1985 Consumer Segmentation; Assessment of the Market for Conservation in the Northwest: Phase II

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Pacific Northwest Laboratory
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PREFACE

In October and November, 1985 a telephone survey of 1058 households in the Pacific Northwest was conducted as part of a project to analyze the marketing environment for conservation activities of the Bonneville Power Administration (BPA). Analyses of the survey results are being published in a series of five reports:

- a tracking report analyzing the changes between 1983 and 1985
- a financing report focusing on the funding aspects of household energy conservation investments
- a consumer characterization and segmentation report with detailed analyses of market segments
- a fuel switching report detailing the changes in primary and secondary fuel sources in home heating
- a utility summary report presenting a summary of the above four reports with an emphasis on electrical utilities.

The work on this series of reports is conducted by Pacific Northwest Laboratory (PNL) in support of BPA's efforts to develop the capability in delivering conservation programs for use in the future when it becomes necessary to acquire conservation resources. BPA's technical monitor for the project has been Terry Oliver, Office of Conservation.

This report, entitled 1985 Consumer Segmentation; Assessment of the Market for Conservation in the Northwest: Phase II, is the third report in the series. It presents information on consumer attitudes toward conservation, past and intended conservation behaviors, and utility-sponsored conservation program participation levels. The report is based entirely on the 1985 survey data. Comments and suggestions on this report are welcome. Please direct your correspondence to: D. L. Ivey, Project Manager, Pacific Northwest Laboratory, P.O. Box 999, Richland, Washington 99352.

EXECUTIVE SUMMARY

This report presents information on consumer attitudes toward conservation, past and intended conservation behaviors, and utility-sponsored conservation program participation levels. The information was collected by means of random telephone surveys of households in Idaho, Oregon, Washington, and Western Montana. Pacific Northwest Laboratory (PNL) conducted analyses of the survey results for the Bonneville Power Administration (BPA) to obtain a better understanding of consumer attitudes and behaviors and to facilitate conservation program planning, design, and marketing.

Coverage and Hypotheses

This report covers the following hypotheses:

- Repeat investors in energy conservation measures (ECMs) will need a greater incentive to invest in additional ECMs than will other groups of consumers.
- Consumer behavior and intentions toward conservation will not vary by participation in utility-sponsored conservation programs.
- Consumer behavior and intentions toward conservation will not vary by expected benefits.
- Consumer behavior and intentions toward conservation will not vary by demographically defined groups.
- Consumer behavior and intentions toward conservation will not vary by value, attitude and lifestyle (VALs) questions or family life-cycle defined segments.
- The amount of money spent on ECMs will not vary by homeowners' perceptions of conservation
- The primary barriers to conservation investment are noneconomic. In the following section, major findings for each hypothesis are presented.

PAST CONSERVATION BEHAVIOR AND THE NEED FOR INCENTIVES TO INVEST FURTHER

Homeowners who have purchased and/or invested in more than one ECM appear from the analyses to have high incomes, live in single-detached homes, report receiving unexpected monetary benefits from their conservation investments, and report utility and bank loans as potential funding sources for conservation investments. The hypothesis, that repeat purchasers will need more of an incentive to invest further in conservation measures can be rejected. This segment is more financially able to invest and appear to invest for reasons other than monetary benefits.

PARTICIPATION IN UTILITY SPONSORED CONSERVATION PROGRAMS

Homeowners that had participated in at least one conservation program appeared to have invested in slightly more conservation measures in the past than homeowners that had not participated in any programs. Also when comparing homeowners who had participated in a utility sponsored program with those who had not, those homeowners who had participated indicated a greater likelihood of investing in three or more measures during the next two to three years. The results indicate that consumer behavior and intentions toward conservation investment vary by participation in a utility sponsored conservation program. These results in turn support rejecting the hypothesis that behavior and intention would not vary by participation in such programs.

EXPECTED BENEFITS OF ENERGY CONSERVATION MEASURES

Households that had previously installed ECMs had expected monetary as well as comfort benefits. These expectations changed when respondents were asked about future ECM installation in the next two to three years. For more than three-fourths of the ECMs, respondents reported that they expect to receive primarily monetary benefits. The results seem to give some support to rejecting the hypothesis that consumer behavior and intentions do not vary by the benefits expected from different ECMs.

DEMOGRAPHIC INFLUENCES ON CONSERVATION INVESTMENT

It was hypothesized that consumer behavior and intentions toward installation of energy conservation measures would not vary by demographically defined groups. The results indicate that certain demographic variables do in fact have an effect both on past behavior and future plans to install ECMs. Therefore, the hypothesis can be partially rejected. Of the seven demographic variables used to test the hypothesis, five had some degree of influence. These five include total household income, education level, number of people in the household, length of occupancy in the current residence, and geographic location.

INFLUENCE OF ATTITUDES AND FAMILY LIFE CYCLE SEGMENTS ON CONSERVATION INVESTMENT

The results of the analyses indicate that consumer behavior and intentions toward conservation do vary by the family life cycle a household currently finds itself. The two life cycle segments that appear most receptive and capable of installing ECMs are the Young Adults-Childless and Early Parenthood. These segments have moderately high incomes, shorter length of stay at current residences, fewer ECMs installed, and the greatest likelihood of installing three or more ECMs in the future. Marketing programs should be geared towards the demographic data available on these two segments.

A statistical procedure call Factor Analysis was used to analyze the value, attitude and lifestyle statements in the Phase II survey. The analysis indicated that there were two factors which measured the levels of cynicism and altruism that homeowners may have felt toward several of the statements. The results seem to indicate that consumer behavior and intentions toward conservation do vary by the respondents responses to the attitude statements.

PERCEPTUAL INFLUENCES ON THE AMOUNT OF MONEY SPENT FOR ENERGY CONSERVATION MEASURES

Respondents were asked about their level of concern for energy use in the home, cost of energy and energy conservation. The results showed that in general, as concern for an issue increased so did the level of conservation

spending. The respondents were also asked to respond to several attitudinal statements. It became apparent that those who spent nothing were more likely to give negative responses while those who spent something on energy conservation tended to give more positive results. The hypothesis which was tested states, that the amount of money spent on ECMs will not vary by homeowners' perception of conservation. The findings indicate that the hypothesis should be rejected.

PERCEIVED BARRIERS TO ENERGY CONSERVATION INVESTMENT

It was hypothesized that the primary barriers to homeowner investment in ECMs are noneconomic. The results of the analyses overwhelmingly show that the primary barriers to investment in ECMs are economic. Nearly 60% of the homeowners stated that cost was the primary barrier to conservation investment. The next most frequent reason given for not investing was that homeowners felt no need to invest. This may be true for some of the residences. However, a relatively large segment of these homeowners may not be aware that certain ECMs can reduce energy use and still be cost effective.

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1.0 INTRODUCTION

This report presents information on consumer attitudes toward conservation, past and intended conservation behaviors, and utility-sponsored conservation program participation levels. The information was collected by means of random telephone surveys of households in Idaho, Oregon, Washington, and Western Montana. Pacific Northwest Laboratory (PNL)^(a) conducted analyses of the survey results for the Bonneville Power Administration (BPA) to obtain a better understanding of consumer attitudes and behaviors and to facilitate conservation program planning, design, and marketing.

1.1 BACKGROUND

During 1983-84, PNL conducted the Phase I study of consumer energy conservation attitudes for the BPA. This study was part of an overall project designed to assess the marketing environment for BPA's energy conservation programs and activities. It was the first comprehensive regional study of its kind and established a baseline for future tracking.

In the baseline study, a telephone survey of 2000 residents of the Northwest was conducted.^(b) The sample was drawn to represent a cross-section of consumers in the Northwest and was composed of 500 respondents from each of four geographic divisions: Western Washington; Western Oregon; Eastern Oregon and Southern Idaho; Eastern Washington, Northern Idaho, and Western Montana. The respondents were adult heads of households. Only one respondent per household was interviewed. Eighty percent of the interviews were conducted during evening and weekend hours between October 30 and November 13, 1983. Seventy-five percent of the interviews lasted approximately 20 minutes. Interviews with the remaining respondents lasted approximately 50 minutes because of additional questions relating specifically to heat pumps and solar water heaters.

The respondents were asked questions regarding their attitudes, perceptions, and awareness of energy conservation; their conservation actions and

(a) Operated for the Department of Energy by Battelle Memorial Institute under contract OE-AC06-76RLO 1930.

(b) The survey was conducted by RMH Research Inc. of River Edge, New Jersey.

measures to date; their methods of financing past conservation investments; their perceptions of energy institutions; their behaviors with respect to public communication media such as newspapers, radio and television; and their willingness to invest in energy conservation and its relationship to perceived rates of returns.

The results of the baseline study (RMH Research, Inc. 1984a) were published and compared with results from other studies (Fang 1985). A companion survey on the marketing environment for solar and heat pump water heaters was also conducted (RMH Research, 1984b).

In July 1985, PNL undertook Phase II of the project to analyze the marketing environment for BPA conservation activities with the following three objectives:

1. to track changes in consumer attitudes, interests and opinions between 1983 and 1985
2. to identify more refined segments of the residential conservation market in terms of attitudes, interests, and opinions
3. to test hypotheses concerning consumer conservation actions and investment behaviors.

To achieve these objectives, a second survey of Northwest consumers was conducted in late 1985. This report provides the data, information, and analyses to achieve Objective 2 and part of Objective 3. Specifically the hypotheses being tested in this report include:

1. Repeat investors in energy conservation measures (ECMs) will need a greater incentive to invest in additional ECMs than will other groups of consumers.
2. Consumer behavior and intentions toward conservation will not vary by participation in utility sponsored conservation programs.
3. Consumer behavior and intentions toward conservation will not vary by expected benefits.
4. Consumer behavior and intentions toward conservation will not vary by demographically defined groups.

5. Consumer behavior and intentions toward conservation will not vary by value, attitude and lifestyle (VALs) questions or family life-cycle defined segments.
6. The amount of money spent on ECMs will not vary by homeowners' perceptions of conservation.
7. The primary barriers to conservation investment are noneconomic.

1.2 SURVEY AND SAMPLE DESCRIPTIONS

In the 1985 survey, 1058 telephone interviews were completed. The sample was drawn from Idaho, Oregon, Washington and Western Montana, with nearly equal numbers of respondents from each of the same four geographical divisions as in the 1983 sample. Interviews were conducted from October 15 through November 8, 1985. Calls were made from 4 p.m. to 9 p.m. on weekdays and from 10:30 a.m. to 7 p.m. on Saturdays and Sundays. Each interview took between 35 and 45 minutes to complete. The refusal rate was 13% and the termination rate was 10%.^(a)

The data presented in this report have been weighted to approximate population values in the BPA service area. First, the populations of counties within each of the four geographic divisions in the BPA service area were determined and summed. This yielded a total population count for each geographic division. The total counts for the four geographic divisions were then summed to arrive at a total population for the BPA service area. The populations of each division were then expressed as a percentage of the total population of the region. The weights were derived by comparing the sample observations from the geographic divisions with their respective divisional populations. All population values were approximated by using the 1980 Census data.^(b) Table 1.1 presents the details of the weights by geographic division.

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- (a) For detailed description of sampling design, survey procedure, and survey instrument, see Columbia Research Center, 1985 Marketing Environment for BPA Conservation Activities: Phase II, Draft report submitted to Pacific Northwest Laboratory, December 6, 1985, Portland, Oregon.
 - (b) Total number of households in the Pacific Northwest for 1980 is 3,022,490.

TABLE 1.1. Weights by Geographic Division

<u>Geographic Division</u>	<u>Relative Weight</u>	<u>Percent of Total Households</u>	<u>Households in Division</u>	<u>Households in Sample</u>	<u>Weight for Division</u>
W. Washington	1.58	39.50	1,193,884	258	4,627.5
W. Oregon	1.12	20.80	846,297	270	3,134.4
E. Washington, N. Idaho, & W. Montana	0.73	18.25	551,604	274	2,013.2
E. Oregon & S. Idaho	<u>0.57</u>	<u>14.25</u>	<u>430,705</u>	<u>256</u>	<u>1,682.4</u>
Total	4.00	100.00	3,022,490	1,058	---

The survey included responses from both homeowners and renters. However, since several of the survey questions did not apply to renters and because homeowners are much more likely to invest in ECMs, results were tabulated for homeowners only. In addition to providing results on all homeowners regardless of the heating fuel used in their residence, the report also presents the same findings for homeowners who use electricity as their primary or secondary heating fuel. This was done because the BPA's primary interest is electricity, and their programs are designed for consumers of electricity.

1.3 REPORT STRUCTURE

Each of the following chapters will address a specific hypothesis. Within each chapter, relevant segmentation schemes will be addressed; and other variables that are relevant to the hypothesis will be discussed. Chapter 2.0 provides an overview of the findings derived from the analyses conducted in this study and discusses some of the implications. Chapter 3.0 looks at the issue of whether repeat purchasers of ECMs need more of an incentive to invest further than do other groups of consumers. Chapter 4.0 explores the specific utility programs in which homeowners have participated. Chapter 5.0 reviews the benefits which homeowners expected from past and future investments in ECMs. Chapter 6.0 reviews the demographic segments and how they relate to consumer behavior and intentions toward conservation. Chapter 7.0 presents

segmentation schemes based on the homeowners' responses to several value, attitude and lifestyle questions and on family life-cycle defined segments. These segmentation schemes are then used to explain actual and intended conservation behavior. Chapter 8.0 discusses homeowners' perceptions of conservation and how these perceptions may have affected the amount of money they have spent during the past two years to reduce energy use in their residences. Chapter 9.0 reviews the homeowners' actual or perceived barriers that prevent conservation investment.

2.0 FINDINGS

Chapters 3 through 9 present detailed analyses and discussion of data and information with respect to consumer behavior and intentions toward energy conservation and how they are related to past experience, utility program participation, demographics of the households, attitudes toward conservation and perceived barriers to conservation investment. This chapter provides a summary of the findings and conclusions.

2.1 PAST CONSERVATION BEHAVIOR AND THE NEED FOR INCENTIVES TO INVEST FURTHER

Homeowners who have purchased and/or invested in more than one ECM appear from the analyses to have high incomes, live in single-detached homes, report receiving unexpected monetary benefits from their conservation investments, and report utility and bank loans as potential funding sources for conservation investments. The above characteristics are representative for repeat purchasers more frequently than for homeowners who are nonpurchasers or single measure purchasers. The results do not appear to differ between the entire sample and households using electricity.

The results also showed that repeat purchasers are more able financially to invest and may have more interest in energy conservation because they more frequently live in single-detached family homes. Many conservation measures are designed for single-detached family homes as opposed to mobile homes. Moreover, since repeat purchasers more frequently reported monetary benefits as unexpected, it would appear that this group may be investing in conservation for reasons such as increased comfort. From these results, repeat purchasers of ECMs do not appear to need incentives to invest in additional energy conservation. Therefore, the hypothesis of repeat purchasers needing more of an incentive to invest in ECMs cannot be supported.

2.2 PARTICIPATION IN UTILITY SPONSORED CONSERVATION PROGRAMS

Over 50% of the homeowners surveyed stated that they were aware of at least one utility-sponsored utility program. However, when asked to name a specific program, less than 10% of these respondents were able to mention a

specific program. Residential Weatherization was the program most frequently mentioned by respondents. When asked if they had participated in any utility-sponsored programs, approximately 20% of the homeowners reported that they had. Again, the most frequently mentioned program was Residential Weatherization.

Over 35% of homeowners who had participated in at least one utility-sponsored program had installed five or more conservation measures in their homes. However, 30% of those who had not participated in a utility-sponsored program had also installed five or more conservation measures. Comparing homeowners who had participated in a utility-sponsored program with those who had not, those homeowners who had participated indicated a greater likelihood of investing in three or more measures during the next two to three years. The results indicate that consumer behavior and intentions toward conservation investment vary by participation in a utility-sponsored conservation program. These results in turn support rejecting the hypothesis that behavior and intention would not vary by participation in such a program.

2.3 EXPECTED BENEFITS OF ENERGY CONSERVATION MEASURES

Households that had previously installed ECMs had expected monetary as well as comfort benefits. These expectations changed when respondents were asked about future ECM installation in the next two to three years. For more than three-fourths of the ECMs, respondents reported that they expect to receive primarily monetary benefits. The results seem to give some support to rejecting the hypothesis that consumer behavior and intentions do not vary by the benefits expected from different ECMs.

Information such as this is very useful when designing marketing programs. If consumers expect monetary benefits and if they do not receive direct financial benefit, then marketing program 3 must be sensitive to this information. Marketing programs may decide to advertise that monetary benefits could vary and/or monetary benefits may not be the primary benefit for a certain conservation measure.

2.4 DEMOGRAPHIC INFLUENCES ON CONSERVATION INVESTMENT

The following trends were observed when analyzing several demographic variables and how they related to investing in energy conservation measures in the past:

- As length of time in a home increases, so does the number of ECMs installed. One exception is that, as indicated by the data, if 8+ ECMs are not installed within one year of initially occupying the home, it is not likely that this high level of 8+ ECMs will be reached later.
- As the number of people in the household increases, so does the number of ECMs installed. The exception is that 4- and 5-person households are not as likely to have installed 8+ ECMs as are the 2- and 3-person households.
- Occupational groups exhibited a large variability within each group regarding ECM installation. However, no single group was highly active or inactive.
- Second-householder occupation groups exhibited a large variability within each group regarding ECM installation, and no single group was highly active or inactive.
- As level of education increases, so does the number of ECMs installed.
- As level of household income increases, so does the number of ECMs installed.
- The Southwest quadrant has been most active followed by the Northeast, the Northwest, and last, the Southeast.

In regards to the likelihood of future ECM installation, the same demographic variables were analyzed to assess their influence. The major findings are as follows:

- As length of time in a home increases, the likelihood of future ECM installation decreases.

- As number of people in the household increases, so does the likelihood of future ECM installation.
- As level of education increases, so does the likelihood of future ECM installation.
- The Northwest and Southeast quadrants are the most likely to install ECMs in the future.

The hypothesis tested in this chapter states that consumer behavior and intentions toward installation of energy conservation measures will not vary by demographically defined groups. The results indicate that certain demographic variables do in fact have an effect both on past behavior and future plans to install ECMs. Of the seven demographic variables used to test the hypothesis with regard to past behavior, only five had some degree of influence on the number of energy conservation installed. These five include total household income, education level, number of people in the household, length of occupancy in the current residence, and geographic location.

In terms of the residents future intentions regarding conservation investment, the same five demographic variables appear to have the same effect only stronger on whether they will invest in the future. From these results it appears that investment in energy conservation measures is most likely to occur during the first few years of occupancy in a residence; larger households are more likely to install ECMs; both education and income have a positive affect on likelihood of ECM installation; and homeowners in the Northwest and Southeast had been least active in the past but report greater likelihood of ECM investment in the future.

2.5 INFLUENCE OF ATTITUDES AND FAMILY LIFE CYCLE SEGMENT ON CONSERVATION INVESTMENT

The results of the analyses indicate that consumer behavior and intentions toward conservation do vary by the family life cycle a household currently finds itself. The two life cycle segments that appear most receptive and capable of installing ECMs are the Young Adults-Childless and Early Parenthood. These segments have moderately high incomes, shorter length of stay at current residences compared to other segments, fewer ECMs installed, and the greatest

likelihood of installing three or more ECMs in the future. Marketing programs should be geared towards the demographic data available on these two segments. Both segments are composed of young adults, and the Early Parenthood group also has children. Advertising ECMs may be more successful if the advertising depicts families similar to the Young Adult-Childless and Early Parenthood segments.

A statistical procedure called Factor Analysis was used to analyze the value, attitude and lifestyle statements in the Phase II survey. The analysis indicated that there were two factors which measured the levels of cynicism and altruism that homeowners may have felt toward several of the statements. The results seem to indicate that consumer behavior and intentions toward conservation do vary by the respondents responses to value, attitude and lifestyle statements.

In terms of the cynicism factor, the respondents who scored high on the factor may be more inclined to invest in ECMs than those who scored low. In fact, those with high scores more frequently indicated that they would prefer to spend money on ECMs than did those who scored low. This high cynicism group had installed fewer ECMs in the past and therefore may have more reason to invest. However, this group tends to have lower incomes than those who scored low. There was not much difference between the two groups in terms of the number of ECMs they were likely to install in the next two to three years.

Respondents who scored low on the altruism factor may be more inclined to invest in ECMs than those who scored high. This low group had higher incomes and had installed fewer ECMs than those who scored high on the altruism factor. This group also indicated that they were more inclined to installed three or more ECMs in the next two to three years.

The results of the factor analysis should be interpreted with caution because the two factors account for only about 55% of the variance. In addition, there are wording problems in several of the statements. In future analyses, closer scrutiny of the statements with wording problems may result in omitting them from the analyses. Control of additional variables may also increase the percent of variance accounted for.

2.6 PERCEPTUAL INFLUENCES ON THE AMOUNT OF MONEY SPENT FOR ENERGY CONSERVATION MEASURES

Respondents were asked about their level of concern for energy use in the home, cost of energy and energy conservation. The results showed that in general, as concern for an issue increased so did the level of conservation spending. Of the three issues, homeowners expressed greatest concern over the cost of energy.

The respondents were also asked to respond to several attitudinal statements. It became apparent that those who spent nothing were more likely to give a negative response to the statements while those who spent something on energy conservation tended to give more positive responses.

The hypothesis which was tested in this chapter states, that the amount of money spent on ECMs will not vary by homeowners' perceptions of conservation. The findings indicate that the hypothesis should be rejected.

2.7 PERCEIVED BARRIERS TO ENERGY CONSERVATION INVESTMENT

It was hypothesized that the primary barriers to homeowner investment in ECMs are non-economic. The results of the analyses overwhelmingly show that, according to the reports from respondents, the primary barriers to investment in ECMs are economic. Nearly 60% of the homeowners stated that cost was the primary barrier to conservation investment. The next most frequent reason given for not investing was that homeowners felt no need to invest. This may be true for some of the residences. However, a relatively large segment of these homeowners may not be aware that certain ECMs can reduce energy use and still be cost effective.

Homeowners who had lived at their current residences three year or longer stated more often that they did not need to install any conservation measures as opposed to homeowners living at their current residences less than three years. These results may indicate that if homeowners are going to invest in ECMs, they may be more inclined to do so during the first couple of years in their residences.

Homeowners reporting cost as a barrier may be unaware of utility sponsored conservation programs or other types of loan programs that could aid in reducing costs and/or make investing in ECMs financially appealing. An important area for further study is the question of why 30% of homeowners feel that there is no need to invest in ECMs.

3.0 PURCHASE BEHAVIOR OF HOMEOWNERS

An overall objective of this study is to better understand what motivates consumers to invest in ECMs for their homes and/or to participate in energy conservation programs. As part of this objective, it is beneficial to investigate the differences between consumer groups in terms of their levels of past energy conservation investment: homeowners who have made repeat investments in or purchases of energy conservation measures (repeat purchasers), those who have not invested at all (nonpurchasers), and those who have made only one purchase in the past (single-measure purchasers). One hypothesis is that repeat purchasers will need more of an incentive to invest further in energy conservation measures than will other consumer groups. Chapter 2 will attempt to address this hypothesis by comparing repeat purchasers with single-measure purchasers and, where appropriate, nonpurchasers. By assessing unexpected benefits, reasons not to invest, potential sources of funding, likelihood of future conservation investment, demographics, and attitude responses, it should be possible to provide an answer to the hypothesis.

3.1 DEMOGRAPHIC FACTORS THAT INFLUENCE PURCHASE BEHAVIOR

The level of past energy conservation investment was related positively to the homeowner's total household income. (See Table 3.1.A.) Over 40% of the repeat purchasers had a total household income of more than \$30,000, while less than 35% of the non- and single-measure purchasers had incomes over \$30,000. Income level may help to explain why repeat purchasers, more than other consumers, have been able to invest in ECMs. A similar relationship between total household income and level of past energy conservation investment appears to exist for homeowners who use electricity as a heating fuel (see Table 3.1.B). Whether or not there are additional incentives, repeat purchasers are simply better able financially to invest in ECMs.

The distribution of type of residence by number of conservation measures purchased is displayed in Table 3.2.A. Over 90% of the repeat purchasers live in single-family detached homes, while 84% of the single-measure purchasers and 74% of the nonpurchasers lived in this type of residence. On the other hand,

TABLE 3.1.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Total Household Income

Total Household Income	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=1977)		
	None	One	Two or More
	(n=331)	(n=333)	(n=1313)
Less than \$16,000	23%	25%	22%
\$16,000 to \$30,000	45	41	34
More than \$30,000	32	34	44

TABLE 3.1.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Total Household Income

Total Household Income	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1161)		
	None	One	Two or More
	(n=192)	(n=214)	(n=754)
Less than \$16,000	19%	29%	25%
\$16,000 to \$30,000	50	44	32
More than \$30,000	31	27	43

TABLE 3.2.A. Number of Energy Conservation Measures Homeowners Have Purchased, by the Type of Current Residence

Type of Residence	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2150)		
	None	One	Two or More
	(n=362)	(n=372)	(n=1416)
Single-Family Detached Home	74%	84%	92%
2-4 Family Home-Duplex-Townhouse	2	3	2
Building with More than 4 Units	1	0	0
Mobile Home-Trailer	23	13	6

23% of the nonpurchasers and 13% of the single-measure purchasers live in mobile home-trailers, while only 6% of the repeat purchasers live in that type of residence. Households that use electricity as a heating fuel display a very similar relationship between type of residence and number of conservation measures purchased (see Table 3.2.B). Since the type of residence can be a function of the level of total household income, and the types and number of ECMs that apply to mobile home-trailers are normally different than those that apply to single-family detached homes, the results suggest that higher income households in single-family detached homes are more inclined to make repeat investments in several conservation measures.

An obvious relationship did not exist between the level of education attained by the most formally educated adult resident in the household and the homeowners' past conservation purchase behavior. This was true for all homeowners as well as for those who use electricity as a heating fuel (see Table 3.3.A and Table 3.3.B.)

3.2 OTHER FACTORS THAT INFLUENCE PURCHASE BEHAVIOR

All of the homeowners who reported investing in one or more of the 12 ECMs covered in this survey were asked if they received any unexpected benefits from any or all of the conservation actions they had taken thus far. Their verbatim responses were recoded into four categories: 1) None, 2) Monetary, 3) Comfort

TABLE 3.2.B. Number of Energy Conservation Measures Homeowners Have Purchased, by the Type of Current Residence

Type of Residence	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric (n=1262)		
	None (n=218)	One (n=231)	Two or More (n=813)
Single-Family Detached Home	66%	80%	89%
2-4 Family Home-Duplex-Townhouse	2	4	1
Building with More than 4 Units	2	0	1
Mobile Home-Trailer	31	16	8

TABLE 3.3.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Level of Education

Level of Education(a)	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2140)		
	None	One	Two or More
	(n=359)	(n=367)	(n=1414)
High School Degree or Less	35%	31%	37%
Some College	27	25	30
Complete College or Trade School	22	31	20
Some Graduate School or More	16	12	13

(a) Residences were categorized by education according to the most formally educated adult resident in the household.

TABLE 3.3.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Level of Education

Level of Education(a)	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1259)		
	None	One	Two or More
	(n=215)	(n=231)	(n=813)
High School Degree or Less	39%	34%	37%
Some College	31	23	33
Complete College or Trade School	17	25	19
Some Graduate School or More	14	18	11

(a) Residences were categorized by education according to the most formally educated adult resident in the household.

and 4) Save energy. Monetary (2) responses included: save money, save heating costs, conservation rebate, and increased value of home. Comfort (3) responses included: even room temperature, less household draft and more comfort. Save energy (4) responses included: save or decrease energy consumption. Homeowners who installed only one conservation measure reported more frequently than did repeat purchasers (82% versus 76%) that they did not receive any

unexpected benefits (see Table 3.4.A.). Almost 10% of the repeat purchasers reported monetary as an unexpected benefit, while none of the single-measure purchasers reported it. Homeowners who use electricity as a heating fuel and who installed only one conservation measure also reported more frequently than did repeat purchasers (79% versus 71%) that they did not receive any unexpected benefits. Homeowners using electricity were different from the entire sample when reporting comfort as an unexpected benefit. For homeowners using electricity, 21% of the single-measure purchasers and 17% of the repeat purchasers reported comfort as an unexpected benefit versus 11% of the single-measure purchasers and 13% of the repeat purchasers from the entire sample (see Table 3.4.8.) Thus, receiving unexpected monetary benefits may serve as an incentive for further investment by repeat purchasers; and comfort may be a very important incentive for homeowners who use electricity as a heating fuel.

Another way to assess whether repeat purchasers need more of an incentive to undertake further investment in ECMs is to look at the reasons given by this segment for not installing additional measures. The distribution of reasons given by nonpurchasers, single-measure purchasers, and repeat purchasers for the entire sample and for households that use electricity, is shown in Tables 3.5.A and 3.5.8. The reasons given were approximately the same for each of the three purchase groups. Nearly 60% of the homeowners in each group

TABLE 3.4.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Unexpected Benefits Received

Unexpected Benefits	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=442)	
	One (n=68)	Two or More (n=346)
None	82%	76%
Monetary	0	9
Comfort	11	13
Save Energy	7	2

TABLE 3.4.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Unexpected Benefits Received

Unexpected Benefits	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric Electric (n=232)	
	One (n=36)	Two or More (n=181)
None	79%	71%
Monetary	0	7
Comfort	21	17
Save Energy	0	4

TABLE 3.5.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Reasons that Might Prevent Homeowners from Installing Additional Energy Conservation Measures

Reason Not to Invest	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=1892)		
	None (n=322)	One (n=329)	Two or More (n=1241)
Cost	65%	63%	59%
Don't Need	27	21	27
Planning to Move	6	9	10
Time/Bother	3	5	3
Nothing	0	1	1
Other	0	2	1

reported cost as the primary barrier to further investment. Next, the barrier most frequently mentioned (20% to 30% in all groups) was not needing additional ECMs.

In terms of potential sources of funding future conservation investment, there appear to be interesting differences among the three types of purchase groups. The distribution of funding sources for the entire sample can be seen in Table 3.6.A. Nonpurchasers and single-measure purchasers were slightly more

TABLE 3.5.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Reasons that Might Prevent Homeowners from Installing Additional Energy Conservation Measures

Reason Not to Invest	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1073)		
	None (n=186)	One (n=190)	Two or More (n=697)
Cost	60%	63%	58%
Don't Need	29	25	30
Planning to Move	7	6	8
Time/Bother	5	3	2
Nothing	0	1	1
Other	0	2	1

TABLE 3.6.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Potential Sources of Funding for Future Investment in Energy Conservation Measures

Potential Sources of Funding	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=1531)		
	None (n=235)	One (n=250)	Two or More (n=1046)
Money from Current Income	15%	16%	11%
Money from Savings	13	6	9
Payments by Utility	20	31	26
Federal Tax Credits	1	0	2
Bank Loans/Credits	37	34	41
Utility Loan	10	12	10
Paid by Other	3	0	1
Combination of Sources	1	0	0
Other	0	1	0

willing to use current income than were repeat purchasers (15%, 16% versus 11%). Nonpurchasers did not mention payments by the utility as a potential source of funds as often as did single-measure and repeat purchasers (20%

versus 31%, 26%). The results do change, however, when only considering households that use electricity. Overall, nonpurchasers and single-measure purchasers who use electricity were more likely to mention payments by the utility as a funding source than were purchasers from the entire sample (28% to 42% versus 20% to 31%) (see Table 3.6.B.). These results may also indicate the positive effects of energy conservation programs sponsored by the BPA or electric utilities. Repeat purchasers in households using electricity mentioned bank loans/credits as a funding source more frequently than nonpurchasers and single-measure purchasers (41% versus 34%, 34%). The results might indicate that repeat and single-measure purchasers in electrically heated homes are more aware of funding sources and of the benefits of investing in ECMs. This knowledge could also serve as an impetus to the consumer to further invest in conservation. There were very few differences found between the purchase behavior groups in the entire sample and for households using electricity, and the number of conservation measures that they indicated they were somewhat or very likely to install in the next two or three years (see Tables 3.7.A. and 3.7.B.). Between 19% and 26% of the homeowners in each group indicated that

TABLE 3.6.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Potential Sources of Funding for Future Investment in Energy Conservation Measures

Potential Sources of Funding	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric (n=903)		
	None (n=141)	One (n=144)	Two or More (n=619)
Money from Current Income	12%	7%	10%
Money from Savings	11	2	8
Payments by Utility	28	42	28
Federal Tax Credits	1	0	3
Bank Loans/Credits	34	34	41
Utility Loan	7	13	11
Paid by Other	6	0	0
Combination of Sources	1	0	0
Other	0	1	0

TABLE 3.7.A. Number of Energy Conservation Measures Homeowners Have Purchased, by the Number of Energy Conservation Measures They Are Somewhat or Very Likely to Install in the Next Two or Three Years

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Energy Conservation Measures Homeowners (in 1000s)		
	All Heating Fuels		
	Nonpurchasers (n=362)	Single-Measure Purchasers (n=372)	Repeat Purchasers (n=1416)
0	33%	38%	38%
1-2	42	37	41
3 or More	26	26	21

TABLE 3.7.B. Number of Energy Conservation Measures Homeowners Have Purchased, by the Number of Energy Conservation Measures They Are Somewhat or Very Likely to Install in the Next Two or Three Years

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric		
	Nonpurchasers (n=218)	Single-Measure Purchasers (n=231)	Repeat Purchasers (n=813)
0	37%	41%	37%
1-2	44	38	42
3 or More	19	21	21

they were somewhat or very likely to install three or more measures while 33% to 37% of the homeowners in each group indicated that they were somewhat or very likely to install no measures. One difference worth noting is for non-purchasers. Less than 20% of this group in households using electricity reported that they were somewhat or very likely to install three or more conservation measures, whereas over 25% of the nonpurchasers in the entire sample stated the same. The intention to act and the resulting behavior are seldom equivalent. Therefore, the actual percentages from groups that will make investments in three or more measures during the next two or three years will probably be lower than indicated here. However, since repeat purchasers have

previously demonstrated purchase behavior on two or more occasions, their actions may more nearly reflect their intentions than will those of single-measure purchasers and nonpurchasers.

There was very little difference found between the average monthly heating bill of the households in the entire sample and those using electricity, and past conservation purchase behavior of the respondents (see Tables 3.8.A and 3.8.B.). Single-measure purchasers had the highest percentage of average monthly energy bills less than \$50 per month (27% for the entire sample, 30% for households using electricity), and the lowest percentage of heating bills between \$50 and \$75 per month (27% for the entire sample, 31% for households using electricity).

TABLE 3.8.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Average Monthly Heating Bill

Average Monthly Energy Bill	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=1895)		
	None (n=302)	One (n=315)	Two or More (n=1279)
Less than \$50	18%	27%	22%
\$50 to \$75	39	27	40
More than \$75	43	47	39

TABLE 3.8.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Average Monthly Heating Bill

Average Monthly Energy Bill	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1128)		
	None (n=181)	One (n=195)	Two or More (n=751)
Less than \$50	18%	30%	20%
\$50 to \$75	40	31	40
More than \$75	42	39	40

3.3 HOMEOWNERS' ATTITUDES THAT INFLUENCE PURCHASE BEHAVIOR

To facilitate the understanding of consumer motivation to invest in ECMs, the purchase behavior categories were analyzed according to responses to several attitude statements. An average of 60% of all homeowners from the entire sample as well as from households using electricity in each purchase behavior category "strongly disagreed" or "disagreed" with the statement, "I have already done everything I can to conserve energy" (see Tables 3.9.A and 3.9.B.). This would indicate that even though some homeowners may not yet have invested in ECMs, they do recognize the things they can do to conserve energy in their homes. This group may need only to gain sufficient knowledge about possible conservation measures to be motivated toward investment. The responses to this statement also indicate that repeat purchasers are aware of additional ECM investment possibilities for their homes.

Over 80% of the homeowners from both the entire sample and from the households using electricity in each purchase behavior category "disagreed" or "strongly disagreed" with the statement, "Utilities should stop offering a variety of programs to encourage energy conservation" (see Tables 3.10.A and 3.10.B.). Even though most of the homeowners prefer that the utilities

TABLE 3.9.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Toward Their Own Energy Conservation Efforts

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2146)		
	None (n=360)	One (n=373)	Two or More (n=1414)
Strongly Disagree	6%	6%	3%
Disagree	57	53	55
Neutral	0	4	3
Agree	33	32	33
Strongly Agree	4	5	6

(a) In response to the statement, "I have already done everything I can to conserve energy."

TABLE 3.9.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Toward Their Own Energy Conservation Efforts

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric (n=1259)		
	None (n=216)	One (n=231)	Two or More (n=811)
Strongly Disagree	2%	7%	2%
Disagree	55	56	57
Neutral	0	4	3
Agree	39	31	31
Strongly Agree	3	3	7

(a) In response to the statement, "I have already done everything I can to conserve energy."

TABLE 3.10.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Towards Utilities Offering Conservation Programs

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s)		
	All Heating Fuels (n=2097)		
	None (n=343)	One (n=365)	Two or More (n=1389)
Strongly Disagree	24%	26%	26%
Disagree	60	60	58
Neutral	1	3	2
Agree	15	9	12
Strongly Agree	0	2	2

(a) In response to the statement, "Utilities should stop offering a variety of programs to encourage energy conservation."

TABLE 3.10.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Towards Utilities Offering Conservation Programs

Responses ^(a)	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric (n=1232)		
	None (n=206)	One (n=226)	Two or More (n=800)
Strongly Disagree	20%	23%	27%
Disagree	60	66	54
Neutral	2	3	3
Agree	18	5	14
Strongly Agree	0	2	2

(a) In response to the statement, "Utilities should stop offering a variety of programs to encourage energy conservation."

continue offering programs to encourage energy conservation, other results in this report indicate that most of these homeowners are not aware of specific utility programs. This finding reinforces the prospect of developing marketing strategies to help homeowners become aware of utility programs and to demonstrate the benefits of participating in them.

There were no differences found among households in the entire sample or in households using electricity in each purchase behavior category in terms of responses to the statement, "Electricity prices in the Northwest are not high enough to necessitate conservation activities" (see Table 3.11.A and 3.11.B.). From 80% to 95% of the respondents in each purchase behavior category "strongly disagreed" or "disagreed" with the statement.

Nearly three-fourths of all repeat and nonpurchasers "strongly agreed" or "agreed" with the statement, "Conserving energy is the best way to protect the environment" (see Tables 3.12.A and 3.12.B.). Only two-thirds of all single-measure purchasers agreed with the statement.

TABLE 3.11.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Towards Electricity Prices in the Northwest

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2100)		
	None (n=349)	One (n=354)	Two or More (n=1397)
Strongly Disagree	25%	27%	24%
Disagree	67	58	63
Neutral	0	5	1
Agree	5	7	6
Strongly Agree	2	1	1

(a) In response to the statement, "Electricity prices in the Northwest are not high enough to necessitate conservation activities."

TABLE 3.11.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Towards Electricity Prices in the Northwest

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1226)		
	None (n=204)	One (n=217)	Two or More (n=802)
Strongly Disagree	23%	26%	32%
Disagree	69	54	63
Neutral	0	9	1
Agree	5	8	4
Strongly Agree	4	2	1

(a) In response to the statement, "Electricity prices in the Northwest are not high enough to necessitate conservation activities."

TABLE 3.12.A. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Toward Conserving Energy to Protect the Environment

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2053)		
	None (n=334)	One (n=354)	Two or More (n=1366)
Strongly Disagree	2%	1%	0%
Disagree	14	27	18
Neutral	8	5	5
Agree	67	59	67
Strongly Agree	8	9	9

(a) In response to the statement, "Conserving energy is the best way to protect the environment."

TABLE 3.12.B. Number of Energy Conservation Measures Homeowners Have Purchased, by Homeowners' Attitudes Toward Conserving Energy to Protect the Environment

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) Heating Fuel Electric (n=1210)		
	None (n=204)	One (n=219)	Two or More (n=787)
Strongly Disagree	0%	0%	0%
Disagree	15	23	21
Neutral	7	8	6
Agree	70	58	64
Strongly Agree	8	11	10

(a) In response to the statement, "Conserving energy is the best way to protect the environment."

Nonpurchasers were the largest group of respondents that "strongly agreed" or "agreed" with the statement, "It is our responsibility to conserve electricity for future generations" with 90% from the entire sample, 95% from households using electricity (see Tables 3.13.A and 3.13.B.). Repeat purchasers were the next largest group with 85% from the entire sample and 85% from households using electricity. Single-measure purchasers with 83% from the entire sample and 84% from households using electricity were the smallest group to "agree" or "strongly agree" with the statement.

3.4 SUMMARY

In summary, homeowners who have purchased and/or invested in more than one ECM appear from the statistics to have high incomes, live in single-detached homes, report receiving unexpected monetary benefits from their conservation investments, and report utility and bank loans as potential fundings sources for conservation investments. The above characteristics are representative for repeat purchasers more frequently than for homeowners who are nonpurchasers or single measure purchasers.

TABLE 3.13.A. Number of Energy Conservation Measures Homeowners Purchased, by Homeowners' Attitudes Towards Conserving Electricity for Future Generations

Responses (a)	Number of Energy Conservation Measures Homeowners (in 1000s) All Heating Fuels (n=2098)		
	None (n=355)	One (n=359)	Two or More (n=1384)
Strongly Disagree	1%	1%	1%
Disagree	6	14	11
Neutral	3	1	3
Agree	74	72	69
Strongly Agree	16	11	16

(a) In response to the statement, "It is our responsibility to conserve energy for future generations."

TABLE 3.13.B. Number of Energy Conservation Measures Homeowners Purchased, by Homeowners' Attitudes Towards Conserving Electricity for Future Generations

Responses ^(a)	Number of Energy Conservation Measures Homeowners (in 1000s)		
	Heating Fuel Electric (n=1233)		
	None (n=211)	One (n=219)	Two or More (n=804)
Strongly Disagree	0%	0%	1%
Disagree	5	15	11
Neutral	0	1	3
Agree	80	69	66
Strongly Agree	15	15	19

(a) In response to the statement, "It is our responsibility to conserve energy for future generations."

From these results, repeat purchasers of ECMs do not appear to need incentives to invest in additional energy conservation. Therefore, the hypothesis of repeat purchasers needing more of an incentive to invest in ECMs cannot be supported. Repeat purchasers are more able financially to invest and may have more interest in energy conservation because they live in single- detached family homes. Many conservation measures are designed for single- detached family homes as opposed to mobile homes. Moreover, since repeat purchasers more frequently reported monetary benefits as unexpected, it would appear that this group may be investing in conservation for reasons such as increased comfort.

4.0 UTILITY CONSERVATION PROGRAM PARTICIPATION

Energy conservation programs sponsored by utilities are an important means to educate the public about reducing energy use in the home. In order to assess the levels of participation of some current conservation programs promoted by the utilities and/or the BPA, respondents were questioned about several programs and asked whether they had participated in any of them. In this chapter the following utility-sponsored programs are reviewed: Super Good Cents, Energy Guide Label, Solar and Heat Pump Water Heater program, and the Residential Weatherization program. Level of participation and the respondents' perceptions of the programs will be discussed. Because increased awareness of various ways to reduce energy use may encourage energy conservation activity, survey questions were designed to test the hypothesis that consumer behavior and intentions toward conservation vary by participation in utility sponsored conservation programs. This chapter contains an analysis of this hypothesis.

4.1 AWARENESS OF UTILITY CONSERVATION PROGRAMS

Among homeowners, approximately 56% of the entire sample and 55% of the households using electricity reported that they were aware of at least one utility-sponsored program that encourages energy conservation (see Figures 4.1.A and 4.1.B). However, when these respondents were asked to name a specific program, only 6% of them (entire sample and households using electricity) were able to do so (see Tables 4.1.A and 4.1.B). Residential Weatherization was the program most frequently mentioned by the respondents. However, it was mentioned more frequently by households that use electricity (45%) than by the entire sample (38%).

In turn, homeowners were asked what they knew about several utility-sponsored conservation programs. The programs included Super Good Cents, the Energy Guide Label Program, the Solar and Heat Pump Water Heater Program and the Residential Weatherization program. Very few respondents (1% from both the entire sample and the households using electricity) volunteered an answer when

FIGURE 4.1.A. Aware of Utility Conservation Programs,
All Heating Fuels (n=2106)

FIGURE 4.1.B. Aware of Utility Conservation Programs,
Heating Fuel Electric (n=1231)

TABLE 4.1.A. Homeowner Awareness of Utility Conservation Programs

Program	Number of Homeowners (in 1000s) All Heating Fuels (n=139)
Residential Weatherization	38%
Other Weatherization	11
Solar and Heat Pump Water Heaters	6
Other Energy-Efficient Water Heaters	8
Super Good Cents	6
Other Energy-Efficient Homes	6
Energy Guide Label Program	7
Utility Audit	5
Other Energy-Efficient Appliances	2
Local Utility Low-Interest Loans	2
Portland Development Commission	2
Wind and Solar Energy Program	2
Hood River Valley Conservation Project	1
Idaho Weatherization Program (Loans)	2
Montana Energy Conservation Program	2

questioned about what is offered in the Super Good Cents program (see Tables 4.2.A and 4.2.B). Of those who offered a response, most knew in general what the program was about.

Respondents reported several potential sources for obtaining information about the energy consumption of new appliances (see Tables 4.3.A and 4.3.B). Knowing these sources may determine how best to inform the public about a product and its energy consumption. The most frequently mentioned sources were the local utility (23% from the entire sample, 24% from households using electricity), the dealer or store (23% from the entire sample, 22% from households using electricity), followed by Consumer Guide magazine (21% from the entire sample and 21% from households using electricity).

TABLE 4.1.B. Homeowner Awareness of Utility Conservation Programs

<u>Program</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=75)</u>
Residential Weatherization	45%
Other Weatherization	8
Solar and Heat Pump Water Heaters	5
Other Energy-Efficient Water Heaters	5
Super Good Cents	6
Other Energy-Efficient Homes	8
Energy Guide Label Program	4
Utility Audit	7
Other Energy-Efficient Appliances	2
Local Utility Low-Interest Loans	5
Portland Development Commission	0
Wind and Solar Energy Program	0
Hood River Valley Conservation Project	2
Idaho Weatherization Program (Loans)	3
Montana Energy Conservation Program	0

TABLE 4.2.A. Homeowner Perceptions of the Super Good Cents Program^(a)

<u>Program Feature</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=18)</u>
Weatherization Measures for Home	53%
Energy-Efficient Homes	20
Energy-Saving Tips	17
Common Sense Practices	9

(a) In response to the questions, "What do you believe is offered in the Super Good Cents Program?"

TABLE 4.2.B. Homeowner Perceptions of the Super Good Cents Program^(a)

<u>Program Feature</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=12)</u>
Weatherization Measures for Home	55%
Energy-Efficient Homes	31
Energy-Saving Tips	0
Common Sense Practices	14

(a) In response to the questions, "What do you believe is offered in the Super Good Cents Program?"

TABLE 4.3.A. Sources of Information About the Energy Consumption of New Appliances^(a)

<u>Source</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=634)</u>
Utility	23%
Dealer-Store	23
<u>Consumer Guide</u>	21
Appliance: Label or Brochure	17
Manufacturer	9
Consumer Organizations' Literature	6
Miscellaneous	2

(a) In response to the question, "If you were interested in getting information about the energy consumption of a new appliance, where do you think you could obtain it?"

TABLE 4.3.B. Sources of Information About the Energy Consumption of New Appliances^(a)

Source	Number of Homeowners (in 1000s) Heating Fuel Electric (n=366)
Utility	24%
Dealer-Store	22
Consumer Guide	21
Appliance: Label or Brochure	18
Manufacturer	7
Consumer Organizations' Literature	5
Miscellaneous	3

(a) In response to the question, "If you were interested in getting information about the energy consumption of a new appliance, where do you think you could obtain it?"

Approximately 27% of the entire sample and 28% of households using electricity reported that they were very familiar with what is offered in the federal Energy Guide Label program (Figures 4.2.A and 4.2.B), and an additional 43% of the entire sample and households using electricity thought that they had heard of the program but were not sure what the program was about. Only 28% of the entire sample and 27% of the households using electricity knew the correct color of the energy guide label (Figures 4.3.A and 4.3.B); of those, approximately 80% of the entire sample and 82% of households using electricity knew the purpose of the Energy Guide Label Program (see Tables 4.4.A and 4.4.B).

Approximately 10% of both the entire sample and of those households using electricity offered a response when asked what the Solar and Heat Pump Water Heater Program offers. Of those who responded, over 75% correctly knew about the program (see Tables 4.5.A and 4.5.B). Over 20% of the entire sample and of households using electricity responded to a question asking about the Residential Weatherization Program; more than 70% of the respondents from both groups knew what the program offered (see Table 4.6.A and 4.6.B).

FIGURE 4.2.A. Aware of Federal Energy Guide Labels,
All Heating Fuels (n=2150)

FIGURE 4.2.B. Aware of Federal Energy Guide Labels,
Heating Fuel Electric (n=1262)

FIGURE 4.3.A. Aware of Color of Energy Guide Label, All Heating Fuels (n=1803)

FIGURE 4.3.B. Aware of Color of Energy Guide Label, Heating Fuel Electric (n=1051)

TABLE 4.4.A. Homeowner Perceptions of the Energy Guide Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) All Heating Homeowners Fuels (n=372)</u>
Efficient Appliances	80%
Weatherization/Efficient New Homes	11
Miscellaneous	10

(a) In response to the question, "What do you believe is offered in the Energy Guide Program?"

TABLE 4.4.B. Homeowner Perceptions of the Energy Guide Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=204)</u>
Efficient Appliances	82%
Weatherization/Efficient New Homes	8
Miscellaneous	9

(a) In response to the question, "What do you believe is offered in the Energy Guide Program?"

4.2 PARTICIPATION IN UTILITY CONSERVATION PROGRAMS

When asked if they had participated in any utility-sponsored programs, approximately 20% of both the entire sample and households using electricity reported that they had (see Figures 4.4.A and 4.4.B). However, fewer than 10% of these homeowners were able to name the specific program (see Tables 4.7.A and 4.7.B). The most frequently mentioned program was Residential Weatherization (56% from the entire sample, 67% from households using electricity).

TABLE 4.5.A. Homeowner Perceptions of the Solar and Heat Pump Water Heater Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=24)</u>
Energy-Efficient Water Heaters	76%
Energy-Efficient Appliances	4
Tax Rebates, Credits	5
Weatherization Measures to Your Home	4
Energy-Efficient New Homes	4
Energy-Saving Tips	2
Common Sense Practices	2
Heating Alternatives	1
Financial Help for the Poor	1
Items at Lower Cost	1

(a) In response to the question, "What do you believe is offered in the solar and heat pump water heater program?"

4.3 RELATIONSHIP BETWEEN PARTICIPATION IN UTILITY CONSERVATION PROGRAMS AND CONSERVATION INVESTMENT BEHAVIOR (PAST OR FUTURE)

Homeowner participation in a utility conservation program appears positively related to the number of energy conservation measures installed since moving into current residences. A larger proportion of homeowners who had participated in a least one utility program, compared to homeowners who had not, installed five or more conservation measures (37% versus 30% from the entire sample, 36% versus 30% from households using electricity) (see Tables 4.8.A and 3.8.B).

Homeowners who participated in a program indicated a greater likelihood of installing three or more energy conservation measures during the next two to three years than did homeowners who had not participated in a utility sponsored

TABLE 4.5.B. Homeowner Perceptions of the Solar and Heat Pump Water Heater Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=128)</u>
Energy-Efficient Water Heaters	77%
Energy-Efficient Appliances	3
Tax Rebates, Credits	7
Weatherization Measures to Your Home	3
Energy-Efficient New Homes	4
Energy-Saving Tips	0
Common Sense Practices	3
Heating Alternatives	0
Financial Help for the Poor	1
Items at Lower Cost	3

(a) In response to the question, "What do you believe is offered in the solar and heat pump water heater program?"

program (31% versus 26% from the entire sample, 30% versus 21% from households using electricity) (see Tables 4.9.A and 4.9.B).

The amount of money spent by homeowners during the past two years to reduce energy use in the home was related positively to participation in a program (see Tables 4.10.A and 4.10.B). Between 40% and 45% of the entire sample and of households using electricity who had not participated in a utility program, spent no money to reduce energy use; whereas, over 80% of the homeowners who had participated in a program did spend money.

4.4 SUMMARY

The results indicate that consumer behavior and intentions toward conservation investment vary by participation in a utility-sponsored conservation program. These results in turn support rejecting the hypothesis that behavior

TABLE 4.6.A. Homeowner Perceptions of the Residential Weatherization Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=520)</u>
Weatherization Measures for home	73%
Audits	10
Energy-Efficient New Homes	8
Financial Aid	3
Efficiency Standards	4
Miscellaneous	3

(a) In response to the question, "What do you believe is offered in the residential weatherization program?"

TABLE 4.6.B. Homeowner Perceptions of the Residential Weatherization Program^(a)

<u>Program Features</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=274)</u>
Weatherization measures for home	72%
Audits	10
Energy-Efficient New Homes	4
Financial Aid	4
Efficiency Standards	5
Miscellaneous	5

(a) In response to the question, "What do you believe is offered in the residential weatherization program?"

FIGURE 4.4.A. Participation in Utility Conservation Programs, All Heating Fuels (n=1171)

FIGURE 4.4.B. Participation in Utility Conservation Programs, Heating Fuel Electric (n=670)

TABLE 4.7.A. Specific Utility Energy Conservation Programs in Which Homeowners Have Participated

<u>Program</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=61)</u>
Residential Weatherization	56%
Other Energy-Efficient Water Heaters	13
Other Energy-Efficient Appliances	6
Other Energy-Efficient Homes	3
Energy Guide Label Program	3
Solar and Heat Pump Water Heaters	3
PP&L Insulation Loan Program	5
Energy Assistance through Community Action	5
Home Energy Check ISCL Company	3
PP&L Water Heater Wrap	3

TABLE 4.7.B. Specific Utility Energy Conservation Programs in Which Homeowners Have Participated

<u>Program</u>	<u>Number of Homeowners (in 1000s) Heating Fuel Electric (n=48)</u>
Residential Weatherization	67%
Other Energy-Efficient Water Heaters	4
Other Energy-Efficient Appliances	4
Other Energy-Efficient Homes	4
Energy Guide Label Program	4
Solar and Heat Pump Water Heaters	4
PP&L Insulation Loan Program	7
Energy Assistance through Community Action	0
Home Energy Check ISCL Company	4
PP&L Water Heater Wrap	4

TABLE 4.8.A. Number of Energy Conservation Measures Installed by the Respondents Since Moving into Their Current Residence, Relative to Participation in a Utility Conservation Program

Homeowners (in 1000s) All Heating Fuels (n=1171)	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Yes (n=218)	22%	42%	34%	3%
No (n=954)	34	36	27	3

TABLE 4.8.B. Number of Energy Conservation Measures Installed by the Respondents Since Moving into Their Current Residence, Relative to Participation in a Utility Conservation Program

Homeowners (in 1000s) Heating Fuel Electric (n=670)	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Yes (n=150)	27%	37%	32%	4%
No (n=520)	36	35	26	4

TABLE 4.9.A. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two or Three Years, Relative to Participation in a Utility Conservation Program

Homeowners (in 1000s) All Heating Fuels (n=1171)	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Yes (n=218)	33%	36%	31%
No (n=954)	36	38	26

and intention would not vary by participation in such a program. Over 35% of homeowners who had participated in at least one utility-sponsored program had installed five or more conservation measures in their homes. However, 30% of those who had not participated in a utility-sponsored program had also installed five or more conservation measures. Comparing homeowners who had

TABLE 4.9.B. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two or Three Years, Relative to Participation in a Utility Conservation Program

Homeowners (in 1000s) Heating Fuel Electric (n=670)	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Yes (n=150)	32%	38%	30%
No (n=520)	37	42	21

TABLE 4.10.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in the Home, Relative to Participation in a Utility Conservation Program

Number of Homeowners (in 1000s) All Heating Fuels (n=829)	Amount Spent (\$)				
	0	1-500	501-1000	1001-2000	>2000
Yes (n=144)	16%	43%	12%	16%	12%
No (n=686)	43	28	8	10	12

TABLE 4.10.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in the Home, Relative to Participation in a Utility Conservation Program

Number of Homeowners (in 1000s) Heating Fuel Electric (n=501)	Amount Spent (\$)				
	0	1-500	501-1000	1001-2000	>2000
Yes (n=109)	16%	49%	15%	18%	2%
No (n=392)	45	30	9	9	7

participated in a utility-sponsored program with those who had not, those homeowners who had participated indicated a greater likelihood of investing in three or more measures during the next two to three years.

5.D EXPECTED BENEFITS OF ENERGY CONSERVATION MEASURES

The objective of this chapter is to test the hypothesis that consumer behavior and intentions toward conservation will not vary by the benefits expected from different energy conservation measures. First, the benefits that respondents expected to receive from each ECM are presented; then the benefits the respondents actually received are discussed. The results are broken down further to indicate the expected benefits of each ECM and whether or not those expected benefits were actually received.

As an additional task, the expected benefits from each ECM were broken down according to the date respondents installed them. These breakdowns by date demonstrate the stability of expectations over a period of time. The chapter finishes by reviewing the expected benefits from each ECM as expressed by those homeowners who stated they were somewhat or very likely to install those particular measures in the next two or three years.

5.1 BENEFITS EXPECTED

Respondents were asked which specific ECMs they had installed in their current homes. Those who had installed one or more measures were asked if the ECMs had been installed during the past two years or since they moved into their homes. They were also asked what benefits they expected from the ECM(s).

A good understanding of the respondents' expectations of each ECM provides useful insight in marketing conservation measures. A potential problem may exist, for example, if respondents expect but do not receive significant monetary savings by weatherproofing their homes. A more appropriate marketing strategy might be to promote the more realistic benefit of weatherproofing, such as reducing drafts in the home which therefore increases comfort. Promoting programs and investment benefits which are realistic and consistent with expectations may also help increase repeat conservation investments.

Respondents reported more than 25 expected benefits from all of the ECMs being analyzed in the Phase II survey. To facilitate interpretation of the findings, the expected benefits were grouped into three categories: monetary, conservation and comfort. Monetary benefits included responses such as "save

money" and "reduce heating costs." Conservation benefits included responses such as "reduce energy consumption" and "less energy consumption." Comfort benefits included "fewer household drafts" and "more comfort."

The benefits that respondents expected for each ECM are found in Figures 5.1.A to 5.12.A for the entire sample/all heating fuels and in Figures 5.1.B to 5.12.B for households using electricity. Respondents most frequently mentioned monetary and comfort as the benefits they expected from all of the ECMs, except for solar panels. Conservation was the most frequently mentioned benefit for solar panels. Monetary are those benefits most frequently mentioned from weatherproofing, heat pump furnaces, automatic or setback thermostats, heat pump water heaters, wood stoves and fireplace inserts. On the other hand, comfort was the most frequently mentioned benefit from storm windows, insulated basement floors or crawlspaces, insulated outside walls, insulated roofs or attics, and storm doors. The ECMs whose most frequently mentioned benefit was comfort appeared to offer more immediate results to respondents than did those ECMs whose most frequently mentioned benefit was monetary. There is an expectation of quick results from ECMs. Therefore, promotional campaigns emphasizing the benefits of a particular ECM may need to incorporate into the campaign strategy the expected time frame or waiting period for the promoted benefits.

5.2 BENEFITS RECEIVED

Over 80% of the respondents in the entire sample and 90% of the respondents in households using electricity who have also installed ECMs, reported that they did receive their expected benefits (see Tables 5.1.A and 5.1.B). The ECM with the highest proportion of respondents who did not receive their expected benefits was the heat pump furnace. Almost 20% of the respondents in the entire sample and of those using electricity reported that they did not receive their expected benefits from the heat pumps.

Since an overwhelming majority of respondents who installed one or more ECM reported that they did receive their expected benefits, the logical assumption is that respondents are satisfied with their ECM(s). However, a factor

which must be considered in this assumption is the concept referred to as "cognitive dissonance." Cognitive dissonance occurs when someone (a consumer) is exposed to information that creates inconsistency or dissonance with attitudes or knowledge he holds. Thus, the consumer's personal attitudes are adjusted by revising old attitudes or by adopting new ones. For example, if a homeowner invests a large sum of money to insulate the attic and expects large monetary benefits, he will probably be disappointed if he doesn't receive these monetary benefits. Rather than be disappointed, the homeowner may convince himself that he had not expected large monetary benefits or that he actually expected to receive comfort benefits. This change of attitude would be particularly relevant for respondents who had spent large sums of money on the ECM(s). In the present study, the possible occurrence of cognitive dissonance must be considered. It is possible that some respondents stated that they had received their expected benefit(s) even though they were not sure that they had received the expected benefit or the degree of benefit they wanted.

In Tables 5.2.A. to 5.13.A for the entire sample and 5.2.B to 5.13.B for households that use electricity, responses are broken down by the specific ECM purchased and by the type of expected benefit. When respondents indicated that they had not received the expected benefits for weatherproofing, heat pump furnaces, automatic or setback thermostats, wood stoves/furnaces or fireplace inserts, over 50% stated that their expected benefit had been monetary. When respondents indicated that they had not received their expected benefits for insulated basement floor, insulated roof, or storm doors, over 50% of the time the expected benefit had been comfort.

Since a large segment of homeowners do expect monetary benefits from the ECMs installed, they are dissatisfied when they do not save as much money as expected. Whether or not an ECM is promoted for its possible monetary benefits, it is worthwhile to address the issue of the savings that homeowners can realistically expect from installing specific measures.

5.3 CHANGES IN EXPECTED BENEFITS

One way to assess the reliability of the expected ECM benefits is to record the change in expected benefits over a period of time. This can be done

by looking at when the ECM was installed and what benefit the respondents expected at that time. In Tables 5.14.A to 5.25.A for the entire sample and Tables 5.14.B to 5.25.B for households using electricity, the benefits expected from each ECM are compared according to date of installation. Only four of the conservation measures (heat pump furnaces, automatic thermostats, heat pump water heaters, and fireplace inserts) for the entire sample and for households using electricity had dramatic changes in the expected benefits over time. The expected benefits of solar panels changed dramatically for only the entire sample and not for the households using electricity. Over 10% of the entire sample and of households using electricity installed automatic thermostats and/or fireplace inserts. Therefore, the changes in their expected benefits will be reviewed. (Fewer than 5% installed solar panels and heat pump water heaters and fewer than 10% installed heat pump furnaces.) For automatic thermostats, comfort has recently been reported more frequently as a benefit. The opposite occurred for fireplace inserts; conservation benefits were reported more frequently while comfort benefit reportings decreased.

5.4 BENEFITS EXPECTED BY RESPONDENTS SOMEWHAT OR VERY LIKELY TO INSTALL ENERGY CONSERVATION MEASURES

Figures 5.13.A to 5.24.A for the entire sample and Figures 5.13.B to 5.24.B for homeowners using electricity show the benefits expected by homeowners who are somewhat or very likely to install one or more ECM during the next two to three years. For 9 of the 12 conservation measures analyzed, respondents in the entire sample and households using electricity most frequently expected monetary benefits from weatherproofing, storm windows, heat pump furnaces, automatic thermostats, insulated outside walls, solar panels, heat pump water heaters, wood stove/furnaces, and fireplace inserts. Households using electricity exclusively expect monetary benefits also from insulated roof or attic and from storm doors. For the remaining ECMs, insulated basement floor or crawlspace (entire sample and households using electricity), storm doors (entire sample), and insulated roof or attic (entire sample) record responses split evenly between monetary and comfort benefits. Six percent or less of the entire sample and of homeowners using electricity mentioned conservation as an expected benefit for any of the ECMs except for fireplace

inserts. Of the respondents who were somewhat or very likely to install fireplace inserts, over 10% of the entire sample and over 20% of households using electricity mentioned conservation benefits.

5.5 SUMMARY

Households that had previously installed ECMs had expected monetary as well as comfort benefits. These expectations changed when respondents were asked about future ECM installation in the next two to three years. The results seem to give some support to rejecting the hypothesis that consumer behavior and intentions do not vary by the benefits expected from different ECMs. For more than three-fourths of the ECMs, respondents reported that they expected to receive primarily monetary benefits. Information such as this is very useful when designing marketing programs. If consumers expect monetary benefits and if they do not receive direct financial benefit, then marketing programs must be sensitive to this information. Marketing programs may decide to advertise that monetary benefits could vary and/or monetary benefits may not be the primary benefit for a certain conservation measure. Thus, marketing/advertising would promote simultaneously the direct and the realistic benefits of ECMs.

FIGURE 5.1.A. Benefits Expected from Weatherproofing, All Heating Fuels (n=1127)

FIGURE 5.1.B. Benefits Expected from Weatherproofing, Heating Fuel Electric (n=661)

FIGURE 5.2.A. Benefits Expected from Storm Windows, All Heating Fuels (n=822)

FIGURE 5.2.B. Benefits Expected from Storm Windows, Heating Fuel Electric (n=469)

FIGURE 5.3.A. Benefits Expected from Heat Pump/Furnace, All Heating Fuels (n=95)

FIGURE 5.3.B. Benefits Expected from Heat Pump/Furnace, Heating Fuel Electric (n=91)

FIGURE 5.4.A. Benefits Expected from Automatic Setback Thermostat, All Heating Fuels (n=301)

FIGURE 5.4.B. Benefits Expected from Automatic Setback Thermostat, Heating Fuel Electric (n=157)

FIGURE 5.5.A. Benefits Expected from Insulated Basement: Floor/Crawl Space, All Heating Fuels (n=584)

FIGURE 5.5.B. Benefits Expected from Insulated Basement: Floor/Crawl Space, Heating Fuel Electric (n=389)

FIGURE 5.6.A. Benefits Expected from Insulated Outside Walls, All Heating Fuels (n=479)

FIGURE 5.6.B. Benefits Expected from Insulated Outside Walls, Heating Fuel Electric (n=252)

FIGURE 5.7.A. Benefits Expected from Insulated Roof or Attic, All Heating Fuels (n=814)

FIGURE 5.7.B. Benefits Expected from Insulated Roof or Attic, Heating Fuel Electric (n=473)

FIGURE 5.8.A. Benefits Expected from Solar Panels, All Heating Fuels (n=32)

FIGURE 5.8.B. Benefits Expected from Solar Panels, Heating Fuel Electric (n=24)

FIGURE 5.9.A. Benefits Expected from Storm or Insulated Doors, All Heating Fuels (n=629)

FIGURE 5.9.B. Benefits Expected from Storm or Insulated Doors, Heating Fuel Electric (n=350)

FIGURE 5.10.A. Benefits Expected from Heat Pump Water Heaters, All Heating Fuels (n=14)

FIGURE 5.10.B. Benefits Expected from Heat Pump Water Heaters, Heating Fuel Electric (n=14)

FIGURE 5.11.A. Benefits Expected from Wood Stoves, All Heating Fuels (n=594)

FIGURE 5.11.B. Benefits Expected from Wood Stoves, Heating Fuel Electric (n=319)

FIGURE 5.12.A. Benefits Expected from Fireplace Inserts, All Heating Fuels (n=311)

FIGURE 5.12.B. Benefits Expected from Fireplace Inserts, Heating Fuel Electric (n=179)

FIGURE 5.13.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Weatherproofing, All Heating Fuels (n=145)

FIGURE 5.13.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Weatherproofing, Heating Fuel Electric (n=77)

FIGURE 5.14.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Storm Windows, All Heating Fuels (n=168)

FIGURE 5.14.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Storm Windows (n=73)

FIGURE 5.15.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install a Heat Pump/Furnace, All Heating Fuels (n=125)

FIGURE 5.15.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install a Heat Pump/Furnace, Heating Fuel Electric (n=74)

FIGURE 5.16.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install an Automatic Setback Thermostat, All Heating Fuels (n=127)

FIGURE 5.16.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install an Automatic Setback Thermostat, Heating Fuel Electric (n=62)

FIGURE 5.17.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Basement Floor/Crawl Space, All Heating Fuels (n=175)

FIGURE 5.17.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Basement Floor/Crawl Space, Heating Fuel Electric (n=175)

FIGURE 5.18.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Outside Walls, All Heating Fuels (n=101)

FIGURE 5.18.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Outside Walls, Heating Fuel Electric (n=49)

FIGURE 5.19.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Roofs or Attics, All Heating Fuels (n=58)

FIGURE 5.19.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Insulate Roofs or Attics, Heating Fuel Electric (n=20)

FIGURE 5.20.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Solar Panels, All Heating Fuels (n=180)

FIGURE 5.20.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Solar Panels, Heating Fuel Electric (n=124)

FIGURE 5.21.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Storm Doors, All Heating Fuels (n=297)

FIGURE 5.21.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Storm Doors, Heating Fuel Electric (n=159)

FIGURE 5.22.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Heat Pump Water Heaters, All Heating Fuels (n=144)

FIGURE 5.22.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Heat Pump Water Heaters, Heating Fuel Electric (n=78)

FIGURE 5.23.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Wood Stoves, All Heating Fuels (n=193)

FIGURE 5.23.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Wood Stoves, Heating Fuel Electric (n=111)

FIGURE 5.24.A. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Fireplace Inserts, All Heating Fuels (n=186)

FIGURE 5.24.B. Benefits Expected by Homeowners Who Are Somewhat or Very Likely to Install Fireplace Inserts, Heating Fuel Electric (n=95)

TABLE 5.1.A. Installed Energy Conservation Measures, Benefits Received Versus Not Received

Number of Homeowners (in 1000s) All Heating Fuels, Energy Conservation Measures	Expected Benefits	
	Received	Not Received
Weatherproofing (n=1135)	92%	8%
Storm Windows (n=858)	96	4
Heat Pump Furnace (n=93)	82	18
Automatic Setback Thermostat (n=360)	99	1
Insulated Basement Floor or Crawlspace (n=568)	95	5
Insulated Outside Wall (n=511)	98	2
Insulated Roof or Attic (n=828)	96	4
Solar Panels for Water Heating (n=32)	100	0
Storm or Insulated Doors (n=643)	96	4
Heat Pump Water Heater (n=12)	100	0
Wood Stove or Wood Furnace (n=630)	96	4
Fireplace Insert (n=321)	94	6

TABLE 5.1.B. Installed Energy Conservation Measures, Benefits Received Versus Not Received

Number of Homeowners (in 1000s) All Heating Fuels, Energy Conservation Measures	Expected Benefits	
	Received	Not Received
Weatherproofing (n=685)	91%	9%
Storm Windows (n=496)	95	5
Heat Pump Furnace (n=86)	81	19
Automatic Setback Thermostat (n=185)	98	2
Insulated Basement Floor or Crawlspace (n=384)	94	6
Insulated Outside Wall (n=273)	97	4
Insulated Roof or Attic (n=489)	95	5
Solar Panels for Water Heating (n=27)	100	0
Storm or Insulated Doors (n=358)	96	5
Heat Pump Water Heater (n=12)	100	0
Wood Stove or Wood Furnace (n=337)	96	4
Fireplace Insert (n=176)	91	9

TABLE 5.2.A. Benefits Expected by Homeowners Installing Weatherproofing

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=1048)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=966)</u>	<u>Expected Benefits (n=81)</u>
Monetary	45%	80%
Conservation	14	2
Comfort	40	18

TABLE 5.2.B. Benefits Expected by Homeowners Installing Weatherproofing

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=620)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=569)</u>	<u>Expected Benefits (n=51)</u>
Monetary	50%	85%
Conservation	15	0
Comfort	36	15

TABLE 5.3.A. Benefits Expected by Homeowners Installing Storm Windows

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=807)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=778)</u>	<u>Expected Benefits (n=29)</u>
Monetary	41%	56%
Conservation	13	0
Comfort	46	44

TABLE 5.3.B. Benefits Expected by Homeowners Installing Storm Windows

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=461)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=435)</u>	<u>Expected Benefits (n=26)</u>
Monetary	42%	51%
Conservation	12	0
Comfort	46	49

TABLE 5.4.A. Benefits Expected by Homeowners Installing Heat Pump Furnace

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=87)	
	Received Expected Benefits (n=74)	Did Not Receive Expected Benefits (n=13)
Monetary	73%	100%
Conservation	7	0
Comfort	20	0

TABLE 5.4.B. Benefits Expected by Homeowners Installing Heat Pump Furnace

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=83)	
	Received Expected Benefits (n=70)	Did Not Receive Expected Benefits (n=13)
Monetary	74%	100%
Conservation	7	0
Comfort	18	0

TABLE 5.5.A. Benefits Expected by Homeowners Installing Automatic or Setback Thermostat

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=295)	
	Received Expected Benefits (n=291)	Did Not Receive Expected Benefits (n=3)
Monetary	56%	100%
Conservation	11	0
Comfort	33	0

TABLE 5.5.B. Benefits Expected by Homeowners Installing Automatic or Setback Thermostat

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=151)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=149)</u>	<u>Expected Benefits (n=2)</u>
Monetary	47%	100%
Conservation	9	0
Comfort	44	0

TABLE 5.6.A. Benefits Expected by Homeowners Insulating Basement Floor or Crawlspace

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=556)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=526)</u>	<u>Expected Benefits (n=30)</u>
Monetary	36%	6%
Conservation	12	26
Comfort	53	69

TABLE 5.6.B. Benefits Expected by Homeowners Insulating Basement Floor or Crawlspace

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=376)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=352)</u>	<u>Expected Benefits (n=24)</u>
Monetary	33%	7%
Conservation	12	33
Comfort	55	60

TABLE 5.7.A. Benefits Expected by Homeowners Insulating Outside Wall

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=477)	
	Received Expected Benefits (n=474)	Did Not Receive Expected Benefits (n=4)
Monetary	37%	0%
Conservation	15	54
Comfort	48	46

TABLE 5.7.8. Benefits Expected by Homeowners Insulating Outside Wall

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=252)	
	Received Expected Benefits (n=250)	Did Not Receive Expected Benefits (n=2)
Monetary	35%	0%
Conservation	13	0
Comfort	53	100

TABLE 5.8.A. Benefits Expected by Homeowners Insulating Roof

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=783)	
	Received Expected Benefits (n=756)	Did Not Receive Expected Benefits (n=27)
Monetary	38%	42%
Conservation	16	8
Comfort	47	51

TABLE 5.8.B. Benefits Expected by Homeowners Insulating Roof

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=459)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=443)</u>	<u>Expected Benefits (n=16)</u>
Monetary	36%	36%
Conservation	15	0
Comfort	49	64

TABLE 5.9.A. Benefits Expected by Homeowners Installing Solar Panels

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=32)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=32)</u>	<u>Expected Benefits (n=0)</u>
Monetary	47%	0%
Conservation	53	0
Comfort	0	0

TABLE 5.9.B. Benefits Expected by Homeowners Installing Solar Panels

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s) All Heating Fuels (n=24)</u>	
	<u>Received</u>	<u>Did Not Receive</u>
	<u>Expected Benefits (n=24)</u>	<u>Expected Benefits (n=0)</u>
Monetary	48%	0%
Conservation	52	0
Comfort	0	0

TABLE 5.10.A. Benefits Expected by Homeowners Installing Storm/Insulated Doors

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=614)	
	Received Expected Benefits (n=590)	Did Not Receive Expected Benefits (n=24)
Monetary	23%	22%
Conservation	16	0
Comfort	60	78

TABLE 5.10.B. Benefits Expected by Homeowners Installing Storm/Insulated Doors

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=341)	
	Received Expected Benefits (n=325)	Did Not Receive Expected Benefits (n=16)
Monetary	27%	23%
Conservation	18	0
Comfort	55	77

TABLE 5.11.A. Benefits Expected by Homeowners Installing Heat Pump Water Heater

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=12)	
	Received Expected Benefits (n=12)	Did Not Receive Expected Benefits (n=0)
Monetary	69%	0%
Conservation	17	0
Comfort	14	0

TABLE 5.11.B. Benefits Expected by Homeowners Installing Heat Pump Water Heater

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=12)	
	Received	Did Not Receive
	Expected Benefits (n=12)	Expected Benefits (n=0)
Monetary	69%	0%
Conservation	17	0
Comfort	14	0

TABLE 5.12.A. Benefits Expected by Homeowners Installing Wood Stove/Furnace

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=584)	
	Received	Did Not Receive
	Expected Benefits (n=571)	Expected Benefits (n=13)
Monetary	65%	54%
Conservation	8	15
Comfort	28	31

TABLE 5.12.B. Benefits Expected by Homeowners Installing Wood Stove/Furnace

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=3D9)	
	Received	Did Not Receive
	Expected Benefits (n=305)	Expected Benefits (n=4)
Monetary	68%	100%
Conservation	9	0
Comfort	24	0

TABLE 5.13.A. Benefits Expected by Homeowners Installing Fireplace Inserts

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=301)	
	Received Expected Benefits (n=282)	Did Not Receive Expected Benefits (n=20)
Monetary	54%	58%
Conservation	13	16
Comfort	33	26

TABLE 5.13.B. Benefits Expected by Homeowners Installing Fireplace Inserts

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=172)	
	Received Expected Benefits (n=155)	Did Not Receive Expected Benefits (n=16)
Monetary	53%	69%
Conservation	20	0
Comfort	27	31

TABLE 5.14.A. Benefits Expected from Weatherproofing, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=1,127)	
	Installed Within the Last Two Years (n=613)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=514)
Monetary	48%	51%
Conservation	14	14
Comfort	38	36

TABLE 5.14.B. Benefits Expected from Weatherproofing, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=661)	
	Installed Within the Last Two Years (n=341)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=320)
Monetary	53%	55%
Conservation	15	13
Comfort	32	32

TABLE 5.15.A. Benefits Expected from Storm Windows, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=822)	
	Installed Within the Last Two Years (n=297)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=525)
Monetary	41%	43%
Conservation	12	12
Comfort	48	45

TABLE 5.15.B. Benefits Expected from Storm Windows, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=469)	
	Installed Within the Last Two Years (n=163)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=306)
Monetary	42%	44%
Conservation	9	12
Comfort	49	44

TABLE 5.16.A. Benefits Expected from Heat Pump Furnace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=95)</u>	
	<u>Installed Within the Last Two Years (n=17)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=78)</u>
Monetary	73%	74%
Conservation	27	7
Comfort	0	19

TABLE 5.16.B. Benefits Expected from Heat Pump Furnace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=91)</u>	
	<u>Installed Within the Last Two Years (n=17)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=74)</u>
Monetary	73%	76%
Conservation	27	7
Comfort	0	17

TABLE 5.17.A. Benefits Expected from Automatic Setback Thermostat, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=301)</u>	
	<u>Installed Within the Last Two Years (n=101)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=201)</u>
Monetary	56%	58%
Conservation	5	14
Comfort	39	29

TABLE 5.17.B. Benefits Expected from Automatic Setback Thermostat, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=157)</u>	
	<u>Installed Within the Last Two Years (n=58)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=99)</u>
Monetary	52%	49%
Conservation	0	13
Comfort	48	38

TABLE 5.18.A. Benefits Expected from Insulating Basement Floor or Crawlspace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=584)</u>	
	<u>Insulated Within the Last Two Years (n=200)</u>	<u>Insulated More Than Two Years Ago but Since the Respondent Moved in (n=384)</u>
Monetary	35%	34%
Conservation	14	12
Comfort	50	54

TABLE 5.18.B. Benefits Expected from Insulating Basement Floor or Crawlspace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=389)</u>	
	<u>Insulated Within the Last Two Years (n=146)</u>	<u>Insulated More Than Two Years Ago but Since the Respondent Moved in (n=243)</u>
Monetary	32%	31%
Conservation	12	14
Comfort	55	55

TABLE 5.19.A. Benefits Expected from Insulating Outside Walls, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=479)</u>	
	<u>Insulated Within the Last Two Years (n=125)</u>	<u>Insulated More Than Two Years Ago but Since the Respondent Moved in (n=354)</u>
Monetary	36%	36%
Conservation	11	17
Comfort	53	47

TABLE 5.19.B. Benefits Expected from Insulating Outside Walls, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=252)</u>	
	<u>Insulated Within the Last Two Years (n=80)</u>	<u>Insulated More Than Two Years Ago but Since the Respondent Moved in (n=172)</u>
Monetary	30%	36%
Conservation	12	13
Comfort	57	51

TABLE 5.20.A. Benefits Expected from Insulating Roof or Attic, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=814)</u>	
	<u>Insulated Within the Last Two Years (n=248)</u>	<u>Insulated More Than Two Years Ago but Since the Respondent Moved in (n=566)</u>
Monetary	39%	38%
Conservation	12	16
Comfort	49	45

TABLE 5.20.B. Benefits Expected from Insulating Roof or Attic, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=473)	
	Insulated Within the Last Two Years (n=175)	Insulated More Than Two Years Ago but Since the Respondent Moved in (n=298)
Monetary	42%	36%
Conservation	11	15
Comfort	47	49

TABLE 5.21.A. Benefits Expected from Solar Panels, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=32)	
	Installed Within the Last Two Years (n=12)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=21)
Monetary	60%	41%
Conservation	40	60
Comfort	0	0

TABLE 5.21.B. Benefits Expected from Solar Panels, According to Date of Installation

Expected Benefits	Number of Homeowners (in 1000s) All Heating Fuels (n=23)	
	Installed Within the Last Two Years (n=9)	Installed More Than Two Years Ago but Since the Respondent Moved in (n=14)
Monetary	51%	46%
Conservation	49	54
Comfort	0	0

TABLE 5.22.A. Benefits Expected from Storm/Insulated Doors, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=629)</u>	
	<u>Installed Within the Last Two Years (n=207)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=422)</u>
Monetary	26%	24%
Conservation	18	15
Comfort	57	61

TABLE 5.22.B. Benefits Expected from Storm/Insulated Doors, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=350)</u>	
	<u>Installed Within the Last Two Years (n=124)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=226)</u>
Monetary	30%	27%
Conservation	19	16
Comfort	51	57

TABLE 5.23.A. Benefits Expected from Heat Pump Water Heater, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=14)</u>	
	<u>Installed Within the Last Two Years (n=4)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=10)</u>
Monetary	0%	83%
Conservation	50	0
Comfort	50	17

TABLE 5.23.B. Benefits Expected from Heat Pump Water Heater, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=14)</u>	
	<u>Installed Within the Last Two Years (n=4)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=10)</u>
Monetary	0%	83%
Conservation	50	0
Comfort	50	17

TABLE 5.24.A. Benefits Expected from Wood Stove/Furnace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=594)</u>	
	<u>Installed Within the Last Two Years (n=157)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=437)</u>
Monetary	68%	64%
Conservation	9	7
Comfort	23	29

TABLE 5.24.B. Benefits Expected from Wood Stove/Furnace, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=319)</u>	
	<u>Installed Within the Last Two Years (n=110)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=209)</u>
Monetary	63%	71%
Conservation	11	7
Comfort	27	21

TABLE 5.25.A. Benefits Expected from Fireplace Insert, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=311)</u>	
	<u>Installed Within the Last Two Years (n=66)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=245)</u>
Monetary	59%	53%
Conservation	19	11
Comfort	22	36

TABLE 5.25.B. Benefits Expected from Fireplace Insert, According to Date of Installation

<u>Expected Benefits</u>	<u>Number of Homeowners (in 1000s)</u> <u>All Heating Fuels (n=179)</u>	
	<u>Installed Within the Last Two Years (n=50)</u>	<u>Installed More Than Two Years Ago but Since the Respondent Moved in (n=129)</u>
Monetary	63%	51%
Conservation	21	16
Comfort	17	33

6.0 DEMOGRAPHIC INFLUENCES ON PAST AND FUTURE ENERGY CONSERVATION BEHAVIOR

Knowledge of the demographic profile of Northwest homeowners and of its effect on behavior and intentions of homeowners concerned about energy conservation is important to the present study. This knowledge can help to identify consumer segments of interest. The objective of this chapter is to test a hypothesis using demographic variables. This hypothesis states that consumer behavior and intentions toward conservation will not vary by demographically defined groups. The demographic variables used are the following: length of time at current residence, number of occupants in residence, occupation of the respondent or primary householder, occupation of the second householder, educational level of householder, total household income, and geographic location of the residence (i.e., survey quadrant). These variables are typical of the demographic variables used in market research studies.

6.1 DEMOGRAPHIC INFLUENCES ON ENERGY CONSERVATION BEHAVIOR

Each of the demographic variables was run in a crosstab with the number of energy conservation measures homeowners indicated they had installed. The demographic variables represent the independent variables. The number of ECMs installed by current occupants represents the dependent variable. The dependent variable has four activity levels: low level = 0 to 1 ECMs installed, medium low = 2 to 4 installed, medium high = 5 to 7 installed, and high level = 8+ ECMs installed.

6.1.1 Length of Time at Current Residence

Tables 6.1.A and 6.1.B reveal that length of time in a residence has an effect on the number of ECMs installed (see Tables 6.1.A and 6.1.B). Thus, the longer a resident occupies a home, the more likely he is to invest in ECMs. For example, about 60% of those living in a home for two years or less had installed 0 to 1 ECM, while approximately 25% of those living in a home for five or more years had installed only 0 to 1 ECM. This effect from length of time is not surprising and is consistent at the low end of the installation activity scale. The effect is less consistent at the medium-low (2 to 4) and medium-high (5 to 7) activity levels. The data becomes inconsistent at the

TABLE 6.1.A. Number of Energy Conservation Measures Installed by Current Homeowners, by Length of Time at Current Residence

Number of Energy Conservation Measures Installed by Current Homeowners	Number of Homeowners (in 1000s) All Heating Fuels (n=2148)			
	Length of Time at Current Address			
	Under 1 Year (n=268)	1-2 Years (n=153)	3-4 Years (n=236)	Over 5 Years (n=1492)
0-1	57%	61%	49%	25%
2-4	24	25	35	41
5-7	15	14	17	30
8+	3	0	0	4

TABLE 6.1.B. Number of Energy Conservation Measures Installed by Current Homeowners, by Length of Time at Current Residence

Number of Energy Conservation Measures Installed by Current Homeowners	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1261)			
	Length of Time at Current Address			
	Under 1 Year (n=186)	1-2 Years (n=89)	3-4 Years (n=144)	Over 5 Years (n=842)
0-1	55%	64%	41%	27%
2-4	21	25	37	39
5-7	19	11	22	30
8+	5	0	0	4

high (8+) level of activity both for the entire set of homeowners and for those using electric heat. The data from Tables 6.1.A or 6.1.B indicate that after initial construction or a move to a new home, very few homeowners install enough additional ECMs to achieve the high activity level. The data also suggest that if the household does not have eight or more ECMs installed in the first year, the homeowner is not likely to reach the high activity level in the future. Thus, failing to take advantage of conservation measures in the first year of ownership may represent a lost opportunity. BPA conservation programs, aimed at homeowners, should place special emphasis on ECM installation in the construction phase of new homes.

6.1.2 Number of Occupants in Residence

The second demographic variable of interest is the total number of occupants in a residence. The number of occupants in a home appears to be positively related to the level of installation activity; as the number of occupants increases, so does the level of installation activity (see Table 6.2.A). Approximately 45% of residents living alone had installed 0 to 1 ECM, while only 28% of the homes with six or more occupants fell into the low activity level. Number of occupants has approximately the same effect on installation activity at the medium-high to high levels. For example, only 21% of homes with one occupant had installed at least five ECMs compared with 35% of the homes with six or more people. The subset of homeowners with electric heat demonstrated similar behavior as is shown in Table 6.2.B, with 44% of those living alone falling in the low installation activity level and only 34% of homes with six or more occupants falling into the low activity level. On the other hand, 21% of the single-occupant electrically heated homes have installed at least 5 ECMs while 38% of the 6 or more person households using electric heat have installed at least 5 ECMs.

The direction of the relationship of number of occupants to number of ECMs installed is easily observable at the extremes, especially with the subset of homeowners using electric heat. The relationship is not so obvious when

TABLE 6.2.A. Number of Energy Conservation Measures Installed by Current Occupants, by Number of Occupants Including the Homeowner

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s)					
	All Heating Fuels (n=2150)					
	Number of Occupants Including Homeowner					
	1 (n=307)	2 (n=746)	3 (n=383)	4 (n=404)	5 (n=181)	6 or more (n=128)
0-1	45%	31%	33%	33%	36%	28%
2-4	34	38	35	39	40	37
5-7	21	26	27	28	23	28
8+	0	4	6	0	1	7

TABLE 6.2.B. Number of Energy Conservation Measures Installed by Current Occupants, by Number of Occupants Including the Homeowner

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262)					
	Number of Occupants Including Homeowner					
	1 (n=185)	2 (n=430)	3 (n=232)	4 (n=210)	5 (n=118)	6 or more (n=88)
0-1	44%	35%	35%	33%	32%	34%
2-4	34	34	36	35	41	29
5-7	21	27	22	31	25	28
8+	0	4	7	0	2	10

looking at homes with either 4 or 5 occupants. Although the activity breakdown of homes with 1, 2, 3 and 6+ occupants supports the conclusion that ECM installation increases with number of occupants, installation activity in homes with either 4 or 5 occupants does not. Perhaps other demographic variables influence the latter relationship.

6.1.3 Occupation of the Homeowner

The third demographic variable is the occupation of the homeowner, or the respondent/primary householder. The categories for occupation are professional, executive-administrative-managerial, clerical-sales-technical, crafts-foreman, and other employed (see Table 6.3.A). Although 30% of those in the professional and clerical-sales-technical categories had installed five or more ECMs, the groups differ in how they reached the 30% mark. The difference is best illustrated by group breakdown at the high activity level. In the professional category, 4% had installed eight or more ECMs, while in the clerical-sales-technical category, only 1% had installed that number. For homes using electric heat, the percentages in those same categories were nearly duplicated (see Table 6.3.B).

The occupational groups with the lowest percentages in the medium-high to high activity levels were the other employed group and the executive-administrative-managerial group. Only 23% from these groups had installed five or more ECMs. Members of these occupational groups are the least likely to

TABLE 6.3.A. Number of Energy Conservation Measures Installed by Current Occupants, by Occupation of the Homeowner

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) All Heating Fuels (n=1375) Occupation of Homeowner				
	Professional (n=370)	Executive Administrative Managerial (n=220)	Clerical Sales Technician (n=329)	Crafts Foreman (n=148)	Other Employed (n=308)
0-1	35%	33%	33%	26%	34%
2-4	34	43	37	49	43
5-7	27	21	30	27	20
8+	4	2	1	0	3

TABLE 6.3.B. Number of Energy Conservation Measures Installed by Current Occupants, by Occupation of the Homeowner

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=780) Occupation of Homeowner				
	Professional (n=194)	Executive Administrative Managerial (n=128)	Clerical Sales Technician (n=193)	Crafts Foreman (n=86)	Other Employed (n=179)
0-1	37%	33%	31%	33%	31%
2-4	31	42	37	47	44
5-7	28	21	31	20	22
8+	4	4	1	0	4

install five or more ECMs. At least 27% of all the other occupational groups did invest in five or more ECMs.

The occupational group breakdowns for the subset of homeowners with electric heat are similar to the breakdowns for the entire sample (see Table 6.3.B). Only one group showed a noticeable change in activity level. The crafts-foreman electric subset is much less active regarding conservation investment than is the entire group of crafts-foreman respondents. Only 20% of the electric heat subset has installed five or more ECMs down from 27% for the

entire sample. Also, the percentage of crafts-foreman at the low installation activity level (0-1 ECMs) increased from 26% for the whole group to 33% for the electric heat subset.

Of the five occupational groups, the crafts-foreman group was the least active group with regard to installation of ECMs. The same was true for the entire sample of homeowners as well as for the subset of homeowners with electric heat.

6.1.4 Occupation Of The Second Householder

The fourth demographic variable of interest is the occupation of the second householder. Occupational groupings are the same as those of the previous section (see Section 6.1.3). The most active household regarding installation of ECMs is the one where the second householder works in the crafts-foreman occupational group. This high activity, defined as five or more ECMs installed, was true for all homeowners (See Table 6.4.A) as well as for the subset of homeowners with electric heat. The crafts-foreman group from the electric heat subset had an interesting distribution among the installation activity levels (see Table 6.4.B). This occupational grouping was the most active at the medium-high and high activity levels but also had the largest percentage of respondents at the level of lowest activity (0-1 ECM). Two possible explanations are possible for this counter-intuitive distribution across activity levels. First, other research (Darley and Beniger 1981) suggests that

TABLE 6.4.A. Number of Energy Conservation Measures Installed by Current Occupants, by Occupation of the Second Householder

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) All Heating Fuels (n=1066)				
	Occupation of the Second Householder				
	Professional (n=298)	Executive Administrative Managerial (n=216)	Clerical Sales Technician (n=199)	Crafts Foreman (n=160)	Other Employed (n=193)
0-1	39%	30%	36%	35%	43%
2-4	33	46	35	31	27
5-7	25	20	30	29	28
8+	3	3	0	5	2

TABLE 6.4.8. Number of Energy Conservation Measures Installed by Current Occupants, by Occupation of the Second Householder

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=570) Occupation of the Second Householder				
	Professional (n=161)	Executive Administrative Managerial (n=100)	Clerical Sales Technician (n=116)	Crafts Foreman (n=75)	Other Employed (n=117)
0-1	40%	21%	42%	53%	40%
2-4	26	62	28	10	26
5-7	33	11	30	35	30
8+	2	5	0	2	4

an ability to understand and self-install ECMs is favorable with regard to actual installation. This is supported by the crafts-foreman group percentages in the medium-high and high installation activity levels. Second, the current research presents additional data in subsequent tables to show that the subset of homeowners with electric heat tend to have smaller household incomes. This difference in incomes is possibly muted when comparing the income levels of all homeowners, including those with electric heat, with income levels of the electric heat subset. The gap in income would probably widen if the comparison were made strictly between non-electric and electric heating systems. This may be the reason that 53% of the crafts-foreman group from the electric subset is at the lowest installation activity level while only 35% of the total sample crafts-foreman group is at this level.

The low end of the activity scale was not dominated by any of the occupational groups when observing data from the entire sample. However, for the subset of homeowners with electric heat, one group dominated. In this subset, 83% of the executive-administrative-managerial occupational group installed no more than four ECMs compared with 63% to 70% for the other occupational groups. The same executive-administrative-managerial group also had the highest proportion who installed eight or more ECMs. The reason for this may be partially a result of the larger total household income compared with most other occupational groups.

6.1.5 Educational Level of Household

The next demographic variable of interest is the highest level of education in the household or, specifically, the determination of the effect of education level on ECM installation activity. The educational level of the household was equated to the highest level of education obtained by either the first or second householder.

The households were broken down into four educational levels as can be seen in Tables 6.5.A and 6.5.B. The first contains households in which the

TABLE 6.5.A. Number of Energy Conservation Measures Installed by Current Occupant, by Education Level of the Household

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) All Heating Fuels (n=2140) Education Level of the Household			
	Completed	Completed	Completed	At Least
	High School	Trade/Votech	College	Some Graduate
	or Less (n=763)	Some College (n=661)	(n=426)	School (n=290)
0-1	31%	33%	39%	36%
2-4	42	36	34	32
5-7	24	28	24	28
8+	2	3	3	4

TABLE 6.5.B. Number of Energy Conservation Measures Installed by Current Occupant, by Education Level of the Household

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1259) Education Level of the Household			
	Completed	Completed	Completed	At Least
	High School	Trade/Votech	College	Some Graduate
	or Less (n=461)	Some College (n=383)	(n=252)	School (n=163)
0-1	35%	31%	37%	44%
2-4	36	38	37	25
5-7	27	30	20	24
8+	2	2	6	7

primary householders had completed high school or less. The second consisted of those who had attended college or who had completed a trade or vocational/technical school. The third group included only those who had completed college. Finally, the fourth group included those who had attended at least some graduate school. The distribution of these educational groups across the installation activity levels does not suggest any trend or relationship between level of education and the installation of ECMs. Very little difference was found between the data from the entire sample of homeowners and the data from the subset of homeowners using electric heat.

6.1.6 Total Household Income

The next demographic variable is that of household income. Household income levels are separated into three groups (see Tables 6.6.A and 6.6.B): incomes under \$16,000, incomes from \$16,000 to \$30,000, and incomes of \$30,000 or more. A general pattern among the three groups illustrates a positive relationship between income and installation activity; for as income increases, so does the level of past ECM installation. However, this positive relationship is not consistent, particularly at the middle income level which had 39% in the low installation activity level. This is the largest percentage in the low installation level for any of the income groups. The subset of homeowners using electric heat is even less consistent because 44% of the \$16,000 to

TABLE 6.6.A. Number of Energy Conservation Measures Installed by Current Occupants, by Total Household Income

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) All Heating Fuels (n=1977) Total Household Income		
	Under \$16,000 (n=451)	\$16,000 to \$30,000 (n=735)	Over \$30,000 (n=791)
0-1	36%	39%	28%
2-4	39	33	43
5-7	22	27	25
8+	3	1	5

TABLE 6.6.B. Number of Energy Conservation Measures Installed by Current Occupants, by Total Household Income

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1161) Total Household Income		
	Under \$16,000 (n=291)	\$16,000 to \$30,000 (n=432)	Over \$30,000 (n=437)
0-1	34%	44%	27%
2-4	37	30	44
5-7	25	26	24
8+	3	1	5

\$30,000 level falls into the low installation activity group. This is an interesting pattern and may warrant additional or more concentrated analysis in future studies.

6.1.7 Geographic Location of the Survey Residence

The last demographic variable is the geographic location of the survey residence (i.e., survey quadrant). All households were grouped into four geographic areas (see Tables 6.7.A and 6.7.B). The areas include the

TABLE 6.7.A. Number of Energy Conservation Measures Installed by Current Occupants, by Geographic Location (Survey Quadrant)

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Geographic Location (Survey Quadrant)			
	Northwest A Quad (n=824)	Southwest B Quad (n=580)	Northeast C Quad (n=415)	Southeast D Quad (n=331)
0-1	38%	30%	30%	38%
2-4	34	39	39	39
5-7	24	29	28	21
8+	4	3	2	2

TABLE 6.7.B. Number of Energy Conservation Measures Installed by Current Occupants, by Geographic Location (Survey Quadrant)

Number of Energy Conservation Measures Installed by Current Occupants	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Geographic Location (Survey Quadrant)			
	Northwest	Southwest	Northeast	Southeast
	A Quad	B Quad	C Quad	D Quad
	(n=500)	(n=323)	(n=250)	(n=190)
0-1	37%	35%	28%	42%
2-4	33	34	37	39
5-7	25	27	32	18
8+	5	4	2	1

Northwest, Southwest, Northeast and Southeast. The quadrants are listed below in order from most to least active regarding ECM installation:

- Southwest
- Northeast
- Northwest
- Southeast.

Residents in the Southeast quadrant are less likely to have installed ECMs than are the residents in all the other quadrants, especially those in the Southwest and Northeast quadrants. Only 23% of the Southeast residences have reached the medium-high to high activity level, while at least 30% of the residences in the Southwest and Northeast quadrants had achieved the medium-high to high levels of activity.

More pronounced differences occur among the quadrants with regard to installation activity for the subset of homeowners with electric heat (see Table 6.7.B). The quadrants are listed below from most to least active regarding ECM installation in the electric heat subset:

- Northeast
- Southwest
- Northwest
- Southeast.

Again, homeowners in the Southeast quadrant are less likely to have installed ECMs than are the residents in all the other quadrants. Only 19% of the Southeast residences have reached the medium-high to high activity levels, while at least 30% of the residences in all the other quadrants had achieved the medium-high to high levels of activity.

6.1.8.A Characteristics of Homeowners in the Low Installation Activity Level

The following are points of interest for the entire sample of homeowners in the low installation activity level (0 to 1 ECMs). These homeowners:

- represent about 60% of those who have been in their current residences two years or less
- represent 45% of the 1-person households and 28% of the households with 6 or more
- represent 26% of the crafts-foreman occupation
- represent almost 43% of the second householders who are in the other employed occupational group
- represent 39% of the completed college level group and between 31% and 36% of the other educational levels
- represent about 36% of the low income group, 39% of the middle income group, and 28% of the high income group
- represent about 38% of the households in the Southeast and Northwest quadrants and about 30% of the households in other two quadrants.

6.1.8.B Characteristics of the Subset of Homeowners with Electric Heat in the Low Installation Activity Level

The following are points of interest when considering homeowners in the subset using electric heat at the low activity level (0 to 1 ECMs). These homeowners:

- represent about 60% of those who have been in their current residences two years or less
- represent 44% of the 1-person households and 34% of the households with 6 or more

- represent 37% of the professional occupational group and between 31% and 33% of all other groups
- represent 53% of the crafts-foreman group and between 21% and 40% of all other groups
- represent 44% of those who had at least some graduate school and between 31% and 37% of all other levels
- represent 34% of the low income group, 44% of the middle income group, and 27% of the high income group
- represents 42% of those in the Southeast quadrant, 37% in the Northwest quadrant, 35% in the Southwest, and 28% in the Northeast quadrant.

6.1.9.A Characteristics of All Homeowners in the Medium-Low Installation Activity Level

The following are points of interest when considering homeowners in the medium-low installation activity level (2 to 4 ECMs). These homeowners:

- represent over 40% of those in their homes for 5 or more years
- represent equally the households having 1, 2, 3, 4, 5, and 6 or more persons
- represent 49% of the crafts-foreman occupational group
- represent 46% of the second householders in the executive-administrative-managerial occupational group
- represent 42% of the households in the completed high school or less level
- represent 39% of those in the low income group, 33% in the middle income group, and over 40% in the high income group
- represent just under 40% of those in the Southwest, Northeast and Southeast quadrants and almost 35% in the Northwest quadrant.

6.1.9.B Characteristics of the Subset of Homeowners with Electric Heat in the Medium-Low Installation Activity Level

The following are points of interest when considering homeowners of the electric heat subset in the medium-low installation level (2 to 4 ECMs). These homeowners:

- represent between 37% and 39% of those in their homes for at least 3 years and about 23% of those in their homes 2 years or less
- represent 41% of five person households and 29% of households with six or more (Households with between 1 and 4 occupants are fairly even.)
- represent only 31% of the professional occupational group and at least 37% of all other occupational groups
- represent 62% of the second householders in the executive-administrative-managerial occupational group and less than 30% of the rest of the occupational groups
- represent only 25% of those with at least some graduate school and about 37% of all other educational categories
- represent 37% of those in the low income group, 30% in the middle income group, and 44% in the high income group
- represents 39% of those in the Southeast, 37% in the Northeast, 34% in the Southwest and 33% in the Northwest.

6.1.10.A Characteristics of All Homeowners in the Medium-High Installation Activity Level

The following are points of interest when considering homeowners in the medium-high installation activity level (5 to 7 ECMs). These homeowners:

- represent 20% of those in their homes for 5 or more years
- represent a little over 20% of 1- and 5-person households, and approximately 27% of 2-, 3-, 4-, and 6-or more person households

- represent about 20% of the executive-administrative-managerial and other employed occupational groups plus about 30% of the other occupational groups
- represent about 20% of the second householders in the executive-administrative-managerial category, about 25% of the professionals, and about 30% of all the other categories
- represent between 24% and 28% of all the educational levels
- represent between 22% and 27% of all the income levels
- represent about 28% of both the Southwest and Northeast quadrants, 24% of the Northwest quadrant, and only about 20% of the Southeast quadrant.

6.1.10.B Characteristics of the Subset of Homeowners with Electric Heat in the Medium-High Installation Activity Level

The following are points of interest when considering the subset of homeowners using electric heat in the medium-high activity level (5 to 7 ECMs). These homeowners:

- represent 30% of those in their homes for 5 or more years
- represent between 21% and 31% for all categories
- represent about 29% of the professional and clerical-sales-technician occupational groups and about 21% of the other occupational groups
- represent only 11% of the second-householders in the executive-administrative-managerial occupational category and at least 30% of all the other categories
- represent between 20% and 30% of all the educational levels
- represent approximately a quarter of each income level
- represent about 26% of the Northwest and Southwest quadrants, 32% of the Northeast quadrant, and only 18% of the Southeast quadrant.

6.1.11.A Characteristics of All Homeowners in the High Installation Activity Level

The following are points of interest when considering homeowners in the high installation activity level (8+ ECMs). These homeowners:

- represent about 3% in the categories of under 1 year and over 5 years in current residence
- represent 0% in 1- and 4-person households but do represent 7% of the households with 6 or more occupants
- represent 4% of the professional-occupational group which is the largest proportion in any of the categories
- represent 5% of the second householders in the crafts-foreman occupation and do not represent the clerical-sales-technical occupational group
- represent between 2% and 4% of all the education levels, 2% of the lowest level, and 4% of the highest level
- represent 3% of the low income, 1% of the middle income, and 5% of the high income levels
- represent 4% of the households in the Northwest quadrant and between 2% and 3% of the other quadrants.

6.1.11.B Characteristics of the Subset of Homeowners with Electric Heat in the High Installation Activity Level

The following are points of interest when considering the subset of homeowners using electricity who are in the high activity level (8+ ECMs). These homeowners:

- represent the categories of under 1 year and over 5 years in current residence
- represent no 1 and 4 person households but do represent 10% of the households with 6 or more occupants
- represent none of the crafts-foreman category, 1% of clerical-sales-technician category, and 4% of all other occupational categories

- represent 5% of the second householders in the executive-administrative-managerial category and are not represented in the clerical-sales-technical category
- represent between 6% and 7% of those who have completed college and only 2% who have not finished or have never attended college
- represent 3% of the low income, 1% of the middle income, and 5% of the high income levels
- represent 5% of the Northwest quadrant, 4% of the Southwest, 2% of the Northeast, and 1% of the Southeast quadrants.

6.2 DEMOGRAPHIC INFLUENCES ON LIKELIHOOD OF FUTURE INSTALLATION OF ENERGY CONSERVATION MEASURES

By using the same demographic variables that are related to conservation behavior, it may be possible to determine conservation intentions. One demographically defined group may be more or less likely than another to invest in ECMs. If one group proves more likely, BPA can target it for future programs.

6.2.1 Length of Time at Current Residence

In Table 6.8.A, the data points out that for all homeowners the length of time they occupy a residence has an effect on the number of ECMs which they are

TABLE 6.8.A. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Length of Time at Current Residence

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) All Heating Fuels (n=2148)			
	Length of Time at Current Residence			
	Under 1 Year (n=268)	1-2 Years (n=153)	3-4 Years (n=236)	Over 5 Years (n=1492)
0	18%	24%	32%	43%
1-2	43	44	45	38
3+	39	31	23	19

somewhat or very likely to install. In general, as length of stay in a residence increases, likelihood of installation decreases. For example, for those living in their residences less than a year, fewer than 20% said they were not likely to invest in any ECMs, while over 40% of those living in their residences for 5 years or more said they were not likely to invest in any ECMs. Furthermore, nearly 39% of the less-than-a-year group responded that they were somewhat or very likely to install three or more ECMs, while only 19% of those in the five years or more group gave the same response. A similar pattern can be seen in the subset of homeowners with electric heat (see Table 6.8.B).

6.2.2 Number of Occupants in Residence

The next variable is the total number of occupants in a residence. Looking at Table 6.9.A for all homeowners, a definite pattern indicates that likelihood of installation increases as the number of occupants in a residence increases. For instance, 57% of the 1-person households said they were not likely to invest in any ECMs, while approximately 21% of the households with at least 4 occupants responded this way. Further illustrating the pattern are the percentages in the highest likelihood level. Only 15% of the 1-person households fall into this category, compared with 28% of the 6-or-more person households. The subset of homeowners with electric heat demonstrates a similar pattern of response (see Table 6.9.B), but the relationship between likelihood of installations and size of household is not as clear, especially at the highest level of likelihood.

TABLE 6.8.B. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Length of Time at Current Residence

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1261)			
	Length of Time at Current Residence			
	Under 1 Year (n=186)	1-2 Years (n=89)	3-4 Years (n=144)	Over 5 Years (n=842)
0	24%	37%	37%	41%
1-2	41	48	38	42
3+	36	15	25	17

TABLE 6.9.A. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two or Three Years, by Number of Occupants in the Household

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) All Heating Fuels (n=2150)					
	Number of Occupants Including Homeowner					
	1 (n=307)	2 (n=746)	3 (n=383)	4 (n=404)	5 (n=181)	6 or more (n=128)
0	57%	49%	29%	21%	21%	22%
1-2	28	34	50	40	54	50
3+	15	17	21	39	25	28

TABLE 6.9.B. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two or Three Years, by Number of Occupants in the Household

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262)					
	Number of Occupants Including Homeowner					
	1 (n=185)	2 (n=430)	3 (n=232)	4 (n=210)	5 (n=118)	6 or more (n=88)
0	56%	50%	28%	23%	22%	22%
1-2	25	35	53	43	60	54
3+	20	15	19	34	18	24

6.2.3 Educational Level of the Household

Relative to likelihood of installing ECMs, the third demographic variable is level of education in the household, defined as the highest level of formal education achieved by either of the primary householders. Looking at Table 6.10.A for all homeowners, a pattern emerges suggesting that education has a strong influence on likelihood of future investment. For example, 47% of those who completed high school or less said they were neither somewhat nor very likely to install even a single ECM. Only 19% of those having attended some graduate school gave such a response. Among those likely to install three or more ECMs, the pattern is not as evident but still exists. Only 16% of

TABLE 6.10.A. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Level of Education

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) All Heating Fuels (n=2140) Education Level of the Household ^(a)			
	Completed High School or Less (n=763)	Completed Trade/Votech Some College (n=661)	Completed College (n=426)	At Least Some Graduate School (n=290)
0	47%	35%	36%	19%
1-2	36	38	41	52
3+	16	28	23	29

(a) Level of education attained by the most educated person in the household.

those in the lowest educational level were likely to install three or more ECMs compared with 29% of those in the highest educational level. The distribution for the subset of homeowners using electric heat is similar (see Table 6.10.B).

TABLE 6.10.B. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Level of Education

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1259) Education Level of the Household ^(a)			
	Completed High School or Less (n=461)	Completed Trade/Votech Some College (n=383)	Completed College (n=252)	At Least Some Graduate School (n=163)
0	50%	36%	32%	20%
1-2	36	39	45	60
3+	15	26	23	20

(a) Level of education attained by the most educated person in the household.

6.2.4 Total Household Income

The next demographic variable considered in relation to likelihood of installing ECMs is that of household income. Households were categorized into three types: those with less than \$16,000 income, those with between \$16,000 and \$30,000, and those with more than \$30,000. The relationship between income and likelihood is expected to be positive and it generally is. In other words, as income increases so does the likelihood of investment. Looking at the distribution of responses from all income levels (see Table 6.11.A), 55% of those at the lowest income level indicated that they were not likely to invest in any ECMs. Only 33% of those at the \$30,000 or more level fell into that category. Only 13% of the low-income group are likely to install three or more ECMs, while 25% of the high-income group are found in the high likelihood category. However, the data in Table 6.11.A indicate that the income effect is not linear. Thus, those with the highest level of income are not necessarily the ones most likely to invest. In fact, those in the medium-income level are those most likely to invest in ECMs. This anomaly may occur because those at the high-income level have either purchased all available ECMs or are not as concerned about the costs of energy and are not compelled to invest further in ECMs. The subset of homeowners with electric heat have a similar distribution which can be seen in Table 6.11.B.

TABLE 6.11.A. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Total Household Income

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) All Heating Fuels (n=1977) Total Household Income		
	Under \$16,000 (n=451)	\$16,000 to \$30,000 (n=735)	Over \$30,000 (n=791)
0	55%	27%	33%
1-2	32	44	42
3+	13	29	25

TABLE 6.11.B. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Total Household Income

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1161) Total Household Income		
	Under \$16,000 (n=291)	\$16,000 to \$30,000 (n=432)	Over \$30,000 (n=437)
0	58%	28%	30%
1-2	30	42	50
3+	12	29	19

6.2.5 Geographic Location of the Survey Residence

The last demographic variable of interest is the geographic location (i.e., survey quadrant) of the respondent. The numbers for homeowners using all fuels (see Table 6.12.A) indicate that those in the Northwest quadrant are the most likely to invest in ECMs, followed secondly by those in the Southeast. Homeowners in the Southwest and Northeast quadrants have similar distributions and are least likely to install ECMs. As likelihood of investment increases, representation of both the Southwest and Northeast populations decreases linearly, in contrast with the bell-shaped distribution curve of the Northwest and Southeast. This is probably a function of past behavior regarding

TABLE 6.12.A. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Geographic Location (Survey Quadrant)

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Geographic Location (Survey Quadrant)			
	Northwest A Quad (n=824)	Southwest B Quad (n=580)	Northeast C Quad (n=415)	Southeast D Quad (n=331)
0	33%	42%	41%	36%
1-2	42	37	38	43
3+	25	22	21	21

installing ECMs which was previously discussed in Section 6.1.7. Referring back to Table 6.7.A, residents in the Southwest and Northeast quadrants had the highest level of past installation activity. Therefore, the logical assumption is that high installation activity in the past reduces the likelihood of future installations.

The data for the subset of homeowners with electric heat (see Table 6.12.B) indicate that those in the Southeast quadrant are the most likely to invest in ECMs, followed secondly by those in the Northwest, thus reversing the previous rankings from the total sample. The homeowners in the Southwest and Northeast are the least likely to install ECMs. Referring back to Table 6.7.B, residents in the Southwest and Northeast quadrants had the highest level of past installation activity. Again, it is logical to assume that high installation activity in the past reduces the likelihood of future installations.

6.2.6.A Characteristics of All Homeowners Not Likely to Install Energy Conservation Measures

The following are points of interest regarding homeowners who are not likely to install any ECMs. These homeowners:

- represent 18% of occupants in their homes less than a year and 43% of occupants in their homes for 5 or more years

TABLE 6.12.B. Number of Energy Conservation Measures Homeowners Are Somewhat or Very Likely to Install in the Next Two to Three Years, by Geographic Location (Survey Quadrant)

Number of Energy Conservation Measures Somewhat or Very Likely to Install	Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Geographic Location (Survey Quadrant)			
	Northwest	Southwest	Northeast	Southeast
	A Quad (n=500)	B Quad (n=323)	C Quad (n=250)	D Quad (n=190)
0	35%	45%	40%	31%
1-2	42	39	41	48
3+	23	17	19	21

- represent 57% of the 1-person households and 22% of the households with 6 or more occupants
- represent 47% of the householders with high school or less and 19% of those having some graduate school
- represent 55% of the low income group, 27% of the middle income group, and 33% of the high income group
- represent about 41% of those in the Southwest and Northeast quadrants and between 33% and 36% of those in the Northwest and Southeast quadrants.

6.2.6.B Characteristics of the Subset of Homeowners with Electric Heat Who Are Not Likely to Install Energy Conservation Measures

The following are points of interest regarding the subset of homeowners using electric heat. These homeowners:

- represent 24% of those in their homes less than a year and 41% of those in their homes for 5 or more years
- represent 56% of the 1-person households and 22% of the households with at least 5 people
- represent 50% of those completing high school or less and 20% of those having some graduate school
- represent 58% of the low income group, 28% of the middle income group, and 30% of the high income group
- represent 45% of the Southwest quadrant, 40% of the Northeast, 35% of the Northwest, and 31% of the southeast quadrant.

6.2.7.A Characteristics of All Homeowners Likely to Install One or Two Energy Conservation Measures

The following are points of interest regarding homeowners who are likely to install one or two ECMs. These homeowners:

- represent between 38% and 43% of all the length-of-residence categories

- represent 28% of the 1-person households and 50% of the 6-or-more person households
- represent 36% with a high school degree or less and 52% with at least some graduate school
- represent 32% of the low income, 44% of the middle income, and 42% of the high income groups
- represent 37% of the Southwest and Northeast and 43% of the Northwest and Southeast quadrants.

6.2.7.B Characteristics of the Subset of Homeowners with Electric Heat Who Are Likely to Install 1 to 2 Energy Conservation Measures

The following are points of interest regarding homeowners in the electric heat subset likely to install 1 to 2 ECMs. These homeowners:

- represent between 38% and 48% of all categories having to do with length of residence
- represent 25% of 1-person households and 54% of households with six or more
- represent 36% of those with high school or less and 60% of those with at least some graduate school
- represent 30% of the low income, 42% of the middle income, and 50% of the high income levels
- represent 48% of the Southeast quadrant and roughly 40% of the others.

6.2.8.A Characteristic of All Homeowners Likely to Install Three or More Energy Conservation Measures

The following are points of interest regarding homeowners likely to install three or more ECMs. These homeowners:

- represent 39% of those who have been in their homes less than a year, and 19% of those in their homes 5 or more years

- represent 15% of the one-person households and 28% of the households with six or more.
- represent 16% of those with high school or less and 29% of those with at least some graduate school
- represent 13% of the low income, 29% of the middle income, and 25% of the high income groups
- represent 25% of the Northwest quadrant, 21% of both the Southwest and Northeast quadrants, and 20% of the Southeast quadrants.

6.2.8.B Characteristics of the Subset of Homeowners with Electric Heat Who Are Likely to Install Three or More Energy Conservation Measures

The following are points of interest for the subset of electric heat homeowners who are likely to install 3 or more ECMs. These homeowners:

- represent 36% of those in their homes less than a year and 17% of those in their homes for 5 or more years
- represent 34% of 4 person households and no more than 24% of any other size household
- represent 26% of those who completed Trade/Votech or had some college and no more than 23% of any other occupational category
- represent 12% of low income, 29% of middle income, and 19% of high income groups
- represent 23% of the Northwest quadrant, about 20% of both the Northeast and the Southeast quadrants, and 17% of the Southwest quadrant.

6.3 SUMMARY OF FINDINGS IN CHAPTER 6

In Section 1 of Chapter 6, past conservation behavior related to installing ECMs was studied to determine if certain demographic factors influenced the homeowners. The resulting general trends are as follows:

- As length of time in a home increases, so does the number of ECMs installed. One exception is that, as indicated by the data, if 8+

ECMs are not installed within one year of initially occupying the home, it is not likely that this high level of 8+ ECMs will be reached later.

- As number of people in the household increases, so does the number of ECMs installed. The exception is that 4- and 5-person households are not as likely to have installed 8+ ECMs as are the 2- and 3-person households.
- Occupational groups exhibited a large variability within each group regarding ECM installation. However, no single group was highly active or inactive.
- Second-householder occupation groups exhibited a large variability within each group regarding ECM installation, and no single-group was highly active nor inactive.
- As level of education increases, so does the number of ECMs installed.
- As level of household income increases, so does the number of ECMs installed.
- The Southwest quadrant has been most active followed by the Northeast, the Northwest, and last, the Southeast.

In the second section of Chapter 6, likelihood of future ECM installation was studied to determine if certain demographic factors influenced the homeowners. The same demographic variables from Section 1 were used, except for the occupational variables. The resulting general trends are as follows:

- As length of time in a home increases, the likelihood of future ECM installation decreases.
- As number of people in the household increases, so does the likelihood of future ECM installation.
- As level of education increases, so does the likelihood of future ECM installation.

- As level of income increases, so does the likelihood of future ECM installation.
- The Northwest and Southeast quadrants are the most likely to install ECMs in the future.

The hypothesis tested in this chapter states that consumer behavior and intentions toward installation of energy conservation measures will not vary by demographically defined groups. The results in Section 5.3 indicate certain demographic variables do in fact have an effect both on past behavior and future plans to install ECMs. Of the seven demographic variables used to test the hypothesis with regard to past behavior, five had some degree of influence on the number of energy conservation measures installed.

In the section looking at likelihood of installing conservation measures, it is apparent from the data that demographic variables have a stronger effect on homeowners' intentions than on their actual behavior, and should be used by BPA in conjunction with self reported behavior, to target future programs. For example, results indicate that: it is important to promote installing as many ECMs, in the first year of occupation in a new home, as possible; larger households are more likely to install ECMs, both education and income have a positive effect on likelihood of ECM installation; and finally and maybe most importantly homeowners in the Northwest and Southeast had been least active in the past but report greater likelihood of ECM installation in the future.

7.0 SEGMENTATION BY FAMILY LIFE CYCLE AND VALUE, ATTITUDE AND LIFESTYLE STATEMENTS

One way to classify households in particular market segments is by family life cycle characteristics. Classifying families into life cycle segments is useful to researchers concerned with energy consumption behavior of families and to marketers concerned with segmenting their markets. Family life cycle segments are considered a progression of stages through which families may pass over a course of time. This type of a segmentation scheme was originally developed during the 1950's and 1960's with the nuclear family as the model. However, today the standard family life cycle segments may no longer be appropriate considering the number of single parent families, the couples who choose not to have children and the re-emergence of the extended family. For these reasons, recently developed life cycle segments should more appropriately address current family demographics. Households are segmented according to the number of household members, their ages, whether there are children in the family, and if so, the ages of the children. By placing families into groups based on a combination of such demographic variables, a more in-depth picture of the family is obtained than would be possible using any single variable. One objective of this chapter is to test the hypothesis that consumer behavior and intentions toward conservation investment will not vary by the family life cycle in which a household currently finds itself.

Another way to classify respondents is to observe their responses to a series of value, attitude and lifestyle (VAL) statements. Through a multivariate statistical procedure called factor analysis, a series of variables, (i.e., VALs), can be clustered into a few variables or factors to reflect the underlying attributes of the respondents. Each respondent receives a score for each factor and these scores are used to compare respondents in regards to variables such as age, sex, preferences for reducing energy use in the home, etc. A second objective of this chapter is therefore, to test the hypothesis that consumer behavior and intentions toward conservation investment will not vary by the responses to the VAL statements.

7.1 FAMILY LIFE CYCLE SEGMENTS--METHODOLOGY

In order to create family life cycle segments, several demographic variables are usually used to classify households. These variables can include marital status, age of family members, size of the family, and the work status of the head of household. Since the survey did not ask about marital status or whether head of household was retired, only the ages of the family members and the size of the family was used to create the life cycle segments.

Families in each life cycle segment can choose different ways to allocate their incomes. For example, households with children have quite different expenditures than those with no children. Likewise, young persons of 34 years or less will more likely spend money on setting up their first household. On the other hand, older persons of 65 years and older will usually have established a household and may more likely spend money on pleasurable and time-consuming activities such as trips and vacations.

Seven life cycle segments were chosen for the current analyses and are defined as follows:

- Young Adults-Childless. All adults in the household are 18 to 34 years old, and there are no children living at home.
- Middle-Aged Adults-Childless. All adults in the household are 35 to 64 years old, and there are no children living at home.
- Mixed Generation Adults. There is at least one adult in the household 18 to 34 years old and one adult 35 to 64 years old. There are no children living at home.
- Retired. All adults in the household are 64 years old or older, and there are no children living at home.
- Early Parenthood. All adults in the household are 18 to 64 years old, and the youngest child living at home is 5 years old or younger.
- Late Parenthood. All adults in the household are 18 to 64 years old, and the youngest child living at home is 6 years old or older.
- Extended Family. There is at least one adult in the household 65 years old or older and one child 17 years old or younger.

These seven segments account for approximately 92% of the homeowners in the sample.

7.2 DEMOGRAPHIC BREAKDOWN OF FAMILY LIFE CYCLE SEGMENTS

Before analyzing whether consumer behavior and intentions toward conservation vary by life cycle segments, it is important to determine the demographic differences between life cycle segments. For example, these differences may indicate a relationship between total household income and life cycle segments (see Tables 7.1.A and 7.1.B). The life cycle segments that most frequently had a total household income over \$30,000 were Mixed Generation Adults, Late Parenthood, and Young Adults-Childless. Conversely, the life cycle segments that most frequently had total household incomes of less than \$16,000 were Retired and Extended family.

Distinct demographic differences occur between life cycle segments and length of time the household has lived at the current residence (see Tables 7.2.A and 7.2.B). Over 70% of the households within each segment had

TABLE 7.1.A. Total Household Income, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1848) Life Cycle Segment	Total Household Income		
	Less than \$16,000	\$16,000 to \$30,000	More than \$30,000
Young adults childless (n=145)	8%	50%	43%
Middle aged adults childless (n=497)	21	37	41
Mixed generation adults childless (n=156)	22	23	55
Retired childless (n=260)	56	27	17
Early parenthood youngest child <5 (n=356)	15	47	38
Late parenthood youngest child >6 (n=406)	14	36	50
Extended family (n=28)	30	47	23

TABLE 7.1.B. Total Household Income, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1091) Life Cycle Segment	Total Household Income		
	Less than \$16,000	\$16,000 to \$30,000	More than \$30,000
Young adults childless (n=84)	9%	44%	47%
Middle aged adults, childless (n=253)	26	38	35
Mixed generation adults childless (n=69)	23	20	58
Retired childless (n=176)	56	31	13
Early parenthood youngest child <5 (n=227)	17	42	41
Late parenthood youngest child >6 (n=260)	15	37	48
Extended family (n=22)	14	58	28

TABLE 7.2.A. Length of Time Respondents Have Been at Their Current Residence,
by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1986) Life Cycle Segment	Length of Time At Current Residence			
	Less than One Year	1-2 Years	3-4 Years	5 or more Years
Young adults childless (n=154)	41%	18%	14%	27%
Middle aged adults childless (n=538)	8	6	10	76
Mixed generation adults childless (n=163)	10	10	2	78
Retired childless (n=283)	2	4	6	88
Early parenthood youngest child <5 (n=365)	24	9	19	48
Late parenthood youngest child >6 (n=453)	9	6	11	73
Extended family (n=30)	0	7	0	93

TABLE 7.2.B. Length of Time Respondents Have Been at Their Current Residence, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1173) Life Cycle Segment	Length of Time At Current Residence			
	Less than One Year	1-2 Years	3-4 Years	5 or more Years
Young adults childless (n=86)	49%	10%	18%	23%
Middle aged adults childless (n=276)	11	8	8	73
Mixed generation adults childless (n=74)	6	13	5	76
Retired childless (n=187)	4	6	6	85
Early parenthood youngest child <5 (n=234)	28	6	19	47
Late parenthood youngest child >6 (n=291)	10	7	12	71
Extended family (n=24)	0	0	0	100

lived at their current residences for five years or more except for the Young Adults-Childless and Early Parenthood segments. The Young Adult-Childless segment appears to be the most mobile. As a group, they had the largest percent who had lived at their current residences for less than one year (41% from the entire sample, 49% from households using electricity). The Early Parenthood segment most likely did not settle into current residences until the birth of the youngest child.

Over 70% of the households within each life cycle segment live in single-family detached homes (see Tables 7.3.A. and 7.3.B). The segments most frequently living in mobile homes include Young Adults-Childless (14% from the entire sample, 19% from households using electricity), Retired (18% from the entire sample), and Middle-Aged Adults-Childless (18% from households that use electricity). These data are a function of income and mobility, both of which have been already discussed.

TABLE 7.3.A. Type of Residence, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1987) Life Cycle Segment	Type of Residence			
	Single-Family Detached Home	2-4 Family Home-Duplex- Townhouse	Building With More Than 4 Units	Mobile Home- Trailer
Young adults childless (n=154)	84%	0%	2%	14%
Middle aged adults childless (n=538)	88	1	0	11
Mixed generation adults childless (n=163)	95	2	0	4
Retired childless (n=283)	77	4	2	18
Early parenthood youngest child <5 (n=367)	89	2	1	8
Late parenthood youngest child >6 (n=453)	92	3	0	5
Extended family (n=30)	100	0	0	0

TABLE 7.3.B. Type of Residence, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1987) Life Cycle Segment	Type of Residence			
	Single-Family Detached Home	2-4 Family Home-Duplex- Townhouse	Building With More Than 4 Units	Mobile Home- Trailer
Young adults childless (n=86)	77%	0%	4%	19%
Middle aged adults childless (n=273)	82	0	1	18
Mixed generation adults childless (n=74)	93	4	0	3
Retired childless (n=187)	72	5	2	2
Early parenthood youngest child <5 (n=236)	88	1	1	9
Late parenthood youngest child >6 (n=291)	92	2	0	6
Extended family (n=24)	100	0	0	0

Regarding the ways energy use at home can be reduced, the life cycle segments appeared to differ. All of the life cycle segments in the entire sample, with the exception of the Extended Family, most frequently preferred changing their way of living rather than spending money on improvements in their homes (see Table 7.4.A). In the Extended Family segment, 50% of the households preferred to spend money on improvements, while 41% preferred to change their way of living. In households using electricity, the Extended Family again more frequently preferred spending money on improvements rather than change their way of living (52% versus 40%) (see Table 7.4.B). The Mixed Generation Adults and Late Parenthood segments were evenly split between spending money and changing the way they live. The rest of the segments favored changing their way of living. Most important is the fact that between 23% and 52% of the households within each segment preferred to spend money on improvements to reduce energy use in the home. This fact combined with the information on

TABLE 7.4.A. Ways to Reduce Energy Use at Home, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1938) Life Cycle Segment	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Young adults childless (n=149)	26%	61%	13%	0%
Middle aged adults childless (n=522)	39	50	11	0
Mixed generation adults childless (n=155)	37	51	12	0
Retired childless (n=273)	38	47	7	8
Early parenthood youngest child <5 (n=360)	30	60	10	0
Late parenthood youngest child >6 (n=449)	41	49	9	1
Extended family (n=30)	50	44	7	0

TABLE 7.4.B. Ways to Reduce Energy Use at Home, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1153) Life Cycle Segment	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Young adults childless (n=84)	23%	64%	14%	0%
Middle aged adults childless (n=270)	35	53	13	0
Mixed generation adults childless (n=71)	40	39	22	0
Retired childless (n=182)	39	46	11	4
Early parenthood youngest child <5 (n=234)	26	63	11	0
Late parenthood youngest child >6 (n=287)	46	44	9	1
Extended family (n=24)	52	40	8	0

segments having incomes over \$30,000 and living at their current residences less than two years indicates that there are segments that should be receptive to promotional campaigns for investing in energy conservation.

Tables 7.5.A and 7.5.B show the family life cycle segments by number of people in the household. The Retired segment most frequently had one person in the household (52% from the entire sample, 50% from households using electricity). Young Adults-Childless and Middle-Aged Adult-Childless most frequently had two persons in the households (56%, 62% from the entire sample, 53%, 64% from households using electricity). The Mixed Generation Adult segment most frequently had three persons. Most likely, two middle-aged adults and a child 18 years or older was still living at home. Households with children living at home (from both Early and Late Parenthood segments), no matter what their ages, most frequently had four persons. Of the Extended Family segment, 70% had five or more persons in the household.

TABLE 7.5.A. Number of People in the Household, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1,987) Life Cycle Segment	Number of People in the Household					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6 or More</u>
Young adults childless (n=154)	18%	56%	7%	15%	2%	3%
Middle aged adults childless (n=538)	24	62	5	3	4	2
Mixed generation adults childless (n=163)	0	28	54	16	0	3
Retired childless (n=283)	52	45	2	2	0	0
Early parenthood youngest child ≤5 (n=367)	0	1	23	35	24	17
Late parenthood youngest child ≥6 (n=453)	0	8	29	42	13	8
Extended family (n=30)	0	6	7	17	42	28

TABLE 7.5.B. Number of People in the Household, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1,175) Life Cycle Segment	Number of People in the Household					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6 or More</u>
Young adults childless (n=86)	18%	53%	8%	11%	4%	5%
Middle aged adults childless (n=276)	26	64	6	1	0	3
Mixed generation adults childless (n=74)	0	33	54	13	0	0
Retired childless (n=187)	50	48	2	0	0	0
Early parenthood youngest child ≤5 (n=236)	0	2	24	33	27	14
Late parenthood youngest child ≥6 (n=291)	0	7	32	35	14	12
Extended family (n=24)	0	7	0	21	38	34

7.3 FAMILY LIFE CYCLE SEGMENTS AND CONSUMER BEHAVIOR AND INTENTIONS TOWARD CONSERVATION INVESTMENT

The number of ECMs that have been installed by homeowners is broken down by family life cycle segments in Tables 7.6.A and 7.6.B. Data from the Extended Family segment should be reviewed cautiously because of the small sample size. The remainder of the discussion has excluded the Extended Family segment because of this limitation. The Late Parenthood segment had the largest percentage of homeowners who have installed between five and seven ECMs and who have total household incomes greater than \$30,000. Conversely, over 45% of the Young Adults-Childless households had installed either no or one ECM since moving into their current residences. A partial explanation may be that this segment had the largest proportion having lived at their current residences for less than one year. In time, this segment would be expected to

TABLE 7.6.A. Number of Energy Conservation Measures Installed, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1987) Life Cycle Segment	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Young adults childless (n=154)	47%	41%	12%	0%
Middle aged adults childless (n=538)	38	34	24	3
Mixed generation adults childless (n=163)	24	43	27	6
Retired childless (n=283)	36	36	23	4
Early parenthood youngest Child <5 (n=367)	40	34	23	3
Late parenthood youngest Child >6 (n=453)	26	40	33	1
Extended Family (n=30)	23	22	26	28

TABLE 7.6.B. Number of Energy Conservation Measures Installed, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1175) Life Cycle Segment	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Young adults childless (n=86)	46%	38%	17%	0%
Middle aged adults childless (n=276)	40	34	24	2
Mixed generation adults childless (n=74)	28	37	30	4
Retired childless (n=187)	36	37	21	6
Early parenthood youngest Child <5 (n=236)	41	32	23	5
Late parenthood youngest Child >6 (n=291)	29	39	31	1
Extended Family (n=24)	15	19	32	34

increase their conservation efforts. Except for the Extended Family segment, 6% or less of each of the segments had installed eight or more ECMs since moving into their current residences.

A relationship is apparent between family life cycle segments and homeowners' likelihood of installing ECMs in the next two to three years. The Retired segment was the largest group to state that they are somewhat or very likely to install no ECMs in the next two to three years (75% from entire sample and from households using electricity) (see Tables 7.7.A and 7.7.B). The segments with the largest percentages of households indicating that they are somewhat or very likely to install three or more ECMs include Young Adults-Childless (50% from entire sample, 53% from households using electricity), Early Parenthood (33% from entire sample, 24% from households using electricity), and Late Parenthood (29% from entire sample, 27% from households using electricity). All of these life cycle segments are those having a moderate

TABLE 7.7.A. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Life Cycle Segments

Number of Homeowners (in 1000s) All Heating Fuels (n=1987) Life Cycle Segment	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Young adults childless (n=154)	10%	40%	50%
Middle aged adults childless (n=538)	40	43	17
Mixed generation adults childless (n=163)	35	45	20
Retired childless (n=283)	75	20	5
Early parenthood youngest Child <5 (n=367)	19	49	33
Late parenthood youngest Child >6 (n=453)	29	42	29
Extended Family (n=30)	11	65	24

amount of money, and except for the Late Parenthood segment, have not lived very long at their current residences. Thus, they are looking ahead and are beginning to establish their homes.

7.4 SUMMARY

The results indicate that consumer behavior and intentions toward conservation do vary by the family life cycle a household currently finds itself. Therefore the hypothesis can be rejected. The two life cycle segments that appear most receptive and capable of installing ECMs are the Young Adults-Childless and Early Parenthood. These segments have moderately high incomes, shorter length of stay at current residences compared to other segments, fewer ECMs installed, and the greatest likelihood of installing three or more ECMs in

TABLE 7.7.B. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Life Cycle Segments

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1175) Life Cycle Segment	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Young adults childless (n=86)	8%	40%	53%
Middle aged adults childless (n=276)	43	42	15
Mixed generation adults childless (n=74)	33	53	14
Retired childless (n=187)	75	18	7
Early parenthood youngest Child <5 (n=236)	22	54	24
Late parenthood youngest Child ≥6 (n=291)	28	45	27
Extended Family (n=24)	13	71	17

the future. Marketing programs should be geared towards the demographic data available on these two segments. Both segments are composed of young adults, and the Early Parenthood group also has children. Advertising ECMs may be more successful if the advertising depicts families similar to the Young Adult-Childless and Early Parenthood segments.

7.5 VALUE, ATTITUDE AND LIFESTYLE SEGMENTS--METHODOLOGY

Factor analysis is a multivariate statistical technique used to reduce the number of variables in a data set and to summarize patterns of intercorrelations among variables. This statistical technique was used to analyze the value, attitude and lifestyle statements in the Phase II survey. The analysis indicated that there were two factors accounting for approximately 52% of the

variance in the variables. These two factors measured the levels of cynicism and altruism that homeowners may have felt toward several of the value, attitude, and lifestyle statements.

Questions highly correlated within the cynicism factor include:

1. Utilities should stop offering a variety of programs to encourage energy conservation.
2. It is silly to conserve electricity because the electric utility just turns around and charges more for what you do use.
3. With the current surplus in the Northwest, there is no need to conserve electricity.
4. My conservation efforts will not have much effect one way or the other on the availability of electricity.

Questions highly correlated within the altruism factor include:

1. Conserving energy is the best way to protect the environment.
2. It is our responsibility to conserve electricity for future generations.
3. Conserving electricity is the best way to maintain my lifestyle.

Each respondent received two factor scores, one for the cynicism factor and one for the altruism factor. For purposes of this report, the factor scores were coded into low and high depending on whether the score was positive or negative on the particular factor. For example, a high cynicism score would indicate that the respondent tended to agree or strongly agree with the questions indicating cynicism and tended to rate other statements less strongly. Further refinements to this coding scheme, may be appropriate in future analyses.

7.6 DEMOGRAPHIC BREAKDOWN OF CYNICISM AND ALTRUISM FACTORS

A slight relationship was apparent between homeowners' levels of cynicism and their total household incomes (see Tables 7.8.A and 7.8.B). The entire sample/households using electricity and those who scored high on the cynicism

TABLE 7.8.A. Total Household Income, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=1977) Cynicism Factor	Total Household Income		
	Under	\$16,000 to	Over
	\$16,000	\$30,000	\$30,000
Low (n=1193)	20%	39%	41%
High (n=784)	27	34	39

TABLE 7.8.B. Total Household Income, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1161) Cynicism Factor	Total Household Income		
	Under	\$16,000 to	Over
	\$16,000	\$30,000	\$30,000
Low (n=701)	21%	40%	38%
High (n=460)	38	32	36

factor tended to have a higher representation in the low-income groups than those who scored low on the cynicism factor (27% versus 20% from entire sample, 38% versus 21% from households using electric homes). No relationship was apparent between the homeowner's level of cynicism and the length of time they had lived at the current residence (see Tables 7.9.A and 7.9.B). Over 65% of homeowners from the entire sample and from households using electricity and of those who scored low or high on the cynicism factor had lived at their current residences for five years or longer.

TABLE 7.9.A. Length of Time Homeowners Have Been at the Current Residence, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2148) Cynicism Factor	Length of Time at Current Residence			
	Less Than	1-2	3-4	5 or
	One Year	Years	Years	More Years
Low (n=1318)	12%	7%	11%	71%
High (n=830)	14	7	12	68

TABLE 7.9.B. Length of Time Homeowners Have Been at the Current Residence, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1261) Cynicism Factor	Length of Time at Current Residence			
	Less Than One Year	1-2 Years	3-4 Years	5 or More Years
Low (n=770)	14%	7%	12%	67%
High (n=490)	15	7	11	67

Homeowners' level of cynicism by type of residence can be seen in Tables 7.10.A and 7.10.B. Over 80% of the homeowners from the entire sample and from households using electricity and of those who scored low or high on the cynicism factor live in single-family detached homes and between 9% and 14% live in mobile home trailers.

A relationship is apparent between the preferred method to reduce energy use in the home and the homeowner's level of cynicism (see Tables 7.11.A and 7.11.B). Homeowners from the entire sample and from households using

TABLE 7.10.A. Type of Residence, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Cynicism Factor	Type of Current Residence			
	Single-Family Detached Home	2-4 Family Home Duplex- Townhouse	Building with More than Four Units	Mobile Home Trailers
Low (n=1320)	89%	1%	1%	9%
High (n=830)	85	3	1	12

TABLE 7.10.B. Type of Residence, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Cynicism Factor	Type of Current Residence			
	Single-Family Detached Home	2-4 Family Home Duplex- Townhouse	Building with More than Four Units	Mobile Home Trailers
Low (n=772)	84%	2%	1%	13%
High (n=490)	83	2	1	14

TABLE 7.11.A. Ways to Reduce Energy Use at Home, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2092) Cynicism Factor	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Low (n=1286)	34%	54%	11%	1%
High (n=806)	40	49	8	3

TABLE 7.11.B. Ways to Reduce Energy Use at Home, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1232) Cynicism Factor	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Low (n=751)	34%	53%	12%	1%
High (n=481)	38	48	12	2

electricity who scored high on the cynicism factor had a stronger preference for spending money on improvements than did those who scored low on the cynicism factor (40% versus 34% from entire sample, 38% versus 34% from households using electricity). Conversely, homeowners who scored low on the cynicism factor had a stronger preference for changing their way of living compared to those who scored high on the cynicism factor (54% versus 49% from entire sample, 53% versus 48% from households using electricity). Between 8% and 12% of the homeowners who scored low or high on the cynicism factor preferred both methods of reducing energy use, while between 1% and 3% of the same respondents preferred neither method.

A positive relationship is apparent between homeowners' total household incomes and their levels of altruism, especially for the low altruism group (see Tables 7.12.A and 7.12.B). Homeowners who scored high on the altruism factor more frequently had incomes less than \$16,000 than did homeowners who scored low on the altruism factor (28% versus 19% from entire sample, 33% versus 19% from households using electricity). Conversely, those who scored

TABLE 7.12.A. Total Household Income, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=1977) Altruism Factor	Total Household Income		
	Under \$16,000	\$16,000 to \$30,000	Over \$30,000
Low (n=1139)	19%	37%	44%
High (n=838)	28	37	34

TABLE 7.12.B. Total Household Income, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1161) Altruism Factor	Total Household Income		
	Under \$16,000	\$16,000 to \$30,000	Over \$30,000
Low (n=653)	19%	38%	43%
High (n=507)	33	36	31

low on the altruism factor more frequently had incomes greater than \$30,000 than did those homeowners who scored high on the altruism factor (44% versus 34% from entire sample, 43% versus 31% from households using electricity).

No relationship was apparent between length of time the homeowners had been at current residences and levels of altruism (see Table 7.13.A and Table 7.13.B). Over 65% of the homeowners who scored high or low on the altruism factor had lived at their current residences for five years or longer.

TABLE 7.13.A. Length of Time Homeowners Have Been at Their Current Residence, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2148) Altruism Factor	Length of Time at Current Residence			
	Less Than One Year	1-2 Years	3-4 Years	5 or More Years
Low (n=1248)	11%	8%	12%	68%
High (n=900)	14	6	9	71

TABLE 7.13.B. Length of Time Homeowners Have Been at Their Current Residence, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1261) Altruism Factor	Length of Time at Current Residence			
	Less Than One Year	1-2 Years	3-4 Years	5 or More Years
Low (n=707)	12%	7%	13%	68%
High (n=554)	18	7	9	66

With regard to the altruism factor, over 80% of the homeowners live in single-family detached homes, and between 8% and 16% live in mobile home trailers (see Tables 7.14.A and 7.14.B). These percentages from types of residences parallel those of the cynicism factor. Again, parallel to percentages of the cynicism factor, altruism factor percentages show that homeowners most frequently prefer to change their way of living rather than spend money on improvements in order to reduce energy use in their home (see Tables 7.15.A and 7.15.B). Between 48% and 55% of the homeowners who scored high or low on

TABLE 7.14.A. Type of Residence, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Altruism Factor	Type of Current Residence			
	Single-Family Detached Home	2-4 Family Home Duplex- Townhouse	Building with More than Four Units	Mobile Home Trailers
Low (n=1250)	89%	1%	1%	8%
High (n=900)	85	2	0	12

TABLE 7.14.B. Type of Residence, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Altruism Factor	Type of Current Residence			
	Single-Family Detached Home	2-4 Family Home Duplex- Townhouse	Building with More than Four Units	Mobile Home Trailers
Low (n=709)	85%	2%	1%	11%
High (n=554)	82	1	0	16

TABLE 7.15.A. Ways to Reduce Energy Use at Home, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2091) Altruism Factor	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Low (n=1214)	37%	50%	11%	1%
High (n=878)	35	54	9	2

TABLE 7.15.B. Ways to Reduce Energy Use at Home, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1232) Altruism Factor	Ways to Reduce Energy Use			
	Spend Money on Improvements	Change Way of Living	Both	Neither
Low (n=692)	38%	48%	13%	1%
High (n=541)	33	55	10	1

the altruism factor preferred to change their ways of living, and between 33% and 38% preferred to spend money on improvement. Between 9% and 13% preferred to do both, and 2% or less preferred to do neither.

7.7 CYNICISM AND ALTRUISM FACTORS RELATED TO CONSUMER BEHAVIOR AND INTENTIONS TOWARD ENERGY CONSERVATION

A relationship was apparent between the number of ECMs previously installed the level of cynicism of respondents (see Tables 7.16.A and 7.16.B). Homeowners in the entire sample who scored high on the cynicism factor installed one or no ECMs more frequently than those who scored low on the cynicism factor (37% versus 33%). The opposite was true for homeowners who installed between five and seven ECMs. Approximately 30% of homeowners from the entire sample and households using electricity who scored low on the cynicism factor installed between five and seven measures, while approximately 20% of the homeowners who scored high on the cynicism factor installed that same number.

TABLE 7.16.A. Number of Energy Conservation Measures Installed, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Cynicism Factor	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Low (n=1320)	33%	36%	30%	4%
High (n=830)	37	40	22	2

TABLE 7.16.B. Number of Energy Conservation Measures Installed, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Cynicism Factor	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Low (n=772)	36%	30%	30%	4%
High (n=490)	35	43	20	2

No relationship appeared to exist between homeowners' level of cynicism and the number of ECMs they are somewhat or very likely to install in the next two to three years (see Tables 7.17.A and 7.17.B). Between 36% and 39% of the homeowners who scored high or low reported that they were not very likely to

TABLE 7.17.A. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Cynicism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Cynicism Factor	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Low (n=1320)	36%	39%	25%
High (n=830)	38	42	20

TABLE 7.17.B. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Cynicism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Cynicism Factor	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Low (n=772)	37%	41%	21%
High (n=490)	39	42	20

install any ECMs. On the other hand, between 20% and 25% of the homeowners who scored high or low on the cynicism factor reported that they were somewhat or very likely to install three or more measures.

Similar to the cynicism factor, a relationship is apparent between the number of ECMs homeowners had installed and their level of altruism, particularly for households using electricity (see Tables 7.18.A and 7.18.B). Homeowners who scored low on the altruism factor more frequently had installed 0 or 1 ECMs than had homeowners who scored high on the altruism factor (36% versus 31% from entire sample, 39% versus 32% from households using electricity). Of the homeowners scoring high on the altruism factor, 5% had installed eight or more ECMs, while of those scoring low on the altruism factor, only 2% or less had installed that number.

TABLE 7.18.A. Number of Energy Conservation Measures Installed, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Altruism Factor	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Low (n=1250)	36%	36%	26%	1%
High (n=890)	31	39	25	5

TABLE 7.18.B. Number of Energy Conservation Measures Installed, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Altruism Factor	Number of Energy Conservation Measures			
	0-1	2-4	5-7	8 or More
Low (n=709)	39%	32%	27%	2%
High (n=554)	32	40	24	5

A relationship is apparent between the number of ECMs homeowners were somewhat or very likely to install in the next two or three years and their level of altruism (see Tables 7.19.A and 7.19.B). Homeowners who scored high on the altruism factor more frequently reported that they were somewhat or very likely to install no ECMs than those that scored low on the altruism measure (42% versus 34% from entire sample, 43% versus 34% from households using electricity). However, those who scored low on the altruism factor indicated more frequently that they were somewhat or very likely to install one or two measures than homeowners who scored high on the altruism factor (43% versus 35% from entire sample, 45% versus 37% from households using electricity). Between 20% and 23% of the homeowners who scored high or low on altruism reported that they were somewhat or very likely to install three or more ECMs.

TABLE 7.19.A. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Altruism Factor

Number of Homeowners (in 1000s) All Heating Fuels (n=2150) Altruism Factor	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Low (n=1250)	34%	43%	23%
High (n=900)	42	35	23

TABLE 7.19.B. Number of Energy Conservation Measures Homeowners are Somewhat or Very Likely to Install in the Next Two to Three Years, by Altruism Factor

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1262) Cynicism Factor	Number of Energy Conservation Measures Somewhat or Very Likely to Install		
	0	1-2	3 or More
Low (n=709)	34%	45%	21%
High (n=554)	43	37	20

7.8 SUMMARY

The results seem to indicate that consumer behavior and intentions toward conservation do vary by the respondents responses to VAL statements which allows for rejection of the hypothesis. Respondents who scored high on the cynicism factor may be more inclined in invest in ECMs than those who scored low. In fact, those with high scores more frequently indicated that they would prefer to spend money on ECMs than did those who scored low. This high cynicism group had installed fewer ECMs in the past and therefore may have more reason to invest. However, this group tends to have lower incomes than those who scored low. There was not much difference between the two groups in terms of the number of ECMs they were likely to install in the next two to three years.

Respondents who scored low on the altruism factor may be more inclined to invest in ECMs than those who scored high. This low group had higher incomes and had installed fewer ECMs than those who scored high on the altruism factor. This group also indicated that they were more inclined to install three or more ECMs in the next two to three years.

The results of the factor analysis should be interpreted with caution because the two factors account for only about 55% of the variance. In addition, there are wording problems in several of the statements. In future

analyses, closer scrutiny of the statements with wording problems may result in omitting them from the analyses. Control of additional variables may also increase the percent of variance accounted for.

8.0 INFLUENCE OF HOMEOWNER' PERCEPTIONS AND ATTITUDES ON ENERGY CONSERVATION INVESTMENT

It is important to know if homeowners' attitudes and perceptions of conservation influence their spending because this knowledge can be used to design a marketing campaign or to position a conservation program for its greatest appeal. For example, assume that it has been determined that homeowners who view conservation spending as a way to increase home value tend to spend more than those who view conservation spending as a way to save on the utility bill. In this instance, a marketing campaign could be designed to emphasize the positive affect conservation investment has on home value. Thus, this campaign would use knowledge of past investment behavior to increase program effectiveness. The purpose of this chapter is, therefore, to determine which attitudes and perceptions of homeowners have a positive influence on the amount spent on energy conservation. And the hypothesis being tested is that the amount of money spent on ECMs will not vary by homeowners' perceptions of conservation.

8.1 INFLUENCES OF HOMEOWNERS' PERCEPTIONS OF CONSERVATION ON SPENDING FOR ENERGY CONSERVATION

To determine if homeowners' perceptions influence their level of spending, their concerns must be examined. Specific levels of concern are related to energy use in the home, cost of energy, and the energy conservation effect produced by energy conservation spending. Four levels of concern are used in this analysis: very concerned, concerned, not very concerned, and not at all concerned. The spending figure used in this analysis is the amount reportedly spent on energy conservation during the last two years. These expenditure responses have been categorized into five levels: \$0, \$1 to \$500, \$501 to \$1,000, \$1,001 to \$2,000, and \$2,001+.

8.1.1 Level of Concern for Energy Use in the Home

The level of concern a homeowner has regarding energy use in the home appears to affect conservation spending (see Table 8.1.A). A good example of this effect is found in the distribution for all homeowners who spent nothing

TABLE 8.1.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for Energy Use

Number of Homeowners (in 1000s) All Heating Fuels (n=1482) Amount Spent	Level of Concern for Energy Use In the Home			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=660)	32%	45%	21%	2%
\$1-\$500 (n=418)	35	51	12	2
\$501-\$1000 (n=121)	37	51	12	0
\$1001-\$200 (n=118)	31	53	16	0
\$2001 + (n=165)	43	43	11	2

on conservation. In this group, 23% were in the "not very concerned" or "not at all concerned" categories, while less than 16% of all other spending levels expressed the same lack of concern. This effect is even more visible at the highest level of concern for energy use in the home. Only 32% of those who spent nothing were "very concerned," while 43% of those who spent \$2,001 or more were "very concerned" about energy use in the home.

The subset of homeowners using electric heat (see Table 8.1.B) had a similar response pattern regarding the effect of level of concern on conservation spending. It is apparent, however, that this subset of homeowners is less likely to spend as much on energy conservation as the entire sample of homeowners. For example, 50% of the entire subset using electric heat and 45% of the entire sample spent nothing on ECMs; and only 4% of the subset spent more than \$2,000 while 11% of the entire sample spent over \$2,000.

8.1.2 Level of Concern for Cost of Energy

As shown in Table 8.2.A, homeowners who expressed concern about the cost of energy generally spent more than those who were less concerned about it. The most observable difference occurs in the "very concerned" category. Of those spending nothing on conservation, 45% said they were "very concerned" about the cost of energy as compared to 63% of those who spent \$2,000 or

TABLE 8.1.8. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for Energy Use

Number of Homeowners (in 1000s) Heating Fuel Electric (n=492) Amount Spent	Level of Concern for Energy Use In the Home			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=247)	28%	47%	24%	0%
\$1-\$500 (n=155)	44	46	11	0
\$501-\$1000 (n=39)	44	51	5	0
\$1001-\$200 (n=33)	63	37	0	0
\$2001 + (n=18)	40	48	11	0

TABLE 8.2.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for the Cost of Energy

Number of Homeowners (in 1000s) All Heating Fuels (n=1487) Amount Spent	Level of Concern for Cost of Energy			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=665)	45%	48%	6%	1%
\$1-\$500 (n=418)	55	41	3	1
\$501-\$1000 (n=121)	63	37	0	0
\$1001-\$200 (n=118)	59	33	8	0
\$2001 + (n=165)	63	31	6	0

more. This pattern of higher concern/higher spending is evident in all categories of concern except for the "not very concerned" category. Here, the percentages in the first three spending levels decline. Then at the top two spending levels, the percentages increase. A possible explanation of this variation is that the 6% to 8% of those who spent at least \$1,001 were "not very concerned" about the cost of energy because their homes were already energy efficient. The subset of homeowners using electric heat had essentially the same response pattern (see Table 8.2.B).

TABLE 8.2.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for the Cost of Energy

Number of Homeowners (in 1000s) Heating Fuel Electric (n=489) Amount Spent	Level of Concern for Cost of Energy			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=244)	41%	54%	5%	0%
\$1-\$500 (n=155)	61	38	1	0
\$501-\$1000 (n=39)	51	49	0	0
\$1001-\$200 (n=33)	61	29	9	0
\$2001 + (n=18)	58	31	11	0

8.1.3 Level of Concern for Energy Conservation

Homeowners' level of concern for energy conservation is shown in Table 8.3.A. Again, the greatest difference between spending levels occurs in the "very concerned" category. Only 25% of those who spent nothing responded that they were "very concerned" about energy conservation, while 48% of those who spent over \$2,000 said they were "very concerned" about energy conservation. The distribution of spending levels in the "concerned", "not very concerned," and "not at all concerned" categories reinforces the pattern that as level of concern for energy conservation increases so does spending. Responses from the

TABLE 8.3.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for Energy Conservation

Number of Homeowners (in 1000s) All Heating Fuels (n=1483) Amount Spent	Level of Concern for Energy Conservation			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=661)	25%	62%	11%	2%
\$1-\$500 (n=418)	32	61	5	2
\$501-\$1000 (n=121)	28	65	7	0
\$1001-\$200 (n=118)	46	51	3	0
\$2001 + (n=165)	48	48	4	0

subset of homeowners with electric heat are essentially the same as for the entire sample except for the "not very concerned" category. The data in Table 8.3.B reveals that homeowners in the subset who spent over \$2,000 were less concerned about energy conservation than were the entire sample of homeowners.

8.2 INFLUENCES OF HOMEOWNERS' ATTITUDES TOWARDS CONSERVATION ON SPENDING FOR ENERGY CONSERVATION

The previous section covered homeowners' perceptions regarding conservation and how those perceptions influenced spending. In this section, a series of 15 attitudinal statements and homeowners' responses to them are reviewed. Homeowners were asked to indicate whether they strongly disagreed, disagreed, were neutral, agreed, or strongly agreed with each statement.

8.2.1 Attitude Toward the Amount of Energy Used

Homeowners were asked to respond to the statement, "The amount of energy I use is really my own affair and no one else's." A general pattern, shown in Table 8.4.A, suggests that those who had spent nothing tended to agree with this statement to a greater extent than did those at all other spending levels, especially at the highest spending level. For example, 52% of those who had spent nothing either agreed or strongly agreed with the statement, while only

TABLE 8.3.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Level of Concern for Energy Conservation

Number of Homeowners (in 1000s) Heating Fuel Electric (n=492) Amount Spent	Level of Concern for Energy Conservation			
	Very Concerned	Concerned	Not Very Concerned	Not at All Concerned
\$0 (n=247)	17%	68%	13%	2%
\$1-\$500 (n=155)	35	64	1	0
\$501-\$1000 (n=39)	34	62	4	0
\$1001-\$2000 (n=33)	52	48	0	0
\$2001 + (n=18)	42	48	10	0

TABLE 8.4.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Amount of Energy Used

Number of Homeowners (in 1000s) All Heating Fuels (n=1478) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=660)	8%	37%	2%	40%	12%
\$1-\$500 (n=414)	8	40	4	42	6
\$501-\$1000 (n=121)	12	45	1	32	10
\$1001-\$2000 (n=118)	9	44	11	24	12
\$2001 + (n=165)	14	44	5	23	14

(a) In response to the statement, "The amount of energy I use is really my own affair and no one else's."

37% of those who spent over \$2,000 agreed or strongly agreed with the statement. The percentages are the opposite for those who disagreed or strongly disagreed with the statement. For example, 58% of those who spent over \$2,000 strongly disagreed or disagreed with the statement, while only 45% of those who spent nothing disagreed or strongly disagreed with the statement. The subset of homeowners using electric heat responded in like manner, but the pattern tended to be more pronounced (see Table 8.4.B).

8.2.2 Attitude Toward the Amount of Electricity Used

Homeowners' responses to, "I only use electricity when it is really needed--there is no way I could cut down," are shown in Table 8.5.A. A pattern similar to the previous pattern emerges, i.e., more respondents who had spent over \$2,000 than those who spent nothing disagreed with the statement. Of the high spending group, 59% disagreed compared to 46% of the low spending group. Conversely, about 53% of the low spending group agreed with the statement, and 39% of the high spending group agreed. The subset of homeowners using electric heat had a very different response pattern to this statement (see Table 8.5.B). Fewer of those who had spent over \$2,000 than those who spent nothing disagreed

TABLE 8.4.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Amount of Energy Used

Number of Homeowners (in 1000s) Heating Fuel Electric (n=492) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=247)	11%	32%	1%	44%	13%
\$1-\$500 (n=155)	7	33	1	44	15
\$501-\$1000 (n=39)	12	51	4	29	4
\$1001-\$2000 (n=33)	6	45	17	16	16
\$2001 + (n=18)	21	48	0	21	10

(a) In response to the statement, "The amount of energy I use is really my own affair and no one else's."

TABLE 8.5.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Amount of Electricity Used

Number of Homeowners (in 1000s) All Heating Fuels (n=1487) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=665)	2%	44%	1%	46%	7%
\$1-\$500 (n=418)	3	47	3	37	10
\$501-\$1000 (n=121)	0	56	3	23	18
\$1001-\$2000 (n=118)	13	52	2	26	7
\$2001 + (n=165)	4	55	3	33	6

(a) In response to the statement, "I only use electricity when it's really needed--there's no way I could cut down."

with the statement. Only 40% of those in the high spending group expressed disagreement, while 56% of the low spending group disagreed. Conversely, about 43% of the low spending group agreed while 60% of the high spending group also

TABLE 8.5.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Amount of Electricity Used

Number of Homeowners (in 1000s) Heating Fuel Electric (n=492) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=247)	3%	53%	2%	37%	6%
\$1-\$500 (n=155)	3	51	2	31	13
\$501-\$1000 (n=39)	0	41	9	30	20
\$1001-\$2000 (n=33)	14	40	0	40	6
\$2001 + (n=18)	0	40	0	50	10

(a) In response to the statement, "I only use electricity when it's really needed--there's no way I could cut down."

agreed with the statement. In general, much stronger agreement with the statement is found among homeowners using electric heat than among homeowners from the entire sample.

8.2.3 Attitude Toward Ability to Conserve Energy

The third statement of interest is, "I have already done everything I can to conserve energy." Table 8.6.A, reveals the largest percentage of those in disagreement with the statement are in the medium spending levels rather than the high spending range. Sixty-two percent of those who spent from \$1 to \$500 expressed disagreement, and 79% of those who spent \$1,001 to \$2,000 also disagreed. The subset of homeowners using electric heat disagreed with the statement more often than did the entire sample of homeowners, except for those of the subset who spent over \$2,000 (see Table 8.6.B). Over half of this group agreed with the statement.

8.2.4 Attitude Toward Consulting Consumer Reports

Those homeowners who agreed with the statement, "I consult Consumer Reports or similar publications before making major purchases," spent more on energy conservation during the last two years (see Table 8.7.A). The largest percentage of agreement involved those who had spent between \$1,001 and \$2,000,

TABLE 8.6.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Ability to Conserve Energy

Number of Homeowners (in 1000s) All Heating Fuels (n=1483) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=665)	3%	51%	3%	38%	4%
\$1-\$500 (n=416)	3	59	4	28	6
\$501-\$1000 (n=121)	3	58	0	31	8
\$1001-\$2000 (n=116)	7	72	0	14	7
\$2001 + (n=165)	4	59	3	28	6

(a) In response to the statement, "I have already done everything I can to conserve energy."

TABLE 8.6.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Ability to Conserve Energy

Number of Homeowners (in 1000s) Heating Fuel Electric (n=488) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=247)	1%	53%	6%	37%	3%
\$1-\$500 (n=153)	4	59	2	26	9
\$501-\$1000 (n=39)	4	68	0	28	0
\$1001-\$2000 (n=31)	6	88	0	0	5
\$2001 + (n=18)	0	48	0	31	21

(a) In response to the statement, "I have already done everything I can to conserve energy."

TABLE 8.7.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Consulting Consumer Reports

Number of Homeowners (in 1000s) All Heating Fuels (n=1471) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=654)	6%	35%	3%	43%	13%
\$1-\$500 (n=418)	5	34	3	46	12
\$501-\$1000 (n=121)	3	30	3	53	12
\$1001-\$2000 (n=118)	0	18	7	57	19
\$2001 + (n=160)	2	20	5	65	8

(a) In response to the statement, "I consult Consumer Reports or similar publications before making major purchases."

followed closely by those who had spent over \$2,000. These homeowners probably are or have been the most active group of investors in energy conservation and so would naturally be most familiar with consumer information. Results from the subset of homeowners with electric heat show similar responses to the statement (see Table 8.7.B).

8.2.5 Attitude Toward Utilities Offering Conservation Programs

All the homeowners tended to disagree with the statement, "Utilities should stop offering a variety of programs to encourage energy conservation." Table 8.8.A shows very little difference across the spending levels; between 84% and 93% of the spending levels disagreed with the statement. In general, a large majority of the homeowners believed that utilities should continue to offer conservation programs. One point of interest was the fact that 15% of those who had spent nothing or less than \$500 agreed with the statement as did 9% of those who had spent over \$2,000. This may indicate that some people will not invest in conservation even if a program is offered either because they have already installed as many ECMs as is practical or because they are not willing to do anything to conserve energy. The responses for the subset of homeowners using electric heat are generally the same. However, some

TABLE 8.7.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Consulting Consumer Reports

Number of Homeowners (in 1000s) Heating Fuel Electric (n=486) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=241)	0%	39%	3%	48%	10%
\$1-\$500 (n=155)	6	36	0	48	10
\$501-\$1000 (n=39)	0	34	4	62	0
\$1001-\$2000 (n=33)	0	17	0	78	5
\$2001 + (n=18)	0	19	0	71	10

(a) In response to the statement, "I consult Consumer Reports or similar publications before making major purchases."

TABLE 8.8.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Utilities Offering Conservation Programs

Number of Homeowners (in 1000s) All Heating Fuels (n=1451) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=642)	27%	57%	2%	12%	3%
\$1-\$500 (n=414)	21	63	1	14	1
\$501-\$1000 (n=119)	34	60	0	6	0
\$1001-\$2000 (n=118)	43	50	4	3	0
\$2001 + (n=158)	32	58	0	7	2

(a) In response to the statement, "Utilities should stop offering a variety of programs to encourage energy conservation."

noticeable differences appear. A majority of respondents expressed disagreement with the statement, but the range was much wider with between 68% and 100% expressing disagreement. For those agreeing with the statement, again the homeowners in the two lowest as well as in the single highest spending levels

were represented. Between 13% and 27% of those who spent nothing or less than \$500 expressed agreement while 32% of those who spent over \$2,000 expressed agreement (see Table 8.8.B).

8.2.6 Attitude Toward Improving the Efficiency of Their Home

As shown in Table 8.9.A, over 80% of all homeowners, regardless of their spending level, disagreed with the statement, "I will invest in improving the efficiency of my home only if there are rebates to me from the utility." From all the spending levels, the three lowest, i.e., spending between \$0 and \$1,000, had between 13% and 17% expressing agreement with the statement. None of the homeowners who spent between \$1,000 and \$2,000 agreed, and only 6% of those who spent over \$2,000 agreed. This 6% may have already invested as much as they were willing and would require some sort of program to offset the cost of any more ECMs. The responses of the subset of homeowners using electric heat (see Table 8.9.B) are generally the same except that no one in this subset who spent over \$2,000 expressed agreement with the statement.

8.2.7 Attitude Toward Electricity Prices in the Northwest

To determine whether or not the respondents view cost of energy as a motivating factor in conservation, homeowners were asked to respond to,

TABLE 8.8.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Utilities Offering Conservation Programs

Number of Homeowners (in 1000s) Heating Fuel Electric (n=478) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=233)	28%	56%	4%	12%	1%
\$1-\$500 (n=155)	16	53	3	26	1
\$501-\$1000 (n=39)	16	84	0	0	0
\$1001-\$2000 (n=33)	52	48	0	0	0
\$2001 + (n=18)	29	39	0	11	21

(a) In response to the statement, "Utilities should stop offering a variety of programs to encourage energy conservation."

TABLE 8.9.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Improving the Efficiency of Their Home

Number of Homeowners (in 1000s) All Heating Fuels (n=1473) Amount Spent	Response (a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=654)	7%	76%	3%	13%	0%
\$1-\$500 (n=415)	11	73	2	13	0
\$501-\$1000 (n=121)	17	66	0	16	1
\$1001-\$2000 (n=118)	10	82	8	0	0
\$2001 + (n=165)	10	75	8	4	2

(a) In response to the statement, "I will invest in improving the efficiency of my home only if there are rebates to me from the utility."

TABLE 8.9.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Improving the Efficiency of Their Home

Number of Homeowners (in 1000s) Heating Fuel Electric (n=480) Amount Spent	Response (a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=238)	10%	73%	3%	13%	1%
\$1-\$500 (n=152)	10	69	2	19	0
\$501-\$1000 (n=39)	12	76	0	12	0
\$1001-\$2000 (n=33)	0	100	0	0	0
\$2001 + (n=18)	10	90	0	0	0

(a) In response to the statement, "I will invest in improving the efficiency of my home only if there are rebates to me from the utility."

"Electricity prices in the Northwest are not high enough to necessitate conservation activities." The assumption might be that those disagreeing with the statement would have spent more on conservation during the past two years. However, this assumption is not supported by the numbers in Table 8.10.A. Over

TABLE 8.10.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Electricity Prices in the Northwest

Number of Homeowners (in 1000s) All Heating Fuels (n=1450) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=645)	29%	63%	1%	5%	2%
\$1-\$500 (n=403)	24	69	0	6	1
\$501-\$1000 (n=119)	33	55	4	8	0
\$1001-\$2000 (n=118)	30	64	3	1	9
\$2001 + (n=165)	33	57	2	8	0

(a) In response to the statement, "Electricity Prices in the Northwest Are Not High Enough to Necessitate Conservation Activities."

80% of all the homeowners disagreed with the statement with differences among the spending levels ranging from 82% to 94%. The responses from the subset of homeowners using electric heat are similar (see Table 8.10.B). Again over 80% of these respondents disagreed with the statement including differences among the spending levels ranging from 83% to 100%.

8.2.8 Attitude Toward Electricity Rate Changes

Responses to the statement, "It is silly to conserve electricity because the electric utility just turns around and charges more for what you do use," are shown in Table 8.11.A. An assumption might be that homeowners who have actively invested in conservation disagree with this statement. In fact, 79% of those who spent over \$2,000 and 72% of those who spent between \$1,000 and \$2,000 did disagree with the statement. No more than 64% of the respondents in any of the three lower spending levels expressed disagreement with the statement. Conversely, between 32% and 41% of the lower and only 26% of the top two spending groups agreed with the statement. Table 8.11.B contains the responses for the subset of homeowners using electric heat. This group tends to be more

TABLE B.10.8. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Electricity Prices in the Northwest

Number of Homeowners (in 1000s) Heating Fuel Electric (n=468) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=230)	27%	61%	3%	5%	4%
\$1-\$500 (n=150)	22	73	0	3	1
\$501-\$1000 (n=39)	23	60	12	5	0
\$1001-\$2000 (n=33)	34	67	0	0	0
\$2001 + (n=18)	10	79	0	11	0

(a) In response to the statement, "Electricity Prices in the Northwest Are Not High Enough to Necessitate Conservation Activities."

TABLE 8.11.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Electricity Rate Changes Made by the Utility

Number of Homeowners (in 1000s) All Heating Fuels (n=1453) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=655)	12%	52%	4%	26%	6%
\$1-\$500 (n=406)	7	49	2	34	7
\$501-\$1000 (n=119)	19	42	4	35	0
\$1001-\$2000 (n=118)	23	49	2	26	0
\$2001 + (n=155)	19	60	0	18	3

(a) In response to the statement, "It's silly to conserve electricity because the electric utility just turns around and charges more for what you do use."

cynical in overall responses. Across all the spending levels, more agreement with the statement was evident in the subset than with the entire sample of homeowners.

TABLE 8.11.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Electricity Rate Changes Made by the Utility

Number of Homeowners (in 1000s) Heating Fuel Electric (n=485) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=242)	15%	46%	2%	31%	6%
\$1-\$500 (n=155)	9	45	0	37	9
\$501-\$1000 (n=39)	5	60	12	23	0
\$1001-\$2000 (n=33)	16	51	0	34	0
\$2001 + (n=16)	0	78	0	11	11

(a) In response to the statement, "It's silly to conserve electricity because the electric utility just turns around and charges more for what you do use."

8.2.9 Attitude Toward Power Surplus

Homeowners who disagreed with the statement, "With the current power surplus in the Northwest there is no need to conserve electricity," might be those who are in the upper spending levels. This expectation is supported by the responses and the distribution of homeowners illustrated in Table 8.12.A. About 30% of the upper three spending groups (i.e., spending at least \$500) expressed strong disagreement, while the lower spending groups had only 15% to 17% expressing strong disagreement. The only homeowners who expressed any strong agreement were those who had spent nothing, and only a small percent of this group did so. The subset of homeowners using electric heat gave similar responses to the statement with more overall disagreement in the top three spending levels (see Table 8.12.B).

8.2.10 Attitude Toward the Effect of Conservation Efforts

Most homeowners disagreed with the statement, "My conservation efforts won't have much effect one way or the other on the availability of electricity." The expectation is that those disagreeing would spend more on conservation. The pattern in Table 8.13.A appears to support this expectation. The

TABLE 8.12.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Power Surplus in the Northwest

Number of Homeowners (in 1000s) All Heating Fuels (n=1484) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=662)	15%	80%	1%	3%	2%
\$1-\$500 (n=418)	17	78	1	4	0
\$501-\$1000 (n=121)	34	59	0	7	0
\$1001-\$2000 (n=118)	28	69	0	3	0
\$2001 + (n=165)	29	63	0	8	0

(a) In response to the statement, "With the current power surplus in the Northwest, there is no need to conserve electricity."

TABLE 8.12.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Power Surplus in the Northwest

Number of Homeowners (in 1000s) Heating Fuel Electric (n=490) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=247)	15%	76%	3%	4%	3%
\$1-\$500 (n=155)	18	76	0	6	0
\$501-\$1000 (n=39)	12	83	0	5	0
\$1001-\$2000 (n=33)	21	79	0	0	0
\$2001 + (n=16)	0	100	0	0	0

(a) In response to the statement, "With the current power surplus in the Northwest, there is no need to conserve electricity."

percentages of those disagreeing with the statement increased as the level of spending increased. For example, 69% of those who had spent nothing disagreed with it, while 84% of those who had spent over \$2,000 disagreed with it. The pattern is further illustrated in the distribution of homeowners who agreed

TABLE 8.13.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Effect of Conservation Efforts

Number of Homeowners (in 1000s) All Heating Fuels (n=1455) Amount Spent	Response (a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=640)	10%	59%	2%	28%	1%
\$1-\$500 (n=415)	9	68	2	19	2
\$501-\$1000 (n=121)	13	67	1	14	4
\$1001-\$2000 (n=116)	18	63	4	15	0
\$2001 + (n=163)	20	64	2	12	2

(a) In response to the statement, "My conservation efforts won't have much effect one way or the other on the availability of electricity."

with the statement. Nearly 29% of the "no spenders" agreed, while 14% of the highest spending level agreed. The response pattern of the subset of homeowners using electric heat is shown in Table 8.13.B and is similar to that of the entire sample of homeowners.

TABLE 8.13.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward the Effect of Conservation Efforts

Number of Homeowners (in 1000s) Heating Fuel Electric (n=476) Amount Spent	Response (a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=234)	9%	56%	1%	32%	2%
\$1-\$500 (n=152)	9	65	0	26	0
\$501-\$1000 (n=39)	12	75	0	13	0
\$1001-\$2000 (n=33)	11	75	0	14	0
\$2001 + (n=18)	0	79	10	11	0

(a) In response to the statement, "My conservation efforts won't have much effect one way or the other on the availability of electricity."

8.2.11 Attitude Toward Protecting the Environment

The statement, "Conserving energy is the best way to protect the environment," attempts to determine if the homeowner is somewhat "altruistic." Between 69% and 75% of homeowners regardless of spending level agreed with the statement (see Table 8.14.A). Homeowner agreement and disagreement with the statement are evenly distributed over the spending levels. Between 18% and 25% of all the spending groups said they disagreed with the statement, and only the two lowest spending groups expressed strong disagreement. The responses of the subset of homeowners using electric heat are found in Table 8.14.B and are similar to those of the entire sample of homeowners, except for those who spent between \$500 to \$1,000. This group did not have anyone expressing either strong disagreement or strong agreement with the statement, and 16% gave a neutral response.

8.2.12 Attitude Toward Conserving Electricity for Future Generations

The statement, "It is our responsibility to conserve electricity for future generations," is similar to the previous one in that it has an altruistic, socially responsible tone. Again, a vast majority of the homeowners

TABLE 8.14.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Protecting the Environment

Number of Homeowners (in 1000s) All Heating Fuels (n=1410) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=622)	1%	20%	8%	64%	8%
\$1-\$500 (n=393)	2	21	4	60	13
\$501-\$1000 (n=121)	0	18	9	64	10
\$1001-\$2000 (n=116)	0	25	6	59	10
\$2001 + (n=158)	0	19	4	67	9

(a) In response to the statement, "Conserving energy is the best way to protect the environment."

TABLE 8.14.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Protecting the Environment

Number of Homeowners (in 1000s) Heating Fuel Electric (n=469) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=233)	0%	23%	8%	60%	9%
\$1-\$500 (n=148)	0	25	1	64	10
\$501-\$1000 (n=39)	0	34	16	49	0
\$1001-\$2000 (n=33)	0	19	6	64	11
\$2001 + (n=16)	0	30	0	57	13

(a) In response to the statement, "Conserving energy is the best way to protect the environment."

expressed agreement. As shown in Table 8.15.A, between 82% and 90% of the homeowners agreed with the statement, regardless of spending level. A similar response pattern is seen in Table 8.15.B for the subset of homeowners using electric heat.

TABLE 8.15.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conserving Electricity for Future Generations

Number of Homeowners (in 1000s) All Heating Fuels (n=1456) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=646)	1%	12%	3%	72%	11%
\$1-\$500 (n=415)	2	9	4	72	13
\$501-\$1000 (n=119)	0	15	1	51	32
\$1001-\$2000 (n=118)	0	18	0	58	24
\$2001 + (n=158)	3	3	3	74	16

(a) In response to the statement, "It's our responsibility to conserve electricity for future generations."

TABLE 8.15.8. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conserving Electricity for Future Generations

Number of Homeowners (in 1000s) Heating Fuel Electric (n=480) Amount Spent	Response (a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=237)	0%	11%	3%	72%	14%
\$1-\$500 (n=155)	0	9	0	74	16
\$501-\$1000 (n=37)	0	9	5	62	25
\$1001-\$2000 (n=33)	0	5	0	64	31
\$2001 + (n=18)	11	0	0	89	0

(a) In response to the statement, "It's our responsibility to conserve electricity for future generations."

8.2.13 Attitude Toward Conserving Electricity to Save Money

"Most people who conserve electricity do so to save money," is a statement designed to determine whether or not saving money motivates homeowners to conserve energy. At least 90% of all homeowners expressed agreement (see Table 8.16.A). The one difference across spending levels was slight but interesting. A small percentage of the high spenders were the only homeowners to strongly disagree, which indicates that they may have invested for other reasons. They also had the smallest majority expressing agreement. The subset of homeowners using electric heat gave a weaker response which was similar to that given by the entire set of homeowners. As illustrated in Table 8.16.8, at least 80% of all homeowners expressed agreement.

8.2.14 Attitude Toward Conservation Improving Value of Their Home

As Table 8.17.A. illustrates, the majority of the homeowners disagreed with the statement, "I would only make conservation improvements which would enhance the value of my home." Over 74% of those who had spent something on conservation expressed disagreement, while only 66% of those who had spent nothing also disagreed. Interestingly, 4% of those who spent over \$2,000 strongly agreed with the statement, which suggests that after a certain point

TABLE 8.16.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conserving Electricity to Save Money

Number of Homeowners (in 1000s) All Heating Fuels (n=1485) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=665)	0%	4%	2%	80%	14%
\$1-\$500 (n=418)	0	7	2	81	11
\$501-\$1000 (n=121)	0	4	0	71	25
\$1001-\$2000 (n=118)	0	6	0	78	16
\$2001 + (n=163)	1	9	0	73	17

(a) In response to the statement, "Most people who conserve electricity do so to save money."

TABLE 8.16.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conserving Electricity to Save Money

Number of Homeowners (in 1000s) Heating Fuel Electric (n=492) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=247)	0%	3%	3%	80%	14%
\$1-\$500 (n=155)	0	12	1	79	8
\$501-\$1000 (n=39)	0	0	0	74	26
\$1001-\$2000 (n=33)	0	0	0	88	12
\$2001 + (n=18)	10	10	0	69	11

(a) In response to the statement, "Most people who conserve electricity do so to save money."

functional conservation is saturated; and other motivating factors must be used to induce further investment. The subset of homeowners using electric heat tends to agree with the statement more often, especially at the higher spending levels (i.e., \$1,000+) (see Table 8.17.B).

TABLE 8.17.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conservation Improving Values of Their Home

Number of Homeowners (in 1000s) All Heating Fuels (n=1476) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=654)	4%	62%	5%	26%	2%
\$1-\$500 (n=418)	6	68	3	21	2
\$501-\$1000 (n=121)	15	67	0	18	0
\$1001-\$2000 (n=118)	0	87	0	11	2
\$2001 + (n=165)	1	74	5	16	4

(a) In response to the statement, "I would only make conservation improvements which would enhance the value of my home."

TABLE 8.17.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Conservation Improving Values of Their Home

Number of Homeowners (in 1000s) Heating Fuel Electric (n=481) Amount Spent	Response ^(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=236)	3%	67%	5%	22%	3%
\$1-\$500 (n=155)	7	71	0	20	2
\$501-\$1000 (n=39)	0	88	0	12	0
\$1001-\$2000 (n=33)	0	70	0	24	6
\$2001 + (n=18)	0	61	10	29	0

(a) In response to the statement, "I would only make conservation improvements which would enhance the value of my home."

8.2.15 Attitude Toward Conservation Increasing the Comfort of the Home

"I would invest in energy conservation measures because it increases the comfort of my home." The purpose of this attitudinal statement is to determine

whether comfort is a motivating factor in the conservation investment decision. The numbers in Table 8.18.A indicate that approximately 90% of the homeowners agree with the statement. Over 20% of those who had spent over \$2,000

TABLE 8.18.A. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Increasing Comfort of Their Home

Number of Homeowners (in 1000s) All Heating Fuels (n=1471) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=649)	1%	6%	1%	85%	7%
\$1-\$500 (n=418)	1	5	1	84	9
\$501-\$1000 (n=121)	4	3	1	72	20
\$1001-\$2000 (n=118)	0	5	0	86	9
\$2001 + (n=165)	0	5	1	73	21

(a) In response to the statement, "I would invest in energy conservation measures because it increases the comfort of my home."

TABLE 8.18.B. Amount Homeowners Spent During the Past Two Years to Reduce Energy Use in Their Home, by Attitude Toward Increasing Comfort of Their Home

Number of Homeowners (in 1000s) Heating Fuel Electric (n=483) Amount Spent	Response(a)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
\$0 (n=238)	1%	6%	2%	90%	2%
\$1-\$500 (n=155)	0	3	0	93	4
\$501-\$1000 (n=39)	0	0	4	79	16
\$1001-\$2000 (n=33)	0	0	0	88	12
\$2001 + (n=18)	0	0	0	89	11

(a) In response to the statement, "I would invest in energy conservation measures because it increases the comfort of my home."

in the last two years expressed strong agreement with the statement. Comfort appears to be the second major motivator following monetary savings, especially for those who have achieved the highest spending level. The subset of homeowners using electric heat have a similar distribution of responses, however, they were less likely to strongly agree with the statement (see Table 8.18.B).

8.3 SUMMARY OF FINDINGS IN THE CHAPTER

The first section of Chapter 8.0 looked at the influence homeowners' perceptions had on spending for energy conservation. Three specific issues were addressed, homeowners concern for energy use in the home, cost of energy, and energy conservation. In general, as concern for an issue increased so did the level of conservation spending. Of the three issues, homeowners expressed greatest concern over the cost of energy, this was also the case for the subset of homeowners using electric heat. Generally, the subset of homeowners using electric heat mirrored the whole set of homeowners with regard to responses.

However, they differed from the complete set of homeowners in the area of spending behavior. Generally those homeowners with electric heat tended to spend less on energy conservation than did the entire sample. The general distribution across spending levels is as follows: approximately 50% of the electric subset spent nothing, 45% of the full set spent nothing, and only about 4% of the subset spent over \$2,000 while 11% of the entire sample spent over \$2,000.

In the second section of Chapter 8.0, a series of 15 attitudinal statements were reviewed. It became apparent that those who spent nothing were more likely to give a negative response to the statements while those who spent something on energy conservation tended to give more positive responses. For example, those who had spent nothing tended to agree more often that their energy use was no ones' business but their own, and that investments to improve efficiency would occur only if a rebate program existed at the utility.

An interesting observation involving a small percentage of those who had achieved the upper spending levels might seem to contradict the general trend mentioned above. For several statements there were homeowners from the high spending levels who gave negative responses. For example, about 15% of the

lower spending groups and about 9% of the highest spending group felt that the utilities should eliminate conservation programs. In another instance, none of those who spent between \$1,000 and \$2,000 agreed that future investment would occur only if a rebate were available from the utility. However, 6% of those who spent over \$2,000 did state that that would be the case. The assumption from these two examples might be that a portion of those who spent around \$2,000 may have invested as much as was practical or as much as they were willing to invest.

The hypothesis which was tested in this chapter states, that the amount of money spent on ECMs will not vary by homeowners' perceptions of conservation. The findings indicate that the hypothesis should be rejected, for instance in the first section of the chapter it was revealed that homeowners who were more concerned about energy related issues tend to spend more on energy conservation than those who are not as concerned. The results in the second section also support rejection of the hypothesis because homeowner's attitudes were shown to have either positive or negative impact on conservation spending.

9.0 BARRIERS TO ENERGY CONSERVATION INVESTMENT

The purpose of this chapter is to provide insight into the primary barriers to conservation investment, according to the opinions of the interviewed homeowners. One way to assess this issue is to classify the barriers as economic and noneconomic. In this chapter, we will discuss responses to questions which test the hypothesis that the primary barriers to homeowner investment in ECMs are noneconomic.

9.1 REASONS NOT TO INVEST IN CONSERVATION MEASURES

Reasons not to invest in energy conservation measures, as expressed by the entire sample of homeowners and by those households using electricity, are shown in Figures 9.1.A and 9.1.B. Nearly 60% of the homeowners stated that cost was the primary barrier to conservation investment. The next most frequent reason given for not investing was that homeowners felt no need to invest. This may be true for some of the residences. However, a relatively large segment of these homeowners may not be aware that certain ECMs can reduce energy use and still be cost effective.

For homeowners in the entire sample and in households using electricity, the reasons given for not investing in ECMs do not appear to differ by the level of total household income (see Tables 9.1.A and 9.1.B). However, the reasons may be influenced by the length of time respondents had lived at their current residences, particularly for the entire sample group (see Tables 9.2.A and 9.2.B). Over 70% of the entire sample's respondents who had lived at their current residences for two years or less stated that cost was the primary reason not to invest, whereas less than 60% of respondents in the entire sample who lived at their residences for three years or longer offered cost as the primary reason not to invest. Homeowners from the entire sample who had lived at their current residences three years or longer stated more often that they did not need to install any conservation measures. These results may indicate that if homeowners are going to invest in ECMs, they may be more inclined to do so during the first couple of years in their residences. A similar observation

can be made for households using electricity. Overall, homeowners were more inclined to state that they did not need to install any conservation measures than to give cost as a reason for not investing.

A breakdown between the type of residences the homeowners were currently living in and their respective reasons for not investing in ECMs is shown for the entire sample and households using electricity in Tables 9.3.A and 9.3.B. Homeowners in single-family detached homes most frequently mentioned cost as the reason not to invest in ECMs (61% from the entire sample, 60% from households using electricity) followed by don't need (25% from the entire sample, 27% from households using electricity).

An interesting result appears when the amount homeowners spent during the past two years to reduce energy use is broken down by the reasons for not investing in ECMs (see Tables 9.4.A and 9.4.B). Cost was the most frequently mentioned reason for not investing according to each of the homeowners from their past spending levels. However, 30% of the entire sample and 34% of the households using electricity spent nothing during the past two years to reduce energy use and reported that they did not need to invest in ECMs; and 30% of the entire sample and 23% of the households using electricity spent \$2000 or more during the past two years and reported that they did not need to invest in ECMs. To better understand those respondents who had spent no money on ECMs, it may be necessary to further analyze why they felt no need to do so.

9.2 SUMMARY

The results presented in this chapter overwhelmingly show that, according to the reports from respondents, the primary barriers to investment in ECMs are economic. The hypothesis in question states just the opposite and can therefore be rejected. Homeowners reporting cost as a barrier may be unaware of utility sponsored conservation programs or other types of loan programs that could aid in reducing costs and/or make investing in ECMs financially appealing. Another important area for further exploration is the question of why 30% of homeowners feel that there is no need to invest in ECMs.

FIGURE 9.1.A. Reasons For Not Investing In Energy Conservation Measures, Heating Fuel Electric

FIGURE 9.1.B. Reasons For Not Investing In Energy Conservation Measures, All Heating Fuels

TABLE 9.1.A. Reason Not to Invest in Energy Conservation Measures,
by Total Household Income

Number of Respondents (in 1000s) All Heating Fuels (n=1744) Total Household Income	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
<\$16,000 (n=380)	60%	26%	9%	2%	1%	2%
\$16,000-\$30,000 (n=651)	62	24	9	5	0	0
\$30,000 + (n=713)	61	27	7	3	1	0

TABLE 9.1.B. Reason Not to Invest in Energy Conservation Measures,
by Total Household Income

Number of Respondents (in 1000s) Heating Fuel Electric (n=992) Total Household Income	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
<\$16,000 (n=238)	59%	29%	8%	1%	1%	2%
\$16,000-\$30,000 (n=375)	62	25	7	5	1	1
\$30,000 + (n=379)	58	31	7	3	2	0

TABLE 9.2.A. Reason Not to Invest in Energy Conservation Measures,
by Length of Time Homeowners Have Been at Their Residence

Number of Homeowners (in 1000s) All Heating Fuels (n=1890) Length of Time at Residence	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
<1 Year (n=237)	74%	14%	9%	2%	1%	1%
1-2 Years (n=130)	71	15	11	4	0	0
3-4 Years (n=223)	59	25	11	2	1	1
5 + Years (n=1300)	57	29	9	3	1	1

TABLE 9.2.B. Reason Not to Invest in Energy Conservation Measures, by Length of Time Homeowners Have Been at Their Residence

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1071) Length of Time at Residence	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
<1 Year (n=164)	68%	17%	11%	3%	1%	0%
1-2 Years (n=70)	67	25	8	0	0	0
3-4 Years (n=131)	60	26	8	4	0	2
5 + Years (n=706)	56	32	7	3	1	1

TABLE 9.3.A. Reason Not to Invest in Energy Conservation Measures, by Type of Residence

Number of Homeowners (in 1000s) All Heating Fuels (n=1892) Types of Residence	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
Single Family Detached Home (n=1662)	61%	25%	9%	3%	1%	0%
2-4 Family Home-Duplex- Townhouse (n=33)	76	16	6	0	0	0
Building with More than 4 Units (n=11)	15	58	0	27	0	0
Mobile Home/Trailer (n=186)	53	35	9	0	1	3

TABLE 9.3.B. Reason Not to Invest in Energy Conservation Measures, by Type of Residence

Number of Homeowners (in 1000s) Heating Fuel Electric (n=1073) Types of Residence	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
Single Family Detached (n=897)	60%	27%	8%	3%	1%	0%
2-4 Family Home- Duplex-Townhouse (n=20)	73	17	10	0	0	0
Building with More than 4 Units (n=11)	15	58	0	27	0	0
Mobile Home/Trailer (n=145)	54	37	6	0	1	2

TABLE 9.4.A. Reason Not to Invest in Energy Conservation Measures, by Amount Spent by Homeowners During the Past Two Years to Reduce Energy Use

Number of Homeowners (in 1000s) All Heating Fuels (n=1304) Amount Spent	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
\$0 (n=556)	59%	30%	7%	4%	0%	1%
\$1-\$500 (n=366)	59	20	13	5	2	1
\$501-\$1000 (n=117)	61	29	6	0	4	0
\$1001-2000 (n=100)	70	16	10	2	2	0
\$2001 + (n=165)	59	30	4	5	0	2

TABLE 9.4.8. Reason Not to Invest in Energy Conservation Measures Amount Spent by Homeowners During the Past Two Years to Reduce Energy Use

Number of Homeowners (in 1000s) Heating Fuel Electric (n=765) Amount Spent	Reason Not to Invest					
	Cost	Don't Need	Planning to Move	Time/ Bother	None	Other
\$0 (n=333)	56%	34%	6%	3%	0%	1%
\$1-\$500 (n=232)	56	23	11	6	2	2
\$501-\$1000 (n=81)	62	30	2	0	6	0
\$1001-2000 (n=54)	74	9	10	4	4	0
\$2001 + (n=66)	68	23	5	5	0	0

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