D	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,110	54,301	159,120	57,108	37,559,871	3.42	1.08	5.0
Motors	PMTR-31a	DINING - 00254	PMPMTR	EEM - RI	156,111	54,312	159,122	57,118	37,559,979	3.42	1.08	5.0
T&D	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,211	57,189	37,563,090	3.41	1.08	5.0
T&D	78h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,309	57,270	37,566,308	3.41	1.08	5.1
T&D	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,358	57,311	37,567,918	3.41	1.08	5.1
T&D	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,379	57,327	37,568,641	3.40	1.07	5.1
T&D	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,529	57,443	37,573,623	3.39	1.07	5.1
T&D	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,111	54,312	159,590	57,492	37,575,499	3.39	1.07	5.1
Motors	MTR-274	GROCERY - 00920	EVAP	EEM - RI	156,114	54,316	159,592	57,496	37,575,592	3.39	1.07	5.1
T&D	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,607	57,507	37,576,082	3.39	1.07	5.1
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,654	57,554	37,577,577	3.39	1.07	5.1
T&D	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,677	57,572	37,578,261	3.38	1.06	5.1
T&D	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,696	57,586	37,578,831	3.38	1.06	5.1
T&D	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,707	57,595	37,579,173	3.38	1.06	5.1
T&D	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,114	54,316	159,780	57,654	37,581,324	3.38	1.05	5.1
Motors	MTR-273	GROCERY - 00920	EVAP	EEM - RI	156,117	54,320	159,783	57,658	37,581,393	3.38	1.05	5.1
T&D	68h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,807	57,677	37,581,982	3.37	1.05	5.1
T&D	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,819	57,686	37,582,276	3.37	1.05	5.1
T&D	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,838	57,703	37,582,744	3.37	1.05	5.1
T&D	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,854	57,716	37,583,195	3.37	1.05	5.1
T&D	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,870	57,728	37,583,645	3.37	1.05	5.1
T&D	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,881	57,737	37,583,946	3.37	1.05	5.1
T&D	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,894	57,747	37,584,251	3.37	1.04	5.1
T&D	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,898	57,751	37,584,372	3.37	1.04	5.1
T&D	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,117	54,320	159,927	57,773	37,585,123	3.36	1.04	5.1
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - RI	156,119	54,322	159,929	57,774	37,585,137	3.36	1.03	5.1
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM - RI	156,120	54,323	159,930	57,776	37,585,152	3.36	1.03	5.1
Motors	MTR-468a	MWR - 01322	Fan Motor	EEM - RI	156,122	54,325	159,932	57,777	37,585,167	3.36	1.03	5.1
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - RI	156,123	54,326	159,933	57,779	37,585,182	3.36	1.03	5.1
Motors	MTR-470a	MWR - 01322	Fan Motor	EEM - RI	156,125	54,328	159,935	57,781	37,585,197	3.36	1.03	5.1
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - RI	156,127	54,330	159,937	57,782	37,585,212	3.36	1.03	5.1
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - RI	156,128	54,331	159,938	57,784	37,585,227	3.36	1.03	5.1
T&D	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF	156,128	54,331	160,032	57,862	37,586,884	3.35	1.03	5.1

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
AC	1	Bldg 253	250 ton chiller	Reset chilled and condenser water temps RI	30	0	30	116,678	85,052	517	0	201,213	201,183	6,707.11	6,707.11	0.0
AC	2	Bldg 263	554 ton chiller	Reset chilled and condenser water temps RI	60	0	60	220,506	179,290	1,033	0	398,762	398,702	6,646.03	6,584.96	0.0
AC	3	Bldg 273	300 ton chiller	Reset chilled and condenser water temps RI	90	0	90	326,119	213,310	1,550	0	537,879	537,789	5,976.43	4,637.24	0.0
T&D		Substation	Sub Transformers	Conservation Voltage Reduction RI	1,090	0	1,090	998,445	508,608	1,550	0	1,505,503	1,504,413	1,381.20	967.62	0.0
HVAC	6	MtPool	Programmable T-Stat	Night Setback RI	3,860	0	3,860	1,420,324	510,729	1,550	1,255	1,928,249	1,924,389	499.60	152.64	0.0
Lighting	OS 8b	Highbay	T8 Lighting	T8 + Occupancy Controls RI	20,420	4,968	15,452	2,285,003	510,729	227,552	1,255	3,022,029	3,006,578	195.58	94.36	0.1
Envelope	MT-12		Leaky	Weatherization RI	29,387	4,968	24,419	2,738,989	713,927	227,552	1,255	3,679,214	3,654,795	150.67	73.29	0.1
HVAC	4	Concrete	Programmable T-Stat	Night Setback RI	31,464	4,968	26,496	2,877,342	715,017	227,552	2,195	3,817,715	3,791,219	144.09	66.68	0.1
HVAC	3	Clinic	Programmable T-Stat	Night Setback RI	33,541	4,968	28,573	2,991,591	716,329	227,552	3,136	3,932,336	3,903,763	137.62	55.18	0.1
HVAC	1	Admin	Programmable T-Stat	Night Setback RI	53,620	4,968	48,652	3,925,341	721,002	227,552	12,232	4,861,663	4,813,010	99.93	46.28	0.2
Envelope		Masonite Siding: post 1950		Weatherization - RI	60,956	4,968	55,988	4,143,478	841,563	227,552	12,232	5,200,362	5,144,374	92.88	46.17	0.2
Lighting	OS 7b	Hallway	T8 Lighting	T8 + Occupancy Controls RI	77,372	9,893	67,479	4,527,204	841,563	325,215	12,232	5,681,750	5,614,271	84.20	41.89	0.2
HVAC	2	Chapel	Programmable T-Stat	Night Setback RI	78,411	9,893	68,518	4,564,451	841,794	325,215	12,702	5,718,757	5,650,239	83.46	35.63	0.2
Envelope		Metal Siding		Weatherization - RI	92,048	9,893	82,155	4,860,376	1,005,348	325,215	12,702	6,178,236	6,096,081	75.20	33.69	0.2
Lighting	OS 4b	Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	106,448	14,213	92,235	5,118,343	1,005,348	392,398	12,702	6,503,387	6,411,151	70.51	32.26	0.2
Envelope	Other	U Shaped Bldgs Other		Weatherization - RI	111,778	14,213	97,565	5,228,716	1,066,350	392,398	12,702	6,674,762	6,577,196	68.41	32.15	0.3
Envelope		Masonite Siding pre 1950		Weatherization - RI	137,395	14,213	123,183	5,756,845	1,358,239	392,398	12,702	7,494,780	7,371,598	60.84	32.01	0.3
Lighting	OS-3b	Conference	T8 Lighting	T8 + Occupancy Controls - RI	143,299	15,984	127,315	5,860,881	1,358,239	419,103	12,702	7,625,521	7,498,206	59.89	31.63	0.3
Envelope	Admin	ADMIN: MISC pre 1964		Weatherization - RI	152,230	15,984	136,246	6,021,895	1,447,229	419,103	12,702	7,875,525	7,739,278	57.80	27.99	0.3
HVAC	5	DGR	Programmable T-Stat	Night Setback - RI	156,039	15,984	140,055	6,117,873	1,448,151	419,103	14,427	7,970,699	7,830,645	56.91	24.99	0.3
Envelope	Barracks	U Shaped Bldgs Barracks		Weatherization RI	184,543	15,984	168,559	6,531,772	1,676,907	419,103	14,427	8,613,355	8,444,796	51.10	22.55	0.3
Envelope		Wood Siding		Weatherization - RI	186,354	15,984	170,370	6,556,790	1,690,734	419,103	14,427	8,652,199	8,481,829	50.78	21.45	0.3
HVAC	8	Traing	Programmable T-Stat	Night Setback - RI	192,240	15,984	176,256	6,677,320	1,692,788	419,103	16,672	8,772,539	8,596,283	49.77	20.45	0.3
Envelope	Misc-pre 1980	Concrete Block: Misc-pre 1980		Weatherization - RI	197,327	15,984	181,343	6,739,925	1,727,388	419,103	16,672	8,869,744	8,688,400	48.91	19.11	0.4
Envelope		WHS		Weatherization - RI	199,807	15,984	183,823	6,769,938	1,743,976	419,103	16,672	8,916,345	8,732,522	48.51	18.79	0.4
Envelope	Shop	SHOP		Weatherization - RI	204,587	15,984	188,603	6,827,410	1,775,740	419,103	16,672	9,005,581	8,816,978	47.75	18.67	0.4
Envelope	Barracks	Concrete Block, Barracks		Weatherization RI	214,965	15,984	198,981	6,945,692	1,841,113	419,103	16,672	9,189,236	8,990,255	46.18	17.70	0.4
Envelope	Family Housing	1964, 1965, 1966		Weatherization - RI	246,466	15,984	230,482	7,293,450	2,033,314	419,103	16,672	9,729,195	9,498,712	42.21	17.14	0.4
Lighting	OS MT-3b	MT Conference	T8 Lighting	T8 + Occupancy Controls - RI	252,370	17,277	235,094	7,355,129	2,033,314	435,027	16,672	9,806,797	9,571,703	41.71	16.83	0.4
Lighting	OS-2b	Large Office/Room	T8 Lighting	T8 + Occupancy Controls - RI	297,370	26,948	270,422	7,816,554	2,033,314	562,935	16,672	10,396,131	10,125,709	38.44	16.68	0.4
Envelope	Family Housing	1963		Weatherization - RI	351,978	26,948	325,030	8,386,387	2,348,253	562,935	16,672	11,280,903	10,955,873	34.71	16.20	0.5
Envelope	Dining	DINING-MSIC		Weatherization RI	357,755	26,948	330,807	8,445,060	2,380,681	562,935	16,672	11,372,004	11,041,197	34.38	15.77	0.5
Envelope	Motorpool	MOTORPOOL		Weatherization - RI	359,562	26,948	332,614	8,463,042	2,390,619	562,935	16,672	11,399,924	11,067,310	34.27	15.46	0.5
DHW & A/C	13	00166	CHILLER-air cooled	Install Desuperheater RI	385,977	26,948	359,029	8,748,697	2,509,692	562,074	28,638	11,791,825	11,432,796	32.84	14.84	0.5
Envelope	Misc-post 1980	Concrete Block: Misc post 1980		Weatherization - RI	395,598	26,948	368,650	8,835,232	2,557,518	562,074	28,638	11,926,187	11,557,537	32.35	13.97	0.5
Envelope	Family Housing	1961		Weatherization RI	455,557	26,948	428,609	9,356,460	2,845,594	562,074	28,638	12,735,491	12,306,882	29.71	13.50	0.6
Motors	PMTR-44	HOSPITL - 00166	PMPMTR	EEM - RI	457,013	27,068	429,945	9,371,376	2,848,499	562,074	29,146	12,752,803	12,322,859	29.66	12.96	0.6
Motors	PMTR 43	HOSPITL - 00166	PMPMTR	EEM - RI	457,741	27,128	430,613	9,378,834	2,849,952	562,074	29,400	12,761,460	12,330,847	29.64	12.96	0.6
T&D	A	Substation	Capacitor Bank	Power Factor Correction to Unity RI	489,331	27,128	462,203	9,395,766	3,240,463	561,966	29,400	13,168,794	12,706,592	28.49	12.89	0.6
DHW & A/C	45	20018	AIR CONDITIONER	Install Desuperheater - RI	490,816	27,128	463,688	9,411,115	3,243,865	561,105	30,073	13,186,012	12,722,323	28.44	11.59	0.6
Motors	MTR-485	WHS-CLD - 00862	Fan Motor	EEM - RI	491,230	27,158	464,072	9,414,895	3,244,601	561,105	30,223	13,190,377	12,726,305	28.42	11.37	0.6
Motors	PMTR-71	POOL-OT - 00328	PMPMTR	EEM - RI	491,437	27,173	464,264	9,416,785	3,244,969	561,105	30,298	13,192,560	12,728,295	28.42	11.37	0.6
DHW & A/C	21	00254	PKG UNIT	Install Desuperheater - RI	494,536	27,173	467,363	9,443,284	3,255,855	560,244	31,702	13,227,681	12,760,318	28.30	11.33	0.6
Envelope	Admin	ADMIN MISC post 1964		Weatherization RI	497,268	27,173	470,095	9,462,837	3,266,662	560,244	31,702	13,258,040	12,787,945	28.20	11.11	0.6
DHW & A/C	14	00171	AIR CONDITIONER	Install Desuperheater - RI	501,100	27,173	473,927	9,491,445	3,280,951	559,382	33,438	13,298,341	12,824,414	28.06	10.52	0.6
DHW & A/C	33	00920	AIR CONDITIONER	Install Desuperheater - RI	505,592	27,173	478,419	9,523,676	3,298,301	558,521	35,472	13,345,027	12,866,608	27.89	10.39	0.6
Lighting	DLC-MT-2b	MT Large Office/Room	T8 Lighting	T8 + Daylighting Controls RI	522,592	32,273	490,319	9,606,861	3,298,301	595,182	35,472	13,464,873	12,974,554	27.46	10.07	0.6
Motors	PMTR-42	HOSPITL - 00166	PMPMTR	EEM - RI	523,696	32,353	491,343	9,615,480	3,299,980	595,182	35,863	13,474,779	12,983,436	27.42	9.67	0.6
Envelope	Training	TRAINING		Weatherization RI	527,776	32,353	495,423	9,639,279	3,313,134	595,182	35,863	13,511,732	13,016,309	27.27	9.06	0.6
DHW & A/C	9	00037	PKG A/C	Install Desuperheater - RI	531,461	32,353	499,108	9,661,483	3,326,742	594,321	37,532	13,545,014	13,045,906	27.14	9.03	0.6
Envelope	Brk/Adm	BRK/ADM MISC		Weatherization - RI	533,779	32,353	501,426	9,674,931	3,334,174	594,321	37,532	13,565,894	13,064,469	27.05	9.01	0.6
Heating	13	MTRPOOL - 00614	Unit Heaters	Radiant Heat - RI	538,379	32,353	506,026	9,711,443	3,336,977	594,321	35,749	13,606,992	13,100,967	26.89	8.93	0.6
HVAC	7	Shop-Ele	Programmable T-Stat	Night Setback - RI	539,764	32,353	507,410	9,724,225	3,337,153	594,321	36,376	13,619,323	13,111,913	26.84	8.90	0.6
Motors	MTR 35e	RBC - 00905	COMPMTR	VSD & EEM - RI	546,618	33,537	513,081	9,772,382	3,339,222	594,149	38,327	13,667,426	13,154,345	26.64	8.48	0.6
DHW & A/C	8	00037	PKG A/C	Install Desuperheater - RI	549,203	33,537	515,666	9,786,259	3,347,727	593,288	39,498	13,687,776	13,172,110	26.54	7.87	0.6
DHW & A/C	16	00202	AIR CONDITIONER	Install Desuperheater - RI	551,275	33,537	517,739	9,798,081	3,353,851	592,427	40,437	13,703,923	13,186,184	26.47	7.79	0.7
Motors	PMTR-72	POOL-OT - 00328	PMPMTR	EEM - RI	551,462	33,537	517,926	9,799,341	3,354,097	592,427	40,504	13,705,361	13,187,435	26.46	7.69	0.7
Motors	PMTR-73	POOL-OT - 00328	PMPMTR	EEM - RI	551,649	33,537	518,113	9,800,602	3,354,342	592,427	40,572	13,706,799	13,188,686	26.46	7.69	0.7
Motors	PMTR-70	POOL-OT - 00328	PMPMTR	EEM - RI	551,836	33,537	518,300	9,801,862	3,354,588	592,427	40,639	13,708,237	13,189,937	26.45	7.69	0.7
DHW & A/C	31	00905	CHILLER air cooled	Install Desuperheater - RI	555,521	33,537	521,985	9,818,350	3,368,196	591,566	42,308	13,735,803	13,213,818	26.31	7.48	0.7
DHW & A/C	2	00021	PKG UNIT	Install Desuperheater - RI	557,374	33,537	523,837	9,828,779	3,373,299	590,705	43,147	13,749,635	13,225,798	26.25	7.47	0.7
DHW & A/C	3	00021	PKG UNIT	Install Desuperheater - RI	559,226	33,537	525,689	9,839,208	3,378,402	589,844	43,986	13,763,467	13,237,778	26.18	7.47	0.7
Envelope	Family Housing	1983		Weatherization - RI	604,296	33,537	570,759	10,054,827	3,497,572	589,844	43,986	14,098,256	13,527,497	24.70	7.43	0.7
Motors	PMTR-94	PUMP - 00044	PMPMTR	EEM - RI	607,834	33,807	574,077	10,076,360	3,501,766	589,844	45,271	14,122,698	13,548,621	24.60	7.37	0.7
Motors	PMTR-93	PUMP - 00044	PMPMTR	EEM - RI	611,472	34,077	577,395	10,097,893	3,505,960	589,844	46,556	14,147,140	13,569,745	24.50	7.37	0.7
Envelope	MT-9		Single pane window	Shade Screens - SW side - RI	617,610	35,059	582,551	10,120,568	3,527,384	589,844	52,873	14,184,923	13,602,371	24.35	7.33	0.7
Envelope		Metal Siding		Window Screen - SW side - RI	630,250	37,081	593,169	10,167,262	3,571,503	589,844	65,881	14,262,728	13,669,559	24.04	7.33	0.7
Envelope		Concrete Block: Misc-post 1980		Window Screen - SW side - RI	631,984	37,358	594,625	10,173,665	3,577,554	589,844	67,665	14,273,398	13,678,772	24.00	7.33	0.7
Envelope		Masonite Siding: pre 1950		Window Screen - SW side - RI	649,985	40,239	609,746	10,240,164	3,640,386	589,844	86,190	14,384,203	13,774,457	23.59	7.33	0.7
Envelope		ADMIN. MISC post 1964		Window Screen - SW side RI	654,857	41,018	613,839	10,258,163	3,657,392	589,844	91,204	14,414,194	13,800,355	23.48	7.33	0.7
Envelope		U Shaped Bldgs: Other		Window Screen - SW side - RI	659,552	41,769	617,783	10,275,505	3,673,779	589,844	96,036	14,443,092	13,825,309	23.38	7.33	0.7
Envelope		BRK/ADM MISC		Window Screen - SW side - RI	662,201	42,193	620,008	10,285,289	3,683,023	589,844	98,761	14,459,394	13,839,387	23.32	7.33	0.7
Envelope		Wood Siding		Window Screen - SW side - RI	664,403	42,546	621,858	10,293,426	3,690,711	589,844	101,028	14,472,952	13,851,095	23.27	7.33	0.7
Envelope		TRAINING		Window Screen - SW side RI	666,015	42,803	623,212	10,299,380	3,696,337	589,844	102,687	14,482,874	13,859,662	23.24	7.33	0.7
Envelope		WHS		Window Screen - SW side RI	667,031	42,966	624,065	10,303,135	3,699,885	589,844	103,733	14,489,130	13,865,065	23.22	7.33	0.7
Envelope		Concrete Block Barracks		Window Screen - SW side - RI	673,449	43,993	629,456	10,326,841	3,722,284	589,844	110,337	14,528,632	13,899,176	23.08	7.33	0.7
Envelope		MOTORPOOL		Window Screen - SW side - RI	678,416	44,788	633,629	10,345,191	3,739,622	589,844	115,449	14,559,207	13,925,578	22.98	7.33	0.7
Envelope		SHOP		Window Screen - SW side - RI	683,282	45,566	637,716	10,363,164	3,756,604	589,844	120,456	14,589,156	13,951,440	22.88	7.33	0.8
Envelope		U Shaped Bldgs: Barracks		Window Screen - SW side - RI	716,161	50,827	665,334	10,484,623	3,871,366	589,844	154,292	14,791,539	14,126,205	22.23	7.33	0.8
Envelope	Family Housing	Southwest, 1963 Vintage		Window Screen - RI	743,162	55,147	688,015	10,584,367	3,965,610	589,844	182,080	14,957,741	14,269,726	21.74	7.33	0.8
Envelope	Family Housing	Southwest, 1983 Vintage		Window Screen - RI	768,393	59,184	709,209	10,677,572	4,053,676	589,844	208,045	15,113,047	14,403,838	21.31	7.33	0.8
Envelope	Family Housing	Southwest, 1984 Vintage		Window Screen - RI	787,368	62,220	725,148	10,747,665	4,119,905	589,844	227,572	15,229,842	14,504,694	21.00	7.33	0.8
Envelope		DINING-MSIC		Window Screen - SW side - RI	790,328	62,693	727,634	10,758,600	4,130,237	589,844	230,618	15,248,062	14,520,428	20.96	7.33	0.8
Envelope		ADMIN-MISC pre 1964		Window Screen SW side - RI	793,059	63,135	729,954	10,768,800	4,139,874	589,844	233,459	15,263,058	14,535,104	20.91	7.33	0.8
Envelope		Concrete Block Misc pre 1980		Window Screen SW side RI	795,076	63,453	731,623	10,776,142	4,146,811	589,844	235,505	15,277,292	14,545,669	20.88	7.33	0.8

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Envelope		SECURTY		Window Screen SW side RI	795,312	63,491	731,821	10,777,013	4,147,634	589,844	-235,748	15,278,744	14,546,923	20 88	7 33	0 8
Envelope	Family Housing	Southwood, 1961 Vintage		Window Screen - RI	820,166	67,468	752,699	10,868,826	4,234,385	589,844	-261,325	15,431,729	14,679,030	20 50	7 33	0 8
Envelope	Family Housing	Southwood, 1964, 1965, 1966 Vintage		Window Screen RI	836,645	70,104	766,540	10,929,698	4,291,900	589,844	278,283	15,533,159	14,766,618	20 26	7 33	0 8
Envelope		Masonite Siding; post 1950		Window Screen SW side RI	843,859	71,258	772,601	10,956,349	4,317,082	589,844	-285,708	15,577,568	14,804,967	20 16	7 33	0 9
Envelope		MWR		Window Screen SW side RI	845,010	71,443	773,568	10,960,602	4,321,101	589,844	286,892	15,584,654	14,811,086	20 15	7 33	0 9
Heating	20	MTRPOOL - 00612	Unit Heaters	Radiant Heat - RI	846,710	71,443	775,268	10,970,598	4,321,793	589,844	285,249	15,596,985	14,821,718	20 12	7.25	0 9
Envelope	Family Housing	1984		Weatherization - RI	881,190	71,443	809,747	11,130,773	4,410,319	589,844	-285,249	15,845,687	15,035,940	19 57	7 21	0 9
Motors	MTR-474	MWR - 01322	Fan Motor	EEM - RI	881,811	71,458	810,323	11,134,020	4,411,423	589,844	-285,474	15,849,813	15,039,490	19.56	7 16	0 9
Motors	MTR 469	MWR - 01322	Fan Motor	EEM - RI	882,018	71,503	810,515	11,135,103	4,411,791	589,844	-285,549	15,851,188	15,040,673	19 56	7 16	0 9
Heating	17	MTRPOOL - 00840	Unit Heaters	Radiant Heat - RI	888,138	71,503	816,635	11,174,196	4,414,906	589,844	284,208	15,894,737	15,078,102	19 46	7 12	0 9
Motors	MTR-34c	RBC - 00905	COMPMTR	VSD & EEM - RI	894,992	72,542	822,450	11,215,473	4,416,679	589,671	286,159	15,935,665	15,113,215	19 38	7 04	0 9
Motors	PMTR 66	PLT-BLDG - 00253	PMPMTR	EEM - RI	895,856	72,612	823,244	11,219,733	4,418,128	589,671	-286,477	15,941,066	15,117,812	19 36	6 79	0 9
Lighting	OS-6b	Restroom	T8 Lighting	T8 + Occupancy Controls - RI	922,928	75,306	847,622	11,348,281	4,418,128	624,084	286,477	16,104,016	15,256,394	19 00	6 68	0 9
Motors	PMTR 88	PUMP - 00044	PMPMTR	EEM - RI	924,384	75,426	848,958	11,355,898	4,419,612	624,084	286,985	16,112,609	15,263,651	18 98	6 43	0 9
Lighting	OS-5b	Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	928,920	75,864	853,056	11,376,792	4,419,612	629,437	286,985	16,138,856	15,285,800	18 92	6 40	0 9
DHW & A/C	18	00222	PKG UNIT	Install Desuperheater - RI	937,005	75,864	861,140	11,398,850	4,453,632	628,576	-290,648	16,190,412	15,329,271	18 80	6 38	0 9
DHW & A/C	10	00037	PKG A/C	Install Desuperheater - RI	938,857	75,864	862,993	11,407,177	4,458,736	627,715	-291,487	16,202,141	15,339,149	18 77	6 33	0 9
DHW & A/C	5	00037	AIR CONDITIONER	Install Desuperheater - RI	940,709	75,864	864,845	11,415,503	4,463,839	626,854	-292,326	16,213,871	15,349,026	18 75	6 33	0 9
Heating	41	SHOP - 00501	Unit Heaters	Radiant Heat - RI	941,469	75,854	865,605	11,419,090	4,464,964	626,854	292,352	16,218,556	15,352,952	18 74	6 17	0 9
Motors	MTR-440	DGR - 00308	Fan Motor	EEM - RI	941,915	75,896	866,019	11,420,851	4,465,791	626,854	292,405	16,221,091	15,355,072	18 73	6 12	0 9
Motors	MTR 439	DGR - 00308	Fan Motor	EEM - RI	942,584	75,944	866,640	11,423,601	4,467,083	626,854	-292,648	16,224,889	15,358,249	18 72	6 12	0 9
Motors	MTR-475	PLT-BLDG - 00253	Fan Motor	EEM - RI	943,030	75,976	867,054	11,425,434	4,467,944	626,854	-292,811	16,227,421	15,360,367	18 72	6 12	0 9
Motors	PMTR-117	RBC - 00905	PMPMTR	EEM - RI	943,253	75,992	867,261	11,426,350	4,468,374	626,854	-292,892	16,228,637	15,361,426	18 71	6 12	0 9
Motors	MTR 446	DINING - 00254	Fan Motor	EEM - RI	943,476	76,008	867,468	11,427,267	4,468,805	626,854	292,973	16,229,953	15,362,485	18 71	6 12	0 9
Vehicles	Conversion	Vehicles		CNG Vehicles	2,990,476	76,008	2,914,468	17,115,687	4,443,243	7,102,645	292,973	28,368,602	25,454,134	9 73	5 93	1 8
Motors	PMTR-120	WHS-CLD - 00862	refrigeration unit	EEM - RI	2,995,660	76,428	2,919,232	17,140,723	4,448,119	7,102,645	-294,883	28,396,604	25,477,373	9 73	5.88	1 8
Motors	PMTR-121	WHS-CLD - 00862	refrigeration unit	EEM - RI	2,998,252	76,638	2,921,614	17,153,241	4,450,557	7,102,645	295,838	28,410,605	25,488,992	9.72	5 88	1 8
Heating	23	MTRPOOL - 00847	Unit Heaters	Radiant Heat - RI	3,001,312	76,638	2,924,674	17,168,586	4,451,803	7,102,645	294,646	28,428,387	25,503,714	9 72	5 81	1 8
Motors	PMTR-109	PUMP - 00636	PMPMTR	EEM - RI	3,004,900	76,908	2,927,992	17,182,265	4,458,629	7,102,645	295,936	28,447,603	25,519,611	9.72	5 79	1.8
Motors	PMTR-6c	ADMIN - 00988	PMPMTR	VSD & EEM - RI	3,009,878	77,229	2,932,650	17,208,883	4,460,373	7,102,473	297,406	28,474,323	25,541,673	9 71	5 74	1.8
Heating	22	MTRPOOL - 00830	Unit Heaters	Radiant Heat - RI	3,012,178	77,229	2,934,950	17,220,168	4,461,307	7,102,473	296,514	28,487,434	25,552,484	9 71	5 70	1.8
DHW & A/C	15	00202	AIR CONDITIONER	Install Desuperheater - RI	3,013,664	77,229	2,936,435	17,226,736	4,464,709	7,101,612	297,187	28,495,869	25,559,434	9.70	5 68	1.8
Motors	PMTR-86	PUMP - 00324	PMPMTR	EEM - RI	3,015,061	77,349	2,937,712	17,231,764	4,467,388	7,101,612	-297,668	28,503,095	25,565,383	9 70	5 66	1 8
DHW & A/C	17	00222	PKG UNIT	Install Desuperheater - RI	3,019,333	77,349	2,941,984	17,242,351	4,483,718	7,100,751	-299,603	28,527,217	25,585,233	9 70	5 65	1.8
Motors	MTR-437a	CLINIC - 00171	Fan Motor	EEM - RI	3,020,480	77,439	2,943,041	17,246,668	4,485,746	7,100,751	300,002	28,533,162	25,590,121	9.70	5 62	1.8
Motors	MTR-484	WHS - 00474	Fan Motor	EEM - RI	3,020,894	77,469	2,943,425	17,248,235	4,486,482	7,100,751	300,152	28,535,315	25,591,890	9 69	5 61	1 8
Motors	PMTR-118	RBC - 00322	PMPMTR	EEM - RI	3,021,101	77,484	2,943,617	17,249,018	4,486,850	7,100,751	-300,227	28,536,392	25,592,775	9 69	5.61	1 8
Motors	MTR-482	TRAING - 01202	Fan Motor	EEM - RI	3,021,308	77,499	2,943,809	17,249,802	4,487,218	7,100,751	300,302	28,537,468	25,593,659	9 69	5 61	1.8
Motors	PMTR-119	RBC - 00362	PMPMTR	EEM - RI	3,021,515	77,514	2,944,001	17,250,586	4,487,586	7,100,751	300,377	28,538,545	25,594,544	9.69	5 61	1.8
Motors	MTR-445	DINING - 00254	Fan Motor	EEM - RI	3,021,722	77,529	2,944,193	17,251,369	4,487,954	7,100,751	-300,452	28,539,622	25,595,429	9 69	5 61	1.8
Motors	MTR-441	DGR - 00308	Fan Motor	EEM - RI	3,021,929	77,544	2,944,385	17,252,153	4,488,322	7,100,751	300,527	28,540,698	25,596,313	9 69	5 61	1 8
Motors	MTR-442	DINING - 00254	Fan Motor	EEM - RI	3,023,171	77,634	2,945,537	17,256,854	4,490,530	7,100,751	-300,977	28,547,158	25,601,621	9 69	5 61	1.8
Heating	35	SHOP - 00367	Unit Heaters	Radiant Heat - RI	3,024,871	77,634	2,947,237	17,264,535	4,490,530	7,100,751	-299,334	28,556,482	25,609,244	9 69	5 48	1.8
Motors	MTR-6	HOSPITL - 00166	AIRCOMP	EEM - RI	3,026,327	77,754	2,948,573	17,270,113	4,492,703	7,100,751	299,843	28,563,725	25,615,152	9 69	5 42	1.8
Motors	PMTR-106	PUMP - 00636	PMPMTR	EEM - RI	3,029,915	78,024	2,951,891	17,282,524	4,499,529	7,100,751	-301,132	28,581,671	25,629,780	9 68	5 41	1.8
Heating	37	SHOP - 00384	Unit Heaters	Radiant Heat - RI	3,030,335	78,024	2,952,311	17,284,359	4,499,529	7,100,751	-300,719	28,583,920	25,631,609	9.68	5 35	1.8
Envelope	MT-11a		None	Crawl Space Insulation: R-19 - RI	3,155,104	78,024	3,077,081	17,705,587	4,745,793	7,100,751	-300,719	29,251,411	26,174,330	9.51	5 35	1 8
Motors	PMTR 89	PUMP - 00044	PMPMTR	EEM - RI	3,156,560	78,144	3,078,417	17,711,846	4,747,012	7,100,751	-301,228	29,258,380	26,179,964	9 50	5 22	1 8
Heating	25	MTRPOOL - 00646	Unit Heaters	Radiant Heat - RI	3,157,580	78,144	3,079,437	17,716,055	4,747,323	7,100,751	-300,483	29,263,645	26,184,208	9.50	5 16	1 8
DHW & A/C	26	00323	PKG UNIT	Install Desuperheater - RI	3,159,982	78,144	3,081,839	17,722,663	4,754,978	7,099,889	-301,571	29,275,959	26,194,120	9 50	5 13	1.8
Motors	MTR-483	TRAING - 01202	Fan Motor	EEM - RI	3,160,169	78,144	3,082,026	17,723,359	4,755,305	7,099,889	301,639	29,276,915	26,194,889	9.50	5 11	1 8
Heating	26	MTRPOOL - 00832	Unit Heaters	Radiant Heat - RI	3,161,709	78,144	3,083,566	17,730,080	4,755,772	7,099,889	-301,047	29,284,693	26,201,127	9 50	5 05	1.8
DHW & A/C	7	00037	AIR CONDITIONER	Install Desuperheater - RI	3,163,195	78,144	3,085,052	17,735,631	4,759,174	7,099,028	-301,720	29,292,112	26,207,061	9,49	4 99	1 8
DHW & A/C	11	00130	AIR CONDITIONER	Install Desuperheater - RI	3,165,414	78,144	3,087,270	17,741,734	4,765,978	7,098,167	-302,725	29,303,154	26,215,884	9 49	4 98	1 8
Motors	PMTR-122	WHS-CLD - 00862	PMPMTR	EEM - RI	3,165,828	78,174	3,087,654	17,743,040	4,766,714	7,098,167	-302,875	29,305,046	26,217,392	9 49	4 93	1 8
Motors	PMTR-81	PUMP - 00044	PMPMTR	EEM - RI	3,166,975	78,264	3,088,711	17,746,691	4,768,660	7,098,167	-303,274	29,310,244	26,221,533	9 49	4 92	1.8
Motors	MTR 457	MWR - 01313	Fan Motor	EEM - RI	3,167,349	78,264	3,089,085	17,748,135	4,769,151	7,098,167	-303,409	29,312,044	26,222,958	9 49	4 81	1 8
Motors	MTR 460	MWR - 01313	Fan Motor	EEM - RI	3,167,536	78,264	3,089,272	17,748,857	4,769,396	7,098,167	-303,477	29,312,944	26,223,671	9 49	4 81	1.8
Motors	MTR 461	MWR - 01322	Fan Motor	EEM - RI	3,167,723	78,264	3,089,459	17,749,579	4,769,641	7,098,167	303,544	29,313,841	26,224,384	9 49	4 81	1.8
Motors	MTR-462	MWR - 01322	Fan Motor	EEM - RI	3,167,910	78,264	3,089,646	17,750,300	4,769,887	7,098,167	-303,611	29,314,743	26,225,097	9.49	4 81	1 8
Motors	MTR-464	MWR - 01322	Fan Motor	EEM - RI	3,168,097	78,264	3,089,833	17,751,022	4,770,132	7,098,167	303,679	29,315,643	26,225,810	9 49	4 81	1.8
Motors	MTR-466	MWR - 01322	Fan Motor	EEM - RI	3,168,284	78,264	3,090,020	17,751,744	4,770,378	7,098,167	303,746	29,316,543	26,226,522	9 49	4 81	1 8
Motors	PMTR 100	PUMP - 00700	PMPMTR	EEM - RI	3,171,027	78,464	3,092,563	17,762,800	4,772,531	7,098,167	-304,733	29,328,765	26,236,202	9 48	4 81	1.8
Motors	PMTR-101	PUMP - 00700	PMPMTR	EEM - RI	3,173,770	78,664	3,095,106	17,773,855	4,774,684	7,098,167	-305,720	29,340,987	26,245,881	9.48	4 81	1.8
Motors	PMTR-103	PUMP - 00700	PMPMTR	EEM - RI	3,176,513	78,864	3,097,649	17,784,911	4,776,838	7,098,167	-306,707	29,353,209	26,255,560	9.48	4 81	1 8
Motors	PMTR 102	PUMP - 00700	PMPMTR	EEM - RI	3,179,256	79,064	3,100,192	17,795,967	4,778,991	7,098,167	307,694	29,365,432	26,265,239	9.47	4 81	1.8
DHW & A/C	35	00988	CHILLER	Install Desuperheater - RI	3,182,941	79,064	3,103,878	17,802,071	4,792,599	7,097,306	309,363	29,382,613	26,278,736	9 47	4 66	1 8
Heating	8	HANGAR - 06203	Unit Heaters	Radiant Heat - RI	3,186,761	79,064	3,107,698	17,815,186	4,793,486	7,097,306	305,664	29,400,315	26,292,617	9 46	4 63	1 8
Motors	MTR 202	BRK/ADM - 00261	EVAP	EEM - RI	3,186,984	79,080	3,107,905	17,815,868	4,793,834	7,097,306	-305,738	29,401,271	26,293,367	9 46	4 62	1.8
Motors	MTR-199	BRK/ADM - 00252	EVAP	EEM - RI	3,187,207	79,096	3,108,112	17,816,551	4,794,182	7,097,306	-305,812	29,402,228	26,294,116	9 46	4 62	1.8
Motors	MTR-197	BRK/ADM - 00251	EVAP	EEM - RI	3,187,430	79,112	3,108,319	17,817,234	4,794,529	7,097,306	305,886	29,403,184	26,294,865	9 46	4 62	1.8
Motors	MTR 200	BRK/ADM - 00252	EVAP	EEM - RI	3,187,653	79,128	3,108,526	17,817,916	4,794,877	7,097,306	-305,959	29,404,140	26,295,615	9 46	4 62	1.8
Motors	MTR-195	BRK/ADM - 00250	EVAP	EEM - RI	3,187,876	79,144	3,108,733	17,818,599	4,795,225	7,097,306	-306,033	29,405,097	26,296,364	9.46	4 62	1.8
Motors	MTR-198	BRK/ADM - 00251	EVAP	EEM - RI	3,188,099	79,160	3,108,940	17,819,282	4,795,572	7,097,306	-306,107	29,406,053	26,297,113	9 46	4 62	1 8
Motors	MTR-196	BRK/ADM - 00250	EVAP	EEM - RI	3,188,322	79,176	3,109,147	17,819,964	4,795,920	7,097,306	-306,181	29,407,009	26,297,862	9.46	4 62	1.8
Motors	MTR-193	BRK/ADM - 00249	EVAP	EEM - RI	3,188,545	79,192	3,109,354	17,820,647	4,796,268	7,097,306	-306,255	29,407,965	26,298,612	9 46	4 62	1 8
Motors	MTR 238	BRK/ADM - 00534	EVAP	EEM - RI	3,189,883	79,288	3,110,596	17,824,768	4,798,366	7,097,306	-306,742	29,413,699	26,303,104	9 46	4 62	1 8
Motors	MTR-192	BRK/ADM - 00104	EVAP	EEM RI	3,191,221	79,384	3,111,838	17,828,890	4,800,465	7,097,306	-307,228	29,419,433	26,307,596	9 45	4 62	1 8
Motors	MTR 214	BRK/ADM - 00416	EVAP	EEM RI	3,192,559	79,480	3,113,080	17,833,011	4,802,564	7,097,306	-307,714	29,425,167	26,312,087	9 45	4 62	1.8
Motors	MTR-222	BRK/ADM - 00434	EVAP	EEM - RI	3,193,897	79,576	3,114,322	17,837,133	4,804,663	7,097,306	308,201	29,430,901	26,316,579	9 45	4 62	1 8
Motors	MTR-191	BRK/ADM - 00103	EVAP	EEM RI	3,195,235	79,672	3,115,564	17,841,254	4,806,761	7,097,306	-308,687	29,436,635	26,321,071	9 45	4 62	1 8
Motors	MTR 223	BRK/ADM - 00440	EVAP	EEM - RI	3,196,573	79,768	3,116,806	17,845,376	4,808,860	7,097,306	309,173	29,442,369	26,325,563	9 45	4 62	1 8
Motors	MTR-224	BRK/ADM - 00448	EVAP	EEM RI	3,197,911	79,864	3,118,048	17,849,497	4,810,959	7,097,306	-309,660	29,448,102	26,330,055	9 44	.4 62	1 8
Motors	MTR-231	BRK/ADM - 00512	EVAP	EEM RI	3,199,249	79,960	3,119,290	17,853,618	4,813,058	7,097,306	310,146	29,453,836	26,334,547	9 44	4 62	1 8
Motors	MTR-239	BRK/ADM - 00540	EVAP	EEM - RI	3,200,587	80,056	3,120,532	17,857,740	4,815,156	7,097,306	310,632	29,459,570	26,339,019	9 44	4 62	1 8

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR 232	BRK/ADM 00514	BVAP	EEM RI	3,201,925	80,152	3,121,774	17,861,861	4,817,255	7,097,306	311,119	29,465,304	26,343,530	9.44	4.62	1.8
Motors	MTR 233	BRK/ADM 00516	BVAP	EEM RI	3,203,263	80,248	3,123,016	17,865,981	4,819,354	7,097,306	311,605	29,471,038	26,348,022	9.44	4.62	1.8
Motors	MTR 234	BRK/ADM 00518	BVAP	EEM RI	3,204,601	80,344	3,124,258	17,870,104	4,821,453	7,097,306	312,091	29,476,772	26,352,514	9.43	4.62	1.8
Motors	MTR 237	BRK/ADM 00530	BVAP	EEM RI	3,205,939	80,440	3,125,500	17,874,226	4,823,552	7,097,306	312,578	29,482,506	26,357,006	9.43	4.62	1.8
Motors	MTR 190	BRK/ADM 00102	BVAP	EEM RI	3,207,277	80,536	3,126,742	17,878,347	4,825,650	7,097,306	313,064	29,488,240	26,361,498	9.43	4.62	1.8
Motors	MTR 212	BRK/ADM 00413	BVAP	EEM RI	3,208,169	80,600	3,127,570	17,881,095	4,827,050	7,097,306	313,388	29,492,062	26,364,492	9.43	4.62	1.8
Motors	MTR-194	BRK/ADM 00249	BVAP	EEM - RI	3,208,392	80,616	3,127,777	17,881,781	4,827,399	7,097,306	313,469	29,493,018	26,365,241	9.43	4.62	1.8
Motors	MTR 250	CLUB 00202	BVAP	EEM RI	3,208,615	80,632	3,127,984	17,882,468	4,827,749	7,097,306	313,550	29,493,973	26,365,990	9.43	4.62	1.8
Motors	MTR 189	BRK/ADM 00098	BVAP	EEM RI	3,208,838	80,648	3,128,191	17,883,155	4,828,099	7,097,306	313,632	29,494,929	26,366,738	9.43	4.62	1.8
Motors	MTR 248	CLUB 00021	BVAP	EEM RI	3,209,284	80,680	3,128,605	17,884,537	4,828,803	7,097,306	313,807	29,496,839	26,368,235	9.43	4.61	1.8
Motors	MTR-188	BRK/ADM 00014	BVAP	EEM RI	3,209,507	80,696	3,128,812	17,885,229	4,829,155	7,097,306	313,895	29,497,794	26,368,983	9.43	4.61	1.8
Motors	MTR 230	BRK/ADM 00511	BVAP	EEM - RI	3,210,622	80,776	3,129,847	17,888,704	4,830,925	7,097,306	314,368	29,502,567	26,372,720	9.43	4.61	1.8
Motors	MTR 236	BRK/ADM 00523	BVAP	EEM RI	3,211,960	80,872	3,131,089	17,892,875	4,833,049	7,097,306	314,935	29,508,294	26,377,206	9.42	4.61	1.8
Motors	MTR-201	BRK/ADM - 00261	BVAP	EEM RI	3,212,183	80,888	3,131,296	17,893,574	4,833,405	7,097,306	315,036	29,509,248	26,377,953	9.42	4.61	1.8
Motors	MTR 203	BRK/ADM 00262	BVAP	EEM RI	3,212,406	80,904	3,131,503	17,894,273	4,833,760	7,097,306	315,137	29,510,202	26,378,700	9.42	4.61	1.8
Motors	MTR 210	BRK/ADM 00267	BVAP	EEM - RI	3,212,629	80,920	3,131,710	17,894,972	4,834,116	7,097,306	315,238	29,511,156	26,379,447	9.42	4.61	1.8
Motors	MTR 204	BRK/ADM 00262	BVAP	EEM - RI	3,212,852	80,936	3,131,917	17,895,671	4,834,472	7,097,306	315,339	29,512,111	26,380,194	9.42	4.61	1.8
Motors	MTR 205	BRK/ADM 00264	BVAP	EEM RI	3,213,075	80,952	3,132,124	17,896,370	4,834,828	7,097,306	315,441	29,513,065	26,380,941	9.42	4.61	1.8
Motors	MTR-206	BRK/ADM 00264	BVAP	EEM RI	3,213,298	80,968	3,132,331	17,897,069	4,835,184	7,097,306	315,542	29,514,019	26,381,688	9.42	4.61	1.8
Motors	MTR-207	BRK/ADM 00265	BVAP	EEM - RI	3,213,521	80,984	3,132,538	17,897,768	4,835,540	7,097,306	315,643	29,514,973	26,382,435	9.42	4.61	1.8
Motors	MTR-208	BRK/ADM 00265	BVAP	EEM - RI	3,213,744	81,000	3,132,745	17,898,467	4,835,896	7,097,306	-315,744	29,515,927	26,383,182	9.42	4.61	1.8
Motors	MTR-209	BRK/ADM - 00267	BVAP	EEM RI	3,213,967	81,016	3,132,952	17,899,166	4,836,252	7,097,306	315,845	29,516,881	26,383,929	9.42	4.61	1.8
Motors	MTR-211	BRK/ADM - 00412	BVAP	EEM - RI	3,218,873	81,368	3,137,506	17,914,545	4,844,084	7,097,306	318,067	29,537,869	26,400,364	9.41	4.61	1.8
Motors	PMTR 5e	ADMIN 00988	PMPMTR	VSD & EEM - RI	3,222,005	81,539	3,140,466	17,927,764	4,844,744	7,097,134	319,021	29,550,621	26,410,155	9.41	4.31	1.8
Heating	24	MTRPOOL - 00619	Unit Heaters	Radiant Heat RI	3,223,545	81,539	3,142,006	17,933,244	4,845,212	7,097,134	318,430	29,557,160	26,415,154	9.41	4.25	1.8
Motors	PMTR 110	PUMP 05996	PMPMTR	EEM - RI	3,229,340	81,989	3,147,351	17,949,936	4,853,276	7,097,134	320,614	29,579,733	26,432,382	9.40	4.22	1.8
Heating	34	SHOP 20018	Unit Heaters	Radiant Heat - RI	3,230,540	81,989	3,148,551	17,953,702	4,854,457	7,097,134	320,513	29,584,780	26,436,229	9.40	4.21	1.8
DHW & A/C	20	00248	PKG UNIT	Install Desuperheater RI	3,233,052	81,989	3,151,063	17,957,950	4,862,622	7,096,273	321,651	29,595,194	26,444,131	9.39	4.15	1.8
Motors	PMTR-113	PUMP - 00319	PMPMTR	EEM - RI	3,237,356	82,309	3,155,047	17,969,740	4,868,788	7,096,273	-323,236	29,611,566	26,456,519	9.39	4.11	1.8
Motors	PMTR-112	PUMP - 00319	PMPMTR	EEM - RI	3,241,660	82,629	3,159,031	17,981,313	4,874,955	7,096,273	324,821	29,627,720	26,468,689	9.38	4.05	1.8
Motors	MTR-428	ADMIN - 00988	Fan Motor	EEM - RI	3,244,105	82,804	3,161,301	17,989,760	4,876,600	7,096,273	325,714	29,636,920	26,475,619	9.37	4.05	1.8
Motors	PMTR 40	HOSPITL 00166	PMPMTR	EEM - RI	3,245,083	82,874	3,162,209	17,993,139	4,877,258	7,096,273	326,070	29,640,600	26,478,391	9.37	4.05	1.8
Motors	PMTR 39	HOSPITL 00166	PMPMTR	EEM - RI	3,246,061	82,944	3,163,117	17,996,518	4,877,916	7,096,273	326,427	29,644,279	26,481,163	9.37	4.05	1.8
Motors	PMTR 41	HOSPITL 00166	PMPMTR	EEM - RI	3,246,550	82,979	3,163,571	17,998,207	4,878,245	7,096,273	326,606	29,646,119	26,482,549	9.37	4.05	1.8
Motors	PMTR-82	PUMP - 00324	PMPMTR	EEM - RI	3,246,757	82,994	3,163,763	17,998,991	4,878,314	7,096,273	326,681	29,646,897	26,483,134	9.37	4.05	1.8
Lighting	DLC-1b	Small Office	T8 Lighting	T8 + Daylighting Controls RI	3,306,896	98,140	3,208,756	18,111,452	4,878,314	7,164,392	326,681	29,827,477	26,618,720	9.30	4.01	1.9
Motors	PMTR-114	PUMP - 00663	PMPMTR	EEM - RI	3,316,070	98,690	3,217,380	18,135,354	4,891,787	7,164,392	329,911	29,861,621	26,644,241	9.28	3.96	1.9
Motors	MTR-39	ADMIN 00985	CONDMTR	EEM - RI	3,316,516	98,722	3,217,794	18,136,280	4,892,648	7,164,392	330,073	29,863,246	26,645,452	9.28	3.92	1.9
Motors	MTR-38	ADMIN 00985	CONDMTR	EEM - RI	3,316,739	98,738	3,218,001	18,136,743	4,893,078	7,164,392	330,154	29,864,059	26,646,057	9.28	3.92	1.9
Motors	PMTR-108	PUMP - 00652	PMPMTR	EEM - RI	3,320,327	99,008	3,221,319	18,144,017	4,899,904	7,164,392	331,444	29,876,869	26,655,549	9.27	3.86	1.9
Motors	MTR-258	DGR - 00909	BVAP	EEM - RI	3,320,550	99,024	3,221,526	18,144,514	4,900,240	7,164,392	331,479	29,877,667	26,656,141	9.27	3.86	1.9
Motors	MTR-417	WHS 00934	BVAP	EEM - RI	3,321,219	99,072	3,222,147	18,146,019	4,901,255	7,164,392	331,609	29,880,056	26,657,909	9.27	3.85	1.9
Motors	MTR-259	DGR 00909	BVAP	EEM - RI	3,321,665	99,104	3,222,561	18,147,029	4,901,937	7,164,392	-331,712	29,881,645	26,659,084	9.27	3.84	1.9
Motors	PMTR-30	DGR - 00430	PMPMTR	EEM - RI	3,321,872	99,119	3,222,753	18,147,472	4,902,305	7,164,392	-331,787	29,882,381	26,659,628	9.27	3.83	1.9
Motors	MTR-424	ADMIN - 00988	Fan Motor	EEM - RI	3,322,079	99,134	3,222,945	18,147,915	4,902,673	7,164,392	331,862	29,883,118	26,660,172	9.27	3.83	1.9
Motors	MTR-431	ADMIN 00988	Fan Motor	EEM - RI	3,323,321	99,224	3,224,097	18,150,574	4,904,881	7,164,392	332,313	29,887,534	26,663,437	9.27	3.83	1.9
Envelope	MT-10		Single pane window	Shade Screens - NW side RI	3,329,459	99,224	3,230,235	18,165,951	4,919,320	7,164,392	-338,629	29,911,034	26,680,799	9.26	3.83	1.9
Envelope		U Shaped Bldgs Barracks		Window Screen NW Side - RI	3,343,643	99,224	3,244,419	18,201,483	4,952,684	7,164,392	353,225	29,965,334	26,720,915	9.24	3.83	1.9
Envelope		Concrete Block: Barracks		Window Screen - NW Side - RI	3,348,420	99,224	3,249,196	18,213,452	4,963,923	7,164,392	-358,142	29,983,624	26,734,428	9.23	3.83	1.9
Envelope		U Shaped Bldgs: Other		Window Screen NW Side - RI	3,350,445	99,224	3,251,221	18,218,525	4,968,687	7,164,392	-360,226	29,991,378	26,740,156	9.22	3.83	1.9
Envelope		Masonite Siding: post 1950		Window Screen NW Side - RI	3,352,249	99,224	3,253,025	18,223,044	4,972,930	7,164,392	-362,082	29,998,283	26,745,258	9.22	3.83	1.9
Envelope		TRAINING		Window Screen NW Side - RI	3,352,652	99,224	3,253,428	18,224,063	4,973,878	7,164,392	362,497	29,999,826	26,746,398	9.22	3.83	1.9
Envelope	Family Housing	Northwest, 1963 Vintage		Window Screen - RI	3,379,653	99,224	3,280,429	18,291,696	5,037,394	7,164,392	390,284	30,103,199	26,822,769	9.18	3.83	1.9
Envelope	Family Housing	Northwest, 1983 Vintage		Window Screen RI	3,404,884	99,224	3,305,660	18,354,905	5,096,747	7,164,392	416,249	30,199,794	26,894,134	9.14	3.83	1.9
Envelope	Family Housing	Northwest, 1961 Vintage		Window Screen RI	3,429,563	99,224	3,330,339	18,416,731	5,154,801	7,164,392	441,647	30,294,277	26,963,937	9.10	3.83	1.9
Envelope		Metal Siding		Window Screen - NW Side RI	3,442,683	99,224	3,343,459	18,449,599	5,185,664	7,164,392	455,149	30,344,507	27,001,047	9.08	3.83	1.9
Envelope		Concrete Block: Misc pre 1980		Window Screen - NW Side - RI	3,444,671	99,224	3,345,447	18,454,579	5,190,340	7,164,392	-457,194	30,352,116	27,006,669	9.07	3.83	1.9
Envelope		SHOP		Window Screen - NW Side - RI	3,445,887	99,224	3,346,663	18,457,626	5,193,201	7,164,392	458,446	30,356,773	27,010,109	9.07	3.83	1.9
Envelope		DINING: MSIC		Window Screen - NW Side - RI	3,446,627	99,224	3,347,403	18,459,480	5,194,942	7,164,392	459,208	30,359,606	27,012,203	9.07	3.83	1.9
Envelope		BRK/ADM MISC		Window Screen - NW Side - RI	3,447,289	99,224	3,348,065	18,461,138	5,196,499	7,164,392	459,889	30,362,141	27,014,075	9.07	3.83	1.9
Envelope		Wood Siding		Window Screen - NW Side - RI	3,447,840	99,224	3,348,616	18,462,518	5,197,795	7,164,392	-460,456	30,364,249	27,015,633	9.07	3.83	1.9
Envelope		MWR		Window Screen NW Side - RI	3,448,128	99,224	3,348,904	18,463,239	5,198,472	7,164,392	-460,752	30,365,351	27,016,447	9.07	3.83	1.9
Envelope		WHS		Window Screen NW Side - RI	3,448,382	99,224	3,349,158	18,463,876	5,199,069	7,164,392	-461,013	30,366,324	27,017,166	9.07	3.83	1.9
Envelope		SECURTY		Window Screen - NW Side RI	3,448,441	99,224	3,349,217	18,464,023	5,199,208	7,164,392	461,074	30,366,549	27,017,332	9.07	3.83	1.9
Envelope	Family Housing	Northwest, 1984 Vintage		Window Screen RI	3,467,416	99,224	3,368,192	18,511,558	5,243,843	7,164,392	480,601	30,439,192	27,071,001	9.04	3.83	1.9
Envelope		Masonite Siding: pre 1950		Window Screen - NW Side - RI	3,472,187	99,224	3,372,963	18,523,510	5,255,066	7,164,392	485,511	30,457,458	27,084,495	9.03	3.83	1.9
Envelope		MOTORPOOL		Window Screen NW Side - RI	3,473,428	99,224	3,374,204	18,526,621	5,257,987	7,164,392	486,789	30,462,212	27,088,008	9.03	3.83	1.9
Envelope		ADMIN MISC pre 1964		Window Screen - NW Side RI	3,474,119	99,224	3,374,895	18,528,351	5,259,611	7,164,392	487,499	30,464,855	27,089,960	9.03	3.83	1.9
Envelope	Family Housing	Northwest, 1964, 1965, 1966 Vintage		Window Screen RI	3,490,597	99,224	3,391,373	18,569,632	5,298,374	7,164,392	-504,457	30,527,941	27,136,568	9.00	3.83	1.9
Envelope		Concrete Block: Misc post 1980		Window Screen NW Side - RI	3,492,330	99,224	3,393,106	18,573,974	5,302,452	7,164,392	506,241	30,534,577	27,141,471	9.00	3.83	1.9
Envelope		ADMIN MISC post 1964		Window Screen NW Side - RI	3,493,548	99,224	3,394,324	18,577,026	5,305,317	7,164,392	507,494	30,539,241	27,144,916	9.00	3.83	1.9
Motors	MTR 128	ADMIN 00441	BVAP	EEM - RI	3,493,994	99,256	3,394,738	18,578,043	5,306,003	7,164,392	507,613	30,540,826	27,146,087	9.00	3.83	1.9
Motors	MTR 166	ADMIN 00544	BVAP	EEM - RI	3,494,440	99,288	3,395,152	18,579,060	5,306,690	7,164,392	-507,731	30,542,410	27,147,258	9.00	3.83	1.9
Motors	MTR-150	ADMIN 00504	BVAP	EEM RI	3,494,886	99,320	3,395,566	18,580,077	5,307,376	7,164,392	507,849	30,543,995	27,148,429	9.00	3.83	1.9
Motors	MTR 148	ADMIN 00499	BVAP	EEM - RI	3,495,332	99,352	3,395,980	18,581,094	5,308,062	7,164,392	507,968	30,545,580	27,149,600	8.99	3.83	1.9
Motors	MTR 132	ADMIN 00444	BVAP	EEM - RI	3,495,778	99,384	3,396,394	18,582,111	5,308,748	7,164,392	508,086	30,547,165	27,150,771	8.99	3.83	1.9
Motors	MTR 245	CLINIC 00242	BVAP	EEM - RI	3,496,224	99,416	3,396,808	18,583,128	5,309,435	7,164,392	508,205	30,548,750	27,151,941	8.99	3.83	1.9
Motors	MTR-156	ADMIN 00524	BVAP	EEM RI	3,497,562	99,512	3,398,050	18,586,179	5,311,494	7,164,392	508,560	30,553,504	27,155,454	8.99	3.83	1.9
Motors	MTR-124	ADMIN 00436	BVAP	EEM RI	3,498,231	99,560	3,398,671	18,587,704	5,312,523	7,164,392	508,737	30,555,882	27,157,210	8.99	3.83	1.9
Motors	MTR 246	CLINIC 01245	BVAP	EEM RI	3,498,454	99,576	3,398,878	18,588,212	5,312,866	7,164,392	508,796	30,556,674	27,157,796	8.99	3.83	1.9
Motors	MTR-347	SECURTY 00326	PVAP	EEM RI	3,498,677	99,592	3,399,085	18,588,721	5,313,209	7,164,392	508,856	30,557,467	27,158,381	8.99	3.83	1.9
Motors	MTR 159	ADMIN 00528	BVAP	EEM RI	3,498,900	99,608	3,399,292	18,589,229	5,313,552	7,164,392	508,915	30,558,259	27,158,967	8.99	3.83	1.9
Motors	MTR 163	ADMIN 00543	BVAP	EEM RI	3,499,123	99,624	3,399,499	18,589,738	5,313,895	7,164,392	508,974	30,559,051	27,159,552	8.99	3.83	1.9
Motors	MTR 130	ADMIN 00443	BVAP	EEM RI	3,499,346	99,640	3,399,706	18,590,246	5,314,239	7,164,392	509,033	30,559,844	27,160,137	8.99	3.83	1.9
Motors	MTR 147	ADMIN 00498	BVAP	EEM RI	3,499,569	99,656	3,399,913	18,590,755	5,314,582	7,164,392	509,092	30,560,636	27,160,723	8.99	3.83	1.9

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-155	ADMIN 00521	BVAP	EEM - RI	3,499,792	99,672	3,400,120	18,591,263	5,314,925	7,164,392	-509,152	30,561,429	27,161,308	8.99	3.83	1.9
Motors	MTR-131	ADMIN - 00443	BVAP	EEM - RI	3,500,015	99,688	3,400,327	18,591,772	5,315,268	7,164,392	-509,211	30,562,221	27,161,894	8.99	3.83	1.9
Motors	MTR-25	HOTEL 00902	COMPMTR	EEM - RI	3,500,763	99,688	3,401,075	18,593,919	5,316,250	7,164,392	509,480	30,565,080	27,164,004	8.99	3.82	1.9
Motors	MTR-23	HOTEL - 00900	COMPMTR	EEM - RI	3,501,511	99,688	3,401,823	18,596,065	5,317,231	7,164,392	-509,750	30,567,939	27,166,115	8.99	3.82	1.9
Motors	MTR-24	HOTEL 00901	COMPMTR	EEM RI	3,502,259	99,688	3,402,571	18,598,212	5,318,213	7,164,392	-510,020	30,570,797	27,168,226	8.98	3.82	1.9
Motors	MTR-26	HOTEL 00903	COMPMTR	EEM - RI	3,503,007	99,688	3,403,319	18,600,359	5,319,195	7,164,392	-510,290	30,573,656	27,170,337	8.98	3.82	1.9
Motors	MTR-28	HOTEL 00906	COMPMTR	EEM - RI	3,503,755	99,688	3,404,067	18,602,506	5,320,177	7,164,392	-510,559	30,576,515	27,172,448	8.98	3.82	1.9
Motors	MTR-27	HOTEL 00904	COMPMTR	EEM - RI	3,504,316	99,688	3,404,628	18,604,116	5,320,913	7,164,392	510,762	30,578,659	27,174,011	8.98	3.82	1.9
Motors	MTR-103	ADMIN - 00237	BVAP	EEM - RI	3,506,100	99,816	3,406,284	18,608,211	5,323,676	7,164,392	511,295	30,584,984	27,178,699	8.98	3.82	1.9
Motors	MTR-411	WHS - 00827	BVAP	EEM - RI	3,506,769	99,864	3,406,905	18,609,746	5,324,713	7,164,392	-511,495	30,587,356	27,180,450	8.98	3.82	1.9
Motors	MTR-105	ADMIN - 00241	BVAP	EEM RI	3,507,438	99,912	3,407,526	18,611,282	5,325,749	7,164,392	511,695	30,589,727	27 182,201	8.98	3.82	1.9
Motors	MTR-304	MTRPOOL - 00680	BVAP	EEM - RI	3,507,884	99,944	3,407,940	18,612,306	5,326,440	7,164,392	511,829	30,591,309	27,183,368	8.98	3.82	1.9
Motors	MTR-306	MTRPOOL - 00681	BVAP	EEM RI	3,508,330	99,976	3,408,354	18,613,329	5,327,131	7,164,392	-511,962	30,592,890	27,184,535	8.98	3.82	1.9
Motors	MTR-254	DOR - 00308	BVAP	EEM - RI	3,508,776	100,008	3,408,768	18,614,353	5,327,821	7,164,392	512,096	30,594,471	27,185,703	8.98	3.82	1.9
Motors	MTR-412	WHS - 00827	BVAP	EEM - RI	3,508,999	100,024	3,408,975	18,614,865	5,328,167	7,164,392	-512,162	30,595,262	27,186,286	8.97	3.82	1.9
Motors	MTR 410	WHS - 00827	BVAP	EEM - RI	3,509,222	100,040	3,409,182	18,615,377	5,328,512	7,164,392	-512,229	30,596,052	27,186,870	8.97	3.82	1.9
Motors	MTR 256	DOR - 00404	BVAP	EEM - RI	3,509,445	100,056	3,409,389	18,615,889	5,328,858	7,164,392	512,296	30,596,843	27,187,453	8.97	3.82	1.9
Motors	MTR-261	DINING - 00254	BVAP	EEM - RI	3,509,668	100,072	3,409,596	18,616,404	5,329,205	7,164,392	-512,370	30,597,632	27,188,035	8.97	3.81	1.9
Motors	MTR-336	PLT-BLDG - 00253	BVAP	EEM - RI	3,509,891	100,088	3,409,803	18,616,919	5,329,553	7,164,392	512,444	30,598,420	27,188,617	8.97	3.81	1.9
Motors	MTR-335	PLT-BLDG - 00253	BVAP	EEM - RI	3,510,114	100,104	3,410,010	18,617,434	5,329,901	7,164,392	-512,518	30,599,209	27,189,199	8.97	3.81	1.9
Motors	MTR 260	DINING - 00254	BVAP	EEM - RI	3,510,337	100,120	3,410,217	18,617,949	5,330,248	7,164,392	-512,592	30,599,998	27,189,781	8.97	3.81	1.9
Motors	MTR-354	SHOP - 00367	BVAP	EEM RI	3,511,452	100,200	3,411,252	18,620,541	5,331,997	7,164,392	512,997	30,603,933	27,192,681	8.97	3.80	1.9
Motors	MTR-153	ADMIN - 00513	BVAP	EEM - RI	3,512,344	100,264	3,412,080	18,622,614	5,333,396	7,164,392	513,321	30,607,082	27,195,001	8.97	3.80	1.9
Motors	MTR-171	ADMIN - 00570	BVAP	EEM - RI	3,513,236	100,328	3,412,908	18,624,688	5,334,796	7,164,392	-513,645	30,610,230	27,197,322	8.97	3.80	1.9
Motors	MTR-361	SHOP BLC - 00581	BVAP	EEM - RI	3,514,128	100,392	3,413,736	18,626,761	5,336,195	7,164,392	513,969	30,613,379	27,199,642	8.97	3.80	1.9
Motors	MTR-401	WHS - 00517	BVAP	EEM - RI	3,515,020	100,456	3,414,564	18,628,835	5,337,594	7,164,392	-514,294	30,616,527	27,201,961	8.97	3.80	1.9
Motors	MTR-357	SHOP - 00384	BVAP	EEM - RI	3,515,912	100,520	3,415,392	18,630,908	5,338,993	7,164,392	514,618	30,619,675	27,204,283	8.97	3.80	1.9
Motors	MTR-382	WHS - 00342	BVAP	EEM - RI	3,516,804	100,584	3,416,220	18,632,981	5,340,392	7,164,392	514,942	30,622,824	27,206,603	8.97	3.80	1.9
Motors	MTR-160	ADMIN - 00528	BVAP	EEM - RI	3,517,250	100,616	3,416,634	18,634,018	5,341,092	7,164,392	515,104	30,624,398	27,207,763	8.96	3.80	1.9
Motors	MTR 384	WHS - 00352	BVAP	EEM - RI	3,517,696	100,648	3,417,048	18,635,055	5,341,791	7,164,392	515,266	30,625,972	27,208,924	8.96	3.80	1.9
Motors	MTR-386	WHS - 00364	BVAP	EEM - RI	3,518,142	100,680	3,417,462	18,636,092	5,342,491	7,164,392	-515,429	30,627,546	27,210,084	8.96	3.80	1.9
Motors	MTR-154	ADMIN - 00520	BVAP	EEM - RI	3,518,588	100,712	3,417,876	18,637,128	5,343,191	7,164,392	-515,591	30,629,120	27,211,244	8.96	3.80	1.9
Motors	MTR-175	ADMIN - 00583	BVAP	EEM - RI	3,519,034	100,744	3,418,290	18,638,165	5,343,890	7,164,392	515,753	30,630,695	27,212,404	8.96	3.80	1.9
Motors	MTR-157	ADMIN - 00526	BVAP	EEM - RI	3,519,480	100,776	3,418,704	18,639,202	5,344,590	7,164,392	515,915	30,632,269	27,213,564	8.96	3.80	1.9
Motors	MTR-118	ADMIN - 00415	BVAP	EEM - RI	3,519,926	100,808	3,419,118	18,640,238	5,345,289	7,164,392	516,077	30,633,843	27,214,724	8.96	3.80	1.9
Motors	MTR-97	01315	BVAP	EEM - RI	3,520,372	100,840	3,419,532	18,641,275	5,345,989	7,164,392	516,239	30,635,417	27,215,885	8.96	3.80	1.9
Motors	MTR-362	SHOP-BLC - 00616	BVAP	EEM - RI	3,520,818	100,872	3,419,946	18,642,312	5,346,689	7,164,392	-516,401	30,636,991	27,217,045	8.96	3.80	1.9
Motors	MTR-294	MTRPOOL - 00621	BVAP	EEM - RI	3,521,264	100,904	3,420,360	18,643,349	5,347,388	7,164,392	516,563	30,638,565	27,218,205	8.96	3.80	1.9
Motors	MTR-381	WHS - 00342	BVAP	EEM - RI	3,521,710	100,936	3,420,774	18,644,385	5,348,088	7,164,392	516,725	30,640,140	27,219,365	8.96	3.80	1.9
Motors	MTR-355	SHOP - 00367	BVAP	EEM - RI	3,522,156	100,968	3,421,188	18,645,422	5,348,787	7,164,392	516,888	30,641,714	27,220,525	8.96	3.80	1.9
Motors	MTR-415	WHS - 00860	BVAP	EEM - RI	3,522,602	101,000	3,421,602	18,646,459	5,349,487	7,164,392	517,050	30,643,288	27,221,686	8.96	3.80	1.9
Motors	MTR-296	MTRPOOL - 00623	BVAP	EEM - RI	3,523,048	101,032	3,422,016	18,647,495	5,350,187	7,164,392	517,212	30,644,862	27,222,846	8.96	3.80	1.9
Motors	MTR-383	WHS - 00344	BVAP	EEM - RI	3,523,494	101,064	3,422,430	18,648,532	5,350,886	7,164,392	517,374	30,646,436	27,224,006	8.96	3.80	1.9
Motors	MTR 262	DINING - 00431	BVAP	EEM - RI	3,523,940	101,096	3,422,844	18,649,569	5,351,586	7,164,392	517,536	30,648,011	27,225,166	8.95	3.80	1.9
Motors	MTR-380	WHS - 00333	BVAP	EEM - RI	3,524,386	101,128	3,423,258	18,650,605	5,352,285	7,164,392	-517,698	30,649,585	27,226,326	8.95	3.80	1.9
Motors	MTR-242	CHAPEL - 00315	BVAP	EEM - RI	3,524,832	101,160	3,423,672	18,651,642	5,352,985	7,164,392	-517,860	30,651,159	27,227,486	8.95	3.80	1.9
Motors	MTR-350	SHOP - 00356	BVAP	EEM - RI	3,525,278	101,192	3,424,086	18,652,679	5,353,684	7,164,392	-518,022	30,652,733	27,228,647	8.95	3.80	1.9
Motors	MTR-376	WHS - 00318	BVAP	EEM - RI	3,525,724	101,224	3,424,500	18,653,716	5,354,384	7,164,392	518,184	30,654,307	27,229,807	8.95	3.80	1.9
Motors	MTR-162	ADMIN - 00539	BVAP	EEM - RI	3,526,170	101,256	3,424,914	18,654,752	5,355,084	7,164,392	-518,347	30,655,881	27,230,967	8.95	3.80	1.9
Motors	MTR-114	ADMIN - 00372	BVAP	EEM - RI	3,526,616	101,288	3,425,328	18,655,789	5,355,783	7,164,392	-518,509	30,657,456	27,232,127	8.95	3.80	1.9
Motors	MTR 116	ADMIN - 00408	BVAP	EEM - RI	3,527,062	101,320	3,425,742	18,656,826	5,356,483	7,164,392	518,671	30,659,030	27,233,287	8.95	3.80	1.9
Motors	MTR-317	MTRPOOL - 00850	BVAP	EEM - RI	3,527,508	101,352	3,426,156	18,657,862	5,357,182	7,164,392	-518,833	30,660,604	27,234,448	8.95	3.80	1.9
Motors	MTR-286	MTRPOOL - 00605	BVAP	EEM - RI	3,527,954	101,384	3,426,570	18,658,899	5,357,882	7,164,392	-518,995	30,662,178	27,235,608	8.95	3.80	1.9
Motors	MTR-119	ADMIN - 00425	BVAP	EEM - RI	3,528,400	101,416	3,426,984	18,659,936	5,358,582	7,164,392	519,157	30,663,752	27,236,768	8.95	3.80	1.9
Motors	MTR-133	ADMIN - 00445	BVAP	EEM - RI	3,528,846	101,448	3,427,398	18,660,972	5,359,281	7,164,392	-519,319	30,665,326	27,237,928	8.95	3.80	1.9
Motors	PMTR-28	DGR - 00430	PMPMTR	EEM RI	3,529,292	101,480	3,427,812	18,662,009	5,359,981	7,164,392	519,481	30,666,901	27,239,088	8.95	3.80	1.9
Motors	MTR-320	MTRPOOL - 00941	BVAP	EEM - RI	3,529,738	101,512	3,428,226	18,663,046	5,360,680	7,164,392	519,643	30,668,475	27,240,248	8.95	3.80	1.9
Motors	MTR-291	MTRPOOL - 00612	BVAP	EEM - RI	3,530,184	101,544	3,428,640	18,664,083	5,361,380	7,164,392	519,806	30,670,049	27,241,409	8.95	3.80	1.9
Motors	MTR-394	WHS - 00470	BVAP	EEM - RI	3,530,630	101,576	3,429,054	18,665,119	5,362,080	7,164,392	-519,968	30,671,623	27,242,569	8.94	3.80	1.9
Motors	MTR-141	ADMIN - 00464	BVAP	EEM - RI	3,531,076	101,608	3,429,468	18,666,156	5,362,779	7,164,392	-520,130	30,673,197	27,243,729	8.94	3.80	1.9
Motors	MTR-292	MTRPOOL - 00614	BVAP	EEM - RI	3,531,522	101,640	3,429,882	18,667,193	5,363,479	7,164,392	520,292	30,674,772	27,244,889	8.94	3.80	1.9
Motors	MTR-340	PUMP - 00044	BVAP	EEM - RI	3,531,968	101,672	3,430,296	18,668,229	5,364,178	7,164,392	-520,454	30,676,346	27,246,049	8.94	3.80	1.9
Motors	MTR-388	WHS - 00364	BVAP	EEM - RI	3,532,414	101,704	3,430,710	18,669,266	5,364,878	7,164,392	520,616	30,677,920	27,247,210	8.94	3.80	1.9
Motors	MTR-280	MTRPOOL - 00600	BVAP	EEM - RI	3,532,860	101,736	3,431,124	18,670,303	5,365,578	7,164,392	520,778	30,679,494	27,248,370	8.94	3.80	1.9
Motors	MTR-137	ADMIN - 00453	BVAP	EEM - RI	3,533,306	101,768	3,431,538	18,671,339	5,366,277	7,164,392	520,940	30,681,068	27,249,530	8.94	3.80	1.9
Motors	MTR 344	RBC - 00338	BVAP	EEM - RI	3,533,752	101,800	3,431,952	18,672,376	5,366,977	7,164,392	-521,102	30,682,642	27,250,690	8.94	3.80	1.9
Motors	MTR-240	CHAPEL - 00212	BVAP	EEM - RI	3,534,198	101,832	3,432,366	18,673,413	5,367,676	7,164,392	521,265	30,684,217	27,251,850	8.94	3.80	1.9
Motors	MTR-310	MTRPOOL - 00837	BVAP	EEM RI	3,534,421	101,848	3,432,573	18,673,931	5,368,026	7,164,392	521,346	30,685,004	27,252,430	8.94	3.80	1.9
Motors	MTR-309	MTRPOOL - 00832	BVAP	EEM - RI	3,534,644	101,864	3,432,780	18,674,450	5,368,376	7,164,392	-521,427	30,685,791	27,253,010	8.94	3.80	1.9
Motors	MTR-358	SHOP - 00842	BVAP	EEM - RI	3,534,867	101,880	3,432,987	18,674,968	5,368,726	7,164,392	-521,508	30,686,578	27,253,591	8.94	3.80	1.9
Motors	MTR-311	MTRPOOL - 00840	BVAP	EEM - RI	3,535,090	101,896	3,433,194	18,675,486	5,369,076	7,164,392	521,589	30,687,365	27,254,171	8.94	3.80	1.9
Motors	MTR-359	SHOP 00842	BVAP	EEM - RI	3,535,313	101,912	3,433,401	18,676,005	5,369,425	7,164,392	521,670	30,688,152	27,254,751	8.94	3.80	1.9
Motors	MTR-407	WHS - 00584	BVAP	EEM - RI	3,535,536	101,928	3,433,608	18,676,523	5,369,775	7,164,392	521,751	30,688,939	27,255,331	8.94	3.80	1.9
Motors	MTR-333	MWR - 01322	BVAP	EEM - RI	3,535,759	101,944	3,433,815	18,677,041	5,370,125	7,164,392	521,832	30,689,726	27,255,911	8.94	3.80	1.9
Motors	MTR 342	PUMP - 00838	BVAP	EEM - RI	3,535,982	101,960	3,434,022	18,677,560	5,370,475	7,164,392	521,913	30,690,513	27,256,491	8.94	3.80	1.9
Motors	MTR 360	SHOP BLC - 00581	BVAP	EEM - RI	3,536,205	101,976	3,434,229	18,678,078	5,370,824	7,164,392	-521,994	30,691,300	27,257,071	8.94	3.80	1.9
Motors	MTR 405	WHS - 00545	BVAP	EEM - RI	3,536,428	101,992	3,434,436	18,678,596	5,371,174	7,164,392	522,075	30,692,088	27,257,651	8.94	3.80	1.9
Motors	MTR 416	WHS - 00860	BVAP	EEM - RI	3,536,651	102,008	3,434,643	18,679,115	5,371,524	7,164,392	522,156	30,692,875	27,258,231	8.94	3.80	1.9
Motors	MTR-399	WHS - 00486	BVAP	EEM - RI	3,536,874	102,024	3,434,850	18,679,633	5,371,874	7,164,392	522,237	30,693,662	27,258,811	8.94	3.80	1.9
Motors	MTR-392	WHS - 00462	BVAP	EEM - RI	3,537,097	102,040	3,435,057	18,680,151	5,372,224	7,164,392	-522,318	30,694,449	27,259,391	8.94	3.80	1.9
Motors	MTR 393	WHS - 00462	BVAP	EEM - RI	3,537,320	102,056	3,435,264	18,680,670	5,372,573	7,164,392	-522,399	30,695,236	27,259,972	8.94	3.80	1.9
Motors	MTR 385	WHS - 00360	BVAP	EEM - RI	3,537,543	102,072	3,435,471	18,681,188	5,372,923	7,164,392	522,480	30,696,023	27,260,552	8.94	3.80	1.9
Motors	MTR-379	WHS - 00333	BVAP	EEM - RI	3,537,766	102,088	3,435,678	18,681,706	5,373,273	7,164,392	522,561	30,696,810	27,261,132	8.93	3.80	1.9
Motors	MTR 377	WHS - 00318	BVAP	EEM RI	3,537,989	102,104	3,435,885	18,682,225	5,373,623	7,164,392	522,642	30,697,597	27,261,712	8.93	3.80	1.9
Motors	MTR-363	SHOP-WPN - 07602	BVAP	EEM RI	3,538,212	102,120	3,436,092	18,682,743	5,373,973	7,164,392	522,724	30,698,384	27,262,292	8.93	3.80	1.9

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR 413	WHS 00844	EVAP	EEM RI	3,538,435	102,136	3,436,299	18,683,261	5,374,322	7,164,392	522,805	30,699,171	27,262,872	8.93	3.80	1.9
Motors	MTR-371	WHS 00234	EVAP	EEM RI	3,538,658	102,152	3,436,506	18,683,780	5,374,672	7,164,392	-522,886	30,699,958	27,263,452	8.93	3.80	1.9
Motors	MTR 367	TRAINO - 00496	EVAP	EEM RI	3,538,881	102,168	3,436,713	18,684,298	5,375,022	7,164,392	522,967	30,700,746	27,264,032	8.93	3.80	1.9
Motors	MTR 368	TRAINO - 00496	EVAP	EEM - RI	3,539,104	102,184	3,436,920	18,684,817	5,375,372	7,164,392	523,048	30,701,533	27,264,612	8.93	3.80	1.9
Motors	MTR-370	WHS - 00024	EVAP	EEM - RI	3,539,327	102,200	3,437,127	18,685,335	5,375,722	7,164,392	523,129	30,702,320	27,265,192	8.93	3.80	1.9
Motors	MTR-387	WHS - 00364	EVAP	EEM RI	3,539,550	102,216	3,437,334	18,685,853	5,376,071	7,164,392	523,210	30,703,107	27,265,772	8.93	3.80	1.9
Motors	MTR 374	WHS - 00318	EVAP	EEM RI	3,539,773	102,232	3,437,541	18,686,372	5,376,421	7,164,392	-523,291	30,703,894	27,266,353	8.93	3.80	1.9
Motors	MTR 375	WHS - 00318	EVAP	EEM RI	3,539,996	102,248	3,437,748	18,686,890	5,376,771	7,164,392	523,372	30,704,681	27,266,933	8.93	3.80	1.9
Motors	MTR 414	WHS - 00860	EVAP	EEM - RI	3,540,219	102,264	3,437,955	18,687,408	5,377,121	7,164,392	523,453	30,705,468	27,267,513	8.93	3.80	1.9
Motors	MTR 406	WHS - 00558	EVAP	EEM RI	3,540,442	102,280	3,438,162	18,687,927	5,377,471	7,164,392	523,534	30,706,255	27,268,093	8.93	3.80	1.9
Motors	MTR 396	WHS - 00470	EVAP	EEM RI	3,540,665	102,296	3,438,369	18,688,445	5,377,820	7,164,392	523,615	30,707,042	27,268,673	8.93	3.80	1.9
Motors	MTR 270	DINING - 00560	EVAP	EEM - RI	3,540,888	102,312	3,438,576	18,688,963	5,378,170	7,164,392	523,696	30,707,829	27,269,253	8.93	3.80	1.9
Motors	MTR 324	MWR - 00410	EVAP	EEM - RI	3,541,111	102,328	3,438,783	18,689,482	5,378,520	7,164,392	-523,777	30,708,616	27,269,833	8.93	3.80	1.9
Motors	MTR 308	MTRPOOL - 00832	EVAP	EEM - RI	3,541,334	102,344	3,438,990	18,690,000	5,378,870	7,164,392	523,858	30,709,404	27,270,413	8.93	3.80	1.9
Motors	MTR-300	MTRPOOL - 00646	EVAP	EEM - RI	3,541,557	102,360	3,439,197	18,690,518	5,379,220	7,164,392	523,939	30,710,191	27,270,993	8.93	3.80	1.9
Motors	MTR 352	SHOP - 00357	EVAP	EEM RI	3,541,780	102,376	3,439,404	18,691,037	5,379,569	7,164,392	524,020	30,710,978	27,271,573	8.93	3.80	1.9
Motors	MTR-331	MWR - 01322	EVAP	EEM RI	3,542,003	102,392	3,439,611	18,691,555	5,379,919	7,164,392	524,101	30,711,765	27,272,153	8.93	3.80	1.9
Motors	MTR 323	MWR - 00340	EVAP	EEM RI	3,542,226	102,408	3,439,818	18,692,073	5,380,269	7,164,392	524,183	30,712,552	27,272,734	8.93	3.80	1.9
Motors	MTR-325	MWR - 00480	EVAP	EEM RI	3,542,449	102,424	3,440,025	18,692,592	5,380,619	7,164,392	524,264	30,713,339	27,273,314	8.93	3.80	1.9
Motors	MTR-400	WHS - 00486	EVAP	EEM - RI	3,542,672	102,440	3,440,232	18,693,110	5,380,969	7,164,392	524,345	30,714,126	27,273,894	8.93	3.80	1.9
Motors	MTR 326	MWR - 00556	EVAP	EEM RI	3,542,895	102,456	3,440,439	18,693,628	5,381,318	7,164,392	524,426	30,714,913	27,274,474	8.93	3.80	1.9
Motors	MTR-408	WHS - 00585	EVAP	EEM - RI	3,543,118	102,472	3,440,646	18,694,147	5,381,668	7,164,392	-524,507	30,715,700	27,275,054	8.93	3.80	1.9
Motors	MTR-353	SHOP - 00357	EVAP	EEM RI	3,543,341	102,488	3,440,853	18,694,665	5,382,018	7,164,392	524,588	30,716,487	27,275,634	8.93	3.80	1.9
Motors	MTR-332	MWR - 01322	EVAP	EEM RI	3,543,564	102,504	3,441,060	18,695,184	5,382,368	7,164,392	524,669	30,717,274	27,276,214	8.93	3.80	1.9
Motors	MTR-283	MTRPOOL - 00600	EVAP	EEM - RI	3,543,787	102,520	3,441,267	18,695,702	5,382,718	7,164,392	524,750	30,718,062	27,276,794	8.93	3.80	1.9
Motors	MTR 267	DINING - 00449	EVAP	EEM RI	3,544,010	102,536	3,441,474	18,696,220	5,383,067	7,164,392	524,831	30,718,849	27,277,374	8.93	3.80	1.9
Motors	MTR-255	DOR - 00404	EVAP	EEM - RI	3,544,233	102,552	3,441,681	18,696,739	5,383,417	7,164,392	524,912	30,719,636	27,277,954	8.93	3.80	1.9
Motors	MTR 402	WHS - 00531	EVAP	EEM - RI	3,544,456	102,568	3,441,888	18,697,257	5,383,767	7,164,392	524,993	30,720,423	27,278,534	8.93	3.80	1.9
Motors	MTR 403	WHS - 00531	EVAP	EEM RI	3,544,679	102,584	3,442,095	18,697,775	5,384,117	7,164,392	525,074	30,721,210	27,279,115	8.93	3.80	1.9
Motors	MTR-356	SHOP - 00384	EVAP	EEM - RI	3,544,902	102,600	3,442,302	18,698,294	5,384,467	7,164,392	-525,155	30,721,997	27,279,695	8.92	3.80	1.9
Motors	MTR-351	SHOP - 00357	EVAP	EEM RI	3,545,125	102,616	3,442,509	18,698,812	5,384,816	7,164,392	525,236	30,722,784	27,280,275	8.92	3.80	1.9
Motors	MTR-298	MTRPOOL - 00639	EVAP	EEM RI	3,545,348	102,632	3,442,716	18,699,330	5,385,166	7,164,392	525,317	30,723,571	27,280,855	8.92	3.80	1.9
Motors	MTR 313	MTRPOOL - 00840	EVAP	EEM - RI	3,545,571	102,648	3,442,923	18,699,849	5,385,516	7,164,392	525,398	30,724,358	27,281,435	8.92	3.80	1.9
Motors	MTR-164	ADMIN - 00543	EVAP	EEM RI	3,545,794	102,664	3,443,130	18,700,367	5,385,866	7,164,392	525,479	30,725,145	27,282,015	8.92	3.80	1.9
Motors	MTR-151	ADMIN - 00508	EVAP	EEM RI	3,546,017	102,680	3,443,337	18,700,885	5,386,216	7,164,392	525,560	30,725,932	27,282,595	8.92	3.80	1.9
Motors	MTR-152	ADMIN - 00510	EVAP	EEM RI	3,546,240	102,696	3,443,544	18,701,404	5,386,565	7,164,392	525,642	30,726,720	27,283,175	8.92	3.80	1.9
Motors	MTR-158	ADMIN - 00527	EVAP	EEM RI	3,546,463	102,712	3,443,751	18,701,922	5,386,915	7,164,392	525,723	30,727,507	27,283,755	8.92	3.80	1.9
Motors	MTR-161	ADMIN - 00529	EVAP	EEM RI	3,546,686	102,728	3,443,958	18,702,440	5,387,265	7,164,392	525,804	30,728,294	27,284,335	8.92	3.80	1.9
Motors	MTR-169	ADMIN - 00554	EVAP	EEM RI	3,546,909	102,744	3,444,165	18,702,959	5,387,615	7,164,392	525,885	30,729,081	27,284,915	8.92	3.80	1.9
Motors	MTR-146	ADMIN - 00497	EVAP	EEM RI	3,547,132	102,760	3,444,372	18,703,477	5,387,964	7,164,392	525,966	30,729,868	27,285,496	8.92	3.80	1.9
Motors	MTR-172	ADMIN - 00578	EVAP	EEM RI	3,547,355	102,776	3,444,579	18,703,995	5,388,314	7,164,392	526,047	30,730,655	27,286,076	8.92	3.80	1.9
Motors	MTR-173	ADMIN - 00579	EVAP	EEM RI	3,547,578	102,792	3,444,786	18,704,514	5,388,664	7,164,392	526,128	30,731,442	27,286,656	8.92	3.80	1.9
Motors	MTR-174	ADMIN - 00580	EVAP	EEM - RI	3,547,801	102,808	3,444,993	18,705,032	5,389,014	7,164,392	526,209	30,732,229	27,287,236	8.92	3.80	1.9
Motors	MTR-176	ADMIN - 00604	EVAP	EEM - RI	3,548,024	102,824	3,445,200	18,705,551	5,389,364	7,164,392	526,290	30,733,016	27,287,816	8.92	3.80	1.9
Motors	MTR-149	ADMIN - 00504	EVAP	EEM RI	3,548,247	102,840	3,445,407	18,706,069	5,389,713	7,164,392	526,371	30,733,803	27,288,396	8.92	3.80	1.9
Motors	MTR 145	ADMIN - 00483	EVAP	EEM RI	3,548,470	102,856	3,445,614	18,706,587	5,390,063	7,164,392	526,452	30,734,590	27,288,976	8.92	3.80	1.9
Motors	MTR-186	ADMIN - 06201	EVAP	EEM RI	3,548,693	102,872	3,445,821	18,707,106	5,390,413	7,164,392	526,533	30,735,378	27,289,556	8.92	3.80	1.9
Motors	MTR-115	ADMIN - 00372	EVAP	EEM - RI	3,548,916	102,888	3,446,028	18,707,624	5,390,763	7,164,392	526,614	30,736,165	27,290,136	8.92	3.80	1.9
Motors	MTR-101	ADMIN - 00157	EVAP	EEM RI	3,549,139	102,904	3,446,235	18,708,142	5,391,113	7,164,392	526,695	30,736,952	27,290,716	8.92	3.80	1.9
Motors	MTR-104	ADMIN - 00237	EVAP	EEM - RI	3,549,362	102,920	3,446,442	18,708,661	5,391,462	7,164,392	526,776	30,737,739	27,291,296	8.92	3.80	1.9
Motors	MTR-112	ADMIN - 00320	EVAP	EEM RI	3,549,585	102,936	3,446,649	18,709,179	5,391,812	7,164,392	526,857	30,738,526	27,291,876	8.92	3.80	1.9
Motors	MTR-113	ADMIN - 00372	EVAP	EEM RI	3,549,808	102,952	3,446,856	18,709,697	5,392,162	7,164,392	526,938	30,739,313	27,292,457	8.92	3.80	1.9
Motors	MTR-121	ADMIN - 00428	EVAP	EEM RI	3,550,031	102,968	3,447,063	18,710,216	5,392,512	7,164,392	527,019	30,740,100	27,293,037	8.92	3.80	1.9
Motors	MTR-144	ADMIN - 00479	EVAP	EEM RI	3,550,254	102,984	3,447,270	18,710,734	5,392,862	7,164,392	527,101	30,740,887	27,293,617	8.92	3.80	1.9
Motors	MTR-125	ADMIN - 00437	EVAP	EEM - RI	3,550,477	103,000	3,447,477	18,711,252	5,393,211	7,164,392	-527,182	30,741,674	27,294,197	8.92	3.80	1.9
Motors	MTR-138	ADMIN - 00454	EVAP	EEM - RI	3,550,700	103,016	3,447,684	18,711,771	5,393,561	7,164,392	527,263	30,742,461	27,294,777	8.92	3.80	1.9
Motors	MTR-140	ADMIN - 00458	EVAP	EEM RI	3,550,923	103,032	3,447,891	18,712,289	5,393,911	7,164,392	-527,344	30,743,248	27,295,357	8.92	3.80	1.9
Motors	MTR-142	ADMIN - 00464	EVAP	EEM - RI	3,551,146	103,048	3,448,098	18,712,807	5,394,261	7,164,392	527,425	30,744,036	27,295,937	8.92	3.80	1.9
Motors	MTR-182	ADMIN - 00988	EVAP	EEM - RI	3,551,369	103,064	3,448,305	18,713,326	5,394,611	7,164,392	527,506	30,744,823	27,296,517	8.92	3.80	1.9
Motors	MTR-177	ADMIN - 00604	EVAP	EEM RI	3,551,592	103,080	3,448,512	18,713,844	5,394,960	7,164,392	527,587	30,745,610	27,297,097	8.92	3.80	1.9
Motors	MTR-187	ADMIN - 07600	EVAP	EEM RI	3,551,815	103,096	3,448,719	18,714,363	5,395,310	7,164,392	-527,668	30,746,397	27,297,677	8.92	3.80	1.9
Motors	MTR-297	MTRPOOL - 00626	EVAP	EEM RI	3,552,038	103,112	3,448,926	18,714,881	5,395,660	7,164,392	-527,749	30,747,184	27,298,257	8.92	3.80	1.9
Motors	MTR-284	MTRPOOL - 00606	EVAP	EEM - RI	3,552,261	103,128	3,449,133	18,715,399	5,396,010	7,164,392	-527,830	30,747,971	27,298,838	8.91	3.80	1.9
Motors	MTR-272	FUELDSP - 00950	EVAP	EEM - RI	3,552,484	103,144	3,449,340	18,715,918	5,396,360	7,164,392	-527,911	30,748,758	27,299,418	8.91	3.80	1.9
Motors	MTR 285	MTRPOOL - 00606	EVAP	EEM RI	3,552,707	103,160	3,449,547	18,716,436	5,396,709	7,164,392	-527,992	30,749,545	27,299,998	8.91	3.80	1.9
Motors	MTR-265	DINING - 00447	EVAP	EEM - RI	3,552,930	103,176	3,449,754	18,716,954	5,397,059	7,164,392	-528,073	30,750,332	27,300,578	8.91	3.80	1.9
Motors	MTR-287	MTRPOOL - 00605	EVAP	EEM - RI	3,553,153	103,192	3,449,961	18,717,473	5,397,409	7,164,392	-528,154	30,751,119	27,301,158	8.91	3.80	1.9
Motors	MTR-295	MTRPOOL - 00621	EVAP	EEM RI	3,553,376	103,208	3,450,168	18,717,991	5,397,759	7,164,392	528,235	30,751,906	27,301,738	8.91	3.80	1.9
Motors	MTR 314	MTRPOOL - 00847	EVAP	EEM - RI	3,553,599	103,224	3,450,375	18,718,509	5,398,109	7,164,392	-528,316	30,752,694	27,302,318	8.91	3.80	1.9
Motors	MTR-288	MTRPOOL - 00608	EVAP	EEM - RI	3,553,822	103,240	3,450,582	18,719,028	5,398,458	7,164,392	528,397	30,753,481	27,302,898	8.91	3.80	1.9
Motors	MTR-289	MTRPOOL - 00608	EVAP	EEM - RI	3,554,045	103,256	3,450,789	18,719,546	5,398,808	7,164,392	528,478	30,754,268	27,303,478	8.91	3.80	1.9
Motors	MTR 293	MTRPOOL - 00620	EVAP	EEM - RI	3,554,268	103,272	3,450,996	18,720,064	5,399,158	7,164,392	-528,560	30,755,055	27,304,058	8.91	3.80	1.9
Motors	MTR-290	MTRPOOL 00612	EVAP	EEM RI	3,554,491	103,288	3,451,203	18,720,583	5,399,508	7,164,392	-528,641	30,755,842	27,304,638	8.91	3.80	1.9
Motors	MTR 299	MTRPOOL - 00642	EVAP	EEM - RI	3,554,714	103,304	3,451,410	18,721,101	5,399,858	7,164,392	-528,722	30,756,629	27,305,219	8.91	3.80	1.9
Motors	MTR-316	MTRPOOL - 00850	EVAP	EEM RI	3,554,937	103,320	3,451,617	18,721,619	5,400,207	7,164,392	-528,803	30,757,416	27,305,799	8.91	3.80	1.9
Motors	MTR 271	FUELDSP - 00836	EVAP	EEM - RI	3,555,160	103,336	3,451,824	18,722,138	5,400,557	7,164,392	528,884	30,758,203	27,306,379	8.91	3.80	1.9
Motors	MTR 315	MTRPOOL - 00847	EVAP	EEM - RI	3,555,383	103,352	3,452,031	18,722,656	5,400,907	7,164,392	528,965	30,758,990	27,306,959	8.91	3.80	1.9
Motors	MTR 302	MTRPOOL - 00650	EVAP	EEM RI	3,555,606	103,368	3,452,238	18,723,174	5,401,257	7,164,392	529,046	30,759,777	27,307,539	8.91	3.80	1.9
Motors	MTR 247	CLINIC - 00245	EVAP	EEM - RI	3,555,829	103,384	3,452,445	18,723,693	5,401,607	7,164,392	529,127	30,760,564	27,308,119	8.91	3.80	1.9
Motors	MTR 268	DINING 00468	EVAP	EEM RI	3,557,167	103,480	3,453,687	18,726,803	5,403,705	7,164,392	529,613	30,765,287	27,311,600	8.91	3.80	1.9
Motors	MTR 135	ADMIN 00452	EVAP	EEM RI	3,558,505	103,576	3,454,929	18,729,913	5,405,804	7,164,392	530,100	30,770,010	27,315,080	8.91	3.80	1.9
Motors	MTR 257	DOR 00430	EVAP	EEM RI	3,559,843	103,672	3,456,171	18,733,023	5,407,903	7,164,392	530,586	30,774,732	27,318,561	8.90	3.80	1.9
Motors	MTR 170	ADMIN - 00564	EVAP	EEM - RI	3,560,512	103,720	3,456,792	18,734,578	5,408,952	7,164,392	530,829	30,777,093	27,320,301	8.90	3.80	1.9
Motors	MTR 120	ADMIN - 00426	EVAP	EEM RI	3,561,181	103,768	3,457,413	18,736,133	5,410,002	7,164,392	531,072	30,779,455	27,322,041	8.90	3.80	1.9
Motors	MTR-165	ADMIN 00544	EVAP	EEM RI	3,561,850	103,816	3,458,034	18,737,683	5,411,051	7,164,392	531,315	30,781,816	27,323,781	8.90	3.80	1.9

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR 312	MTRPOOL - 00840	EVAP	EEM RI	3,562,519	103,864	3,458,655	18,739,243	5,412,100	7,164,392	531,559	30,784,177	27,325,522	8.90	3.80	1.9
Motors	MTR 127	ADMIN - 00439	EVAP	EEM RI	3,563,188	103,912	3,459,276	18,740,798	5,413,150	7,164,392	-531,802	30,786,538	27,327,262	8.90	3.80	1.9
Motors	MTR 307	MTRPOOL - 00830	EVAP	EEM RI	3,563,857	103,960	3,459,897	18,742,353	5,414,199	7,164,392	532,045	30,788,900	27,329,002	8.90	3.80	1.9
Motors	MTR 123	ADMIN 00433	EVAP	EEM - RI	3,564,526	104,008	3,460,518	18,743,908	5,415,249	7,164,392	532,288	30,791,261	27,330,743	8.90	3.80	1.9
Motors	MTR 139	ADMIN - 00458	EVAP	EEM RI	3,565,195	104,056	3,461,139	18,745,464	5,416,298	7,164,392	532,531	30,793,622	27,332,483	8.90	3.80	1.9
Motors	MTR 185	ADMIN - 06201	EVAP	EEM RI	3,565,641	104,088	3,461,553	18,746,513	5,417,006	7,164,392	532,720	30,795,190	27,333,637	8.90	3.79	1.9
Motors	MTR 98	ADMIN - 00101	EVAP	EEM RI	3,566,979	104,184	3,462,795	18,749,660	5,419,130	7,164,392	533,288	30,799,894	27,337,099	8.89	3.79	1.9
Motors	MTR-334	OTHER - 00992	EVAP	EEM RI	3,567,202	104,200	3,463,002	18,750,185	5,419,484	7,164,392	533,382	30,800,678	27,337,676	8.89	3.79	1.9
Heating	3	HANGAR - BD008	Unit Heaters	Radiant Heat - RI	3,576,382	104,200	3,472,182	18,782,049	5,421,613	7,164,392	532,672	30,835,383	27,363,200	8.88	3.78	1.9
Motors	MTR 339	PLT-BLDG - 00263	EVAP	EEM - RI	3,576,828	104,232	3,472,596	18,783,105	5,422,325	7,164,392	532,874	30,836,947	27,364,351	8.88	3.78	1.9
Motors	MTR 338	PLT-BLDG - 00263	EVAP	EEM RI	3,577,051	104,248	3,472,803	18,783,632	5,422,681	7,164,392	532,975	30,837,730	27,364,927	8.88	3.78	1.9
Heating	19	MTRPOOL - 00650	Unit Heaters	Radiant Heat - RI	3,579,171	104,248	3,474,923	18,789,112	5,423,114	7,164,392	530,919	30,845,699	27,370,776	8.88	3.76	1.9
Motors	PMTR-84	PUMP - 18005	PMPMTR	EEM RI	3,586,451	104,748	3,481,703	18,807,205	5,433,218	7,164,392	531,700	30,871,115	27,389,411	8.87	3.75	1.9
Motors	MTR 420	ADMIN - 00439	Fan Motor	EEM RI	3,586,638	104,748	3,481,890	18,807,727	5,433,464	7,164,392	533,768	30,871,815	27,389,925	8.87	3.75	1.9
Motors	MTR 419	ADMIN - 00433	Fan Motor	EEM - RI	3,586,825	104,748	3,482,077	18,808,250	5,433,709	7,164,392	533,835	30,872,516	27,390,438	8.87	3.75	1.9
Lighting	OS MT 5b	MT Copy Room	T8 Lighting	T8 + Occupancy Controls - RI	3,591,361	105,013	3,486,349	18,820,885	5,433,709	7,167,643	533,835	30,888,402	27,402,053	8.86	3.72	1.9
DHW & A/C	19	00237	AIR CONDITIONER	Install Desuperheater - RI	3,593,214	105,013	3,488,201	18,824,346	5,438,812	7,166,782	534,674	30,895,267	27,407,066	8.86	3.71	1.9
Heating	2	HANGAR - BD007	Unit Heaters	Radiant Heat - RI	3,605,454	105,013	3,500,441	18,865,797	5,441,651	7,166,782	533,728	30,940,503	27,440,062	8.84	3.70	1.9
Heating	4	HANGAR - BD009	Unit Heaters	Radiant Heat - RI	3,617,694	105,013	3,512,681	18,907,247	5,444,491	7,166,782	-532,781	30,985,739	27,473,059	8.82	3.70	2.0
Heating	42	SHOP HDSDS	Unit Heaters	Radiant Heat - RI	3,629,174	105,013	3,524,161	18,945,159	5,444,491	7,166,782	-528,314	31,028,118	27,503,957	8.80	3.69	2.0
DHW & A/C	30	00857	Chiller-air cooled	Install Desuperheater - RI	3,632,859	105,013	3,527,846	18,947,479	5,458,099	7,165,921	-529,984	31,041,515	27,513,669	8.80	3.64	2.0
Wells	1		Well Pumps	Add New 500 kgal Tank - RI	3,843,359	105,013	3,738,346	19,389,778	5,733,956	7,161,616	478,853	31,806,497	28,068,151	8.51	3.63	2.0
Motors	PMTR 67	PLT-BLDG - 00253	PMPMTR	EEM RI	3,844,223	105,083	3,739,140	19,392,168	5,734,769	7,161,616	479,171	31,809,381	28,070,241	8.51	3.63	2.0
Motors	PMTR 91	PUMP 00042	PMPMTR	EEM - RI	3,845,370	105,173	3,740,197	19,395,125	5,736,030	7,161,616	-479,570	31,813,200	28,073,003	8.51	3.61	2.0
Motors	PMTR 90	PUMP 00044	PMPMTR	EEM - RI	3,846,517	105,263	3,741,254	19,398,082	5,737,290	7,161,616	479,969	31,817,020	28,075,766	8.50	3.61	2.0
Motors	MTR 183	ADMIN - 00988	EVAP	EEM RI	3,846,724	105,278	3,741,446	19,398,509	5,737,579	7,161,616	479,993	31,817,711	28,076,265	8.50	3.60	2.0
Central Chillers	2		Existing Chillers	Connect B/253 & B/263, Add TES RI	4,278,724	183,278	4,095,446	20,146,674	6,262,431	7,135,785	479,993	33,064,897	28,969,451	8.07	3.52	2.1
Motors	MTR-14	CLUB - 00202	COMPMTR	EEM - RI	4,278,911	183,278	4,095,633	20,147,153	6,262,676	7,135,785	480,061	33,065,554	28,969,921	8.07	3.51	2.1
Motors	MTR 15	CLUB 00202	COMPMTR	EEM - RI	4,279,659	183,278	4,096,381	20,149,070	6,263,658	7,135,785	480,330	33,068,182	28,971,801	8.07	3.51	2.1
Motors	MTR 17	CLUB - 00202	COMPMTR	EEM - RI	4,280,407	183,278	4,097,129	20,150,986	6,264,640	7,135,785	480,600	33,070,811	28,973,682	8.07	3.51	2.1
Motors	MTR-16	CLUB - 00202	COMPMTR	EEM - RI	4,280,781	183,278	4,097,503	20,151,945	6,265,131	7,135,785	480,735	33,072,125	28,974,622	8.07	3.51	2.1
DHW & A/C	44	20001	AIR CONDITIONER	Install Desuperheater - RI	4,283,733	183,278	4,100,455	20,154,227	6,275,337	7,134,924	482,072	33,082,416	28,981,960	8.07	3.49	2.1
Motors	MTR 42	CLUB 00202	CONDMTR	EEM - RI	4,283,920	183,278	4,100,642	20,154,701	6,275,582	7,134,924	482,139	33,083,067	28,982,425	8.07	3.49	2.1
Motors	MTR 184	ADMIN - 00988	EVAP	EEM - RI	4,284,334	183,308	4,101,026	20,155,587	6,276,180	7,134,924	482,290	33,084,402	28,983,376	8.07	3.47	2.1
Motors	MTR-301	MTRPOOL - 00646	EVAP	EEM - RI	4,284,748	183,338	4,101,410	20,156,473	6,276,778	7,134,924	482,440	33,085,736	28,984,326	8.07	3.47	2.1
Motors	PMTR 37	GROCERY - 00920	PMPMTR	EEM - RI	4,284,955	183,353	4,101,602	20,156,916	6,277,077	7 134,924	482,515	33,086,403	28,984,801	8.07	3.47	2.1
Motors	MTR-181	ADMIN - 00988	EVAP	EEM - RI	4,285,162	183,368	4,101,794	20,157,359	6,277,377	7,134,924	482,590	33,087,070	28,985,276	8.07	3.47	2.1
Motors	PMTR 35	GROCERY - 00920	PMPMTR	EEM - RI	4,285,369	183,383	4,101,986	20,157,803	6,277,676	7,134,924	482,665	33,087,737	28,985,751	8.07	3.47	2.1
DHW & A/C	28	00488	PKG A/C	Install Desuperheater RI	4,289,054	183,383	4,105,671	20,159,396	6,291,284	7,134,063	-484,334	33,100,409	28,994,737	8.06	3.44	2.1
Motors	MTR-456	MTRPOOL - 00857	Fan Motor	EEM - RI	4,290,451	183,503	4,106,948	20,163,023	6,292,517	7,134,063	484,815	33,104,788	28,997,840	8.06	3.43	2.1
Motors	PMTR-83	PUMP - 18005	PMPMTR	EEM - RI	4,297,731	184,003	4,113,728	20,178,389	6,302,622	7,134,063	487,596	33,127,478	29,013,750	8.05	3.35	2.1
Motors	MTR-37	WHS CLD - 00862	COMPMTR	EEM - RI	4,297,918	184,003	4,113,915	20,178,836	6,302,867	7,134,063	487,663	33,128,102	29,014,187	8.05	3.34	2.1
Motors	PMTR-17e	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	4,305,950	184,405	4,121,545	20,204,836	6,304,916	7,133,718	490,021	33,153,449	29,031,904	8.04	3.32	2.1
Motors	PMTR-16e	BRK/ADM - 00273	PMPMTR	VSD & EEM - RI	4,313,982	184,807	4,129,175	20,230,837	6,306,964	7,133,374	492,379	33,178,796	29,049,621	8.04	3.32	2.1
Motors	PMTR-15e	BRK/ADM - 00273	PMPMTR	VSD & EEM RI	4,317,998	185,008	4,132,990	20,243,837	6,307,988	7,133,202	493,558	33,191,470	29,058,480	8.03	3.32	2.1
Heating	21	MTRPOOL - 00945	Unit Heaters	Radiant Heat - RI	4,319,538	185,008	4,134,530	20,248,046	6,308,300	7,133,202	492,966	33,196,581	29,062,051	8.03	3.32	2.1
Motors	PMTR-19	BRK/ADM - 00099	PMPMTR	EEM - RI	4,319,725	185,008	4,134,717	20,248,405	6,308,627	7,133,202	493,034	33,197,200	29,062,483	8.03	3.31	2.1
Motors	MTR-13	WHS - 00552	AIRCOMP	EEM - RI	4,320,139	185,038	4,135,101	20,249,089	6,309,363	7,133,202	493,184	33,198,471	29,063,370	8.03	3.31	2.1
Motors	PMTR-7e	ADMIN - 00985	PMPMTR	VSD & EEM - RI	4,324,179	185,222	4,138,957	20,262,654	6,310,120	7,132,857	494,404	33,211,228	29,072,270	8.02	3.31	2.1
DHW & A/C	1	00013	CHILLER air cooled	Install Desuperheater - RI	4,327,498	185,222	4,142,276	20,264,065	6,322,027	7,131,996	495,908	33,222,181	29,079,905	8.02	3.30	2.1
Motors	PMTR-18	BRK/ADM - 00110	PMPMTR	EEM - RI	4,327,685	185,222	4,142,463	20,264,420	6,322,351	7,131,996	495,975	33,222,791	29,080,330	8.02	3.27	2.1
Motors	PMTR-111	PUMP - 05997	PMPMTR	EEM - RI	4,333,480	185,672	4,147,808	20,275,961	6,330,416	7,131,996	498,159	33,240,215	29,092,407	8.01	3.26	2.1
DHW & A/C	32	00905	PKG UNIT	Install Desuperheater - RI	4,334,782	185,672	4,149,110	20,279,063	6,332,968	7,131,135	498,749	33,244,407	29,095,297	8.01	3.22	2.1
Motors	PMTR 65	PLT-BLDG - 00253	PMPMTR	EEM - RI	4,335,886	185,752	4,150,134	20,281,792	6,333,900	7,131,135	499,140	33,247,688	29,097,554	8.01	3.20	2.1
Motors	PMTR 69	PLT-BLDG - 00263	PMPMTR	EEM - RI	4,336,990	185,832	4,151,158	20,284,532	6,334,831	7,131,135	499,530	33,250,968	29,099,810	8.01	3.20	2.1
Envelope	MWR	MWR		Weatherization RI	4,338,356	185,832	4,152,524	20,287,319	6,336,371	7,131,135	499,530	33,255,295	29,102,771	8.01	3.17	2.2
Motors	MTR 526	Fam Housing	Heat System Fan	EEM - RI	4,644,288	185,832	4,458,456	20,725,548	6,966,707	7,131,135	599,826	34,223,565	29,765,108	7.68	3.16	2.2
Heating	7	MTRPOOL - 00681	Unit Heaters	Radiant Heat - RI	4,655,118	185,832	4,469,286	20,758,429	6,968,912	7,131,135	-600,800	34,257,676	29,788,390	7.67	3.15	2.2
Motors	PMTR-115	PUMP - 00043	PMPMTR	EEM - RI	4,658,706	186,102	4,472,604	20,765,874	6,973,106	7,131,135	602,025	34,262,030	29,789,426	7.66	3.12	2.2
Motors	PMTR 92	PUMP - 00044	PMPMTR	EEM - RI	4,662,294	186,372	4,475,922	20,773,253	6,977,300	7,131,135	600,370	34,278,318	29,802,396	7.66	3.10	2.2
Controls	MT-1		Thermostat	Night Setback - RI	4,812,694	186,372	4,626,322	21,200,923	7,082,282	7,131,135	-671,497	34,742,843	30,116,521	7.51	3.09	2.3
Motors	PMTR 99	PUMP - 00324	PMPMTR	EEM - RI	4,813,841	186,462	4,627,379	21,203,289	7,083,542	7,131,135	-671,896	34,746,071	30,118,691	7.51	3.06	2.3
Motors	PMTR-2e	ADMIN - 00988	PMPMTR	EEM - RI	4,814,330	186,497	4,627,833	21,204,216	7,084,168	7,131,135	672,075	34,747,445	30,119,612	7.51	3.03	2.3
Heating	40	SHOP - HDSDT	Unit Heaters	Radiant Heat - RI	4,833,450	186,497	4,646,953	21,258,812	7,084,168	7,131,135	669,629	34,804,486	30,157,532	7.49	2.98	2.3
Motors	PMTR-60e	PLT-BLDG - 00263	PMPMTR	VSD & EEM - RI	4,839,764	186,756	.4,653,008	21,275,493	7,086,561	7,130,963	671,496	34,821,521	30,168,513	7.48	2.81	2.3
Heating	8	MTRPOOL - 00680	Unit Heaters	Radiant Heat - RI	4,850,594	186,756	4,663,838	21,304,676	7,088,765	7,130,963	672,471	34,851,933	30,188,095	7.47	2.81	2.3
DHW & A/C	6	00037	AIR CONDITIONER	Install Desuperheater - RI	4,851,713	186,756	4,664,957	21,307,451	7,090,466	7,130,102	-672,978	34,855,041	30,190,084	7.47	2.78	2.3
Heating	36	SHOP - 00357	Unit Heaters	Radiant Heat - RI	4,852,233	186,756	4,665,477	21,308,527	7,090,466	7,130,102	-672,610	34,856,485	30,191,008	7.47	2.78	2.3
Heating	10	MTRPOOL - 00626	Unit Heaters	Radiant Heat - RI	4,853,933	186,756	4,667,177	21,312,736	7,090,813	7,130,102	-672,510	34,861,141	30,193,964	7.47	2.74	2.3
Heating	11	MTRPOOL - 00623	Unit Heaters	Radiant Heat - RI	4,855,633	186,756	4,668,877	21,316,945	7,091,159	7,130,102	672,409	34,865,796	30,196,919	7.47	2.74	2.3
Motors	PMTR-32	DINING - 00254	PMPMTR	EEM - RI	4,855,840	186,771	4,669,069	21,317,166	7,091,527	7,130,102	672,484	34,866,311	30,197,242	7.47	2.68	2.3
Motors	MTR 449	GROCERY - 00920	Fan Motor	EEM - RI	4,857,237	186,891	4,670,346	21,319,792	7,092,760	7,130,102	672,965	34,869,689	30,199,343	7.47	2.65	2.3
Motors	MTR-9	MTRPOOL - 00873	AIRCOMP	EEM RI	4,858,384	186,981	4,671,403	21,321,327	7,094,411	7,130,102	-673,364	34,872,476	30,201,073	7.47	2.64	2.3
Motors	MTR-11	PUMP - 00652	AIRCOMP	EEM RI	4,859,531	187,071	4,672,460	21,322,863	7,096,061	7,130,102	-673,763	34,875,264	30,202,804	7.46	2.64	2.3
Motors	PMTR 80	PUMP - 05590	PMPMTR	EEM - RI	4,868,705	187,621	4,681,084	21,335,071	7,109,534	7,130,102	676,993	34,897,714	30,216,630	7.46	2.60	2.3
Motors	PMTR-104	PUMP - 00700	PMPMTR	EEM - RI	4,872,293	187,891	4,684,402	21,342,005	7,112,490	7,130,102	-678,257	34,906,340	30,221,938	7.45	2.60	2.3
DHW & A/C	36	01313	PKG UNIT	Install Desuperheater - RI	4,873,926	187,891	4,686,034	21,343,725	7,116,572	7,129,241	-678,997	34,910,542	30,224,508	7.45	2.57	2.3
Heating	18	MTRPOOL - 00608	Unit Heaters	Radiant Heat RI	4,876,486	187,891	4,688,594	21,347,584	7,116,832	7,129,241	-676,537	34,917,120	30,228,526	7.45	2.57	2.3
Heating	29	MTRPOOL - 00941	Unit Heaters	Radiant Heat - RI	4,879,046	187,891	4,691,154	21,352,012	7,117,092	7,129,241	-674,680	34,923,664	30,232,510	7.44	2.56	2.3
Envelope	w/ SB win only	Concrete Block: w/ SB win only		Weatherization - RI	4,883,241	187,891	4,695,349	21,358,883	7,120,889	7,129,241	674,680	34,934,333	30,238,984	7.44	2.54	2.3
Motors	MTR 22	HOSPITL - 00166	COMPMTR	EEM - RI	4,883,730	187,926	4,695,803	21,359,792	7,121,305	7,129,241	-674,858	34,935,480	30,239,677	7.44	2.53	2.3
Motors	MTR 447	GROCERY - 00920	Fan Motor	EEM - RI	4,885,186	188,046	4,697,139	21,362,387	7,122,524	7,129,241	-675,367	34,938,786	30,241,647	7.44	2.47	2.3
Motors	MTR 436a	CLINIC - 00171	Fan Motor	EEM RI	4,885,914	188,106	4,697,807	21,363,685	7,123,134	7,129,241	-675,621	34,940,439	30,242,632	7.44	2.47	2.3
Motors	MTR 450	GROCERY - 00920	Fan Motor	EEM RI	4,886,642	188,166	4,698,475	21,364,983	7,123,743	7,129,241	675,875	34,942,092	30,243,616	7.44	2.47	2.3
Motors	MTR 481	RBC - 00905	Fan Motor	EEM - RI	4,887,194	188,206	4,698,987	21,365,974	7,124,209	7,129,241	676,070	34,943,354	30,244,367	7.44	2.47	2.3

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR 477	PUMP - 00324	Fan Motor	EEM - RI	4,887,746	188,246	4,699,499	21,366,966	7,124,675	7,129,241	676,265	34,944,616	30,245,117	7.44	2.47	2.3
Motors	MTR 467a	MWR - 01322	Fan Motor	EEM - RI	4,888,235	188,281	4,699,953	21,367,934	7,125,004	7,129,241	676,444	34,945,735	30,245,781	7.44	2.46	2.3
Motors	PMTR 59e	PLT-BLDG - 00253	PMPMTR	VSD & EEM RI	4,896,267	188,612	4,707,655	21,387,554	7,127,052	7,128,897	678,802	34,964,701	30,257,047	7.43	2.46	2.3
Motors	MTR 524a	DGR - 00308	VENTLTR	EEM RI	4,896,819	188,652	4,708,167	21,388,509	7,127,501	7,128,897	678,958	34,965,948	30,257,782	7.43	2.44	2.3
Motors	MTR-418a	CLINIC - 00171	Fan Motor	EEM RI	4,898,613	188,787	4,709,826	21,391,655	7,128,979	7,128,897	679,590	34,969,941	30,260,115	7.42	2.41	2.3
DHW & A/C	34	00983	PKG A/C	Install Desuperheater - RI	4,900,465	188,787	4,711,678	21,392,708	7,134,082	7,128,036	680,429	34,974,396	30,262,719	7.42	2.41	2.3
Motors	PMTR 85	PUMP - 18005	PMPMTR	EEM - RI	4,907,745	189,287	4,718,458	21,401,639	7,144,186	7,128,036	683,210	34,990,650	30,272,192	7.42	2.40	2.3
Motors	PMTR 46	ADMIN - 00988	PMPMTR	VSD & EEM RI	4,909,702	189,353	4,720,349	21,406,328	7,144,812	7,127,863	683,832	34,995,171	30,274,822	7.41	2.39	2.3
Motors	PMTR 77	PUMP 00324	PMPMTR	EEM - RI	4,910,849	189,443	4,721,406	21,409,012	7,145,048	7,127,863	684,231	34,997,692	30,276,287	7.41	2.39	2.3
Motors	PMTR 105	PUMP - 00652	PMPMTR	EEM - RI	4,911,338	189,478	4,721,860	21,409,822	7,145,494	7,127,863	684,409	34,998,769	30,276,910	7.41	2.37	2.3
DHW & A/C	29	00826	PKG UNIT	Install Desuperheater RI	4,912,714	189,478	4,723,235	21,411,673	7,148,385	7,127,002	685,032	35,002,028	30,278,793	7.41	2.37	2.3
HVAC	MT 3		Heat pump	2-speed compressor RI	5,153,220	189,478	4,963,742	21,754,664	7,483,072	7,127,002	793,975	35,570,763	30,607,022	7.17	2.36	2.4
Heating	15	MTRPOOL 00605	Unit Heaters	Radiant Heat RI	5,156,280	189,478	4,966,802	21,760,276	7,483,384	7,127,002	792,784	35,577,878	30,611,076	7.16	2.33	2.4
Motors	PMTR 58	PLT-BLDG - 00109	PMPMTR	EEM - RI	5,156,487	189,493	4,966,994	21,760,497	7,483,683	7,127,002	792,859	35,578,324	30,611,330	7.16	2.32	2.4
Motors	MTR-19	GROCERY - 00920	COMPMTR	EEM - RI	5,157,943	189,613	4,968,330	21,762,877	7,484,902	7,127,002	793,367	35,581,414	30,613,085	7.16	2.31	2.4
Motors	MTR 20	GROCERY - 00920	COMPMTR	EEM - RI	5,158,671	189,673	4,968,998	21,764,067	7,485,512	7,127,002	793,621	35,582,960	30,613,962	7.16	2.31	2.4
Motors	MTR-18	GROCERY - 00920	COMPMTR	EEM RI	5,159,399	189,733	4,969,666	21,765,257	7,486,121	7,127,002	793,876	35,584,505	30,614,839	7.16	2.31	2.4
Motors	PMTR 24	BRK/ADM - 00273	PMPMTR	EEM - RI	5,159,606	189,748	4,969,858	21,765,390	7,486,506	7,127,002	793,951	35,584,948	30,615,090	7.16	2.31	2.4
Motors	MTR-21	GROCERY - 00920	COMPMTR	EEM - RI	5,168,990	190,428	4,978,562	21,780,850	7,494,425	7,127,002	797,270	35,605,007	30,626,445	7.15	2.30	2.4
Motors	MTR-329	MWR 01322	DVAP	EEM - RI	5,169,177	190,428	4,978,749	21,781,145	7,494,624	7,127,002	797,338	35,605,414	30,626,685	7.15	2.29	2.4
Heating	12	MTRPOOL - 00621	Unit Heaters	Radiant Heat - RI	5,172,237	190,428	4,981,809	21,786,625	7,494,936	7,127,002	796,146	35,612,417	30,630,609	7.15	2.28	2.4
Motors	MTR 49	WHS CLD - 00862	CONDMTR	EEM - RI	5,172,424	190,428	4,981,996	21,786,889	7,495,166	7,127,002	796,214	35,612,844	30,630,848	7.15	2.28	2.4
Motors	MTR-43	GROCERY - 00920	CONDMTR	EEM - RI	5,173,880	190,548	4,983,332	21,789,269	7,496,309	7,127,002	796,722	35,615,858	30,632,527	7.15	2.26	2.4
Motors	PMTR-26	CLINIC - 00171	PMPMTR	EEM - RI	5,176,174	190,728	4,985,446	21,792,305	7,498,830	7,127,002	797,520	35,620,618	30,635,172	7.14	2.25	2.4
Motors	PMTR 27	CLINIC - 00171	PMPMTR	EEM - RI	5,178,468	190,908	4,987,560	21,795,341	7,501,351	7,127,002	798,317	35,625,377	30,637,817	7.14	2.25	2.4
Envelope	MT-5		Black BDPM	Reflective roof - RI	5,402,388	190,908	5,211,480	22,071,126	7,727,133	7,127,002	798,317	36,126,944	30,915,465	6.93	2.24	2.5
Motors	PMTR-78	PUMP - 05590	PMPMTR	EEM - RI	5,411,562	191,458	5,220,104	22,078,635	7,738,719	7,127,002	799,029	36,145,327	30,925,221	6.92	2.13	2.5
Motors	PMTR 53a	PLT-BLDG - 00263	PMPMTR	EEM - RI	5,413,356	191,593	5,221,763	22,080,407	7,741,111	7,127,002	799,661	36,148,860	30,927,097	6.92	2.13	2.5
DHW & A/C	23	00255	PKG UNIT	Install Desuperheater RI	5,415,047	191,593	5,223,454	22,081,278	7,745,466	7,126,141	800,427	36,152,458	30,929,005	6.92	2.13	2.5
DHW & A/C	25	00258	PKG UNIT	Install Desuperheater - RI	5,416,738	191,593	5,225,145	22,082,148	7,749,821	7,125,280	801,193	36,156,057	30,930,912	6.92	2.13	2.5
Heating	27	MTRPOOL - 00893	Unit Heaters	Radiant Heat - RI	5,419,798	191,593	5,228,205	22,088,067	7,750,132	7,125,280	800,956	36,162,523	30,934,319	6.92	2.11	2.5
Heating	16	MTRPOOL - 00850	Unit Heaters	Radiant Heat - RI	5,422,858	191,593	5,231,265	22,093,547	7,750,444	7,125,280	800,285	36,168,986	30,937,721	6.91	2.11	2.5
Heating	14	MTRPOOL - 00620	Unit Heaters	Radiant Heat - RI	5,425,918	191,593	5,234,325	22,099,027	7,750,755	7,125,280	799,615	36,175,448	30,941,123	6.91	2.11	2.5
Motors	MTR-92	HOTEL - 00904	COOL	EEM - RI	5,426,105	191,593	5,234,512	22,099,297	7,750,956	7,125,280	799,694	36,175,840	30,941,329	6.91	2.10	2.5
Motors	MTR-87	HOSPITL - 00166	COOL	EEM - RI	5,426,292	191,593	5,234,699	22,099,568	7,751,158	7,125,280	799,773	36,176,233	30,941,534	6.91	2.10	2.5
Motors	MTR-93	HOTEL - 00906	COOL	EEM - RI	5,426,479	191,593	5,234,886	22,099,838	7,751,359	7,125,280	799,852	36,176,625	30,941,740	6.91	2.10	2.5
Motors	MTR-91	HOTEL - 00903	COOL	EEM - RI	5,426,666	191,593	5,235,073	22,100,108	7,751,561	7,125,280	799,931	36,177,018	30,941,945	6.91	2.10	2.5
Motors	MTR-86	HOSPITL - 00166	COOL	EEM - RI	5,426,853	191,593	5,235,260	22,100,378	7,751,762	7,125,280	800,010	36,177,410	30,942,150	6.91	2.10	2.5
Motors	MTR-88	HOTEL - 00900	COOL	EEM - RI	5,427,040	191,593	5,235,447	22,100,648	7,751,964	7,125,280	800,090	36,177,803	30,942,356	6.91	2.10	2.5
Motors	MTR 89	HOTEL - 00901	COOL	EEM - RI	5,427,227	191,593	5,235,634	22,100,918	7,752,165	7,125,280	800,169	36,178,195	30,942,561	6.91	2.10	2.5
Motors	MTR 90	HOTEL - 00902	COOL	EEM - RI	5,427,414	191,593	5,235,821	22,101,188	7,752,367	7,125,280	800,248	36,178,587	30,942,767	6.91	2.10	2.5
Heating	6	MTRPOOL - 00873	Unit Heaters	Radiant Heat - RI	5,454,894	191,593	5,263,301	22,162,008	7,756,097	7,125,280	807,176	36,236,209	30,972,909	6.88	2.10	2.5
Motors	PMTR 107	PUMP - 00636	PMPMTR	EEM - RI	5,458,482	191,863	5,266,619	22,163,409	7,762,923	7,125,280	808,465	36,243,147	30,976,528	6.88	2.09	2.5
Lighting	OS MT-46	MT Lunchroom	T8 Lighting	T8 + Occupancy Controls RI	5,472,882	192,313	5,280,569	22,184,851	7,762,923	7,132,266	808,465	36,271,574	30,991,006	6.87	2.04	2.5
DHW & A/C	22	00255	PKG UNIT	Install Desuperheater - RI	5,474,514	192,313	5,282,201	22,185,667	7,767,006	7,131,405	809,205	36,274,872	30,992,671	6.87	2.02	2.5
DHW & A/C	24	00258	PKG UNIT	Install Desuperheater - RI	5,476,147	192,313	5,283,834	22,186,483	7,771,088	7,130,544	809,944	36,278,170	30,994,337	6.87	2.02	2.5
Heating	30	MTRPOOL - 00825	Unit Heaters	Radiant Heat - RI	5,480,747	192,313	5,288,434	22,195,251	7,771,555	7,130,544	809,950	36,287,400	30,998,967	6.86	2.01	2.5
Motors	MTR-2	CLINIC - 00171	AIRCOMP	EEM - RI	5,482,475	192,453	5,290,022	22,197,091	7,773,533	7,130,544	810,586	36,290,582	31,000,560	6.86	2.00	2.5
Motors	PMTR-79	PUMP - 05590	PMPMTR	EEM - RI	5,491,649	193,003	5,298,646	22,203,989	7,787,006	7,130,544	813,817	36,307,722	31,009,076	6.85	1.99	2.5
Heating	31	MTRPOOL - 00694	Unit Heaters	Radiant Heat - RI	5,500,829	193,003	5,307,826	22,220,561	7,787,940	7,130,544	813,107	36,325,939	31,018,113	6.84	1.98	2.5
Envelope	MT-8		Single pane window	Shade Screens - SB side - RI	5,506,967	193,985	5,312,982	22,232,562	7,792,433	7,130,544	819,423	36,336,116	31,023,114	6.84	1.97	2.5
Envelope		Metal Siding		Window Screen - SB side - RI	5,519,607	196,007	5,323,600	22,257,274	7,801,686	7,130,544	832,431	36,357,073	31,033,473	6.83	1.97	2.5
Envelope		Concrete Block: Barracks		Window Screen - SB side - RI	5,524,380	196,771	5,327,609	22,266,607	7,805,180	7,130,544	837,344	36,364,987	31,037,378	6.83	1.97	2.5
Envelope		Concrete Block: Misc post 1980		Window Screen - SB side - RI	5,526,114	197,048	5,329,066	22,269,996	7,806,449	7,130,544	839,128	36,367,861	31,038,796	6.82	1.97	2.5
Envelope		MOTORPOOL		Window Screen - SB side - RI	5,527,355	197,247	5,330,108	22,272,423	7,807,358	7,130,544	840,406	36,369,920	31,039,812	6.82	1.97	2.5
Envelope		TRAINING		Window Screen - SB side RI	5,527,758	197,312	5,330,447	22,273,211	7,807,653	7,130,544	840,820	36,370,588	31,040,141	6.82	1.97	2.5
Envelope	Family Housing	Southeast, 1963 Vintage		Window Screen - RI	5,595,261	208,112	5,387,149	22,405,184	7,857,066	7,130,544	910,288	36,482,506	31,095,356	6.77	1.97	2.5
Envelope	Family Housing	Southeast, 1983 Vintage		Window Screen - RI	5,658,339	218,204	5,440,135	22,528,505	7,903,239	7,130,544	975,202	36,587,086	31,146,952	6.73	1.97	2.6
Envelope	Family Housing	Southeast, 1961 Vintage		Window Screen - RI	5,720,010	228,072	5,491,938	22,649,076	7,948,383	7,130,544	1,038,668	36,689,335	31,197,397	6.68	1.97	2.6
Envelope	Family Housing	Southeast, 1984 Vintage		Window Screen - RI	5,767,446	235,662	5,531,785	22,741,817	7,983,107	7,130,544	1,087,485	36,767,983	31,236,198	6.65	1.97	2.6
Envelope	Family Housing	Southeast, 1964, 1965, 1966 Vintage		Window Screen - RI	5,808,642	242,253	5,566,389	22,822,357	8,013,263	7,130,544	1,129,890	36,836,284	31,269,895	6.62	1.97	2.6
Envelope		U Shaped Bldgs: Barracks		Window Screen - SB side RI	5,841,522	247,514	5,594,008	22,886,638	8,037,331	7,130,544	1,163,716	36,890,797	31,296,789	6.59	1.97	2.6
Envelope		Masonite Siding: pre 1950		Window Screen - SB side - RI	5,847,181	248,419	5,598,762	22,897,703	8,041,474	7,130,544	1,169,540	36,900,180	31,301,418	6.59	1.97	2.6
Envelope		U Shaped Bldgs: Other		Window Screen - SB side - RI	5,851,876	249,170	5,602,705	22,906,881	8,044,910	7,130,544	1,174,372	36,907,964	31,305,259	6.59	1.97	2.6
Envelope		Concrete Block: w/ SB win only		Window Screen - SB side - RI	5,854,916	249,657	5,605,259	22,912,825	8,047,136	7,130,544	1,177,500	36,913,004	31,307,745	6.59	1.97	2.6
Envelope		Concrete Block: Misc pre 1980		Window Screen - SB side - RI	5,856,903	249,975	5,606,928	22,916,710	8,048,591	7,130,544	1,179,546	36,916,299	31,309,371	6.58	1.97	2.6
Envelope		Masonite Siding: post 1950		Window Screen - SB side RI	5,858,774	250,274	5,608,500	22,920,369	8,049,960	7,130,544	1,181,471	36,919,402	31,310,902	6.58	1.97	2.6
Envelope		SHOP		Window Screen - SB side - RI	5,859,991	250,469	5,609,522	22,922,747	8,050,851	7,130,544	1,182,723	36,921,418	31,311,896	6.58	1.97	2.6
Envelope		DINING: MISC		Window Screen SB side RI	5,860,731	250,587	5,610,144	22,924,193	8,051,392	7,130,544	1,183,485	36,922,645	31,312,502	6.58	1.97	2.6
Envelope		ADMIN: MISC pre 1964		Window Screen - SB side RI	5,861,421	250,698	5,610,723	22,925,543	8,051,898	7,130,544	1,184,195	36,923,790	31,313,066	6.58	1.97	2.6
Envelope		BRK/ADM MISC		Window Screen - SB side - RI	5,862,083	250,803	5,611,280	22,926,837	8,052,382	7,130,544	1,184,876	36,924,888	31,313,608	6.58	1.97	2.6
Envelope		Wood Siding		Window Screen - SB side - RI	5,862,634	250,892	5,611,742	22,927,914	8,052,786	7,130,544	1,185,443	36,925,801	31,314,058	6.58	1.97	2.6
Envelope		MWR		Window Screen SB side - RI	5,862,922	250,938	5,611,984	22,928,477	8,052,996	7,130,544	1,185,739	36,926,278	31,314,294	6.58	1.97	2.6
Envelope		WHS		Window Screen SB side - RI	5,863,176	250,978	5,612,197	22,928,973	8,053,182	7,130,544	1,186,001	36,926,699	31,314,502	6.58	1.97	2.6
Envelope		SECURTY		Window Screen - SB side - RI	5,863,235	250,988	5,612,247	22,929,089	8,053,225	7,130,544	1,186,061	36,926,797	31,314,550	6.58	1.97	2.6
Envelope		ADMIN: MISC post 1964		Window Screen - SB side RI	5,864,453	251,183	5,613,270	22,931,470	8,054,117	7,130,544	1,187,315	36,928,816	31,315,546	6.58	1.97	2.6
Heating	28	MTRPOOL - 00892	Unit Heaters	Radiant Heat - RI	5,870,573	251,183	5,619,390	22,942,321	8,054,740	7,130,544	1,186,842	36,940,763	31,321,373	6.57	1.95	2.6
Motors	PMTR 52a	PLT-BLDG - 00263	PMPMTR	EEM - RI	5,871,301	251,243	5,620,058	22,942,975	8,055,623	7,130,544	1,187,096	36,942,046	31,321,988	6.57	1.92	2.6
Heating	38	SHOP-AIR - BD006	Unit Heaters	Radiant Heat - ROF	5,872,507	251,243	5,621,264	22,944,084	8,055,811	7,130,544	1,186,079	36,944,360	31,323,096	6.57	1.92	2.6
Heating	33	MTRPOOL - 00835	Unit Heaters	Radiant Heat - RI	5,877,867	251,243	5,626,624	22,954,277	8,056,356	7,130,544	1,186,660	36,954,517	31,327,893	6.57	1.89	2.6
Heating	39	SHOP-HVY - BD005	Unit Heaters	Radiant Heat - ROF	5,879,872	251,243	5,628,630	22,956,051	8,056,670	7,130,544	1,184,966	36,958,300	31,329,671	6.57	1.89	2.6
Motors	MTR 444a	DINING - 00254	Fan Motor	EEM - RI	5,881,828	251,383	5,630,446	22,958,853	8,057,987	7,130,544	1,185,680	36,961,705	31,331,259	6.56	1.87	2.6
Motors	MTR-436	WHS CLD 00862	Fan Motor	EEM - RI	5,882,806	251,453	5,631,354	22,960,254	8,058,645	7,130,544	1,186,036	36,963,407	31,332,053	6.56	1.87	2.6
Motors	MTR 453e	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	5,903,134	252,063	5,651,071	23,004,979	8,059,731	7,130,372	1,194,839	37,000,243	31,349,171	6.55	1.87	2.6
Motors	MTR 522a	DGR - 00308	VENTLTR	EEM - RI	5,903,623	252,098	5,651,525	23,005,656	8,060,049	7,130,372	1,194,987	37,001,091	31,349,565	6.55	1.87	2.6

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg. Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Heating	32	MTRPOOL - 00837	Unit Heaters	Radiant Heat - RI	5,906,683	252,098	5,654,585	23,010,698	8,060,361	7,130,372	-1,194,626	37,006,805	31,352,219	6.54	1.87	2.6
Motors	MTR 523a	DOR 00308	VTNTLTR	EEM - RI	5,907,172	252,133	5,655,019	23,011,363	8,060,673	7,130,372	-1,194,757	37,007,651	31,352,612	6.54	1.86	2.6
T&D	66g		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI	5,926,477	252,133	5,674,345	23,029,226	8,074,523	7,130,372	-1,190,733	37,043,388	31,369,044	6.53	1.85	2.6
Heating	5	MTRPOOL - 00879	Unit Heaters	Radiant Heat RI	5,958,967	252,133	5,706,835	23,091,147	8,078,932	7,130,372	-1,198,926	37,101,524	31,394,690	6.50	1.79	2.6
Motors	MTR-527	Fam Housing	Cool System Fan	EEM RI	6,264,899	252,133	6,012,767	23,411,469	8,405,171	7,130,372	-1,309,235	37,637,777	31,625,010	6.26	1.75	2.8
Motors	MTR-62	BRK/ADM 00226	COOL	EEM RI	6,278,924	252,133	6,026,792	23,426,154	8,420,127	7,130,372	-1,314,292	37,662,360	31,635,569	6.25	1.75	2.8
Motors	MTR 60	BRK/ADM - 00110	COOL	EEM RI	6,282,664	252,133	6,030,532	23,430,070	8,424,115	7,130,372	-1,315,641	37,668,916	31,638,384	6.25	1.75	2.8
Motors	MTR 59	BRK/ADM - 00108	COOL	EEM RI	6,285,656	252,133	6,033,524	23,433,203	8,427,306	7,130,372	-1,316,720	37,674,160	31,640,637	6.24	1.75	2.8
Motors	MTR-56	BRK/ADM - 00105	COOL	EEM RI	6,288,648	252,133	6,036,516	23,436,335	8,430,496	7,130,372	-1,317,798	37,679,405	31,642,889	6.24	1.75	2.8
Motors	MTR 61	BRK/ADM - 00111	COOL	EEM - RI	6,291,640	252,133	6,039,508	23,439,468	8,433,687	7,130,372	-1,318,877	37,684,650	31,645,142	6.24	1.75	2.8
Motors	MTR-57	BRK/ADM - 00106	COOL	EEM - RI	6,294,632	252,133	6,042,500	23,442,601	8,436,877	7,130,372	-1,319,956	37,689,894	31,647,395	6.24	1.75	2.8
Motors	MTR 58	BRK/ADM - 00107	COOL	EEM - RI	6,297,624	252,133	6,045,492	23,445,734	8,440,068	7,130,372	-1,321,035	37,695,139	31,649,647	6.24	1.75	2.8
Motors	MTR 82	CLUB 20018	COOL	EEM - RI	6,297,811	252,133	6,045,679	23,445,929	8,440,267	7,130,372	-1,321,102	37,695,466	31,649,788	6.24	1.75	2.8
Fam. Hsg. HVAC	2b			High Eff. Grnd Source HP RI	13,384,728	252,133	13,132,595	31,700,096	12,477,972	7,412,275	-1,563,096	50,027,246	36,894,651	3.81	1.74	4.5
Motors	MTR-479a	RBC - 00905	Fan Motor	EEM RI	13,385,217	252,168	13,133,049	31,700,796	12,478,239	7,412,275	-1,563,274	50,028,036	36,894,986	3.81	1.74	4.5
Motors	MTR 480a	RBC - 00905	Fan Motor	EEM RI	13,385,706	252,203	13,133,503	31,701,497	12,478,506	7,412,275	-1,563,453	50,028,825	36,895,322	3.81	1.74	4.5
Motors	MTR-478a	RBC - 00905	Fan Motor	EEM - RI	13,386,195	252,238	13,133,957	31,702,197	12,478,774	7,412,275	-1,563,631	50,029,615	36,895,657	3.81	1.74	4.5
Motors	MTR 451a	HOSPITL - 00166	Fan Motor	VSD & EEM RI	13,426,111	253,413	13,172,698	31,785,867	12,480,034	7,412,103	-1,581,072	50,096,932	36,924,234	3.80	1.74	4.5
Motors	MTR 79	BRK/ADM - 00275	COOL	EEM - RI	13,427,420	253,413	13,174,007	31,787,244	12,481,437	7,412,103	-1,581,585	50,099,199	36,925,192	3.80	1.73	4.5
Motors	MTR 63	BRK/ADM - 00226	COOL	EEM - RI	13,428,729	253,413	13,175,316	31,788,622	12,482,841	7,412,103	1,582,099	50,101,466	36,926,150	3.80	1.73	4.5
Motors	MTR 66	BRK/ADM - 00261	COOL	EEM RI	13,428,916	253,413	13,175,503	31,788,819	12,483,041	7,412,103	-1,582,172	50,101,790	36,926,287	3.80	1.73	4.5
Motors	MTR-78	BRK/ADM - 00275	COOL	EEM - RI	13,442,941	253,413	13,189,528	31,803,579	12,498,074	7,412,103	-1,587,674	50,126,082	36,936,554	3.80	1.73	4.5
Motors	MTR-77	BRK/ADM - 00273	COOL	EEM - RI	13,456,966	253,413	13,203,553	31,818,340	12,513,108	7,412,103	1,593,177	50,150,374	36,946,820	3.80	1.73	4.5
Motors	MTR-76	BRK/ADM - 00273	COOL	EEM - RI	13,457,340	253,413	13,203,927	31,818,734	12,513,508	7,412,103	-1,593,323	50,151,021	36,947,094	3.80	1.73	4.5
Motors	MTR 64	BRK/ADM - 00226	COOL	EEM RI	13,457,714	253,413	13,204,301	31,819,127	12,513,909	7,412,103	1,593,470	50,151,669	36,947,368	3.80	1.73	4.5
Motors	MTR-80	BRK/ADM - 00275	COOL	EEM - RI	13,458,088	253,413	13,204,675	31,819,521	12,514,310	7,412,103	-1,593,617	50,152,317	36,947,642	3.80	1.73	4.5
Motors	PMTR-116	PUMP - 00043	PMPMTR	EEM - RI	13,461,676	253,683	13,207,993	31,822,340	12,518,504	7,412,103	1,594,902	50,158,045	36,950,051	3.80	1.73	4.5
Motors	MTR-452a	HOSPITL - 00166	Fan Motor	VSD & EEM - RI	13,488,708	254,487	13,234,222	31,878,706	12,519,317	7,411,930	1,606,682	50,203,272	36,969,050	3.79	1.72	4.5
Motors	MTR 29	MTRPOOL - 00857	COMPMTR	EEM - RI	13,491,502	254,727	13,236,776	31,882,048	12,521,321	7,411,930	1,607,643	50,207,656	36,970,881	3.79	1.72	4.5
Motors	MTR-44	MTRPOOL - 00857	CONDMTR	EEM - RI	13,494,414	254,967	13,239,448	31,885,352	12,523,607	7,411,930	-1,608,660	50,212,228	36,972,781	3.79	1.71	4.5
Motors	MTR-75	BRK/ADM - 00273	COOL	EEM - RI	13,495,723	254,967	13,240,757	31,886,743	12,525,023	7,411,930	-1,609,253	50,214,443	36,973,687	3.79	1.69	4.5
Motors	MTR 74	BRK/ADM - 00267	COOL	EEM - RI	13,495,910	254,967	13,240,944	31,886,941	12,525,226	7,411,930	-1,609,338	50,214,760	36,973,816	3.79	1.69	4.5
Motors	MTR 69	BRK/ADM - 00264	COOL	EEM - RI	13,496,097	254,967	13,241,131	31,887,140	12,525,428	7,411,930	-1,609,423	50,215,076	36,973,946	3.79	1.69	4.5
Motors	MTR 68	BRK/ADM - 00262	COOL	EEM - RI	13,496,284	254,967	13,241,318	31,887,339	12,525,631	7,411,930	-1,609,507	50,215,393	36,974,075	3.79	1.69	4.5
Motors	MTR-72	BRK/ADM - 00265	COOL	EEM - RI	13,496,471	254,967	13,241,505	31,887,538	12,525,833	7,411,930	-1,609,592	50,215,709	36,974,205	3.79	1.69	4.5
Motors	MTR-70	BRK/ADM - 00264	COOL	EEM RI	13,509,748	254,967	13,254,782	31,901,648	12,540,204	7,411,930	-1,615,606	50,238,176	36,983,394	3.79	1.69	4.5
Motors	MTR 67	BRK/ADM - 00262	COOL	EEM RI	13,523,025	254,967	13,268,059	31,915,758	12,554,574	7,411,930	-1,621,620	50,260,642	36,992,584	3.79	1.69	4.5
Motors	MTR-71	BRK/ADM - 00265	COOL	EEM - RI	13,536,302	254,967	13,281,336	31,929,868	12,568,945	7,411,930	-1,627,634	50,283,109	37,001,773	3.79	1.69	4.5
Motors	MTR-73	BRK/ADM - 00267	COOL	EEM - RI	13,549,579	254,967	13,294,613	31,943,978	12,583,316	7,411,930	-1,633,648	50,305,576	37,010,963	3.78	1.69	4.6
Motors	MTR 65	BRK/ADM - 00261	COOL	EEM - RI	13,562,856	254,967	13,307,890	31,958,088	12,597,686	7,411,930	-1,639,663	50,328,042	37,020,153	3.78	1.69	4.6
Motors	MTR 454a	HOSPITL - 00166	Fan Motor	VSD & EEM RI	13,615,734	256,527	13,359,207	32,066,909	12,598,920	7,411,758	-1,662,830	50,414,757	37,055,550	3.77	1.69	4.6
Motors	MTR-423a	ADMIN - 00988	Fan Motor	EEM - RI	13,617,190	256,647	13,360,543	32,068,376	12,600,139	7,411,758	-1,663,338	50,416,935	37,056,392	3.77	1.63	4.6
Motors	PMTR 34	GROCERY - 00920	power vents	EEM - RI	13,618,294	256,727	13,361,567	32,069,498	12,601,070	7,411,758	-1,663,729	50,418,598	37,057,031	3.77	1.62	4.6
Motors	PMTR 55a	PLT-BLDG - 00253	PMPMTR	EEM - RI	13,621,088	256,967	13,364,121	32,071,667	12,603,998	7,411,758	-1,664,690	50,422,734	37,058,613	3.77	1.62	4.6
Motors	PMTR-56a	PLT-BLDG - 00253	PMPMTR	EEM - RI	13,623,882	257,207	13,366,675	32,073,837	12,606,926	7,411,758	-1,665,652	50,426,869	37,060,195	3.77	1.62	4.6
DHW & A/C	27	00323	PKG UNIT	Install Desuperheater RI	13,625,001	257,207	13,367,794	32,075,305	12,608,627	7,410,897	-1,666,159	50,428,671	37,060,877	3.77	1.61	4.6
Motors	PMTR-74	PUMP - 00042	PMPMTR	EEM - RI	13,625,979	257,277	13,368,702	32,076,463	12,609,285	7,410,897	-1,666,515	50,430,130	37,061,428	3.77	1.61	4.6
Motors	PMTR-75	PUMP - 00044	PMPMTR	EEM - RI	13,626,468	257,312	13,369,156	32,077,042	12,609,614	7,410,897	-1,666,694	50,430,860	37,061,704	3.77	1.61	4.6
DHW & A/C	37	01322	AIR CONDITIONER	Install Desuperheater RI	13,627,807	257,312	13,370,495	32,077,927	12,612,336	7,410,036	-1,667,300	50,432,999	37,062,504	3.77	1.60	4.6
DHW & A/C	43	01322	PKG UNIT	Install Desuperheater RI	13,629,146	257,312	13,371,834	32,078,813	12,615,058	7,409,175	-1,667,907	50,435,139	37,063,305	3.77	1.60	4.6
Motors	MTR-409	WHS - 00818	EVAP	EEM - RI	13,630,543	257,432	13,373,111	32,080,298	12,616,060	7,409,175	-1,668,388	50,437,145	37,064,034	3.77	1.57	4.6
Motors	PMTR-25	BRK/ADM - 00273	PMPMTR	EEM RI	13,630,750	257,447	13,373,303	32,080,431	12,616,301	7,409,175	-1,668,463	50,437,444	37,064,141	3.77	1.56	4.6
Motors	MTR-94	MTRPOOL - 00680	COOL	EEM - RI	13,630,937	257,447	13,373,490	32,080,577	12,616,498	7,409,175	-1,668,518	50,437,733	37,064,243	3.77	1.54	4.6
Motors	PMTR 61a	PLT-BLDG - 00109	PMPMTR	VSD & EEM - RI	13,634,977	257,579	13,377,398	32,087,359	12,617,255	7,408,831	-1,669,738	50,443,707	37,066,309	3.77	1.53	4.6
Motors	MTR-85	DINING - 00254	COOL	EEM RI	13,635,164	257,579	13,377,585	32,087,506	12,617,454	7,408,831	-1,669,799	50,443,991	37,066,406	3.77	1.52	4.6
Motors	PMTR 38	HOSPITL - 00166	PMPMTR	EEM - RI	13,636,054	257,615	13,378,439	32,088,857	12,617,717	7,408,831	-1,670,126	50,445,279	37,066,840	3.77	1.51	4.6
Motors	MTR 81	CLINIC - 00171	COOL	EEM - RI	13,636,241	257,615	13,378,626	32,089,005	12,617,916	7,408,831	-1,670,193	50,445,559	37,066,933	3.77	1.50	4.6
Motors	MTR 95	MTRPOOL - 00857	COOL	EEM - RI	13,636,428	257,615	13,378,813	32,089,153	12,618,116	7,408,831	-1,670,261	50,445,839	37,067,026	3.77	1.50	4.6
Motors	MTR-432a	BRK/ADM - 00273	Fan Motor	EEM - RI	13,636,917	257,650	13,379,267	32,089,678	12,618,445	7,408,831	-1,670,439	50,446,514	37,067,247	3.77	1.49	4.6
Motors	MTR-433a	BRK/ADM - 00273	Fan Motor	EEM - RI	13,637,406	257,685	13,379,721	32,090,203	12,618,774	7,408,831	-1,670,617	50,447,190	37,067,469	3.77	1.49	4.6
Motors	MTR-12	SHOP - 00367	AIRCOMP	EEM - RI	13,638,803	257,805	13,380,998	32,091,350	12,620,007	7,408,831	-1,671,098	50,449,090	37,068,092	3.77	1.49	4.6
Motors	MTR-435a	BRK/ADM - 00275	Fan Motor	EEM - RI	13,639,292	257,840	13,381,452	32,091,899	12,620,352	7,408,831	-1,671,320	50,449,762	37,068,310	3.77	1.48	4.6
Motors	MTR-434a	BRK/ADM - 00275	Fan Motor	EEM - RI	13,639,781	257,875	13,381,906	32,092,449	12,620,696	7,408,831	-1,671,541	50,450,434	37,068,528	3.77	1.48	4.6
Motors	MTR 8	MTRPOOL - 00646	AIRCOMP	EEM - RI	13,640,297	257,895	13,382,402	32,092,895	12,621,176	7,408,831	-1,671,735	50,451,166	37,068,764	3.77	1.47	4.6
Motors	MTR 96	WHS - 20001	COOL	EEM - RI	13,641,045	257,895	13,383,150	32,093,489	12,621,977	7,408,831	-1,672,029	50,452,268	37,069,118	3.77	1.47	4.6
Motors	MTR-455a	HOSPITL - 00166	Fan Motor	VSD & EEM RI	13,654,053	258,246	13,395,807	32,117,434	12,622,335	7,408,486	-1,677,375	50,470,881	37,075,073	3.77	1.47	4.6
Motors	MTR 282	MTRPOOL - 00600	EVAP	EEM RI	13,654,542	258,281	13,396,261	32,117,934	12,622,673	7,408,486	-1,677,553	50,471,541	37,075,279	3.77	1.45	4.6
Motors	MTR-99	ADMIN - 00152	EVAP	EEM RI	13,655,094	258,321	13,396,773	32,118,495	12,623,052	7,408,486	-1,677,749	50,472,285	37,075,511	3.77	1.45	4.6
Motors	MTR 54a	ADMIN - 00988	COOL	EEM - RI	13,655,646	258,361	13,397,285	32,119,076	12,623,444	7,408,486	-1,677,981	50,473,025	37,075,740	3.77	1.45	4.6
Motors	MTR 53a	ADMIN - 00988	COOL	EEM RI	13,656,198	258,401	13,397,797	32,119,657	12,623,836	7,408,486	-1,678,213	50,473,766	37,075,969	3.77	1.45	4.6
Motors	MTR-55a	ADMIN - 00988	COOL	EEM RI	13,656,750	258,441	13,398,309	32,120,238	12,624,228	7,408,486	-1,678,446	50,474,507	37,076,198	3.77	1.45	4.6
Motors	MTR-83	DINING - 00222	COOL	EEM - RI	13,657,124	258,441	13,398,683	32,120,538	12,624,633	7,408,486	-1,678,615	50,475,042	37,076,359	3.77	1.43	4.6
Motors	MTR-84	DINING - 00222	COOL	EEM RI	13,657,498	258,441	13,399,057	32,120,838	12,625,037	7,408,486	-1,678,784	50,475,577	37,076,520	3.77	1.43	4.6
Motors	PMTR 29	DOR - 00308	PMPMTR	EEM - RI	13,658,050	258,481	13,399,569	32,121,344	12,625,458	7,408,486	-1,678,980	50,476,309	37,076,739	3.77	1.43	4.6
T&D	62b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,676,775	258,481	13,418,294	32,130,175	12,628,301	7,408,486	-1,664,016	50,502,946	37,084,652	3.76	1.42	4.6
T&D	83b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,767,396	258,481	13,508,915	32,173,652	12,643,466	7,408,486	1,594,979	50,630,625	37,121,710	3.75	1.41	4.6
T&D	67b		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	13,786,120	258,481	13,527,640	32,181,712	12,645,862	7,408,486	-1,580,016	50,656,045	37,128,405	3.74	1.36	4.6
Motors	MTR 509	BRK/ADM - 00251	HEAT	EEM - RI	13,791,543	258,481	13,533,063	32,189,480	12,647,189	7,408,486	-1,581,794	50,663,363	37,130,300	3.74	1.35	4.6
Motors	MTR 518	BRK/ADM - 00252	HEAT	EEM RI	13,796,966	258,481	13,538,486	32,197,249	12,648,517	7,408,486	-1,583,571	50,670,680	37,132,195	3.74	1.35	4.6
Motors	MTR 503	BRK/ADM - 00250	HEAT	EEM RI	13,802,389	258,481	13,543,909	32,205,017	12,649,845	7,408,486	-1,585,349	50,677,998	37,134,090	3.74	1.35	4.6
Motors	MTR 515	BRK/ADM - 00252	HEAT	EEM RI	13,805,381	258,481	13,546,901	32,209,303	12,650,577	7,408,486	-1,586,330	50,682,036	37,135,135	3.74	1.35	4.6
Motors	MTR 507	BRK/ADM - 00251	HEAT	EEM RI	13,808,373	258,481	13,549,893	32,213,588	12,651,309	7,408,486	-1,587,311	50,686,073	37,136,180	3.74	1.35	4.6
Motors	MTR 502	BRK/ADM - 00250	HEAT	EEM RI	13,811,365	258,481	13,552,885	32,217,874	12,652,042	7,408,486	1,588,292	50,690,110	37,137,226	3.74	1.35	4.6
Motors	MTR 499	BRK/ADM - 00249	HEAT	EEM RI	13,814,357	258,481	13,555,877	32,222,160	12,652,774	7,408,486	1,589,273	50,694,148	37,138,271	3.74	1.35	4.6
Motors	MTR 513	BRK/ADM 00251	HEAT	EEM RI	13,815,105	258,481	13,556,625	32,223,232	12,652,957	7,408,486	-1,589,518	50,695,157	37,138,531	3.74	1.35	4.6

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
Motors	MTR-520	BRK/ADM 00252	HEAT	EEM - RI	13,815,853	258,481	13,557,373	32,224,303	12,653,141	7,408,486	1,589,763	50,696,167	37,138,794	3.74	1.35	4.6
Motors	MTR 504	BRK/ADM 00250	HEAT	EEM RI	13,816,601	258,481	13,558,121	32,225,374	12,653,324	7,408,486	1,590,008	50,697,176	37,139,055	3.74	1.35	4.6
Motors	MTR 498	BRK/ADM - 00249	HEAT	EEM - RI	13,817,349	258,481	13,558,869	32,226,446	12,653,507	7,408,486	1,590,254	50,698,185	37,139,317	3.74	1.35	4.6
Motors	MTR 495	BRK/ADM 00249	HEAT	EEM RI	13,817,536	258,481	13,559,056	32,226,714	12,653,553	7,408,486	1,590,315	50,698,438	37,139,382	3.74	1.35	4.6
Motors	MTR 516	BRK/ADM 00252	HEAT	EEM - RI	13,817,723	258,481	13,559,243	32,226,982	12,653,598	7,408,486	1,590,376	50,698,690	37,139,447	3.74	1.35	4.6
Motors	MTR 496	BRK/ADM 00249	HEAT	EEM - RI	13,817,910	258,481	13,559,430	32,227,250	12,653,644	7,408,486	1,590,438	50,698,942	37,139,513	3.74	1.35	4.6
Motors	MTR 510	BRK/ADM 00251	HEAT	EEM - RI	13,818,097	258,481	13,559,617	32,227,517	12,653,690	7,408,486	-1,590,499	50,699,195	37,139,578	3.74	1.35	4.6
Motors	MTR-514	BRK/ADM - 00252	HEAT	EEM - RI	13,818,284	258,481	13,559,804	32,227,785	12,653,736	7,408,486	1,590,560	50,699,447	37,139,643	3.74	1.35	4.6
Motors	MTR 505	BRK/ADM - 00250	HEAT	EEM - RI	13,818,471	258,481	13,559,991	32,228,053	12,653,781	7,408,486	1,590,622	50,699,699	37,139,709	3.74	1.35	4.6
Motors	MTR 500	BRK/ADM 00250	HEAT	EEM - RI	13,818,658	258,481	13,560,178	32,228,321	12,653,827	7,408,486	1,590,683	50,699,952	37,139,774	3.74	1.35	4.6
Motors	MTR 501	BRK/ADM - 00250	HEAT	EEM RI	13,818,845	258,481	13,560,365	32,228,589	12,653,873	7,408,486	1,590,744	50,700,204	37,139,839	3.74	1.35	4.6
Motors	MTR 506	BRK/ADM - 00250	HEAT	EEM - RI	13,819,032	258,481	13,560,552	32,228,857	12,653,919	7,408,486	1,590,805	50,700,456	37,139,905	3.74	1.35	4.6
Motors	MTR 511	BRK/ADM 00251	HEAT	EEM - RI	13,819,219	258,481	13,560,739	32,229,125	12,653,964	7,408,486	1,590,867	50,700,709	37,139,970	3.74	1.35	4.6
Motors	MTR 493	BRK/ADM 00249	HEAT	EEM - RI	13,819,406	258,481	13,560,926	32,229,392	12,654,010	7,408,486	1,590,928	50,700,961	37,140,035	3.74	1.35	4.6
Motors	MTR 517	BRK/ADM 00252	HEAT	EEM - RI	13,819,593	258,481	13,561,113	32,229,660	12,654,056	7,408,486	1,590,989	50,701,213	37,140,101	3.74	1.35	4.6
Motors	MTR 508	BRK/ADM 00251	HEAT	EEM - RI	13,819,780	258,481	13,561,300	32,229,928	12,654,102	7,408,486	1,591,051	50,701,466	37,140,166	3.74	1.35	4.6
Motors	MTR 512	BRK/ADM 00251	HEAT	EEM - RI	13,819,967	258,481	13,561,487	32,230,196	12,654,148	7,408,486	1,591,112	50,701,718	37,140,231	3.74	1.35	4.6
Motors	MTR 519	BRK/ADM 00252	HEAT	EEM - RI	13,820,154	258,481	13,561,674	32,230,464	12,654,193	7,408,486	1,591,173	50,701,970	37,140,297	3.74	1.35	4.6
Motors	MTR 497	BRK/ADM 00249	HEAT	EEM - RI	13,820,341	258,481	13,561,861	32,230,732	12,654,239	7,408,486	1,591,235	50,702,223	37,140,362	3.74	1.35	4.6
Motors	MTR 521	MTRPOOL 00681	HEAT	EEM - RI	13,820,528	258,481	13,562,048	32,230,993	12,654,285	7,408,486	1,591,290	50,702,474	37,140,427	3.74	1.35	4.6
Motors	MTR-50a	WHS CLD 00862	CONDMTR	EEM - RI	13,821,632	258,561	13,563,072	32,231,995	12,655,042	7,408,486	1,591,680	50,703,842	37,140,771	3.74	1.34	4.6
T&D	45h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,847,028	258,561	13,588,467	32,241,923	12,658,406	7,408,486	1,571,220	50,737,595	37,149,128	3.73	1.33	4.6
Motors	MTR-494	BRK/ADM 00249	HEAT	EEM - RI	13,852,451	258,561	13,593,890	32,249,732	12,659,741	7,408,486	-1,573,176	50,744,783	37,150,893	3.73	1.33	4.6
Motors	MTR-491	BRK/ADM 00110	HEAT	EEM - RI	13,856,191	258,561	13,597,630	32,255,117	12,660,661	7,408,486	1,574,524	50,749,741	37,152,111	3.73	1.33	4.6
Motors	MTR-492	BRK/ADM 00111	HEAT	EEM - RI	13,859,183	258,561	13,600,622	32,259,426	12,661,398	7,408,486	1,575,603	50,753,706	37,153,085	3.73	1.33	4.6
Motors	MTR 490	BRK/ADM - 00108	HEAT	EEM - RI	13,862,175	258,561	13,603,614	32,263,734	12,662,134	7,408,486	1,576,682	50,757,672	37,154,059	3.73	1.33	4.6
Motors	MTR 489	BRK/ADM - 00107	HEAT	EEM - RI	13,865,167	258,561	13,606,606	32,268,043	12,662,870	7,408,486	1,577,761	50,761,638	37,155,033	3.73	1.33	4.6
Motors	MTR 488	BRK/ADM 00106	HEAT	EEM - RI	13,868,159	258,561	13,609,598	32,272,351	12,663,606	7,408,486	1,578,840	50,765,604	37,156,006	3.73	1.33	4.6
Motors	MTR 487	BRK/ADM - 00105	HEAT	EEM - RI	13,871,151	258,561	13,612,590	32,276,659	12,664,343	7,408,486	1,579,918	50,769,570	37,156,980	3.73	1.33	4.6
T&D	39h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,899,085	258,561	13,640,524	32,287,190	12,667,943	7,408,486	-1,557,384	50,806,235	37,165,711	3.72	1.31	4.6
T&D	50h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,928,713	258,561	13,670,152	32,298,296	12,671,795	7,408,486	1,533,515	50,845,062	37,174,910	3.72	1.31	4.6
T&D	32h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,950,342	258,561	13,691,781	32,306,278	12,674,491	7,408,486	1,516,029	50,873,226	37,181,445	3.72	1.30	4.6
T&D	63h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	13,964,568	258,561	13,706,008	32,311,028	12,676,020	7,408,486	1,503,824	50,891,710	37,185,703	3.71	1.30	4.6
T&D	59h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,039,467	258,561	13,780,906	32,339,262	12,685,168	7,408,486	-1,443,970	50,988,946	37,208,040	3.70	1.30	4.7
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,051,950	258,561	13,793,389	32,343,968	12,686,692	7,408,486	-1,433,994	51,005,152	37,211,763	3.70	1.30	4.7
T&D	81h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,069,738	258,561	13,811,177	32,351,060	12,689,125	7,408,486	1,420,435	51,028,236	37,217,059	3.69	1.30	4.7
Motors	MTR 30	MWR - 01322	COMPMTR	EEM RI	14,069,925	258,561	13,811,364	32,351,324	12,689,171	7,408,486	-1,420,503	51,028,479	37,217,114	3.69	1.30	4.7
Motors	MTR-48	MWR 01322	CONDMTR	EEM RI	14,070,112	258,561	13,811,551	32,351,588	12,689,217	7,408,486	1,420,570	51,028,721	37,217,170	3.69	1.30	4.7
Motors	MTR-47	MWR 01322	CONDMTR	EEM - RI	14,070,299	258,561	13,811,738	32,351,852	12,689,263	7,408,486	-1,420,638	51,028,964	37,217,225	3.69	1.30	4.7
Motors	MTR-31	MWR 01322	COMPMTR	EEM RI	14,070,486	258,561	13,811,925	32,352,116	12,689,309	7,408,486	-1,420,705	51,029,206	37,217,281	3.69	1.30	4.7
Motors	MTR-46	MWR - 01322	CONDMTR	EEM - RI	14,070,673	258,561	13,812,112	32,352,380	12,689,355	7,408,486	-1,420,773	51,029,449	37,217,336	3.69	1.30	4.7
Motors	MTR-33	MWR 01322	COMPMTR	EEM RI	14,070,860	258,561	13,812,299	32,352,644	12,689,401	7,408,486	1,420,840	51,029,691	37,217,392	3.69	1.30	4.7
Motors	MTR-32	MWR 01322	COMPMTR	EEM - RI	14,071,047	258,561	13,812,486	32,352,908	12,689,447	7,408,486	1,420,907	51,029,934	37,217,447	3.69	1.30	4.7
Motors	MTR-476	PLT-BLDG - 00263	Fan Motor	EEM - RI	14,071,536	258,596	13,812,940	32,353,608	12,689,509	7,408,486	-1,421,086	51,030,518	37,217,577	3.69	1.29	4.7
T&D	56h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,111,835	258,596	13,853,289	32,366,520	12,693,771	7,408,486	-1,386,394	51,082,382	37,229,093	3.69	1.29	4.7
T&D	58h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,123,989	258,596	13,865,393	32,370,393	12,695,049	7,408,486	-1,375,987	51,097,942	37,232,548	3.69	1.29	4.7
T&D	21h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,213,179	258,596	13,954,583	32,401,349	12,705,426	7,408,486	-1,300,528	51,211,733	37,257,150	3.67	1.28	4.7
T&D	7h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,233,984	258,596	13,975,388	32,408,405	12,707,770	7,408,486	-1,286,432	51,238,229	37,262,841	3.67	1.27	4.7
T&D	53h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,303,024	258,596	14,044,428	32,432,835	12,715,556	7,408,486	-1,231,076	51,325,802	37,281,374	3.65	1.27	4.7
T&D	85h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,325,272	258,596	14,066,677	32,439,649	12,718,168	7,408,486	-1,212,630	51,353,673	37,286,996	3.65	1.25	4.7
T&D	14h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,338,281	258,596	14,079,686	32,443,872	12,719,545	7,408,486	-1,201,995	51,369,908	37,290,222	3.65	1.25	4.7
Motors	PMTR 13a	BRK/ADM 00273	PMPMTR	EEM - RI	14,339,009	258,656	14,080,354	32,444,411	12,720,093	7,408,486	-1,202,249	51,370,741	37,290,388	3.65	1.25	4.7
T&D	87f		Transformer	Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROP	14,771,960	258,656	14,513,304	32,545,198	12,780,224	7,408,486	-823,167	51,910,741	37,397,437	3.58	1.25	4.8
T&D	46h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,781,607	258,656	14,522,951	32,547,868	12,781,129	7,408,486	-814,846	51,922,637	37,399,686	3.58	1.23	4.8
Motors	PMTR-3a	ADMIN - 00988	PMPMTR	VSD & EEM - RI	14,786,527	258,748	14,527,779	32,555,173	12,781,860	7,408,314	-816,770	51,928,577	37,400,798	3.57	1.23	4.8
T&D	40h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,792,591	258,748	14,533,843	32,556,792	12,782,413	7,408,314	-811,535	51,935,984	37,402,141	3.57	1.22	4.8
T&D	51h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,802,238	258,748	14,543,490	32,559,352	12,783,301	7,408,314	-803,215	51,947,753	37,404,262	3.57	1.22	4.8
T&D	33h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	14,810,454	258,748	14,551,707	32,561,499	12,784,027	7,408,314	-796,112	51,957,728	37,406,021	3.57	1.21	4.8
T&D	60h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,838,907	258,748	14,580,159	32,569,092	12,786,487	7,408,314	-771,702	51,992,191	37,412,032	3.57	1.21	4.8
T&D	29h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,882,165	258,748	14,623,417	32,582,216	12,790,658	7,408,314	-736,731	52,044,457	37,421,040	3.56	1.21	4.8
T&D	37h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,903,794	258,748	14,645,047	32,588,778	12,792,743	7,408,314	-719,245	52,070,590	37,425,544	3.56	1.21	4.8
T&D	35h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	14,911,004	258,748	14,652,256	32,590,965	12,793,438	7,408,314	713,416	52,079,301	37,427,045	3.55	1.21	4.8
Motors	MTR-426a	ADMIN - 00988	Fan Motor	EEM - RI	14,911,493	258,783	14,652,710	32,591,361	12,793,767	7,408,314	-713,595	52,079,848	37,427,138	3.55	1.20	4.8
Motors	MTR-430a	ADMIN - 00988	Fan Motor	EEM - RI	14,911,982	258,818	14,653,164	32,591,757	12,794,096	7,408,314	-713,773	52,080,395	37,427,230	3.55	1.20	4.8
Motors	MTR-422a	ADMIN - 00988	Fan Motor	EEM - RI	14,912,471	258,853	14,653,618	32,592,154	12,794,426	7,408,314	-713,952	52,080,942	37,427,323	3.55	1.20	4.8
Motors	MTR-429a	ADMIN - 00988	Fan Motor	EEM - RI	14,912,960	258,888	14,654,072	32,592,550	12,794,755	7,408,314	-714,130	52,081,488	37,427,416	3.55	1.20	4.8
Motors	MTR-421a	ADMIN - 00988	Fan Motor	EEM - RI	14,913,449	258,923	14,654,526	32,592,946	12,795,084	7,408,314	-714,308	52,082,035	37,427,509	3.55	1.20	4.8
Motors	MTR 425a	ADMIN 00988	Fan Motor	EEM RI	14,913,938	258,958	14,654,980	32,593,342	12,795,413	7,408,314	-714,487	52,082,582	37,427,602	3.55	1.20	4.8
T&D	42h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,070,541	258,958	14,811,584	32,639,226	12,810,804	7,408,314	-583,319	52,270,026	37,458,442	3.53	1.20	4.9
T&D	48h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,079,006	258,958	14,820,049	32,641,706	12,811,636	7,408,314	-581,499	52,280,158	37,460,109	3.53	1.20	4.9
T&D	22h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,118,352	258,958	14,859,394	32,651,375	12,814,878	7,408,314	-547,374	52,327,192	37,467,798	3.52	1.20	4.9
T&D	6h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,142,063	258,958	14,883,105	32,657,068	12,816,769	7,408,314	-526,655	52,355,496	37,472,391	3.52	1.19	4.9
T&D	54h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,206,620	258,958	14,947,662	32,673,241	12,821,924	7,408,314	-471,148	52,432,331	37,484,669	3.51	1.19	4.9
T&D	77h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,218,414	258,958	14,959,456	32,676,398	12,822,965	7,408,314	-461,336	52,446,341	37,486,885	3.51	1.19	4.9
T&D	13h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,243,123	258,958	14,984,165	32,682,077	12,824,816	7,408,314	-439,816	52,475,391	37,491,226	3.50	1.18	4.9
T&D	69h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,254,303	258,958	14,995,345	32,685,564	12,825,919	7,408,314	-431,225	52,488,512	37,493,167	3.50	1.17	4.9
T&D	18h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,265,811	258,958	15,006,853	32,688,690	12,826,930	7,408,314	421,935	52,501,999	37,495,146	3.50	1.17	4.9
T&D	24h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,274,442	258,958	15,015,485	32,691,035	12,827,688	7,408,314	414,923	52,512,114	37,496,630	3.50	1.17	4.9
T&D	71h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,300,065	258,958	15,041,108	32,698,578	12,830,255	7,408,314	-395,377	52,541,770	37,500,662	3.49	1.16	4.9
T&D	8h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,324,339	258,958	15,065,381	32,704,746	12,832,109	7,408,314	375,432	52,569,737	37,504,356	3.49	1.15	4.9
T&D	2h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,346,878	258,958	15,087,920	32,710,474	12,833,830	7,408,314	-356,912	52,595,706	37,507,786	3.49	1.15	4.9
T&D	9h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,352,079	258,958	15,093,122	32,711,796	12,834,227	7,408,314	352,638	52,601,699	37,508,577	3.49	1.15	4.9
T&D	12h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,380,265	258,958	15,121,308	32,718,969	12,836,486	7,408,314	329,595	52,634,174	37,512,866	3.48	1.15	4.9
T&D	16h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,404,115	258,958	15,145,157	32,725,039	12,838,396	7,408,314	310,097	52,661,652	37,516,495	3.48	1.15	5.0
T&D	30h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) ROP	15,453,414	258,958	15,194,456	32,735,625	12,841,762	7,408,314	267,479	52,718,224	37,523,768	3.47	1.15	5.0

Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

End Use	Bldg Type	Use Area	Existing Technology	Retrofit Technology	Cumulative Value of Installed Cost (1994 $)	Cumulative Value of Rebate (1994 $)	Cumulative Value of Net Installed Cost (1994 $)	Cumulative Value of Energy Savings (1994 $)	Cumulative Value of Demand Savings (1994 $)	Cumulative Value of O&M Savings (1994 $)	Cumulative Value of Replacement Savings (1994 $)	Cumulative Value of Total Savings (1994 $)	Cumulative Net Savings (1994 $)	Cumulative Savings to Investment Ratio	Individual Savings to Investment Ratio	Cumulative Discounted Payback Period
T&D	43h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,479,139	258,958	15,220,181	32,740,964	12,843,552	7,408,314	245,291	52,747,540	37,527,358	3.47	1.14	5.0
T&D	49h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,488,786	258,958	15,229,828	32,742,965	12,844,223	7,408,314	236,970	52,758,513	37,528,704	3.46	1.14	5.0
T&D	27h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,528,132	258,958	15,269,174	32,750,533	12,846,671	7,408,314	202,845	52,802,673	37,533,499	3.46	1.12	5.0
T&D	19h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,541,247	258,958	15,282,289	32,753,056	12,847,486	7,408,314	191,470	52,817,386	37,535,097	3.46	1.12	5.0
T&D	25h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,547,804	258,958	15,288,847	32,754,317	12,847,894	7,408,314	185,783	52,824,742	37,535,896	3.46	1.12	5.0
T&D	17h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,577,455	258,958	15,318,497	32,759,833	12,849,613	7,408,314	159,959	52,857,801	37,539,304	3.45	1.11	5.0
T&D	64h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,587,938	258,958	15,328,981	32,761,177	12,850,046	7,408,314	150,050	52,869,487	37,540,507	3.45	1.11	5.0
T&D	84h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,651,358	258,958	15,392,400	32,769,450	12,852,931	7,408,314	90,747	52,939,948	37,547,547	3.44	1.11	5.0
T&D	82h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,664,042	258,958	15,405,084	32,771,104	12,853,508	7,408,314	78,887	52,954,040	37,548,955	3.44	1.11	5.0
T&D	57h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,672,962	258,958	15,414,004	32,772,200	12,853,870	7,408,314	70,449	52,963,936	37,549,931	3.44	1.11	5.0
T&D	3h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,684,817	258,958	15,425,860	32,774,333	12,854,511	7,408,314	60,089	52,977,069	37,551,210	3.43	1.11	5.0
T&D	5h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,687,452	258,958	15,428,494	32,774,807	12,854,654	7,408,314	57,787	52,979,988	37,551,494	3.43	1.11	5.0
T&D	11h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,700,630	258,958	15,441,672	32,777,182	12,855,401	7,408,314	46,310	52,994,587	37,552,915	3.43	1.11	5.0
T&D	74h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,714,109	258,958	15,455,152	32,780,572	12,856,578	7,408,314	36,028	53,009,435	37,554,284	3.43	1.10	5.0
Motors	MTR-111	ADMIN 00281	EVAP	EEM RI	15,714,661	258,998	15,455,664	32,781,024	12,856,883	7,408,314	36,224	53,009,997	37,554,334	3.43	1.10	5.0
T&D	86h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,731,057	258,998	15,472,059	32,782,952	12,857,622	7,408,314	20,908	53,027,980	37,555,921	3.43	1.10	5.0
T&D	1h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,732,858	258,998	15,473,860	32,783,244	12,857,715	7,408,314	19,325	53,029,948	37,556,088	3.43	1.09	5.0
T&D	47h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,747,076	258,998	15,488,078	32,784,755	12,858,228	7,408,314	5,860	53,045,437	37,557,358	3.42	1.09	5.0
Motors	PMTR-12a	BRK/ADM 00273	PMPMTR	EEM RI	15,747,804	259,058	15,488,746	32,785,241	12,858,723	7,408,314	6,114	53,046,164	37,557,418	3.42	1.09	5.0
T&D	41h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,756,741	259,058	15,497,683	32,786,157	12,859,036	7,408,314	2,352	53,055,859	37,558,176	3.42	1.08	5.0
T&D	52h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,770,959	259,058	15,511,901	32,787,606	12,859,539	7,408,314	15,817	53,071,275	37,559,374	3.42	1.08	5.0
T&D	34h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,777,014	259,058	15,517,956	32,788,213	12,859,744	7,408,314	21,555	53,077,827	37,559,871	3.42	1.08	5.0
Motors	PMTR 31a	DINING 00254	PMPMTR	EEM RI	15,778,470	259,178	15,519,292	32,788,947	12,860,963	7,408,314	21,047	53,079,271	37,559,979	3.42	1.08	5.0
T&D	61h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,816,909	259,178	15,557,731	32,792,887	12,862,239	7,408,314	57,381	53,120,821	37,563,090	3.41	1.08	5.0
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,856,744	259,178	15,597,567	32,797,205	12,863,720	7,408,314	94,636	53,163,875	37,566,308	3.41	1.08	5.1
T&D	80h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,876,662	259,178	15,617,484	32,799,364	12,864,461	7,408,314	113,263	53,185,402	37,567,918	3.41	1.08	5.1
T&D	23h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,886,327	259,178	15,627,149	32,800,276	12,864,767	7,408,314	122,433	53,195,790	37,568,641	3.40	1.07	5.1
T&D	55h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,954,713	259,178	15,695,535	32,806,855	12,866,864	7,408,314	187,125	53,269,158	37,573,623	3.39	1.07	5.1
T&D	76h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,980,785	259,178	15,721,607	32,809,534	12,867,748	7,408,314	211,509	53,297,106	37,575,499	3.39	1.07	5.1
Motors	MTR 274	GROCERY 00920	EVAP	EEM RI	15,982,252	259,283	15,722,969	32,810,723	12,868,550	7,408,314	210,974	53,298,561	37,575,592	3.39	1.07	5.1
T&D	15h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	15,989,535	259,283	15,730,253	32,811,366	12,868,760	7,408,314	217,895	53,306,334	37,576,082	3.39	1.07	5.1
T&D	75h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,012,176	259,283	15,752,893	32,813,462	12,869,623	7,408,314	239,071	53,330,470	37,577,577	3.39	1.07	5.1
T&D	38h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,024,285	259,283	15,765,002	32,814,461	12,869,940	7,408,314	250,549	53,343,263	37,578,261	3.38	1.06	5.1
T&D	31h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,034,376	259,283	15,775,094	32,815,293	12,870,205	7,408,314	260,113	53,353,924	37,578,831	3.38	1.06	5.1
T&D	36h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,040,431	259,283	15,781,148	32,815,792	12,870,363	7,408,314	265,852	53,360,321	37,579,173	3.38	1.06	5.1
T&D	44h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,080,715	259,283	15,821,433	32,819,001	12,871,440	7,408,314	304,002	53,402,757	37,581,324	3.38	1.05	5.1
Motors	MTR 273	GROCERY 00920	EVAP	EEM - RI	16,082,182	259,388	15,822,795	32,820,227	12,872,267	7,408,314	303,379	53,404,188	37,581,393	3.38	1.05	5.1
T&D	65h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,094,701	259,388	15,835,313	32,821,289	12,872,603	7,408,314	315,090	53,417,295	37,581,982	3.37	1.05	5.1
T&D	70h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,100,961	259,388	15,841,573	32,821,820	12,872,771	7,408,314	320,945	53,423,849	37,582,276	3.37	1.05	5.1
T&D	79h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,110,920	259,388	15,851,532	32,822,623	12,873,080	7,408,314	330,258	53,434,276	37,582,744	3.37	1.05	5.1
T&D	26h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,120,584	259,388	15,861,197	32,823,337	12,873,311	7,408,314	339,429	53,444,391	37,583,195	3.37	1.05	5.1
T&D	28h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,130,249	259,388	15,870,861	32,824,051	12,873,542	7,408,314	348,599	53,454,507	37,583,645	3.37	1.05	5.1
T&D	20h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,136,692	259,388	15,877,304	32,824,527	12,873,696	7,408,314	354,713	53,461,250	37,583,946	3.37	1.05	5.1
T&D	72h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,143,865	259,388	15,884,477	32,825,101	12,873,891	7,408,314	361,422	53,468,729	37,584,251	3.37	1.04	5.1
T&D	4h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,146,777	259,388	15,887,389	32,825,302	12,873,952	7,408,314	364,193	53,471,761	37,584,372	3.37	1.04	5.1
T&D	10h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,164,985	259,388	15,905,597	32,826,562	12,874,348	7,408,314	381,495	53,490,720	37,585,123	3.36	1.04	5.1
Motors	MTR-472a	MWR - 01322	Fan Motor	EEM - RI	16,165,501	259,408	15,906,093	32,827,088	12,874,527	7,408,314	381,301	53,491,231	37,585,137	3.36	1.03	5.1
Motors	MTR-465a	MWR - 01322	Fan Motor	EEM - RI	16,166,017	259,428	15,906,589	32,827,615	12,874,706	7,408,314	381,107	53,491,742	37,585,152	3.36	1.03	5.1
Motors	MTR 468a	MWR - 01322	Fan Motor	EEM - RI	16,166,533	259,448	15,907,085	32,828,141	12,874,885	7,408,314	380,913	53,492,253	37,585,167	3.36	1.03	5.1
Motors	MTR-463a	MWR - 01322	Fan Motor	EEM - RI	16,167,049	259,468	15,907,581	32,828,667	12,875,064	7,408,314	380,718	53,492,764	37,585,182	3.36	1.03	5.1
Motors	MTR 470a	MWR - 01322	Fan Motor	EEM - RI	16,167,565	259,488	15,908,077	32,829,193	12,875,243	7,408,314	380,524	53,493,275	37,585,197	3.36	1.03	5.1
Motors	MTR-471a	MWR - 01322	Fan Motor	EEM - RI	16,168,081	259,508	15,908,573	32,829,720	12,875,422	7,408,314	380,330	53,493,785	37,585,212	3.36	1.03	5.1
Motors	MTR-473a	MWR - 01322	Fan Motor	EEM - RI	16,168,597	259,528	15,909,069	32,830,246	12,875,601	7,408,314	380,135	53,494,296	37,585,227	3.36	1.03	5.1
T&D	73h		Transformer	Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROP	16,228,971	259,528	15,969,444	32,834,374	12,877,033	7,408,314	436,606	53,556,327	37,586,884	3.35	1.03	5.1

Table 3.12a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Present Values Aggregated by Category

End Use	Estimated Current Facility Energy Use (MBtu)	Estimated Post-Retrofit Facility Energy Use (MBtu)	Estimated Facility Annual Energy Savings (MBtu)	Estimated Percent Energy Savings	First Year Energy Cost Savings (1994 $)	Estimated Investment Required for Retrofits (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
Heating	97,527	58,926	38,602	40%	NA	NA	NA	NA	NA	NA
Cooling	127,957	113,867	14,089	11%	NA	NA	NA	NA	NA	NA
Vent	40,605	35,906	4,699	12%	NA	NA	NA	NA	NA	NA
Lights	73,953	39,720	34,233	46%	NA	NA	NA	NA	NA	NA
Misc. Equip.	99,406	99,406	0	0%						
Hot Water	107,144	66,539	40,605	38%	NA	NA	NA	NA	NA	NA
Totals	546,592	414,364	132,228	24%	2,000,957	7,679,657	33,718,120	26,038,463	4.39	3.9

Table 3.12b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Present Values Aggregated by Category

End Use	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Present Value of Installed Cost (1994 $)	Present Value of Rebate (1994 $)	Present Value of Net Installed Cost (1994 $)	Present Value of Energy Savings (1994 $)	Present Value of Demand Savings (1994 $)	Present Value of O&M Savings (1994 $)	Present Value of Replacement Savings (1994 $)	Present Value of Total Savings (1994 $)	Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	935	1,129	935	1,129	90	0	90	326,119	213,310	-1,550	0	537,879	537,789	5,976.43	0.0
Central Chillers	1,099	2,110	1,099	2,110	432,000	78,000	354,000	748,165	524,852	-25,831	0	1,247,186	893,186	3.52	4.9
Controls	1,508	2,186	1,508	2,186	150,400	0	150,400	427,670	104,982	0	-68,127	464,525	314,125	3.09	5.6
DHW & A/C	4,345	2,198	4,345	2,198	118,124	0	118,124	586,244	415,428	-32,719	-53,507	915,446	797,322	7.75	2.2
Envelope	21,177	17,099	21,177	17,099	1,496,453	95,546	1,400,907	7,216,199	4,403,737	0	-789,727	10,830,209	9,429,302	7.73	2.2
Fam. Hsg. HVA	76,678	15,226	76,678	15,226	7,086,917	0	7,086,917	8,254,166	4,037,704	281,903	-241,994	12,331,780	5,244,863	1.74	9.9
Heating	4,682	727	4,713	742	235,202	0	235,202	660,450	40,480	0	22,215	723,146	487,944	3.07	5.6
HVAC	15,058	1,690	15,058	1,690	279,627	0	279,627	2,217,760	347,265	0	-126,243	2,438,782	2,159,155	8.72	2.0
Lighting	5,992	0	5,992	0	231,867	51,040	180,827	2,512,676	0	719,268	0	3,231,943	3,051,116	17.87	1.0
Motors	7,814	7,343	7,814	7,343	1,397,273	34,942	1,362,331	2,439,614	1,611,399	-4,133	-504,490	3,542,390	2,180,059	2.60	6.6
T&D	2,203	3,708	6,076	7,223	2,543,519	0	2,543,519	1,314,593	927,579	-109	2,147,346	4,389,410	1,845,890	1.73	10.0
Vehicles	14,638	-180	14,638	-180	2,047,000	0	2,047,000	5,688,420	-25,561	6,475,790	0	12,138,649	10,091,649	5.93	2.9
Wells	0	1,097	0	1,097	210,500	0	210,500	442,299	275,857	-4,305	51,131	764,981	554,481	3.63	4.7
Totals	156,128	54,331	160,032	57,862	16,228,971	259,528	15,969,444	32,834,374	12,877,033	7,408,314	436,605	53,556,327	37,586,884	3.35	5.1

Table 3.13. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resource: Annualized Values Aggregated by Category

End Use	First Year Energy Savings (MBtu)	First Year Demand Savings (kW-mo)	Full Implementation Energy Savings (MBtu)	Full Implementation Demand Savings (kW-mo)	Annualized Value of Installed Cost (1994 $)	Annualized Value of Rebate (1994 $)	Annualized Value of Net Installed Cost (1994 $)	Annualized Value of Energy Savings (1994 $)	Annualized Value of Demand Savings (1994 $)	Annualized Value of O&M Savings (1994 $)	Annualized Value of Replacement Savings (1994 $)	Annualized Value of Total Savings (1994 $)	Annualized Net Savings (1994 $)	Savings to Investment Ratio	Discounted Payback Period
AC	935	1,129	935	1,129	5	0	5	18,938	12,387	-90	0	31,234	31,229	5,976.43	0.0
Central Chillers	1,099	2,110	1,099	2,110	25,086	4,529	20,557	43,446	30,478	-1,500	0	72,424	51,867	3.52	4.9
Controls	1,508	2,186	1,508	2,186	8,734	0	8,734	24,835	6,096	0	-3,956	26,975	18,241	3.09	5.6
DHW & A/C	4,345	2,198	4,345	2,198	6,859	0	6,859	34,043	24,124	-1,900	-3,107	53,160	46,300	7.75	2.2
Envelope	21,177	17,099	21,177	17,099	86,898	5,548	81,350	419,042	255,723	0	-45,859	628,906	547,556	7.73	2.2
Fam. Hsg. HVA	76,678	15,226	76,678	15,226	411,535	0	411,535	479,316	234,468	16,370	-14,052	716,102	304,567	1.74	9.9
Heating	4,682	727	4,713	742	13,658	0	13,658	38,352	2,351	0	1,290	41,993	28,335	3.07	5.6
HVAC	15,058	1,690	15,058	1,690	16,238	0	16,238	128,785	20,166	0	-7,331	141,619	125,381	8.72	2.0
Lighting	5,992	0	5,992	0	13,464	2,964	10,501	145,910	0	41,768	0	187,678	177,177	17.87	1.0
Motors	7,814	7,343	7,814	7,343	81,139	2,029	79,110	141,668	93,573	-240	-29,296	205,705	126,595	2.60	6.6
T&D	2,203	3,708	6,076	7,223	147,701	0	147,701	76,338	53,864	-6	124,696	254,891	107,190	1.73	10.0
Vehicles	14,638	-180	14,638	-180	118,869	0	118,869	330,325	-1,484	376,047	0	704,887	586,018	5.93	2.9
Wells	0	1,097	0	1,097	12,224	0	12,224	25,684	16,019	-250	2,969	44,422	32,199	3.63	4.7
Totals	156,128	54,331	160,032	57,862	942,411	15,071	927,340	1,906,680	747,765	430,198	25,354	3,109,997	2,182,657	3.35	5.1

Table 3.14a. Summary of Total Minimum Life-Cycle Cost Efficiency Resource: Building EROs

Summary of Energy and Demand Savings

Estimated Current Facility Energy Use (MBtu/yr)	546,592
Estimated Post-Retrofit Facility Energy Use (MBtu/yr)	414,364
Estimated Facility Annual Energy Savings (MBtu/yr)	132,228
Estimated Facility Percent Energy Savings	24%

Summary of Costs and Benefits

	Present Value (1994 $)
First Year Energy Cost Savings due to Retrofits	2,000,957
Present Value of Total Savings	33,718,120
Total Estimated Investment Reequired for Retrofits	7,679,657
Net Savings of Retrofits	26,038,463
Savings to Investment Ratio	4.39
Discounted Payback Period	3.9

Table 3.14b. Summary of Total Minimum Life-Cycle Cost Efficiency Resource: Non-Building EROs

Summary of Energy and Demand Savings

First Year Energy Savings (MBtu/yr)	156,128
First Year Demand Savings (kW-mo)	54,331
Full Implementation Energy Savings (MBtu/yr)	160,032
Full Implementation Demand Savings (kW-mo)	57,862

Summary of Costs and Benefits

	Present Value (1994 $)	Annualized Value (1994 $)
Value of Installed Cost	16,228,971	942,411
Value of Rebate	259,528	15,071
Value of Net Installed Cost	15,969,444	927,340
Value of Energy and Demand Savings	45,711,408	2,654,445
Value of O&M Savings	7,408,314	430,198
Value of Replacement Cost Savings	436,605	25,354
Value of Total Savings	53,556,327	3,109,997
Net Value of Savings	37,586,884	2,182,657
Savings to Investment Ratio	3.35	3.35
Discounted Payback Period	5.1	5.1

Table 3.15a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resource: Fuel Balance Table

Fuel Type	Existing Energy Use (MBtu)	Existing Demand (kW)	Resulting Energy Use (MBtu)	Resulting Demand (kW)	Net Energy Use Reduction (MBtu)	Net Demand Reduction (kW)
Chilled Water	24,085	NA	20,118	NA	3,969	NA
District Hot Water	9,238	NA	1,558	NA	7,680	NA
Electricity	304,170	30,097	254,607	26,523	49,562	3,574
Propane	209,098	NA	138,080	NA	71,018	NA
Totals	546,591	30,097	414,363	26,523	132,229	3,574

Table 3.15b. Non-Building Constituting the Minimum Life-Cycle Cost Efficiency Resource: Fuel Balance Table

	Existing		Conservation		New Load		Resulting		Net Conservation	
Fuel Type	Existing Energy Use (MBtu)	Exising Demand (kW-mo)	Energy Use Reduction (MBtu)	Demand Reduction (kW-mo)	Increased Energy Use (MBtu)	Increased Demand (kW-mo)	Resulting Energy Use (MBtu)	Resulting Demand (kW-mo)	Net Energy Use Reduction (MBtu)	Net Demand Reduction (kW-mo)
Diesel	516,808	NA	3,116	NA	0	NA	513,692	NA	3,116	NA
Electricity	272,217	399,251	43,427	57,682	1,962	180	230,753	341,389	41,465	57,862
Gasoline	81,245	NA	81,245	NA	0	NA	0	NA	81,245	NA
Natural Gas	0	NA	0	NA	68,784	NA	68,784	NA	-68,784	NA
Propane	225,780	NA	102,990	NA	0	NA	122,790	NA	102,990	NA
Totals	1,096,050	399,251	230,778	57,682	70,746	180	936,018	341,389	160,032	57,862

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Appendix A

Electricity Cost Calculations

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Electricity Cost Calculations

Federal agencies are required to analyze all potential energy investments using a life-cycle costing (LCC) methodology developed by National Institute of Standards and Technology (NIST) (NBS 1987). The NIST LCC methodology proceeds by calculating all relevant costs of a project and discounting them to result in present dollars, and then subtracting that sum from a similarly constructed LCC of a "no-action" baseline. This difference is called the net savings of the action being considered. Actions are recommended for implementation if the net savings is positive and greater than the net savings of any competing actions. This methodology results in minimizing the LCC of energy services at a site.

In order to examine the energy resource opportunities (EROs) at Fort Irwin, marginal fuel costs must be calculated. The marginal, or avoided, cost of electricity service is used in conjunction with the estimated energy savings of an ERO to calculate the dollar value of those savings. Because of the potential complications associated with the use of more than one rate structure, and because of the uncertainty involved with the future of the ISR schedule, it was decided that the base rate represented the best marginal rate for use in the LCC analysis. While the base rate may overestimate the savings available during the first four years of the analysis, it is believed to be the most conservative estimate of savings available given the uncertainty of Fort Irwin's electricity rate in the future. This appendix presents a more detailed description of the calculations performed to determine the appropriate marginal rates that were used for electricity within the Fort Irwin LCC analysis.

A.1 Methodology

The first step in the LCC process is to determine the present value of all future energy costs associated with an ERO and the no-action baseline. This is done by calculating the current year energy cost, known as the base year energy cost, escalating that cost to represent future real price increases, and then discounting the stream of costs to result in the present value. In accordance with the NIST LCC methodology, only the energy cost relevant to the ERO analysis should be included. The relevant energy cost is the energy cost that can be avoided by the ERO. Any cost that is common to the ERO and the no-action baseline is not relevant as it will cancel itself out when the difference is taken to obtain the net savings.

The relevant energy cost is obtained by using the marginal cost of the fuel. The marginal, or avoided, energy cost of fuel is the appropriate cost to use in conjunction with the estimated energy cost savings of an ERO so that the dollar value of those savings can be calculated. For this reason, it is important that only variable costs, which are affected by the amount of fuel used, are included. A cost is considered variable if the amount of fuel used affects the dollar amount paid. Fixed costs associated with a fuel, such as minimum monthly charges, will be paid despite any increase or reduction in fuel usage, and therefore do not affect the marginal cost.

According to Title 10 of the Code of Federal Regulations (CFR) Part 436 Subpart A 436.19, the life-cycle cost is the sum of the present values of investment costs, non-fuel operation and maintenance costs, replacement costs, and energy costs. The energy cost stream is composed of annual expenditures. Per 10 CFR Part 436 Subpart A 436.17, the base year energy cost is calculated by multiplying the total amount of energy used in the base year by the price per unit of energy in the base year. The present value of energy costs over the project study period is the product of the energy cost in the base year multiplied by the appropriate modified uniform present worth factor adjusted for energy price escalation for the applicable region, sector, fuel type, and study period. To determine the energy cost, it is necessary to calculate the appropriate cost of energy for each fuel type.

A.2 Electricity cost Determination

Electricity rates are composed primarily of charges for demand and charges for consumption. Demand charges are based on the maximum (peak) demand for kilowatts (kW) for a given duration within some time frame, such as the peak one hour demand within the billing period. Consumption charges are based on the total electricity consumption, in kilowatt-hours (kWh), within the billing period. These charges can be flat rates per kWh, or they can vary with the time of use, which can be defined as on-peak and off-peak for the utility during a 24 hour time period, or as seasonal to allow for changes in winter and summer consumption patterns.

The determination of the appropriate electricity rate for this analysis presented a unique challenge as the cost of electricity at Fort Irwin is complicated by the structure of the rate schedule under which Fort Irwin purchases its electricity. Fort Irwin purchases its electricity from Southern California Edison (SCE) under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate (ISR) rider. The ISR essentially adds a declining block rate component to the time-of-use structure in that it provides a base level of energy at a fixed monthly charge, while consumption above the base level is billed at the incremental rate, which is lower than the base energy rate in during on-peak and mid-peak time periods. The structure is unlike a declining block rate structure in that Fort Irwin is billed for the base level of energy regardless of whether it is used, so valuing energy savings becomes more complicated if consumption drops below this level. In determining the appropriate electricity rates for valuation of savings, then, it is important to understand current consumption and the potential ramifications if proposed energy resource opportunities (EROs) cause this consumption to drop below the established base level. Such an understanding makes it possible to more accurately reflect the actual marginal rate at which energy savings should be valued.

A.2.1 Fort Irwin Electricity Rate Structure

The electricity rate agreement between Fort Irwin and Southern California Edison is known as the Incremental Sales Rate (ISR). The ISR is essentially a time-of-use rate structure with fixed and incremental components. There are six distinct times of use. During the summer months, June through September, Fort Irwin is charged for on-peak, mid-peak, and off-peak consumption. The remaining eight months are divided into mid-peak, off-peak, and super off-peak periods. Each of the six periods is billed at a unique rate. Table A.1 lists the applicable consumption rates for each time period.

A demand charge is assessed in the summer months for the maximum demand during the on-peak and mid-peak periods. A non-time related demand charge is assessed for the maximum demand during each month, regardless of the time period in which it occurs. Table A.2 lists the applicable demand rates for each time period.

Table A.1. Electricity Rates at Fort Irwin ($/kWh)

Rate Component	Summer On-Peak	Summer Mid-Peak	Summer Off-Peak	Winter Mid-Peak	Winter Off-Peak	Winter Super Off-Peak
Base	0.02676	0.02676	0.02676	0.02676	0.02676	0.02676
Base Adjustment	0.11076	0.03841	0.01401	0.05012	0.01659	0.01659
Base Total	0.13752	0.06517	0.04077	0.07688	0.04335	0.04335
Incremental	0.01927	0.01165	0.00827	0.02443	0.01672	0.01142
Incr. Adjustment	0.04082	0.04082	0.04082	0.04082	0.04082	0.04082
Incremental Total	0.06009	0.05247	0.04909	0.06525	0.05754	0.05224

Table A.2. Demand Rates at Fort Irwin ($/kW)

Rate Component	Summer On-Peak	Summer Mid-Peak	Summer Off-Peak	Winter Mid-Peak	Winter Off-Peak	Winter Super Off-Peak
Base	15.75	2.35	0.00	0.00	0.00	0.00
Base Adjustment	3.15	0.00	0.00	3.15	0.00	0.00
Base Total	18.90	2.35	0.00	3.15	0.00	0.00
Incremental	2.54	0.27	0.00	0.15	0.00	0.00

For each of the six time periods, the utility has established baseline levels of consumption and demand, which are computed using two previous years of Fort Irwin's consumption history. In a given month, Fort Irwin is charged for the base levels of energy and demand at the rates outlined in the tariff, regardless of whether they were consumed. If consumption or demand exceeds the baseline established for any time period, the customer is charged the incremental rate on the extra consumption. This incremental rate is lower than the base rate during the on-peak and mid-peak periods, but is higher in the off-peak period.

Due to the type of rate structure under which Fort Irwin receives its electricity, there are three possible rates at which the marginal value of savings could be calculated:

1. incremental rate - the rate charged for consumption/demand above an established base level. The incremental rate structure is in place through 1997, but can be renewed. According to SCE personnel, the base level established due to use of the ISR would most likely not be reevaluated.

2. base rate - the rate charged for consumption/demand up to the established base level, and the effective marginal rate if the base level were to be reevaluated after 1997; or if the Fort were to discontinue the use of the ISR after 1997.

3. zero rate - any electric savings which reduce consumption/demand below the established base level between the first year of the analysis and 1997 must be valued at zero as the base rate is essentially "fixed" during the first five years. If the base remains on the ISR, and if the base level remains unchanged, then the zero rate can be applicable throughout the analysis period.

Discussions with SCE regarding the rate structures raised significant uncertainty as to whether Fort Irwin would be able to renew the ISR rider when the clause expires in 1997.[(a)] Because of the uncertainty, it was determined that the appropriate marginal rate for use in the analysis should be the base rate as explained above in number 2. Since the ISR will be in effect until 1997 and the analysis period is assumed to start in 1994, this presents some complications.

Use of the base rate to evaluate electricity savings for the first four years of the analysis period translates into an overestimation of savings for those years. The alternative of using the ISR rate for the entire analysis period may underestimate savings for years after 1997 or may overestimate savings, as use of the ISR's lower rates in certain time periods could result in more cost-effective measures than would be recommended under the base rate. Use of more than one rate during the analysis period would have resulted in a very time-consuming and challenging process. For informational purposes, the remainder of this appendix discusses the determination of the appropriate marginal rate to use for the first four years of the analysis, proposes a methodology for incorporation of the appropriate rate, and outlines some of the complications associated with the use of more than one rate.

A.2.2 Determination of Applicable Rate Structures

In order to determine the most appropriate rate to use for the LCC analysis, the current consumption at the Fort, as well as estimates of future electric requirements due to construction activities, was examined. Electricity consumption data from one year was used, broken down into monthly time-of-use consumption levels (see Table A.3).

If it were assumed that electricity consumption was expected to remain unchanged, these consumption levels would be used for the analysis. It is known, however, that Fort Irwin is constructing 172 new housing units, and has an additional 220 housing units in the design phase. Because this construction will affect the consumption of electricity, its impact must be estimated and included in the analysis. The next step, then, is to make an estimate of the electricity that will be required by the new housing units and add it to the monthly time-of-use (TOU) profile to determine the predicted electric consumption (see Table A.4). The total electric requirement was divided into time-of-use estimates for the housing units, and then these were further subdivided into monthly estimates based on the number of days in the billing period for that particular time (see Tables A.5 and A.6). The predicted annual and monthly electric consumption level assumes that no other construction other than the 392 housing units planned would occur, and that personnel levels would remain constant at the base.

(a) Personal Communication, Ted Gold, Southern California Edison, December 16, 1993.

Table A.3. Actual kWh Consumed

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-7/23/92	1,715,180	2,168,914	3.478,626	0	0	0
2	7/23-8/21/92	1,923,276	2,542.250	3,970,474	0	0	0
3	8/21-9/22/92	1,666,116	2,173,673	4,032,211	0	0	0
4	9/22-10/23/92	572,746	683,204	835,703	2,143,697	1,548,798	848,252
5	10/23-11/23/92	0	0	0	2,020,977	1,947,806	957,217
6	11/23-12/24/92	0	0	0	1,040,692	2,968,672	1,011,436
7	12/24/92-1/26/93	0	0	0	2,044,126	1,870,610	794,723
8	1/26-2/25/93	0	0	0	2,028,861	1,761,561	969,978
9	2/25-3/26/93	0	0	0	2,032,063	1,555,015	878,122
10	3/26-4/27/93	0	0	0	2,233,888	1,852,443	989,669
11	4/27-5/25/93	0	0	0	2,781,174	2,011,733	1,046,293
12	5/25-6/24/93	1,261,365	1,626,183	2,390,282	450,150	627,534	225,286

Table A.4. Predicted kWh Consumption

Period	Dates	Summer On	Summer Mid	Summer Off	Mid	Winter Off	Winter Super-Off
1	6/23-723/92	1,767,413	2,247,264	3,635,326	0	0	0
2	7/23-8/21/92	1,973,768	2,617,988	4,121,950	0	0	0
3	8/21-9/22/92	1,721,831	2,257,246	4,199,357	0	0	0
4	9/22-10/23/92	588,416	706,709	882,713	2,227,714	1,626,352	903,186
5	10/23-11/23/92	0	0	0	2,139,365	2,057,087	1,034,625
6	11/23-12/24/92	0	0	0	1,159,080	3,077,953	1,088,844
7	12/24/92-1/26/93	0	0	0	2,170,152	1,986,942	877,125
8	1/26-2/25/93	0	0	0	2,143,430	1,867,317	1,044,888
9	2/25-3/26/93	0	0	0	2,142,813	1,657,246	950,535
10	3/26-4/27/93	0	0	0	2,356,095	1,965,249	1,069,574
11	4/27-5/25/93	0	0	0	2,888,105	2,110,439	1,116,209
12	5/25-6/24/93	1,301,410	1,686,251	2,510,418	476,883	652,210	242,765

Table A.5. Estimates for new housing units under construction or planned at Fort Irwin

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-723/92	52,233	78,350	156,700	0	0	0
2	7/23-8/21/92	50,492	75,738	151,476	0	0	0
3	8/21-9/22/92	55,715	83,573	167,146	0	0	0
4	9/22-10/23/92	15,670	23,505	47,010	84,017	77,554	54,934
5	10/23-11/23/92	0	0	0	118,388	109,281	77,408
6	11/23-12/24/92	0	0	0	118,388	109,281	77,408
7	12/24/92-1/26/93	0	0	0	126,026	116,332	82,402
8	1/26-2/25/93	0	0	0	114,569	105,756	74,910
9	2/25-3/26/93	0	0	0	110,750	102,231	72.413
10	3/26-4/27/93	0	0	0	122,207	112,806	79,905
11	4/27-5/25/93	0	0	0	106,931	98,706	69,916
12	5/25-6/24/93	40,045	60,068	120,136	26,733	24,676	17,479
Total kWh		214,156	321,234	642,468	928,009	856,623	606,775
# of Units	Total kWh	Summer on Peak	Mid Peak	Off Peak	Mid Peak	Off Peak	Super-Off Peak
172	1,380,065	82,804	124,206	248,412	358,817	331,215	234,611
220	2,189,200	131,352	197,028	394,056	569,192	525,408	372,164
Totals:							
392	3,569,265	214,156	321,234	642,468	928,009	856,623	606,775

This predicted consumption level was then compared to the base levels established by SCE for each month (see Table A.7), and from this, the percentage savings required to drop the consumption level below the base level for any given month and time period was determined (see Tables A.8 and A.9).

Table A.10 lists the number of time periods that fall into each savings percentage category, based on Table A.8. The savings percentage categories indicate the savings required to reach the base level. Any savings above this rate in each time period will cause the consumption level to drop below the base level, thus requiring use of the zero rate to value the savings associated with that time period. Table A.11 lists the electricity savings calculated for other installations. These figures provide information regarding the potential effects of energy reduction on the value of savings.

These tables indicate that for 13 out of 41 time periods (one time period out of 42 had consumption listed below the base level), savings of 30% or greater would be required to drop consumption below the base level in those periods; for 30 out of 41 time periods, savings of 20% or greater would be required; and for 11 out of 41 time periods, savings of less than 20% would be required to drop consumption below the base level. The potential ramifications of this will be discussed more fully in another section.

Table A.6. Number of Days

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-723/92	30	30	30	0	0	0
2	7/23-8/21/92	29	29	29	0	0	0
3	8/21-9/22/92	32	32	32	0	0	0
4	9/22-10/23/92	9	9	9	22	22	22
5	10/23-11/23/92	0	0	0	31	31	31
6	11/23-12/24/92	0	0	0	31	31	31
7	12/24/92-1/26/93	0	0	0	33	33	33
8	1/26-2/25/93	0	0	0	30	30	30
9	2/25-3/26/93	0	0	0	29	29	29
10	3/26-4/27/93	0	0	0	32	32	32
11	4/27-5/25/93	0	0	0	28	28	28
12	5/25-6/24/93	23	23	23	7	7	7

Table A.7. Base Level kWh

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-723/92	1,208,044	1,646,208	2,710,710	0	0	0
2	7/23-8/21/92	1,208,044	1,646,208	2,710,710	0	0	0
3	8/21-9/22/92	1,208,044	1,646,208	2,710,710	0	0	0
4	9/22-10/23/92	350,722	477,931	786,980	1,321,451	1,065,764	563,997
5	10/23-11/23/92	0	0	0	1,862,044	1,501,759	794,723
6	11/23-12/24/92	0	0	0	1,862,044	1,501,759	794,723
7	12/24/92-1/26/93	0	0	0	1,862,044	1,501,759	794,723
8	1/26-2/25/93	0	0	0	1,862,044	1,501,759	794,723
9	2/25-3/26/93	0	0	0	1,862,044	1,501,759	794,723
10	3/26-4/27/93	0	0	0	1,862,044	1,501,759	794,723
11	4/27-5/25/93	0	0	0	1,862,044	1,501,759	794,723
12	5/25-6/24/93	926,167	1,262,093	2,078,211	434,477	350,410	185,435

Table A.8. Percentage kWh Savings Required to Reach Base Level

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-723/92	31.6%	26.7%	25.4%	NA	NA	NA
2	7/23-8/21/92	38.8%	37.1%	34.2%	NA	NA	NA
3	8/21-9/22/92	29.8%	27.1%	35.4%	NA	NA	NA
4	9/22-10/23/92	40.4%	32.4%	10.8%	40.7%	34.5%	37.6%
5	10/23-11/23/92	NA	NA	NA	13.0%	27.0%	23.2%
6	11/23-12/24/92	NA	NA	NA	NA	51.2%	27.0%
7	12/24/92	NA	NA	NA	14.2%	24.4%	9.4%
8	1/26-2/25/93	NA	NA	NA	13.1%	19.6%	23.9%
9	2/25-3/26/93	NA	NA	NA	13.1%	9.4%	16.4%
10	3/26-4/27/93	NA	NA	NA	21.0%	23.6%	25.7%
11	4/27-5/25/93	NA	NA	NA	35.5%	28.8%	28.8%
12	5/25-6/24/93	28.8%	25.2%	17.2%	8.9%	46.3%	23.6%
Total		33.3%	29.8%	28.4%	16.5%	29.8%	24.2%

Table A.9. kWh Difference Between Base and Predicted

Period	Dates	Summer On	Summer Mid	Summer Off	Winter Mid	Winter Off	Winter Super-Off
1	6/23-723/92	559,369	601,056	924,616	0	0	0
2	7/23-8/21/92	765,724	971,780	1,411,240	0	0	0
3	8/21-9/22/92	513,787	611,038	1,488,647	0	0	0
4	9/22-10/23/92	237,694	228,778	95,733	906,263	560,588	339,189
5	10/23-11/23/92	0	0	0	277,321	555,328	239,902
6	11/23-12/24/92	0	0	0	NA	1,576,194	294,121
7	12/24/92-1/26/93	0	0	0	308,108	485,183	82,402
8	1/26-2/25/93	0	0	0	281,386	365,558	250,165
9	2/25-3/26/93	0	0	0	280,769	155,487	155,812
10	3/26-4/27/93	0	0	0	494,051	463,490	274,851
11	4/27-5/25/93	0	0	0	1,026,061	608,680	321,486
12	5/25-6/24/93	375,243	424,158	432,207	42,406	301,800	57,330
Total kWh		2,451,818	2,836,810	4,352,443	3,616,365	5,072,307	2,015,258

Table A.10. Percentage Savings Available According to Time Period

Percentage Savings Available	Number of Periods
Less than 10%	3
10% - 20%	8
20% - 30%	17
30% - 40%	9
40% - 50%	3
Greater than 50%	1

Table A.11. Energy and Demand Savings Estimates for Other Facilities

Base	Existing Electricity Consumption	Resulting Electricity Consumption	Percent Savings	Existing Demand	Resulting Demand	Percent Savings
Cape Canaveral	655,549	504,303	23%	362,135	181,353	50%
Fort Drum	361,263	266,845	26%	NA	NA	NA
Griffiss AFB	293,296	252,457	14%	NA	NA	NA
Fort Lewis			25%			
Patrick AFB	370,803	275,021	26%			
Robins AFB	918,386	766,049	17%	545,781	386,321	29%
Fort Stewart	981,921	850,147	13%	NA	NA	NA
Vandenberg AFB	681,787	555,575	19%	NA	NA	NA

From Table 11, it can be seen that the range of calculated savings for other installations falls between 13% and 26%; and the mean savings has been 19% over the baseline consumption level. Therefore, it is likely that the potential electricity savings could drop the consumption level below the base level, requiring a "dual" rate to be used in the valuation of savings - the incremental rate and the zero rate. These figures indicate that the appropriate rate for the valuation of savings is the incremental rate up to the point at which energy savings above the base level have been exhausted, when they should then be valued at the zero rate. The next section discusses the proposed methodology for the valuation of electricity savings.

Calculation of Energy Savings

The calculation of energy savings for each time of use was based on the following formula:

$$ES^t = E_b^t - E_r^t$$

Where ES^t= Energy savings for each time of use
E_b^t= Baseline energy consumption for each time of use
E_r^t= Resulting energy consumption for each time of use

The initial valuation of this energy savings will be in present value terms, using a modified uniform present value factor (UPV*) to account for increasing future energy costs and the time value of money. The energy cost savings are calculated using the following formula:

$$PV(ES^t) = (ES^t \times R_i^t \times UPV_{25}^*)$$

Where $PV(ES^t)$= Present value of energy savings for each TOU
ES^t= Energy savings for each TOU
R_i^t= Incremental electricity rate for each TOU
UPV^*_n= UPV* for each time period n

Valuation of Savings

Assuming no periodic re-evaluation of the base level, all energy savings would be valued at the incremental rate. The EROs will be evaluated using a number of prices, appropriate to season and time of use, as illustrated in Equation 3:

$$C = R_p \times E_p + R_M \times E_M + R_O \times E_O$$

where C= Electricity cost of ERO
R_P= On-peak rate
E_P= On-peak consumption
R_M= Mid-peak rate
E_M= Mid-peak consumption
R_O= Off-peak rate
E_O= Off-peak consumption

Since the base energy charge is fixed, a ceiling of energy cost savings will exist for each time period at the point where incremental consumption is equal to zero. Because of this, the actual valuation of savings will require two steps. The net savings and SIR must be calculated for all EROs so that they can be ranked, then they will have to be recalculated after appropriate adjustments have been made to energy and demand savings.

The first step would be to rank all cost-effective EROs in order of SIR. The analysis proceeds by adding or subtracting the electricity savings in each time period for each ERO from the total predicted consumption, beginning with the ERO with the highest SIR. This continues until the cumulative energy or demand savings for any time of use equals the maximum savings available, or the point at which incremental consumption equals zero. This is the critical ERO for the time of use in question, or the point at which actual consumption equals the established base level.

The next step would be to set the dollar savings for that time of use to zero for each ERO below the critical ERO, because there can be no energy or demand cost savings below the base level. The remaining EROs are then reevaluated under the mixed incremental rate / zero rate pricing scheme. Using Equation 3 as an example, we would set R_P to zero, assuming that only the on-peak savings potential had been exhausted, while R_M and R_O would remain at their incremental price levels. This procedure would be repeated until a critical ERO is established for each time of use, below which all savings, the savings available in each time period, are valued at the zero rate.

This method would yield a list of EROs with potentially less total dollar savings than the original list. EROs at the top of the list will see full incremental savings, EROs in the middle of the list will see dollar savings only during certain times of use, and EROs at the bottom of the list will have no dollar savings associated with energy and demand reductions. For some EROs, the loss of energy cost savings will be sufficient to cause them to become cost-ineffective, and as such, they should be discarded. What remains will be a list of cost-effective EROs that take into account a limited amount of available dollar savings.

Integration with FEDS

A problem that arises with this method is the incorporation of FEDS data. The FEDS EROs taken together will represent some level of energy savings in each time of use. The FEDS EROs alone might show sufficient energy savings in the first period to reduce consumption to below the established base levels, which will throw off the analysis of manual EROs as described above.

FEDS and manual LCC output cannot be combined on an individual ERO basis because the FEDS analysis incorporates interactive effects. To alleviate this problem, FEDS EROs should be treated on a building set level. Aggregating the energy savings for EROs at this level should accurately account for interactive effects, since interaction among EROs should be contained within discrete building sets. Once FEDS EROs are grouped in this way, a net savings and SIR can be calculated for each building set, and they can be incorporated into the list of EROs described above.

Determining the Appropriate Electricity Consumption Baseline

In a previous section, the predicted electricity consumption was calculated on a monthly, time-of-use, basis. These calculations assume that the annual data used represent a typical consumption year, that personnel levels would not change, that all current and planned housing units would be fully occupied and are not replacing any old housing, and that no other construction or demolition will occur that would significantly affect energy consumption.

The next problem to be faced is whether the ERO energy and demand savings should be subtracted on a monthly, time-of-use basis; or whether the subtractions should occur on an annual level. Calculations based on a monthly basis allow the valuation of savings to be more accurate since monthly variations would be incorporated, however, these calculations would require the savings for each ERO to be divided into monthly components. This would mean that instead of six consumption figures representing the entire year, 72 consumption figures would need to be calculated (one set of six for each of the twelve months). Conversely, calculations based on an annual basis would not require the monthly consumption figures but could overvalue savings as individual month decreases in consumption may cause the level to drop below the base level for that month, but remain above the base level for the year.

Other Complications

The methodology outlined in the previous section assumes that the ISR is in effect throughout the analysis period and that the base level is never re-evaluated. Realistically, however, it is unknown as to whether the ISR will be in effect after 1997. Ideally, then, the ISR and zero rates should be used to evaluate the energy savings incurred during the first four years of the analysis with the base rate used to value the savings for the remainder of the analysis period.

This valuation method would introduce further challenges and complications into the analysis methodology. Because the base rate is higher than the ISR rate for the on-peak and mid-peak time periods, there may be measures that would not be cost-effective when evaluated under the ISR/zero rate but would become cost-effective under the base rate. Thus, the analysis would need to be performed again on all EROs not found to be cost-effective during the first four years due to the possibility that not all of the savings for each of the time periods were valued at a non-zero rate.

Additionally, another possible scenario could be introduced. Traditionally, EROs have been evaluated assuming that the measure is either implemented immediately or on failure of existing equipment. Because of the potential to have measures become cost-effective when valued at a higher marginal rate, a time-related component would need to be introduced so that measures would be evaluated as "Replace Immediately," "Replace on Failure," and "Replace before Failure" where the replacement before failure would occur when the effective marginal rate switched.

Other complications arise if the ISR remains in effect during the analysis period, but re-evaluation of the base level occurs during one or more of the renewal times. This possibility would introduce requirements such as the re-valuation of savings at base, incremental, and zero rates, depending on whether the new base level was higher or lower than previous levels. If, for example the base level was established at a higher level than in the previous period, any saving between the old base level and the new base level would need to be valued at the base rate instead of the incremental rate, with savings above the new base level evaluated at the incremental rate and savings below the old base level valued at the zero rate. If, on the other hand, the new base level were to be lower than the old base level, another analysis would need to be performed similar to the first to determine new critical EROs.

All of these complications are compounded further in determining a method for incorporating the multitude of rate structures and time periods within the FEDS framework.

Conclusions

Because of the potential complications associated with the use of more than one rate structure, and because of the uncertainty involved with the future of the ISR schedule, it was decided that the base rate represented the best marginal rate for use in the LCC analysis. While the base rate may overestimate the savings available during the first four years of the analysis, it is believed to be the most conservative estimate of savings available given the uncertainty of Fort Irwin's electricity rate in the future.

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