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CONCEPTUAL DESIGN AND SYSTEMS ANALYSIS OF PHOTOVOLTAIC
POWER SYSTEMS. FINAL REPORT

Volume 5. Additional Studies

By
P. F. Pittman

March 1977

Work Performed Under Contract No. EY-76-C-04-2744

MASTER

Westinghouse Electric Corporation
Research and Development Center
Pittsburgh, Pennsylvania

U.S. Department of Energy

Solar Energy

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FINAL REPORT

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PHOTOVOLTAIC POWER SYSTEMS**

Volume V - Additional Studies

by

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**Westinghouse Electric Corporation
Research and Development Center
Pittsburgh, PA 15235**

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Prepared for

Energy Research and Development Administration

March 1977

ERDA-ALBUQUERQUE OPERATIONS OFFICE

**Contract E(11-1)2744
Dr. Donald G. Schueler
Sandia Laboratories**

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FOREWORD

The work described in this report was done by Westinghouse and its subcontractors under ERDA Contract E(11-1)2744. This program is part of the National Photovoltaic Program managed by ERDA through the Division of Solar Energy, Dr. Morton B. Prince, Acting Assistant Director, Photovoltaic, and The Silicon Technology Branch, Dr. Leonard M. Magid, Acting Chief.

Responsibility for the management of the Systems Definition Project of the National Photovoltaic Program, under which this contract fell, was delegated by ERDA to the Sandia Laboratories. The Program Manager at Sandia with responsibility for this contract was Dr. Donald Schueler, who was assisted by Dr. Billy W. Marshall who was the Task Leader for the Systems Definition and Analysis Task.

PREFACE

This volume contains descriptions of the results of four added tasks which followed completion of the original contract entitled, "Conceptual Design and System Analysis of Solar Photovoltaic Power Systems", sponsored by the Energy Research and Development Administration.

This is Volume V of the final report which contains five volumes in all. The other volumes are as follows:

- Volume I - Executive Summary
- Volume II - Systems
- Volume III - Technology
- Volume IV - Nontechnical Issues

ACKNOWLEDGEMENTS

The work described in this report was performed by a number of contributors some of whom are Westinghouse employees and others employees of subcontractors. The following paragraphs list contributors by task.

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ABSTRACT

In the first of four tasks, the performances of autonomous (stand-alone) residences were determined in seven locations throughout the country. A non-autonomous residence must obtain its supplemental energy from a utility. The second task dealt with considerations of the rate to be charged by the utility for this energy in an effort to define the pertinent issues of this utility/residence interface. In the third task, the configuration of a fixed linear Fresnel lens provided with a tracking absorber was analyzed optically. The fourth task explored utility Loss-of-Load probability methodology.

SUMMARY

The information reported is the result of work performed on four tasks which were defined as follow-on efforts related to the original program.

The first task was an evaluation of autonomous on-site residential total energy systems for seven regions representing most of the United States. It involved the period between 1985 and 2000 and assumed that the 1985 goals of the National Photovoltaic Program are achieved. The results show that for conventional new homes designed to make optimum use of solar energy and proper system design, there is promising potential for stand-alone residences in virtually all regions of the United States. In the more favorable, warmer, high insolation regions, economic viability could be achieved soon after 1985; in the regions with statistically poor insolation, it will be closer to the year 2000. Most regions will be economically viable by 1990.

The second task was a study into the possible ramifications of rates offered by utilities to residential customers using on-site photovoltaic systems. If the energy cost to the consumer is not essentially proportional to energy used, his incentive to reduce use through utilization of solar energy is inhibited. On the other hand, there is argument that the cost of energy is not linear with use, thus a substantial reduction in energy use would not be rewarded by equivalent cost reduction. Resolution of this complex problem and likely future scenarios are discussed in the light of alternate National Energy Policies.

The third task was an analysis and optimization of a one foot by four foot Fresnel lens designed for the Phoenix area to concentrate direct sunlight falling on a fixed tilted window onto a one inch wide

absorber moving on an elliptical-cylindrical track. The average efficiency was found to be 41%. With the same physical assumptions, the more common line-focus tracking Fresnel lens where the absorber does not move relative to the lens was compared with the moveable collector lens system. For the line focus Fresnel lens where the lens position is adjusted once a day, an efficiency of 45% was calculated with 7% more energy incident on the aperture. Continuous one-axis tracking instead of daily adjustment improved the efficiency to 47% and increased the incident energy by 9%. These results are not surprising since the closer the sun's rays are to normal incidence, the smaller the Fresnel reflection and refraction losses. And except for these losses, all normally incident light can be made to focus on a strip absorber; but defocussing occurs as the incidence angle varies from normal as it more strongly does for a fixed lens than for a lens with one-axis tracking.

The fourth task involved an investigation of the methodology used for utility margin calculations. It has been determined that conventional reliability analysis techniques can be adapted to properly assess the reliability impact of photovoltaic generation. To do this, a load model and available capacity model are established for each hour rather than the daily peak.

It was found that the maximum hourly LOLP for a given period is very closely related to the conventional monthly LOLP (days/period) both numerically and philosophically. Although some detail is lost using this approach, there is a significant savings in data requirements and computations. This is because the maximum risk occurs within a relatively small time interval throughout the year. The maximum risk for systems with photovoltaic generation will occur somewhere between the hour of peak load and the hour after sunset in most cases.

The annual hourly LOLP sums the individual hourly LOLP values from each period together for each hour. The hour in which the maximum annual hourly LOLP occurs was found to correspond with the hour of occurrence of many of the maximum hourly LOLP values. The annual

hourly LOLP for this hour provided a very good estimate of the sum of maximum hourly LOLPs and hence the conventional "days/year" figure of merit.

A modest capacity credit of 48 MW was realized for the first 100 MW plant installed on the example system. A pronounced saturation effect was noticed as more photovoltaic generation was added. This was a result of the fact that the period of maximum risk had been delayed an hour and photovoltaic output was at that time greatly reduced. This phenomenon indicates that either a gradual introduction of photovoltaic capacity or the use of storage must be considered if a load carrying capability is to be assigned to the plant.

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INTRODUCTION

During the 1960's, solar photovoltaic electrical power systems were of interest primarily for use in space vehicles where the variable of weather is not a factor to be considered. Spacecraft systems started at power levels less than 100 W in the early 1960's and increased in size to levels of several kilowatts in the early 1970's.

Until the advent of the oil embargo several years ago, terrestrial applications were limited to small, special purpose installations where the advantages of a totally isolated power supply made it possible to justify the high cost of the solar photovoltaic power system. Since the embargo, however, a great deal of thought and effort has been directed toward the use of solar power in general and to solar photovoltaic power in particular as an alternative energy source for terrestrial applications.

The National Photovoltaic Conversion Program, which is managed by ERDA, is oriented toward developing the photovoltaic conversion of solar energy as an economically viable energy source. The effort of this contract was oriented toward the conceptual design and system analysis subtask of the Systems Definition Project which is one of the many facets of the National Photovoltaic Conversion Program. The principal objective of this contract was to provide conceptual designs and system analyses of three types of solar photovoltaic electric power systems. Included are:

- Residential Power Systems (1 - 10 kW)
- Intermediate Power System (0.1 - 10 MW)
- Central Station Power System (50 - 1000 MW)

The Residential Power System (RPS) is a total energy system which includes drawing power from the utility line or other auxiliary source to be delivered to the load together with power supplied from the solar array or from the battery, as well as providing a portion of the thermal energy needed for space heating and hot water. The possibility of delivering excess solar-generated power back into the utility system was excluded.

In the Intermediate Power System (IPS), power may flow either from the solar array or from the battery into the utility system. The battery may be charged from the solar array or from the utility line depending upon the strategy used, and may be used for load leveling. The IPS would most likely be located at an industrial or commercial substation.

The Central Power System (CPS) is assumed to be tied into a large utility grid which would contain pumped hydro or other storage, because energy storage within the CPS itself was not included. However, if non-spinning energy storage is necessary, batteries could well be dispersed throughout the system at substations near to the loads.

Following completion of the original contract tasks, which dealt with conceptual designs for the three types of systems, an additional set of four tasks was defined for further study in a follow-on effort. The selection of these tasks resulted from conclusions drawn from the work of the original contract which indicated that the four areas selected warranted further study.

The first two tasks dealt with the Residential Power System. They included performance studies of autonomous or stand-alone residences, and a discussion of the issues involved with the utility/residence interface which would be present when the residence is not autonomous. The third task is concerned with the optical analysis and optimization of a fixed linear Fresnel lens with a trackable absorber. This type of an optical system would be used primarily in an Intermediate Power System application. The fourth task was an investigation into utility

margin calculation methodology. The conventional methodology for Loss-of-Load Probability was reviewed, and a new one presented which better accommodates the periodic output of a solar powered plant. This work relates either to the Central Power System or to the Intermediate Power System if it is owned by a utility.

The work covered in this volume of the report includes only the results of the four follow-on tasks.

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1. FEASIBILITY OF AUTONOMOUS ON-SITE RESIDENTIAL TOTAL ENERGY SYSTEMS

1.1 Introduction

This report contains the results of extensions of work performed on residential systems in the original program. Some of the system work parallels a current contract with NSF entitled, "Energy Storage for Photovoltaic Conversion."¹ The principal task of the work reported here was to suggest conceptual designs and to evaluate the economic viability of autonomous (stand-alone) residences for the various regions of the country considered in the original study.

An autonomous system, as defined for this study, would use a modest amount of oil per year -- approximately one to two hundred gallons -- to provide all the energy needs of the residence beyond those supplied by solar energy. In general, this would be about ten percent of the oil equivalent of the total energy needs of the residence. Supplemental electrical energy would be supplied by a small (about 1.5 kW) diesel-electric generator and thermal energy by a small oil-fired heater. The generator would operate less than 1,000 hours per year at full rated output. Other auxiliary sources could include a gas turbine, fuel cell, or any other alternative energy source available at the time. The oil-fired diesel engine-generator is the most typical and likely choice at present. It should be emphasized that the generator which supplies auxiliary energy for the autonomous residence is a small apparatus which works in conjunction with the electrical energy storage sub-system. It cannot be compared with a complete non-solar alternative total energy system. It has limited capacity, operates a small percentage of the time, and uses only a modest amount of fossil fuel.

The autonomous residence requires no utility connection. However, if the utility can supply the auxiliary energy needed by the residence

at a price approximately proportional to the amount of energy used, a utility connected on-site residential system would be equally feasible. The presence of electrical and thermal storage provides an advantage to the utility because it can supply energy whenever economical and convenient.

The structures used in these studies are well-insulated houses oriented and designed to minimize the peak electrical and thermal loads that are most uneconomical to satisfy using solar energy. The designs vary with region because of the variations in the heating and cooling loads and the relative importance of each. The structures considered are typical of each region, aesthetically pleasing, not unusual, and not expensive because of their design for maximum utilization of solar energy. The interrelation between solar input, the load, and the structure will be considered further in the analysis section of this report.

The curve shown in Figure 1.1 completely defines the economic viability of the autonomous home. While the Figure-of-Merit (F_M) and the effect of various mortgage rates and fuel escalation projections are covered in detail in the original study, a brief review will be included here.* The Figure-of-Merit (F_M), which relates the present value of all costs associated with the solar energy system to the computed average energy it saves per year, is the quotient of these two values expressed in constant 1975 dollars per kilowatt-hour per year. A cumulative production volume of all elements of the solar energy system increases with time, the numerical value of F_M decreases -- a desired condition. The economic value of a solar energy system is related to the breakeven Figure-of-Merit (F_M') which can be calculated as follows:

$$F_M' = Mr$$

where M is a multiplier determined by mortgage rates and anticipated fuel escalation rates at the time of installation, and r is the projected composite fuel rate at the time of installation -- all in constant 1975

* See Section 1.4.1 of Volume II and Section 2.6.1 of Volume III (2) for detailed discussions of the Figure-of-Merit (F_M).

Fig. 1.1 - Autonomous home viability

dollars. Therefore, as the system F_M decreases with time because of volume production, the allowable F_M' increases with advancing fuel costs, thereby improving the system's economic viability. The way F_M is computed will be described in the next section. The values shown are for the various regions as functions of time and hence production volume. The increase in F_M' with time, which is the result of increased fuel costs at the time of installation, is shown plotted in Figure 1.1 for various values of mortgage rate and fuel escalation (i = mortgage rate - fuel escalation)*.

The intersection of the F_M and appropriate F_M' curves designates the onset of economic viability. For example, if i is taken as 0.04, the total cost of a solar energy system for the Mobile region is equivalent to the cost of the fuel it displaces over the lifetime of the system beginning in the year 1988. This does not take into account any tax benefits resulting from the deduction of interest paid on the mortgage assumed by the homeowner for the solar system.

As mentioned, the selection of i depends on mortgage rates and fuel cost escalation projections at the time of installation. In a constant dollar evaluation, the mortgage rate is usually three to four percent greater than inflation in normal times over long periods. Fuel escalation could be estimated from a conservative zero, to a pessimistic four percent. Our best conservative (low inflation) guess for the future value of 1 is then between 0.02 and 0.04. It is possible that i could be zero or even negative, in which case the solar energy system becomes economically viable everywhere as soon as modest volume is achieved. This volume of production presumes a modest pre-commercialization program as a prerequisite as described in Volume IV of this report.

In the area encompassed by the $i = .02$ and $i = .04$ curves, all regions except that represented by Cleveland are economically viable before 1990. Some regions, as represented by the Phoenix-Mobile area,

* Fuel escalation does not include the rate of inflation of the economy in general.

are economically viable at an earlier date, soon after achievement of the 1985 National Photovoltaic Program cost goals. The more F_M falls below F_M' , the greater the reduction in equivalent fuel costs to the user of the solar energy system.

To summarize, it appears that autonomous residences will eventually be economically viable in virtually all regions of the country. In the least promising regions, represented by Cleveland, the breakeven point will occur in 1990 or beyond. In the most promising regions, it could occur soon after the achievement of the 1985 cell costs. The varied regions represented by the broad curve will be viable before 1990. The only technical/economic assumptions required are achievement of the solar cell cost goals in 1985, quantity production started by a modest precommercialization program, and a modest increase in fuel prices -- or at least no decrease. In addition, there are many non-technical problems to be solved, chiefly institutional.

1.2 Analysis

The methods used to analyze the effectiveness of the autonomous solar energy system are similar to those used in the original study. However, a residence not connected to the utility must be assured of continuous internal energy availability, which in turn requires a more detailed energy balance calculation. Also, it is advantageous for an autonomous home to be designed to minimize exceptional loads, particularly those of air-conditioning and space heating. The electrical and thermal storage systems are vital to averaging the load requirements of an autonomous home in addition to getting one "through the night". Therefore, the total system involves considerations of structure design, thermal and electrical storage, power conditioning and control, and a small auxiliary generator all geared to provide energy to the residence at all times with solar energy providing approximately ninety percent of the requirements.

Judicious residential load management is a necessity for a total-energy system, particularly one which is autonomous. Figure 1.2

Fig. 1.2 — Residential on-site load management factors

illustrates this point. The diagram shown is useful for presenting the concepts involved in load management, but is not a block diagram of system operation. The purpose of the total energy system is to satisfy the residential load primarily by solar energy at minimum system cost. One means of achieving this objective is to insure modest use of auxiliary sources and to require modest storage capacity. This is accomplished effectively if the structure is designed to minimize the peak heating and cooling loads, and if the electrical load is controlled to satisfy the user requirements without encountering extremes.

Figure 1.3 illustrates a typical system that might be used in an autonomous residence to supply the electrical portion of the energy requirements. The reject heat from the solar array is used to provide space and hot water heating as needed. In warmer regions where the air-conditioning load predominates, the thermal system can be eliminated if the hot water requirement is supplied separately. This aspect will be covered in more detail in the next sections.

1.2.1 Simulation Model

The computer simulation model for the total-energy system was developed for use both in the ERDA photovoltaic systems study and the National Science Foundation electrical storage study, mentioned earlier. Essentially, this model simulates system operation over a one year period and enables us to know exactly how the energy requirements of the residence are being satisfied at any hour during that year. This is a necessity for accurate analysis throughout the year -- a requirement for system design. It also ensures optimum use of the solar energy received with a minimum of equipment. The simulation involves hourly computation of the solar energy received by the array, translation to available electrical and thermal energy, hourly calculation of the space-heating and air-conditioning loads based on structure characteristics, and specification of the nominal electrical load satisfied. Details of the calculation and the regional printouts are presented in Appendix A.

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Fig. 1.3 — Typical residential system block diagram

Figure 1.4 contains a diagram of the basic computer model used to simulate the system. It can be varied depending upon the treatment of the auxiliary generator, the satisfaction of the hot-water load, the means of transformation of waste electrical energy to thermal, etc. The numbers shown in Figure 1.4 for the various efficiencies, which are described in the original study, are averages. As previously mentioned, detailed printouts are shown in Appendix A.

1.2.2 Results

The autonomous total-energy system is designed to supply the bulk of the electrical, space heating and cooling, and hot water requirements of the residence by utilizing solar energy in the most economical and conservative manner. In general, this means that the reject heat from the solar array will be utilized to provide space heating and hot water. However, in special cases where the air-conditioning requirement is severe, the space heating load is relatively small, and there are not many sequences of poor insolation days in winter, a non-thermal system can be the better arrangement. In this case, a portion of the hot water load can be supplied by the electrical system at times during the year - mainly in the spring and fall. At other times, either a solar hot water heater or an auxiliary energy source would be used. In other words, the economic value assigned to energy used to heat domestic hot water cannot be that of resistance heating electrical energy. This was not done for any evaluation in this study, for if it had been, it would have made the result overly favorable to the acceptability of the photovoltaic system. In a residence using a non-thermal system, either non-electrical hot water heating would be used, or the level of consumption of resistance heated water would be reduced. Therefore, the value claimed should not be the cost of resistance-heating the full amount of water normally used.

Table 1.1 shows the results of the computer analysis. The Phoenix and Mobile regions involve air-cooled, non-thermal arrays under the conditions just discussed. On the other hand, regions represented

Fig. 1.4 - Computer simulation program

TABLE 1.1

System Energy Production and Costs
(1975 Dollars)

Location	Energy Requirements				System Characteristics			System Costs [†] /Figure-of-Merit		
	Electrical (kWh)	Thermal (kWh)	Electrical- Thermal Equivalent (kWh)	Total (kWh)	Water- Cooled (m ²)	Air- Cooled (m ²)	Storage (kWh)	1985/1990 (1975 Dollars)	Present Value 1990 (1975 Dollars)	2000
Atlanta	10622	13198	5738	16360	40	40	20	16868/1.03	13887/.85	10415/.64
Santa Maria	7595	13321	5123	12718	20	40	15	13635/1.07	11232/.88	8424/.66
Madison	8189	20940	11021	19210	80	-	20	19630/1.02	16075/.84	11893/.62
61 Wilmington	9061	15194	6906	15967	50	30	20	17540/1.10	14410/.90	10760/.67
Cleveland	8417	18049	8204	16621	100	-	20	22800/1.37	18680/1.12	13810/.83
Phoenix	13470	2284*	2209**	15679	0	70	25	10748/.68	9111/.58	7075/.45
Mobile	11843	2970*	3087**	14930	0	120	25	14430/.97	12040/.81	8984/.60

*Excludes hot water.

**Includes half of waste photovoltaic energy to supply hot water if available and needed.

[†]System Costs include initial capital and present value of annual cost such as oil and maintenance.

by Cleveland and Madison are completely thermal. Large regions of the United States, represented by Atlanta, Santa Maria, and Wilmington, would utilize water-cooled thermal arrays to the extent required to satisfy the bulk of the thermal load with the remainder air-cooled to provide additional energy for the electrical load. Careful examination of this table illustrates the importance of regional analyses.

Table 1.2 shows percentages of the total energy requirements of the autonomous homes supplied by solar energy for the various regions. It also indicates oil usage and auxiliary engine-generator operating time.

Figure 1.1, presented earlier, illustrates the economic viability of the autonomous home. It is based on the analysis described above and the detailed data presented in Appendix A. As described, the residence is designed to optimize solar energy utilization, while the necessary auxiliary energy is supplied by a small engine generator. The three solid blocks superimposed on the broad WIL-MAD-SAM-ATL curve indicate calculated Figure-of-Merit values based on typical, well insulated structures which utilize utility back-up for the solar energy systems as evaluated in the original study.

Costs of the autonomous system were computed using the same techniques as were used in the original study. The additional cost of the small on-site engine-generator is estimated in very high volume production to be \$300 in 1975 dollars by the year 2000 for a 140 pound machine. The total fuel oil cost over the life of the system was determined by finding the present value at the time of installation of the quantity of oil used each year.

1.3 Conclusions

The results of these analyses show that, for a well insulated structure, an autonomous residential solar total energy system can become economically viable in selected regions in the 1985/2000 time period, and by 2000 it can become economically viable virtually everywhere in the country, assuming the creation of a suitable government funded pre-commercialization program in the 1985/1990 time period.

TABLE 1.2

Autonomous Home - Percentage of Energy Supplied by Solar

<u>Location</u>	<u>Load Supplied by Solar</u>		<u>Auxiliary Supply</u>	
	<u>Electrical</u>	<u>Heating</u>	<u>Oil Used*</u>	<u>Gen. Oper. Time</u>
Atlanta	90%	92%	151 gal/yr	755 hr/yr
Santa Maria	95	87	100	280
Madison	92	79	209	410
Wilmington	88	88	173	740
Cleveland	85	74	283	840
Phoenix	90	93	141	935
Mobile	90	92	129	865

* Annual amount of oil needed for both electrical and thermal supplemental energy.

1.4 Recommendations

The feasibility of the autonomous home should be verified experimentally by the construction of residences at a number of locations to be occupied by families especially chosen for such an experiment.

REFERENCES

1. "Energy Storage for Photovoltaic Conversion", Westinghouse Electric Corporation, NSF Contract No. C-7522180.

APPENDIX A

Simulation Program Results

Included here is a brief explanation of the simulation program used to analyze the sites representing the seven regions. Following is an explanation of the headings used to define variables:

"Water-cooled per sq.m" - The solar energy absorbed per square meter by the water-cooled module. It is computed by the hour and is based on the amount of insolation (direct and diffuse), the angle of the sun, and the characteristics of the module. The insolation data used came from either Westinghouse, the Aerospace Corp, or, in some regions, both.

"Water-cooled for specified area" - The specified area is region-dependent because of the thermal load. The computation involves the specified area times the absorbed energy per square meter reduced by the nominal efficiency of the cell, the packing factor, and the cell temperature.

"Air-cooled per sq.m" - The energy absorbed the air-cooled portion of the array. It can be described as the same as the "water-cooled per square meter" using the characteristics of the air-cooled module.

"Air-cooled for specified area" - The specified area is determined by the additional area required to supply the electrical load. It is computed on the same basis as the water-cooled and air-cooled portions of the roof modules.

"Electrical load total" - An estimate of the average electrical load projected to the 1985-2000 time period. In the computations shown here, it includes the normal 115 volt load, plus heating loads, such as electric ranges and dryers, and the central air-conditioning load. The

air-conditioning load is computed by the hour relative to structure design, regional characteristics, and hourly temperatures from the weather tapes.

"Electrical output supplied from PV-I" - The portion of the electrical load requirement supplied directly by the photovoltaic input.

"Electrical output supplied from E-S" - The amount provided by the electrical storage system.

"Electrical output supplied from E-X" - The amount supplied by the auxiliary system.

"Total output" - The amount supplied by the previous three sources.

"Electrical storage supplied from PV-I" - The energy supplied to the storage system when the photovoltaic input exceeded the load requirements.

"Electrical storage supplied from E-X" - The energy supplied to the storage system from the auxiliary source.

"Photovoltaic input wasted" - The photovoltaic input that could not be used because the load was satisfied and the storage was full. In the winter, this is passed on to thermal storage.

"Aux. Elect. Input" - The sum of the auxiliary input to the load and the electrical storage. It can also be used to provide thermal input.

"Elect. Load Deficit" - The energy not supplied by the system when an operating time limit is placed on the auxiliary input. This feature was not used in most simulations.

The hour-by-hour printout has an additional column showing the 'total in storage' for each hour. This parameter has no meaning in the daily summations.

The thermal printout follows essentially the one for photovoltaic parameters just described. Therefore, only those headings requiring additional explanation follow:

"Thermal input per sq m" - The thermal input computed by the hour based on the characteristics of the collector and the outside temperature related to the thermal storage water temperature.

"Thermal Input Supplied from - "

'T-I' - direct thermal input from array

'T-S' - from thermal storage

'E-I' - direct electrical input from array, if available

'E-S' - from electrical storage, if programmed

'E-X' - from electrical auxiliary, if programmed

'T-X' - from thermal auxiliary

"Thermal storage can be supplied from - "

'T-I' - direct thermal not used by the load

'PV-I' - photovoltaic if waste energy available

Units for parameters shown in the thermal printout are kilowatt-hours thermal. Efficiencies, or COPs, are computed in the program to determine the electrical energy required to satisfy the thermal load, but these results are not printed.

One way to start examining the computer printout is to determine the performance of the system design under consideration, as shown in the yearly totals. This is the summation of each month which in turn, is a summation of the days. These in turn, are summations of the hourly analyses illustrated by the Wilmington samples.

The energy balance is always computed by the hour; all other printouts are summations of hourly data. To determine unusual conditions, one can start by examining the month, then check the days in question, and finally, print the hourly computation to pinpoint the unusual condition. Hourly data are called for on the basis of the normal yearly printout of months and days.

A sample of hourly data is also included, specifically for Wilmington, DE for the first two weeks of July. Here one can see the energy situation virtually on a continuous basis. This is a particularly

demanding time for the system because of the air-conditioning load. It can be seen that there are times where there is an occasional deficit, meaning that if no prior action had been taken, the temperature would rise above the allowed 75°F. An alternative is to have a simple control that would initiate auxiliary system operation earlier when the outside temperature is high and the battery storage level is low. The control could also be modified to turn on the auxiliary source at a specified time of day to maintain the batteries as closely as possible to full charge. In any event, the only negative aspect of operating the auxiliary generator earlier than demanded is a possible slight increase in the use of oil. For the Wilmington run, the generator was programmed to run one-hour at full output whenever it was needed.

System Simulation Results

<u>Location</u>	<u>Type</u>	<u>Pages</u>
Atlanta	Daily Summaries ¹	29-55
Santa Maria	" "	56-82
Wilmington	" "	83-109
Madison	" "	110-136
Cleveland	" "	137-163
Phoenix	" "	164-190
Mobile	" "	191-217
Wilmington	Hourly Outputs ²	218-233

Note 1: Electrical Energy - 1 page/mo., 12 mo.

Thermal Energy - 1 page/mo., 12 mo.

Parametric Input Data

Annual Summary - Electrical Energy

Annual Summary - Thermal Energy

Note 2: Electrical Energy - 1 page/day, July 1-16

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION

VERSION X.1.

1960 - ATLANTA, GEORGIA - (CSU)

WATER-COOLED COLLECTOR

AREA 40. SQ-M

TILT 33.9 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 40. SQ-M

TILT 5.0 DEGREES

EC .90

EN .16

ET .83

EP .90

EI .93

ES .85

C1 F1 C2 F1 C3 F1 C4 F1 C5 F

HEATING SEASON: SEP 13 - MAY 15

COOLING SEASON: MAR 15 - OCT 31

ELECTRICAL STORAGE CAPACITY 20. KW-HR

THERMAL STORAGE CAPACITY 105. (180.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT ***** KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT ***** KW-HR

S/H DEMAND CURVE: INTERCEPT 24500., SLOPE -415.

A/C DEMAND CURVE: INTERCEPT -29650., SLOPE 478.

JAN. 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	40.0 SQ-M	AIR-COOLED PER SQ-M	40.0 SQ-M	TOTAL INPUT	TOTAL	PV-1	E-5	E-X	TOTAL OUTPUT	PV-1	E-X			
1	.9	4.5	1.2	5.8	10.3	22.0	7.2	11.3	3.5	22.0	2.2	.0	.0	3.5	.0
2	.9	4.5	1.2	5.8	10.3	22.0	7.2	.4	14.4	22.0	.4	.0	.0	14.4	.0
3	.6	3.0	1.0	4.8	7.8	22.0	6.9	.0	15.1	22.0	.0	.0	.0	15.1	.0
4	2.6	12.6	2.3	11.2	23.8	22.0	7.7	9.6	4.7	22.0	12.9	.0	.0	4.7	.0
5	3.2	15.3	2.8	13.5	28.8	22.0	8.3	12.0	1.7	22.0	16.6	.0	.0	1.7	.0
6	.7	3.4	1.1	5.3	8.7	22.0	7.3	5.9	8.8	22.0	.0	.0	.0	8.8	.0
7	1.3	6.2	1.5	7.4	13.6	22.0	7.8	3.4	10.7	22.0	3.7	.0	.0	10.7	.0
8	2.9	13.7	2.5	12.1	25.8	22.0	8.1	9.6	4.4	22.0	13.8	.0	.0	4.4	.0
9	3.6	17.4	3.1	14.9	32.2	22.0	8.4	12.8	.7	22.0	19.6	.0	.0	.7	.0
10	3.6	17.3	3.2	15.4	32.7	22.0	8.5	13.5	.0	22.0	15.0	.0	.0	.0	.0
11	3.4	16.4	3.0	14.5	31.0	22.0	8.5	13.5	.0	22.0	14.6	.0	.0	.0	.0
12	2.1	9.9	2.4	11.5	24.3	22.0	8.8	13.2	.0	22.0	10.1	.0	.0	.0	.0
13	1.4	6.7	2.0	9.6	16.3	22.0	8.9	10.6	2.6	22.0	5.8	.0	.0	2.6	.0
14	3.7	17.6	3.3	15.6	33.2	22.0	8.5	9.5	4.0	22.0	20.0	.0	.0	4.0	.0
15	1.0	5.0	1.4	6.6	11.6	22.0	7.6	11.8	2.6	22.0	2.9	.0	.0	2.6	.0
16	2.4	11.2	2.3	11.1	22.3	22.0	8.4	9.5	4.2	22.0	11.3	.0	.0	4.2	.0
17	2.5	11.9	2.5	11.8	23.7	22.0	8.7	10.5	2.8	22.0	12.2	.0	.0	2.8	.0
18	4.0	19.1	3.5	16.7	35.7	22.0	8.6	11.3	2.1	22.0	20.0	.0	.0	2.1	.0
19	4.7	22.6	4.1	19.6	42.1	22.0	8.9	13.1	.0	22.0	14.1	.0	.0	.0	.0
20	4.4	21.2	3.9	18.6	39.7	22.0	8.9	13.1	.0	22.0	14.1	.0	.0	.0	.0
21	4.0	19.1	3.5	16.9	35.9	22.0	8.7	13.3	.0	22.0	14.4	.0	.0	.0	.0
22	4.0	19.0	3.7	17.6	36.6	22.0	9.0	13.0	.0	22.0	14.0	.0	.0	.0	.0
23	4.6	21.8	4.0	19.1	40.8	22.0	8.7	13.3	.0	22.0	14.3	.0	.0	.0	.0
24	4.2	20.3	3.8	18.0	38.3	22.0	8.6	13.4	.0	22.0	14.4	.0	.0	.0	.0
25	.8	4.0	1.3	6.3	10.3	22.0	8.0	10.6	3.3	22.0	1.4	.0	.0	3.3	.0
26	1.0	4.8	1.6	7.4	12.3	22.0	8.7	2.3	11.0	22.0	2.5	.0	.0	11.0	.0
27	.9	4.4	1.4	6.9	11.2	22.0	8.2	1.9	11.9	22.0	2.0	.0	.0	11.9	.0
28	.9	4.1	1.3	6.3	10.5	22.0	8.0	.0	14.0	22.0	.0	.0	.0	14.0	.0
29	1.3	6.3	1.7	8.0	14.4	22.0	8.3	3.7	10.0	22.0	3.9	.0	.0	10.0	.0
30	2.8	13.4	2.7	13.0	26.4	22.0	8.4	9.2	4.4	22.0	14.6	.0	.0	4.4	.0
31	4.0	18.9	3.6	17.3	36.2	22.0	8.8	13.2	.0	22.0	19.7	.0	.0	.0	.0

78.5 375.4 77.1 368.5 743.9 682.0 256.4 288.7 136.9 682.0 310.6 .0 .0 136.9 .0															

(ALL UNITS = KA-HR)

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FEB , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER 40.0 SQ-M	40.0 SQ-M	PER 40.0 SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-A			
1	1.6	7.8	1.9	9.3	17.2	22.0	8.7	13.3	.0	22.0	6.6	.0	.0	.0	.0
2	.9	4.4	1.3	6.3	10.7	22.0	8.3	3.4	10.3	22.0	1.2	.0	.0	10.3	.0
3	.9	4.2	1.3	6.4	10.6	22.0	8.2	.0	13.8	22.0	.0	.0	.0	13.8	.0
4	1.7	8.0	2.0	9.6	17.6	22.0	8.8	5.8	7.4	22.0	6.3	.0	.0	7.4	.0
5	3.5	16.9	3.3	15.9	32.8	22.0	8.5	8.9	4.5	22.0	19.8	.0	.0	4.5	.0
6	4.2	20.3	3.9	18.7	39.0	22.0	8.8	13.2	.0	22.0	14.3	.0	.0	.0	.0
7	1.8	8.4	2.1	10.3	18.7	22.0	8.8	13.2	.0	22.0	7.9	.0	.0	.0	.0
8	1.2	5.9	1.9	9.1	15.0	22.0	9.4	7.6	5.0	22.0	4.2	.0	.0	5.0	.0
9	4.6	22.0	4.4	20.9	42.8	22.0	9.4	8.8	3.8	22.0	20.0	.0	.0	3.8	.0
10	4.5	21.6	4.2	20.3	41.9	22.0	9.0	13.0	.0	22.0	13.9	.0	.0	.0	.0
11	4.3	20.4	4.0	19.4	39.8	22.0	9.1	12.9	.0	22.0	13.8	.0	.0	.0	.0
12	1.7	8.1	2.1	9.9	18.0	22.0	9.0	13.0	.0	22.0	7.1	.0	.0	.0	.0
13	4.7	22.4	4.7	22.3	44.7	22.0	9.3	12.0	.7	22.0	20.0	.0	.0	.7	.0
14	4.9	23.4	4.9	23.3	46.8	22.0	9.4	12.6	.0	22.0	13.8	.0	.0	.0	.0
15	.9	4.2	1.3	6.4	10.7	22.0	8.4	11.3	2.3	22.0	1.4	.0	.0	2.3	.0
16	5.0	23.7	5.0	23.7	47.4	22.0	9.5	8.7	3.8	22.0	20.0	.0	.0	3.8	.0
17	4.7	22.4	4.7	22.7	45.0	22.0	9.6	12.4	.0	22.0	13.4	.0	.0	.0	.0
18	4.0	19.1	4.1	19.8	38.9	22.0	9.5	12.5	.0	22.0	13.6	.0	.0	.0	.0
19	2.7	13.1	3.1	14.8	27.9	22.0	9.8	12.2	.0	22.0	13.2	.0	.0	.0	.0
20	1.8	8.4	2.2	10.4	18.8	22.0	9.2	12.8	.0	22.0	7.6	.0	.0	.0	.0
21	4.4	21.2	4.6	22.2	43.4	22.0	9.9	12.1	.0	22.0	19.4	.0	.0	.0	.0
22	1.8	8.6	2.2	10.7	19.3	22.0	9.2	12.8	.0	22.0	8.0	.0	.0	.0	.0
23	3.9	18.5	4.2	19.8	38.3	22.0	9.8	12.2	.0	22.0	18.9	.0	.0	.0	.0
24	4.5	21.4	4.8	22.7	44.1	22.0	10.0	12.0	.0	22.0	13.0	.0	.0	.0	.0
25	4.2	20.0	4.3	20.5	40.5	22.0	9.7	12.3	.0	22.0	12.9	.0	.0	.0	.0
26	2.7	12.8	3.0	14.5	27.3	22.0	9.5	12.5	.0	22.0	13.4	.0	.0	.0	.0
27	4.3	20.5	4.6	21.9	42.4	22.0	9.7	12.3	.0	22.0	13.2	.0	.0	.0	.0
28	3.7	17.6	3.9	18.7	36.3	22.0	9.6	12.4	.0	22.0	13.4	.0	.0	.0	.0

	88.9	425.3	94.2	450.5	875.7	616.0	257.9	306.6	51.5	616.0	330.3	.0	.0	51.5	.0

FEB , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 40.0 SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
				T-1	T-S	PV-1	E-S	E-X	T-X		T-1	PV-1	E-X	T-X			
1	.6	22.1	58.1	18.0	40.1	.0	.0	.0	.0	58.1	4.1	.0	.0	.0	.0	.0	
2	.1	5.0	76.5	5.0	37.1	.8	.0	.0	33.5	76.5	.0	.0	.0	.0	.0	33.5	
3	.2	6.4	56.9	6.4	.0	4.5	.0	.0	45.9	56.9	.0	.0	.0	.0	.0	45.9	
4	.6	23.0	55.5	15.9	7.1	2.0	.0	.0	30.5	55.5	7.1	.0	.0	.0	.0	30.5	
5	1.7	68.6	63.8	16.1	21.0	.7	.0	.0	26.0	63.8	52.5	.0	.0	.0	.0	26.0	
6	2.1	85.8	61.7	17.2	44.6	.0	.0	.0	.0	61.7	68.6	11.8	.0	.0	.0	.0	
7	.7	28.7	39.4	8.3	31.2	.0	.0	.0	.0	39.4	20.5	.0	.0	.0	.0	.0	
8	.4	16.6	24.9	9.3	15.6	.0	.0	.0	.0	24.9	7.3	.0	.0	.0	.0	.0	
9	2.3	92.4	48.2	23.0	25.3	.0	.0	.0	.0	48.2	58.1	8.6	.0	.0	11.4	.0	
10	2.3	90.4	57.2	22.3	34.9	.0	.0	.0	.0	57.2	32.4	14.8	.0	.0	35.6	.0	
11	2.1	85.2	69.4	19.4	50.0	.0	.0	.0	.0	69.4	32.9	12.7	.0	.0	32.8	.0	
12	.6	23.1	58.1	18.5	39.6	.0	.0	.0	.0	58.1	4.6	.0	.0	.0	.0	.0	
13	2.4	96.0	61.7	18.2	43.5	.0	.0	.0	.0	61.7	68.3	10.3	.0	.0	9.5	.0	
14	2.5	100.4	48.2	22.4	25.8	.0	.0	.0	.0	48.2	10.6	19.1	.0	.0	67.4	.0	
15	.2	9.3	24.9	7.7	17.2	.0	.0	.0	.0	24.9	1.6	.0	.0	.0	.0	.0	
16	2.5	100.5	57.2	23.5	33.7	.0	.0	.0	.0	57.2	35.2	12.7	.0	.0	41.8	.0	
17	2.4	94.7	69.4	20.8	48.6	.0	.0	.0	.0	69.4	32.4	17.7	.0	.0	41.5	.0	
18	2.0	78.6	63.8	17.9	45.9	.0	.0	.0	.0	63.8	28.6	11.8	.0	.0	32.2	.0	
19	1.1	43.2	87.8	24.9	62.9	.0	.0	.0	.0	87.8	18.3	1.8	.0	.0	.0	.0	
20	.6	24.5	55.5	16.4	39.1	.0	.0	.0	.0	55.5	8.0	.0	.0	.0	.0	.0	
21	2.1	84.5	82.5	28.2	48.7	2.5	.0	.0	3.1	82.5	56.3	8.3	.0	.0	.0	3.1	
22	.7	29.3	39.4	8.0	31.4	.0	.0	.0	.0	39.4	21.3	.0	.0	.0	.0	.0	
23	1.9	75.3	61.9	17.9	43.9	.0	.0	.0	.0	61.9	57.4	5.2	.0	.0	.0	.0	
24	2.1	85.5	82.5	28.4	54.1	.0	.0	.0	.0	82.5	57.1	16.8	.0	.0	.0	.0	
25	2.0	78.7	82.5	27.6	54.9	.0	.0	.0	.0	82.5	51.0	13.8	.0	.0	.0	.0	
26	1.0	41.9	84.0	24.6	59.4	.0	.0	.0	.0	84.0	17.3	1.2	.0	.0	.0	.0	
27	2.1	83.5	59.3	24.2	35.2	.0	.0	.0	.0	59.3	59.4	15.3	.0	.0	.0	.0	
28	1.8	70.6	61.9	17.5	44.4	.0	.0	.0	.0	61.9	48.9	9.5	.0	.0	4.3	.0	

41.1 1644.0 1692.5 507.8 1035.1 10.5 .0 .0 139.1 1692.5 859.8 191.4 .0 .0 276.4 139.1 .0

MAR , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X						
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M														
1	2.5	12.1	2.8	13.4	25.6	21.0	9.0	12.0	.0	21.0	13.5	.0	.0	.0	.0			
2	2.5	12.2	2.8	13.5	25.7	21.0	9.0	12.0	.0	21.0	12.9	.0	.0	.0	.0			
3	3.6	17.2	3.8	18.3	35.5	21.0	9.3	11.7	.0	21.0	12.5	.0	.0	.0	.0			
4	2.5	12.0	2.9	13.6	25.7	21.0	9.3	11.7	.0	21.0	12.5	.0	.0	.0	.0			
5	4.9	23.6	5.3	25.1	48.7	21.0	9.7	11.3	.0	21.0	12.3	.0	.0	.0	.0			
6	.7	3.1	1.0	4.7	7.9	21.0	7.0	10.8	3.1	21.0	.3	.0	.0	3.1	.0			
7	2.6	12.3	2.9	13.9	26.2	21.0	9.2	8.0	3.9	21.0	13.4	.0	.0	3.9	.0			
8	.8	3.7	1.1	5.3	9.0	21.0	7.6	4.5	8.9	21.0	.0	.0	.0	8.9	.0			
9	4.2	20.3	4.6	21.9	42.2	21.0	9.6	8.0	3.5	21.0	20.0	.0	.0	3.5	.0			
10	4.1	19.8	4.5	21.6	41.5	21.0	9.3	11.7	.0	21.0	12.2	.0	.0	.0	.0			
11	4.3	20.4	4.6	22.2	42.5	21.0	9.6	11.4	.0	21.0	12.6	.0	.0	.0	.0			
12	4.6	21.9	4.9	23.5	45.4	21.0	9.7	11.3	.0	21.0	12.2	.0	.0	.0	.0			
13	4.6	21.9	4.9	23.6	45.6	21.0	9.7	11.3	.0	21.0	12.2	.0	.0	.0	.0			
14	5.0	23.9	5.5	26.5	50.4	21.0	10.0	11.0	.0	21.0	11.9	.0	.0	.0	.0			
15	1.1	5.3	1.7	7.9	13.3	21.0	9.0	12.0	.0	21.0	3.1	.0	.0	.0	.0			
16	1.0	4.8	1.5	7.4	12.2	21.0	8.9	2.3	9.8	21.0	.8	.0	.0	9.8	.0			
17	2.7	13.1	3.3	15.9	28.9	21.0	9.8	7.9	3.3	21.0	14.6	.0	.0	3.3	.0			
18	5.0	23.8	5.6	27.0	50.8	21.0	10.0	11.0	.0	21.0	17.3	.0	.0	.0	.0			
19	4.4	21.2	5.1	24.3	45.6	21.0	9.9	11.1	.0	21.0	11.9	.0	.0	.0	.0			
20	4.1	19.6	4.7	22.4	42.0	21.0	9.8	11.2	.0	21.0	12.0	.0	.0	.0	.0			
21	4.7	22.7	5.4	25.7	48.4	21.0	10.0	11.0	.0	21.0	11.8	.0	.0	.0	.0			
22	5.5	26.1	6.2	29.7	55.8	21.2	10.4	10.8	.0	21.2	11.6	.0	.0	.0	.0			
23	5.5	26.4	6.3	30.1	56.5	21.0	10.3	10.7	.0	21.0	11.6	.0	.0	.0	.0			
24	5.4	25.9	6.2	29.7	55.6	23.2	11.6	11.7	.0	23.2	11.5	.0	.0	.0	.0			
25	4.7	22.6	5.6	27.0	49.6	21.0	10.3	10.7	.0	21.0	12.6	.0	.0	.0	.0			
26	5.3	25.2	6.1	29.2	54.4	22.7	10.9	11.8	.0	22.7	11.6	.0	.0	.0	.0			
27	4.6	22.2	5.5	26.5	48.7	24.0	11.9	12.1	.0	24.0	12.6	.0	.0	.0	.0			
28	3.1	14.6	4.0	19.3	33.9	22.8	11.5	11.3	.0	22.8	13.0	.0	.0	.0	.0			
29	1.6	7.5	2.4	11.5	18.9	21.1	10.9	10.1	.0	21.1	6.1	.0	.0	.0	.0			
30	3.2	15.5	4.1	19.7	35.2	26.3	14.0	12.3	.0	26.3	16.9	.0	.0	.0	.0			
31	4.7	22.6	5.7	27.2	49.7	23.7	11.6	12.1	.0	23.7	13.2	.0	.0	.0	.0			

	113.7	543.6	131.3	627.7	1171.3	668.0	308.7	326.9	32.5	668.0	350.6	.0	.0	32.5	.0			

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(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						TOTAL OUTPUT	THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT				
	PER SQ-M	TOTAL 40.0 SQ-M		SUPPLIED FROM							SUPPLIED FROM										
		TOTAL	T-1	T-S	PV-1	E-S	E-X	T-X	T-1		PV-1	E-X	T-X								
1	1.1	45.4	61.6	8.4	53.2	.0	.0	.0	.0	61.6	37.0	.0	.0	.0	.0	.0	.0				
2	1.1	45.5	61.6	8.4	53.2	.0	.0	.0	.0	61.6	37.0	.7	.0	.0	.0	.0	.0				
3	1.7	68.9	61.9	17.3	44.5	.0	.0	.0	.0	61.9	51.6	10.0	.0	.0	.0	.0	.0				
4	.9	37.8	84.0	24.6	59.4	.0	.0	.0	.0	84.0	13.2	.9	.0	.0	.0	.0	.0				
5	2.5	98.6	72.0	24.6	47.4	.0	.0	.0	.0	72.0	74.0	22.1	.0	.0	.0	.0	.0				
6	.0	1.1	80.5	1.1	78.1	.0	.0	.0	1.3	80.5	.0	.0	.0	.0	.0	1.3	.0				
7	1.1	45.7	61.6	8.5	16.7	1.5	.0	.0	34.8	61.6	37.2	.0	.0	.0	.0	34.8	.0				
8	.1	3.2	78.8	3.2	20.5	2.2	.0	.0	53.0	78.8	.0	.0	.0	.0	.0	53.0	.0				
9	2.0	79.6	82.5	28.1	26.7	2.9	.0	.0	24.8	82.5	51.5	6.8	.0	.0	.0	24.8	.0				
10	2.0	79.7	59.3	24.2	35.1	.0	.0	.0	.0	59.3	55.5	15.8	.0	.0	.0	.0	.0				
11	2.0	79.9	82.5	28.2	54.3	.0	.0	.0	.0	82.5	50.7	16.1	.0	.0	1.0	.0	.0				
12	2.2	89.7	82.9	23.1	59.8	.0	.0	.0	.0	82.9	54.4	19.2	.0	.0	12.2	.0	.0				
13	2.2	89.8	82.9	23.1	59.8	.0	.0	.0	.0	82.9	41.8	19.4	.0	.0	24.9	.0	.0				
14	2.5	100.2	72.0	24.6	47.4	.0	.0	.0	.0	72.0	31.6	23.9	.0	.0	44.0	.0	.0				
15	.2	8.4	78.8	8.4	70.4	.0	.0	.0	.0	78.8	.0	.0	.0	.0	.0	.0	.0				
16	.1	5.6	80.5	5.6	33.4	4.1	.0	.0	37.4	80.5	.0	.0	.0	.0	.0	37.4	.0				
17	1.2	48.7	61.6	11.0	16.5	3.2	.0	.0	30.9	61.6	37.8	.0	.0	.0	.0	30.9	.0				
18	2.4	97.8	72.6	29.1	43.3	.1	.0	.0	.0	72.6	68.7	16.3	.0	.0	.0	.0	.0				
19	2.2	88.7	66.0	19.6	46.4	.0	.0	.0	.0	66.0	56.9	19.4	.0	.0	12.2	.0	.0				
20	1.9	77.1	77.4	24.6	52.8	.0	.0	.0	.0	77.4	34.4	16.1	.0	.0	18.1	.0	.0				
21	2.3	91.7	79.4	28.9	50.5	.0	.0	.0	.0	79.4	36.1	22.0	.0	.0	26.7	.0	.0				
22	2.9	115.7	56.4	19.1	37.3	.0	.0	.0	.0	56.4	29.3	28.8	.0	.0	67.3	.0	.0				
23	2.8	113.9	58.1	24.2	33.9	.0	.0	.0	.0	58.1	6.2	29.7	.0	.0	83.5	.0	.0				
24	3.0	119.1	37.0	14.5	22.5	.0	.0	.0	.0	37.0	.0	27.5	.0	.0	104.6	.0	.0				
25	2.3	92.1	62.6	27.3	35.3	.0	.0	.0	.0	62.6	.0	22.1	.0	.0	64.8	.0	.0				
26	2.8	113.7	36.8	15.5	21.3	.0	.0	.0	.0	36.8	4.2	27.0	.0	.0	94.0	.0	.0				
27	2.5	100.3	28.1	11.8	16.3	.0	.0	.0	.0	28.1	.0	19.6	.0	.0	88.4	.0	.0				
28	1.5	58.8	18.3	10.1	8.1	.0	.0	.0	.0	18.3	.0	5.9	.0	.0	48.7	.0	.0				
29	.5	21.7	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	.0	.0	.0	10.9	.0	.0				
30	1.7	67.7	18.5	10.7	7.8	.0	.0	.0	.0	18.5	.0	.3	.0	.0	57.0	.0	.0				
31	2.5	101.2	25.9	12.6	13.4	.0	.0	.0	.0	25.9	.0	20.2	.0	.0	88.7	.0	.0				

54.7 2187.4 1899.5 531.2 1172.1 14.1 .0 .0 182.2 1899.5 809.3 392.0 .0 .0 846.9 182.2 .0																					

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(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT		
	WATER-COOLED PER 40.0 SQ-M		AIR-COOLED PER 40.0 SQ-M		TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X				
	PER 40.0 SQ-M	PER 40.0 SQ-M	PER 40.0 SQ-M	PER 40.0 SQ-M												
1	4.6	22.2	5.5	26.1	48.3	28.0	13.1	14.9	.0	28.0	13.2	.0	.0	.0		
2	1.8	8.7	2.7	12.8	21.6	21.8	11.0	10.8	.0	21.8	8.3	.0	.0	.0		
3	1.5	7.2	2.4	11.3	18.4	21.2	11.1	8.7	1.4	21.2	5.5	.0	1.4	.0		
4	1.5	7.2	2.3	11.0	18.2	20.1	10.4	5.6	4.2	20.1	6.0	.0	4.2	.0		
5	4.5	21.6	5.4	26.0	47.6	20.0	10.0	7.4	2.6	20.0	20.0	.0	2.6	.0		
6	5.3	25.3	6.4	30.6	55.9	22.8	11.1	11.7	.0	22.8	10.8	.0	.0	.0		
7	4.6	22.1	5.7	27.1	49.3	27.1	13.9	13.2	.0	27.1	12.6	.0	.0	.0		
8	4.8	23.0	6.0	28.8	51.8	23.3	12.6	10.7	.0	23.3	14.1	.0	.0	.0		
9	5.0	23.7	6.2	29.6	53.3	20.0	10.1	10.0	.0	20.0	11.5	.0	.0	.0		
10	5.5	26.1	6.9	32.9	59.0	20.0	10.0	10.0	.0	20.0	10.7	.0	.0	.0		
11	5.4	25.8	6.8	32.5	58.4	21.1	10.6	10.4	.0	21.1	10.7	.0	.0	.0		
12	5.3	25.3	6.7	32.2	57.5	26.6	13.4	13.2	.0	26.6	11.2	.0	4.0	.0		
13	5.1	24.6	6.6	31.5	56.1	29.4	15.1	14.3	.0	29.4	14.2	.0	12.4	.0		
14	4.8	22.9	6.1	29.3	52.2	29.5	15.0	14.5	.0	29.5	15.5	.0	9.3	.0		
15	4.0	18.9	5.2	24.7	43.6	26.5	13.5	13.0	.0	26.5	15.4	.0	3.1	.0		
16	4.4	20.8	5.4	24.0	46.9	31.5	16.0	15.5	.0	31.5	14.1	.0	3.7	.0		
17	4.3	20.5	5.6	26.7	47.2	29.0	15.5	13.6	.0	29.0	16.8	.0	2.7	.0		
18	4.1	19.6	5.4	26.0	45.7	21.8	10.9	10.8	.0	21.8	14.3	.0	8.7	.0		
19	5.3	25.2	6.9	33.0	58.2	25.3	13.0	12.3	.0	25.3	11.5	.0	16.0	.0		
20	1.8	8.7	2.9	13.8	22.6	23.9	11.2	12.7	.0	23.9	8.9	.0	.0	.0		
21	3.2	15.1	4.3	20.4	35.5	23.0	13.8	9.1	.0	23.0	17.5	.0	.0	.0		
22	2.9	14.1	4.0	19.1	33.2	31.1	15.4	15.7	.0	31.1	10.1	.0	.0	.0		
23	4.1	19.4	5.3	25.2	44.6	36.0	17.8	18.2	.0	36.0	17.8	.0	.0	.0		
24	4.6	22.0	6.1	29.0	51.0	39.1	19.8	19.0	.2	39.1	20.0	.0	.2	.0		
25	4.4	21.2	5.9	28.3	49.4	39.6	20.1	18.6	.9	39.6	20.0	.0	.9	.0		
26	4.4	21.1	5.8	27.9	49.1	37.2	19.5	16.8	.9	37.2	20.0	.0	.9	.0		
27	2.8	13.5	4.1	19.8	33.3	25.9	14.1	11.7	.0	25.9	15.4	.0	.0	.0		
28	4.5	21.4	6.2	29.8	51.2	21.2	11.3	10.0	.0	21.2	14.3	.0	.0	.0		
29	3.8	18.4	5.2	24.9	43.3	23.2	11.8	11.4	.0	23.2	11.0	.0	.0	.0		
30	1.7	8.1	2.8	13.4	21.5	23.6	12.8	10.8	.0	23.6	6.6	.0	.0	.0		

120.0 573.8 156.8 749.8 1323.6 788.5 403.8 374.4 10.3 788.5 398.2 .0 60.1 10.3 .0																

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(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT				
	PER SQ-M	TOTAL 40.0 SQ-M		SUPPLIED FROM							SUPPLIED FROM										
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X							
1	2.6	103.5	24.8	10.0	14.8	.0	.0	.0	.0	24.8	.0	17.4	.0	.0	93.4	.0	.0				
2	.7	28.4	17.5	10.8	6.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	17.6	.0	.0				
3	.5	20.2	17.8	11.6	6.2	.0	.0	.0	.0	17.8	.0	.0	.0	.0	8.6	.0	.0				
4	.5	20.3	19.9	11.0	8.9	.0	.0	.0	.0	19.9	.0	.0	.0	.0	9.4	.0	.0				
5	2.3	92.0	40.3	16.1	24.3	.0	.0	.0	.0	40.3	15.6	12.4	.0	.0	60.3	.0	.0				
6	2.9	114.7	38.2	14.4	23.9	.0	.0	.0	.0	38.2	19.2	29.0	.0	.0	81.2	.0	.0				
7	2.6	103.5	18.0	10.1	7.9	.0	.0	.0	.0	18.0	.0	18.2	.0	.0	93.4	.0	.0				
8	2.6	105.9	22.8	11.3	11.5	.0	.0	.0	.0	22.8	.0	20.2	.0	.0	94.6	.0	.0				
9	2.6	105.5	27.7	13.0	14.6	.0	.0	.0	.0	27.7	.0	26.9	.0	.0	92.5	.0	.0				
10	2.8	111.6	58.9	25.3	33.6	.0	.0	.0	.0	58.9	.0	33.1	.0	.0	86.3	.0	.0				
11	2.9	115.7	41.3	16.6	24.7	.0	.0	.0	.0	41.3	.0	31.9	.0	.0	99.1	.0	.0				
12	3.0	118.4	28.4	12.5	15.8	.0	.0	.0	.0	28.4	.0	24.1	.0	.0	105.9	.0	.0				
13	2.9	117.0	20.8	10.8	10.0	.0	.0	.0	.0	20.8	.0	10.0	.0	.0	106.2	.0	.0				
14	2.7	108.2	18.4	10.4	8.0	.0	.0	.0	.0	18.4	.0	8.0	.0	.0	97.8	.0	.0				
15	2.1	84.4	18.4	11.1	7.2	.0	.0	.0	.0	18.4	.0	7.2	.0	.0	73.3	.0	.0				
16	2.5	98.7	18.1	9.4	8.7	.0	.0	.0	.0	18.1	.0	8.7	.0	.0	89.2	.0	.0				
17	2.4	94.8	17.5	10.2	7.3	.0	.0	.0	.0	17.5	.0	7.5	.0	.0	84.6	.0	.0				
18	2.1	82.9	23.3	14.8	8.5	.0	.0	.0	.0	23.3	.0	7.8	.0	.0	68.1	.0	.0				
19	2.9	117.1	24.7	11.6	13.1	.0	.0	.0	.0	24.7	.0	13.6	.0	.0	105.5	.0	.0				
20	.7	28.3	19.0	11.5	7.5	.0	.0	.0	.0	19.0	.0	.0	.0	.0	16.8	.0	.0				
21	1.6	62.3	17.8	11.6	6.2	.0	.0	.0	.0	17.8	.0	.0	.0	.0	50.7	.0	.0				
22	1.5	60.3	18.8	9.7	9.0	.0	.0	.0	.0	18.8	.0	4.4	.0	.0	50.6	.0	.0				
23	2.3	90.8	17.5	10.1	7.4	.0	.0	.0	.0	17.5	.0	4.2	.0	.0	80.7	.0	.0				
24	2.7	106.1	17.5	10.4	7.1	.0	.0	.0	.0	17.5	.0	5.7	.0	.0	95.7	.0	.0				
25	2.5	101.8	17.5	10.5	7.0	.0	.0	.0	.0	17.5	.0	4.0	.0	.0	91.3	.0	.0				
26	2.5	101.3	17.5	10.2	7.3	.0	.0	.0	.0	17.5	.0	4.2	.0	.0	91.2	.0	.0				
27	1.3	53.9	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	.0	.0	.0	43.1	.0	.0				
28	2.3	93.9	17.8	10.7	7.1	.0	.0	.0	.0	17.8	.0	20.6	.0	.0	83.2	.0	.0				
29	2.0	79.3	25.0	10.7	14.3	.0	.0	.0	.0	25.0	.0	16.5	.0	.0	68.6	.0	.0				
30	.6	24.4	17.9	12.0	5.8	.0	.0	.0	.0	17.9	.0	.0	.0	.0	12.4	.0	.0				

(ALL UNITS = KW-HR)

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MAY, 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT SUPPLIED FROM						TOTAL OUTPUT	THERMAL STORAGE SUPPLIED FROM				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT				
	PER SQ-M	TOTAL 40.0 SQ-M		T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X							
1	2.0	80.4	18.0	10.0	8.0	.0	.0	.0	.0	18.0	.0	10.5	.0	.0	70.4	.0	.0				
2	2.3	93.3	25.7	11.9	13.8	.0	.0	.0	.0	25.7	.0	25.5	.0	.0	81.4	.0	.0				
3	2.5	100.1	24.0	10.2	13.8	.0	.0	.0	.0	24.0	.0	24.5	.0	.0	90.0	.0	.0				
4	1.9	74.6	20.7	10.0	10.7	.0	.0	.0	.0	20.7	.0	11.7	.0	.0	64.6	.0	.0				
5	2.2	89.0	19.8	10.5	9.3	.0	.0	.0	.0	19.8	.0	9.3	.0	.0	78.4	.0	.0				
6	2.1	84.4	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	6.8	.0	.0	73.4	.0	.0				
7	1.1	45.2	19.0	11.7	7.3	.0	.0	.0	.0	19.0	.0	1.0	.0	.0	33.6	.0	.0				
8	2.4	96.6	32.5	12.2	20.3	.0	.0	.0	.0	32.5	.0	24.1	.0	.0	84.4	.0	.0				
9	2.3	92.3	22.0	10.8	11.3	.0	.0	.0	.0	22.0	.0	13.5	.0	.0	81.5	.0	.0				
10	2.1	85.6	32.8	14.5	18.3	.0	.0	.0	.0	32.8	.0	11.9	.0	.0	71.1	.0	.0				
11	1.7	69.6	45.2	16.9	28.3	.0	.0	.0	.0	45.2	.0	19.2	.0	.0	52.7	.0	.0				
12	2.1	85.0	34.7	11.8	22.9	.0	.0	.0	.0	34.7	.0	23.3	.0	.0	73.1	.0	.0				
13	2.6	104.3	26.7	10.5	16.2	.0	.0	.0	.0	26.7	.0	25.9	.0	.0	93.8	.0	.0				
14	2.7	107.6	20.9	10.2	10.7	.0	.0	.0	.0	20.9	.0	16.0	.0	.0	97.4	.0	.0				
15	2.5	100.1	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	7.0	.0	.0	89.3	.0	.0				
16	2.7	106.1	17.5	10.6	6.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	95.4	.0	.0				
17	2.3	93.5	17.5	10.5	7.0	.0	.0	.0	.0	17.5	.0	.0	.0	.0	83.0	.0	.0				
18	2.5	99.4	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	88.7	.0	.0				
19	2.7	106.9	17.5	11.2	6.3	.0	.0	.0	.0	17.5	.0	.0	.0	.0	95.7	.0	.0				
20	1.2	47.6	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	36.0	.0	.0				
21	2.1	85.9	17.5	11.5	6.0	.0	.0	.0	.0	17.5	.0	.0	.0	.0	74.4	.0	.0				
22	2.8	111.5	17.5	10.3	7.2	.0	.0	.0	.0	17.5	.0	.0	.0	.0	101.1	.0	.0				
23	2.8	111.7	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	101.0	.0	.0				
24	2.5	100.0	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	.0	.0	.0	89.0	.0	.0				
25	2.6	103.2	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	.0	.0	.0	92.2	.0	.0				
26	2.3	93.2	17.5	11.6	5.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	81.6	.0	.0				
27	2.0	78.4	17.5	10.7	6.8	.0	.0	.0	.0	17.5	3.2	.0	.0	.0	64.4	.0	.0				
28	2.4	97.2	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	79.4	.0	.0				
29	2.5	99.2	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	81.7	.0	.0				
30	2.5	99.9	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	82.1	.0	.0				
31	2.4	95.3	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	77.9	.0	.0				

	70.9	2836.8	657.1	347.5	309.6	.0	.0	.0	.0	657.1	30.4	230.3	.0	.0	2458.9	.0	.0				

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT			ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1				E-X
1	4.5	21.7	7.0	33.5	55.2	37.0	20.3	16.4	.0	37.0	19.5	.0	10.3	.0	.0
2	3.9	18.4	5.8	27.8	46.2	34.2	18.6	15.6	.0	34.2	17.3	.0	5.8	.0	.0
3	3.3	16.0	5.1	24.5	40.5	33.5	18.0	15.6	.0	33.5	16.6	.0	1.6	.0	.0
4	3.8	18.2	5.5	26.5	44.7	34.5	19.8	14.6	.0	34.5	16.9	.0	3.5	.0	.0
5	3.6	17.0	5.3	25.1	42.1	33.6	19.4	14.1	.0	33.6	15.7	.0	2.8	.0	.0
6	4.4	20.8	6.4	30.6	51.4	41.3	22.7	18.5	.0	41.3	15.4	.0	8.8	.0	.0
7	4.3	20.7	6.4	30.8	51.4	36.7	23.1	12.6	.9	36.7	20.0	.0	3.0	.9	.0
8	2.4	11.5	3.7	17.6	29.1	28.2	17.8	10.4	.0	28.2	8.5	.0	.0	.0	.0
9	4.4	21.0	6.5	31.0	52.1	30.4	16.8	13.6	.0	30.4	14.8	.0	16.6	.0	.0
10	4.4	21.0	6.8	32.5	53.6	30.9	16.6	14.4	.0	30.9	15.8	.0	17.1	.0	.0
11	4.2	20.1	6.5	31.3	51.4	33.2	18.3	14.9	.0	33.2	15.6	.0	13.3	.0	.0
12	4.4	21.3	6.7	32.0	53.3	42.0	22.4	19.7	.0	42.0	16.7	.0	9.6	.0	.0
13	4.1	19.7	6.4	30.4	50.2	41.0	21.6	17.5	1.9	41.0	20.0	.0	3.4	1.9	.0
14	3.4	16.4	5.2	24.7	41.1	35.5	19.8	15.7	.0	35.5	16.9	.0	.0	.0	.0
15	4.3	20.4	6.5	30.9	51.3	37.3	19.3	18.1	.0	37.3	19.4	.0	7.8	.0	.0
16	3.4	16.1	5.2	24.6	40.7	32.8	19.5	13.2	.0	32.8	16.8	.0	.0	.0	.0
17	3.7	17.8	5.6	26.7	44.5	34.7	19.9	14.8	.0	34.7	16.2	.0	4.1	.0	.0
18	4.0	19.0	5.9	28.4	47.4	39.8	21.3	18.5	.0	39.8	17.4	.0	4.0	.0	.0
19	3.9	18.7	5.8	27.9	46.6	40.4	22.9	17.5	.0	40.4	18.7	.0	.0	.0	.0
20	4.0	18.9	5.9	28.1	47.0	42.2	23.2	18.5	.6	42.2	18.8	.0	.0	.6	.0
21	3.1	14.6	4.7	22.3	36.9	42.5	22.6	13.1	6.7	42.5	10.7	.0	.0	6.7	.0
22	3.5	16.6	5.2	24.8	41.4	41.6	23.3	12.9	5.4	41.6	13.9	.0	.0	5.4	.0
23	4.1	19.7	6.2	29.6	49.3	48.0	26.8	15.4	5.9	48.0	17.4	.0	.0	5.9	.0
24	3.7	17.5	5.5	26.1	43.6	43.3	26.1	11.6	5.6	43.3	13.2	.0	.0	5.6	.0
25	2.9	14.0	4.5	21.8	35.8	35.4	22.0	11.1	2.4	35.4	10.3	.0	.0	2.4	.0
26	2.0	9.6	3.1	15.0	24.6	28.7	17.6	4.5	6.6	28.7	4.8	.0	.0	6.6	.0
27	3.4	16.2	5.2	24.7	40.9	31.7	18.6	9.9	3.2	31.7	17.8	.0	.0	3.2	.0
28	3.8	18.2	5.8	27.9	46.1	37.9	20.1	17.7	.0	37.9	17.4	.0	4.0	.0	.0
29	4.0	19.2	6.1	29.3	48.5	46.1	24.5	21.6	.0	46.1	18.8	.0	.0	.0	.0
30	4.4	21.2	6.7	32.2	53.3	50.5	25.8	19.6	5.1	50.5	20.0	.0	2.0	5.1	.0

	113.3	541.6	171.3	318.7	1360.3	1124.9	628.9	451.9	44.1	1124.9	481.4	.0	117.7	44.1	.0

JUN, 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX. THERMAL	
	PER SQ-M	TOTAL 40.0 SQ-M	LOAD	SUPPLIED FROM							SUPPLIED FROM				WASTED	INPUT	LOAD
				TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X			
1	2.6	103.7	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	86.3	.0	.0
2	2.1	84.0	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	66.5	.0	.0
3	1.7	69.4	17.5	11.3	6.2	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	51.5	.0	.0
4	2.1	83.9	17.5	11.3	6.2	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	66.4	.0	.0
5	1.9	76.7	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	58.8	.0	.0
6	2.5	100.5	17.5	11.1	6.4	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	83.5	.0	.0
7	2.4	97.9	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	79.9	.0	.0
8	1.1	44.9	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	27.4	.0	.0
9	2.4	97.4	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	80.5	.0	.0
10	2.4	97.1	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	79.8	.0	.0
11	2.3	92.5	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	74.8	.0	.0
12	2.6	102.2	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	84.7	.0	.0
13	2.3	93.2	17.5	11.3	6.2	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	75.6	.0	.0
14	1.8	72.9	17.5	12.0	5.5	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	54.5	.0	.0
15	2.4	95.8	17.5	10.8	6.7	.0	.0	.0	.0	17.5	5.6	.0	.0	.0	79.4	.0	.0
16	1.8	70.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	52.1	.0	.0
17	2.0	80.2	17.5	11.5	6.0	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	62.6	.0	.0
18	2.2	88.2	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.7	.0	.0	.0	70.9	.0	.0
19	2.2	87.5	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	69.9	.0	.0
20	2.2	88.8	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	71.3	.0	.0
21	1.6	65.3	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	47.7	.0	.0
22	1.9	76.5	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	59.1	.0	.0
23	2.4	94.4	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	76.0	.0	.0
24	2.0	81.9	17.5	12.5	5.0	.0	.0	.0	.0	17.5	5.0	.0	.0	.0	64.4	.0	.0
25	1.5	59.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	42.3	.0	.0
26	.9	34.1	17.5	12.4	5.1	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	16.8	.0	.0
27	1.7	69.5	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	51.8	.0	.0
28	2.1	82.1	17.5	11.6	5.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	65.6	.0	.0
29	2.3	90.6	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	73.1	.0	.0
30	2.6	102.7	17.5	12.0	5.5	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	84.9	.0	.0

	62.1	2484.0	525.0	347.9	177.1	.0	.0	.0	.0	525.0	178.0	.0	.0	.0	1958.1	.0	.0

JUL , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-1	E-X						
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X									
1	3.7	17.7	5.5	26.3	44.0	53.1	26.5	12.3	14.4	53.1	13.2	.0	.0	14.4	.0			
2	3.8	18.2	5.6	27.0	45.1	52.8	26.0	13.5	13.2	52.8	14.6	.0	.0	13.2	.0			
3	4.0	19.0	6.0	28.4	47.5	49.9	25.0	16.3	8.6	49.9	17.5	.0	.0	8.6	.0			
4	3.7	17.5	5.5	26.4	44.0	42.3	21.3	15.4	5.5	42.3	17.8	.0	.0	5.5	.0			
5	4.1	19.5	6.1	29.0	48.5	47.5	25.4	17.4	4.7	47.5	18.0	.0	.0	4.7	.0			
6	3.6	17.4	5.3	25.1	42.5	39.4	22.5	11.4	5.5	39.4	15.5	.0	.0	5.5	.0			
7	2.5	11.8	3.9	18.7	30.5	34.5	19.5	11.1	3.9	34.5	6.2	.0	.0	3.9	.0			
8	4.0	19.1	5.9	28.0	47.1	37.2	21.2	12.5	3.5	37.2	20.0	.0	.8	3.5	.0			
9	3.9	18.6	5.7	27.1	45.7	40.2	22.4	17.9	.0	40.2	17.8	.0	.7	.0	.0			
10	2.6	12.5	4.0	19.3	31.8	38.9	21.2	11.9	5.9	38.9	7.6	.0	.0	5.9	.0			
11	3.2	15.4	4.8	23.0	38.4	43.1	23.2	10.6	9.2	43.1	11.4	.0	.0	9.2	.0			
12	4.0	19.2	5.9	28.2	47.4	45.6	24.2	16.3	5.1	45.6	18.1	.0	.0	5.1	.0			
13	4.0	19.1	5.9	28.1	47.2	49.9	25.8	16.0	8.1	49.9	16.6	.0	.0	8.1	.0			
14	3.5	16.7	5.2	24.8	41.6	43.3	21.8	14.3	7.2	43.3	15.4	.0	.0	7.2	.0			
15	4.6	21.8	6.8	32.6	54.4	42.1	21.8	15.6	4.7	42.1	20.0	.0	7.4	4.7	.0			
16	3.3	15.7	4.8	22.8	38.5	40.6	20.3	16.2	4.1	40.6	14.2	.0	.0	4.1	.0			
17	4.2	20.3	6.2	29.8	50.1	42.3	22.4	15.1	4.7	42.3	20.0	.0	2.4	4.7	.0			
18	4.3	20.5	6.3	30.0	50.5	44.3	23.1	19.7	1.4	44.3	20.0	.0	2.1	1.4	.0			
19	2.7	13.1	4.0	19.1	32.3	41.3	19.2	11.6	10.5	41.3	9.9	.0	.0	10.5	.0			
20	4.0	18.9	5.7	27.2	46.1	46.3	23.8	16.3	6.3	46.3	17.5	.0	.0	6.3	.0			
21	4.7	22.5	6.9	32.8	55.3	51.2	26.3	18.5	6.3	51.2	20.0	.0	3.5	6.3	.0			
22	3.7	17.8	5.4	25.7	43.5	45.6	25.5	12.8	7.3	45.6	13.7	.0	.0	7.3	.0			
23	3.5	16.7	5.0	24.0	40.8	44.3	22.8	12.9	8.6	44.3	13.8	.0	.0	8.6	.0			
24	3.6	17.4	5.2	24.8	42.2	43.4	22.7	14.1	6.6	43.4	15.2	.0	.0	6.6	.0			
25	4.1	19.5	5.8	27.9	47.4	50.1	25.6	15.7	8.8	50.1	16.9	.0	.0	8.8	.0			
26	3.4	16.5	4.9	23.3	39.8	47.3	23.3	11.6	12.3	47.3	12.5	.0	.0	12.3	.0			
27	2.0	9.5	2.8	13.5	23.0	36.5	17.2	3.6	15.7	36.5	3.8	.0	.0	15.7	.0			
28	2.0	9.3	2.9	13.7	23.0	33.0	15.6	5.0	12.4	33.0	5.3	.0	.0	12.4	.0			
29	3.5	16.9	5.1	24.2	41.0	39.3	20.4	14.9	3.9	39.3	16.2	.0	.0	3.9	.0			
30	3.5	16.9	5.0	24.1	41.0	39.3	20.4	15.1	3.7	39.3	16.2	.0	.0	3.7	.0			
31	3.5	16.9	5.0	24.1	41.0	39.3	20.4	15.1	3.8	39.3	16.2	.0	.0	3.8	.0			

111.3 532.0 163.0 779.2 1311.2 1343.8 496.9 430.6 216.2 1343.8 463.2 .0 16.9 216.2 .0

(ALL UNITS = K*HR)

DAY	THERMAL INPUT			THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL 40.0 SQ-M	TOTAL	T-1	T-5	SUPPLIED FROM				TOTAL OUTPUT	T-1	SUPPLIED FROM			T-1	T-5	T-10
		PV-1				E-5	E-X	T-X	PV-1			E-X	T-X				
1	2.2	86.3	17.5	12.0	5.5	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	68.1	.0	.0
2	2.2	88.7	17.5	11.0	6.5	.0	.0	.0	.0	17.5	5.5	.0	.0	.0	72.2	.0	.0
3	2.3	92.1	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	74.6	.0	.0
4	2.0	80.3	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	62.9	.0	.0
5	2.3	93.1	17.5	12.4	5.1	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	74.9	.0	.0
6	2.0	79.5	17.5	12.2	5.3	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	62.2	.0	.0
7	1.2	46.7	17.5	12.3	5.2	.0	.0	.0	.0	17.5	5.3	.0	.0	.0	29.2	.0	.0
8	2.2	88.3	17.5	12.1	5.4	.0	.0	.0	.0	17.5	5.2	.0	.0	.0	70.9	.0	.0
9	2.2	86.0	17.5	11.9	5.6	.0	.0	.0	.0	17.5	5.4	.0	.0	.0	68.8	.0	.0
10	1.3	52.0	17.5	11.8	5.7	.0	.0	.0	.0	17.5	5.6	.0	.0	.0	34.5	.0	.0
11	1.7	69.6	17.5	12.0	5.5	.0	.0	.0	.0	17.5	5.7	.0	.0	.0	51.9	.0	.0
12	2.3	91.1	17.5	12.0	5.5	.0	.0	.0	.0	17.5	5.5	.0	.0	.0	73.7	.0	.0
13	2.3	92.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.5	.0	.0	.0	75.0	.0	.0
14	1.9	76.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	58.7	.0	.0
15	2.6	104.7	17.5	11.5	6.0	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	87.4	.0	.0
16	1.8	71.7	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	54.1	.0	.0
17	2.4	95.7	17.5	11.5	6.0	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	78.3	.0	.0
18	2.5	98.8	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	81.7	.0	.0
19	1.4	57.0	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	39.6	.0	.0
20	2.3	90.5	17.5	11.4	6.1	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	72.6	.0	.0
21	2.8	111.4	17.5	11.5	6.0	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	93.7	.0	.0
22	2.1	84.4	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	66.8	.0	.0
23	2.0	78.3	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	60.8	.0	.0
24	2.0	81.4	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	63.9	.0	.0
25	2.4	94.9	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	77.5	.0	.0
26	1.9	77.3	17.5	11.5	6.0	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	59.9	.0	.0
27	.9	36.6	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	19.7	.0	.0
28	.9	35.3	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	17.7	.0	.0
29	1.9	76.8	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	58.7	.0	.0
30	1.9	76.9	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	59.4	.0	.0
31	1.9	77.0	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	59.5	.0	.0

	61.8	2471.1	542.5	360.6	181.9	.0	.0	.0	.0	542.5	181.6	.0	.0	.0	1928.9	.0	.0

AUG , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	2.7	13.1	3.9	18.6	31.7	41.9	20.4	7.9	13.7	41.9	8.4	.0	.0	13.7	.0
2	3.6	17.1	5.0	23.8	40.9	45.6	22.4	13.3	9.9	45.6	14.3	.0	.0	9.9	.0
3	3.6	17.1	5.0	23.8	40.9	45.6	22.4	13.3	9.9	45.6	14.3	.0	.0	9.9	.0
4	3.6	17.1	5.0	23.7	40.9	45.6	22.4	13.3	9.9	45.6	14.3	.0	.0	9.9	.0
5	2.3	10.9	3.1	14.6	25.5	37.2	16.0	6.6	14.6	37.2	7.1	.0	.0	14.6	.0
6	3.6	17.0	4.9	23.6	40.7	45.0	21.9	13.5	9.5	45.0	14.6	.0	.0	9.5	.0
7	3.8	18.3	5.3	25.3	43.5	48.1	23.5	14.4	10.1	48.1	15.5	.0	.0	10.1	.0
8	3.0	14.4	4.2	20.1	34.5	41.7	19.3	10.8	11.6	41.7	11.7	.0	.0	11.6	.0
9	2.8	13.3	3.8	17.9	31.3	36.5	17.3	10.0	9.2	36.5	10.7	.0	.0	9.2	.0
10	2.6	12.6	3.6	17.2	29.7	34.1	15.7	10.2	8.2	34.1	10.9	.0	.0	8.2	.0
11	1.2	5.8	2.0	9.5	15.3	31.6	12.6	1.4	17.7	31.6	1.5	.0	.0	17.7	.0
12	2.7	12.9	3.7	17.8	30.7	34.3	17.1	9.7	7.5	34.3	10.4	.0	.0	7.5	.0
13	3.0	14.5	4.2	20.0	34.5	38.9	17.8	12.2	9.0	38.9	13.1	.0	.0	9.0	.0
14	3.5	16.9	4.7	22.5	39.5	38.1	19.6	12.0	6.6	38.1	15.6	.0	.0	6.6	.0
15	3.0	14.5	4.2	19.9	34.4	38.3	18.4	14.1	5.7	38.3	12.4	.0	.0	5.7	.0
16	3.6	17.2	4.8	23.0	40.2	40.9	19.4	15.3	6.2	40.9	16.4	.0	.0	6.2	.0
17	3.3	16.0	4.6	21.8	37.8	38.3	19.1	12.5	6.6	38.3	14.6	.0	.0	6.6	.0
18	4.2	20.0	5.4	25.9	45.9	39.9	18.5	16.1	5.3	39.9	20.0	.0	2.5	5.3	.0
19	3.9	18.7	5.1	24.5	43.2	40.5	21.1	16.8	2.7	40.5	17.4	.0	.0	2.7	.0
20	3.3	15.7	4.4	21.1	36.7	41.4	20.5	14.6	6.3	41.4	12.5	.0	.0	6.3	.0
21	3.6	17.1	4.7	22.4	39.5	42.8	20.9	13.5	8.5	42.8	14.5	.0	.0	8.5	.0
22	1.7	8.1	2.4	11.4	19.6	36.4	15.1	2.6	18.7	36.4	2.8	.0	.0	18.7	.0
23	2.9	14.0	4.0	19.0	33.0	39.5	18.7	10.1	10.6	39.5	10.9	.0	.0	10.6	.0
24	3.7	17.5	4.7	22.7	40.2	39.5	20.3	12.4	6.7	39.5	15.6	.0	.0	6.7	.0
25	2.3	10.9	3.2	15.5	26.4	33.2	16.1	9.2	7.8	33.2	7.7	.0	.0	7.8	.0
26	3.2	15.5	4.5	21.7	37.2	32.6	17.9	11.4	3.2	32.6	15.2	.0	.0	3.2	.0
27	2.2	10.4	3.3	15.7	26.1	33.3	17.6	8.4	7.3	33.3	6.1	.0	.0	7.3	.0
28	3.9	18.6	5.1	24.4	43.0	41.9	21.5	15.7	4.7	41.9	16.9	.0	.0	4.7	.0
29	4.9	23.2	6.3	30.2	53.4	47.7	24.0	18.1	5.7	47.7	20.0	.0	4.1	5.7	.0
30	4.9	23.2	6.2	29.8	53.0	47.8	25.4	16.9	5.5	47.8	20.0	.0	2.2	5.5	.0
31	3.8	18.1	4.9	23.4	41.5	40.3	23.1	14.6	2.6	40.3	14.2	.0	.0	2.6	.0

	100.4	479.3	136.1	650.8	1130.6	1238.6	606.2	370.8	261.6	1238.6	399.5	.0	8.8	261.6	.0

AUG. 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						TOTAL OUTPUT	THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 40.0 SQ-M	TOTAL	SUPPLIED FROM							SUPPLIED FROM				T-I	PV-I	E-X	T-X
		T-I		T-S	PV-I	E-S	E-X	T-X	T-I		PV-I	E-X	T-X					
1	1.5	58.2	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	40.6	.0	.0	
2	2.1	82.4	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	64.9	.0	.0	
3	2.1	82.5	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	65.0	.0	.0	
4	2.1	82.6	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	65.1	.0	.0	
5	1.2	46.4	17.5	9.6	7.9	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	29.1	.0	.0	
6	2.0	81.4	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	63.6	.0	.0	
7	2.2	89.3	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	71.9	.0	.0	
8	1.6	64.7	17.5	10.6	6.9	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	47.4	.0	.0	
9	1.5	60.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	42.7	.0	.0	
10	1.4	54.7	17.5	9.5	8.0	.0	.0	.0	.0	17.5	8.1	.0	.0	.0	37.1	.0	.0	
11	.4	17.4	17.5	9.1	8.4	.0	.0	.0	.0	17.5	8.3	.0	.0	.0	.0	.0	.0	
12	1.4	56.1	17.5	9.6	7.9	.0	.0	.0	.0	17.5	8.0	.0	.0	.0	38.5	.0	.0	
13	1.7	66.3	17.5	9.6	7.9	.0	.0	.0	.0	17.5	8.1	.0	.0	.0	48.6	.0	.0	
14	2.0	79.6	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	62.2	.0	.0	
15	1.7	66.2	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	48.6	.0	.0	
16	2.0	81.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	63.5	.0	.0	
17	1.8	73.9	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	56.3	.0	.0	
18	2.4	96.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	78.8	.0	.0	
19	2.2	89.3	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	71.5	.0	.0	
20	1.8	71.8	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	54.3	.0	.0	
21	2.0	81.0	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	63.5	.0	.0	
22	.8	30.7	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	13.2	.0	.0	
23	1.6	62.8	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	45.3	.0	.0	
24	2.1	82.8	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	65.3	.0	.0	
25	1.1	44.1	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	26.7	.0	.0	
26	1.7	66.8	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	49.3	.0	.0	
27	1.0	39.3	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	21.8	.0	.0	
28	2.2	87.0	17.5	11.5	6.0	.0	.0	.0	.0	17.5	5.9	.0	.0	.0	69.7	.0	.0	
29	2.9	114.1	17.5	11.4	6.1	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	96.6	.0	.0	
30	2.9	115.0	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	97.3	.0	.0	
31	2.1	85.2	17.5	11.4	6.1	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	67.9	.0	.0	

	55.2	2208.5	542.5	322.6	219.9	.0	.0	.0	.0	542.5	219.7	.0	.0	.0	1666.2	.0	.0	

SEP , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	2.8	13.6	3.5	17.0	30.6	37.8	18.2	9.5	10.0	37.8	9.3	.0	.0	10.0	.0
2	2.6	12.4	3.3	16.0	28.4	38.7	17.4	7.7	13.6	38.7	8.3	.0	.0	13.6	.0
3	3.7	17.9	4.6	22.1	40.0	42.0	20.5	14.2	7.2	42.0	15.3	.0	.0	7.2	.0
4	3.1	14.7	3.9	18.6	33.3	41.4	19.6	9.7	12.1	41.4	10.4	.0	.0	12.1	.0
5	3.7	17.7	4.6	21.9	39.6	45.8	21.3	13.2	11.3	45.8	14.2	.0	.0	11.3	.0
6	3.8	18.4	4.7	22.5	40.9	48.7	23.2	12.6	12.9	48.7	13.6	.0	.0	12.9	.0
7	2.8	13.2	3.5	16.9	30.1	43.7	19.1	7.6	17.1	43.7	8.1	.0	.0	17.1	.0
8	2.7	13.0	3.5	16.5	29.5	40.8	17.4	8.5	14.9	40.8	9.2	.0	.0	14.9	.0
9	3.4	16.3	4.2	19.9	36.1	43.4	20.2	11.4	11.8	43.4	12.2	.0	.0	11.8	.0
10	2.8	13.6	3.6	17.2	30.8	43.9	18.4	8.7	16.8	43.9	9.3	.0	.0	16.8	.0
11	2.6	12.5	3.4	16.2	28.7	37.6	17.7	7.6	12.2	37.6	8.2	.0	.0	12.2	.0
12	4.4	21.2	5.3	25.3	46.5	33.3	15.7	13.0	4.5	33.3	20.0	.0	6.0	4.5	.0
13	4.6	22.0	5.5	26.1	48.1	29.8	14.7	15.1	.0	29.8	17.5	.0	11.8	.0	.0
14	4.4	21.1	5.2	25.0	46.1	26.3	12.9	13.4	.0	26.3	15.6	.0	13.9	.0	.0
15	1.9	9.1	2.9	13.9	23.0	23.8	12.8	11.0	.0	23.8	7.8	.0	.0	.0	.0
16	1.7	8.2	2.7	12.8	21.0	29.8	15.9	7.2	6.7	29.8	3.3	.0	.0	6.7	.0
17	2.0	9.6	3.0	14.4	24.0	34.8	16.6	4.9	13.3	34.8	5.2	.0	.0	13.3	.0
18	2.4	11.6	3.4	16.3	27.9	34.0	16.0	8.4	9.6	34.0	9.0	.0	.0	9.6	.0
19	3.8	18.1	4.5	21.6	39.7	38.5	18.0	16.1	4.4	38.5	17.3	.0	.0	4.4	.0
20	4.3	20.7	5.0	24.0	44.7	40.7	19.5	16.7	4.5	40.7	20.0	.0	.0	4.5	.0
21	4.5	21.6	5.2	24.8	46.5	40.7	18.9	18.3	3.5	40.7	20.0	.0	.0	3.5	.0
22	1.6	7.6	2.2	10.5	18.2	31.9	14.4	4.3	13.2	31.9	2.3	.0	.0	13.2	.0
23	4.0	19.1	4.6	21.9	41.0	30.0	14.4	12.0	3.5	30.0	20.0	.0	.0	3.5	.0
24	4.3	20.5	4.8	23.0	43.6	30.3	14.2	16.1	.0	30.3	16.5	.0	.0	.0	.0
25	3.7	17.8	4.4	21.0	38.8	28.3	13.7	14.6	.0	28.3	17.5	.0	.0	.0	.0
26	2.6	12.6	3.4	16.3	28.9	21.4	10.7	10.7	.0	21.4	14.8	.0	.0	.0	.0
27	1.5	7.0	2.3	11.0	18.0	19.3	9.6	9.7	.0	19.3	6.5	.0	.0	.0	.0
28	1.5	7.0	2.3	11.0	18.1	19.6	9.8	9.8	.0	19.6	6.4	.0	.0	.0	.0
29	1.5	7.4	2.4	11.6	19.0	22.2	10.7	9.0	2.5	22.2	6.4	.0	.0	2.5	.0
30	2.4	11.4	3.1	15.0	26.3	27.1	12.6	10.1	4.4	27.1	10.8	.0	.0	4.4	.0

91.4 436.9 115.1 550.4 987.3 1025.5 484.1 331.2 210.2 1025.5 355.2 .0 31.8 210.2 .0

SEP, 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						TOTAL OUTPUT	THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 40.0 SQ-M		TOTAL	SUPPLIED FROM						SUPPLIED FROM							
					T-I	T-S	PV-I	E-S	E-X		T-X	T-I	PV-I	E-X				T-X
1	1.6	62.5	17.5	8.8	8.7	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	45.9	.0	.0	
2	1.4	54.9	17.5	9.5	8.0	.0	.0	.0	.0	17.5	9.1	.0	.0	.0	36.2	.0	.0	
3	2.1	85.5	17.5	10.5	7.0	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	68.6	.0	.0	
4	1.7	67.5	17.5	10.9	6.6	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	49.4	.0	.0	
5	2.1	85.0	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	67.9	.0	.0	
6	2.3	90.2	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	72.2	.0	.0	
7	1.5	59.5	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	42.0	.0	.0	
8	1.5	58.1	17.5	10.0	7.5	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	41.3	.0	.0	
9	1.9	76.7	17.5	11.0	6.5	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	58.5	.0	.0	
10	1.6	62.1	17.5	10.2	7.3	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	45.1	.0	.0	
11	1.4	54.8	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	37.4	.0	.0	
12	2.5	100.7	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	83.6	.0	.0	
13	2.6	104.9	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	87.4	.0	.0	
14	2.4	97.5	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	80.0	.0	.0	
15	.8	30.7	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	12.2	.0	.0	
16	.7	28.1	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	10.6	.0	.0	
17	.9	37.9	17.5	10.7	6.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	21.4	.0	.0	
18	1.2	48.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	31.1	.0	.0	
19	2.2	86.1	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	68.6	.0	.0	
20	2.5	100.8	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.0	.2	.0	.0	83.3	.0	.0	
21	2.7	106.1	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.6	2.4	.0	.0	88.8	.0	.0	
22	.7	27.9	17.5	10.6	6.9	.0	.0	.0	.0	17.5	4.4	.0	.0	.0	12.9	.0	.0	
23	2.2	89.0	17.5	10.6	6.9	.0	.0	.0	.0	17.5	6.9	1.8	.0	.0	71.5	.0	.0	
24	2.4	97.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	6.1	8.2	.0	.0	81.2	.0	.0	
25	2.0	80.8	17.5	10.2	7.3	.0	.0	.0	.0	17.5	.0	3.3	.0	.0	70.6	.0	.0	
26	1.2	49.9	17.5	10.7	6.8	.0	.0	.0	.0	17.5	2.6	.0	.0	.0	36.6	.0	.0	
27	.5	20.5	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	3.0	.0	.0	
28	.5	20.8	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	3.3	.0	.0	
29	.6	23.2	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	5.7	.0	.0	
30	1.1	45.6	17.5	10.5	7.0	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	28.4	.0	.0	

48.8		1952.9	525.0	315.9	209.1	.0	.0	.0	.0	525.0	192.2	15.9	.0	.0	1444.8	.0	.0	

OCT , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTOVOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	40.0 SQ-M	AIR-COOLED PER SQ-M	40.0 SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	4.1	19.5	4.5	21.7	41.2	33.8	16.1	14.3	3.4	33.8	20.0	.0	.0	3.4	.0
2	2.6	12.5	3.3	15.7	28.2	31.9	14.1	14.6	3.1	31.9	11.1	.0	.0	3.1	.0
3	3.9	18.5	4.3	20.8	39.2	37.1	17.3	15.1	4.7	37.1	17.5	.0	.0	4.7	.0
4	3.6	17.2	4.1	19.8	37.0	31.7	16.4	12.2	3.1	31.7	16.4	.0	.0	3.1	.0
5	1.8	8.5	2.5	12.1	20.7	28.4	13.8	8.9	5.7	28.4	5.0	.0	.0	5.7	.0
6	2.3	10.8	3.0	14.6	25.4	28.9	15.6	6.8	6.6	28.9	7.3	.0	.0	6.6	.0
7	1.6	7.4	2.4	11.3	18.8	29.8	14.1	2.9	12.9	29.8	3.1	.0	.0	12.9	.0
8	1.5	7.3	2.3	11.1	18.4	29.3	14.0	2.7	12.7	29.3	2.9	.0	.0	12.7	.0
9	3.0	14.3	3.5	17.0	31.3	27.6	13.9	10.7	3.1	27.6	13.9	.0	.0	3.1	.0
10	2.5	11.9	3.1	14.6	26.5	28.2	12.8	12.3	3.1	28.2	10.8	.0	.0	3.1	.0
11	2.8	13.3	3.2	15.5	28.8	30.0	14.0	10.9	5.2	30.0	11.7	.0	.0	5.2	.0
12	3.5	16.6	3.7	17.8	34.4	30.0	13.6	13.2	3.2	30.0	16.8	.0	.0	3.2	.0
13	3.8	18.1	4.0	19.3	37.4	31.5	14.4	16.0	1.1	31.5	18.6	.0	.0	1.1	.0
14	2.8	13.5	3.2	15.4	28.9	31.3	14.1	14.6	2.5	31.3	11.7	.0	.0	2.5	.0
15	2.8	13.6	3.5	16.7	30.3	30.4	13.7	12.3	4.4	30.4	13.2	.0	.0	4.4	.0
16	3.4	16.5	3.7	17.7	34.1	30.5	13.8	13.1	3.6	30.5	16.4	.0	.0	3.6	.0
17	2.5	11.8	2.8	13.5	25.3	27.4	12.0	11.9	3.5	27.4	10.6	.0	.0	3.5	.0
18	3.8	18.3	3.9	18.8	37.1	28.1	12.3	12.6	3.1	28.1	20.0	.0	.0	3.1	.0
19	2.8	13.6	3.3	15.7	29.3	27.6	11.7	15.9	.0	27.6	14.2	.0	.0	.0	.0
20	2.0	9.7	2.5	12.0	21.7	20.4	8.5	11.8	.2	20.4	10.8	.0	.0	.2	.0
21	4.3	20.8	4.3	20.4	41.2	20.1	8.1	10.1	1.9	20.1	20.0	.0	.0	1.9	.0
22	3.6	17.2	3.6	17.2	34.5	20.8	8.4	12.4	.0	20.8	13.0	.0	.0	.0	.0
23	3.7	17.9	3.7	17.8	35.7	23.1	9.9	13.2	.0	23.1	13.1	.0	.0	.0	.0
24	4.5	21.3	4.3	20.6	41.9	23.7	10.7	13.0	.0	23.7	14.1	.0	.0	.0	.0
25	4.6	22.1	4.4	21.2	43.4	21.6	9.1	12.5	.0	21.6	14.0	.0	.0	.0	.0
26	3.7	17.5	3.8	18.1	35.6	20.0	8.2	11.8	.0	20.0	13.6	.0	.0	.0	.0
27	3.4	16.2	3.5	16.9	33.1	21.9	9.0	12.9	.0	21.9	12.6	.0	.0	.0	.0
28	2.4	11.7	2.6	12.3	24.0	20.9	8.5	12.4	.0	20.9	12.6	.0	.0	.0	.0
29	3.1	14.9	3.1	14.8	29.6	21.6	8.6	13.0	.0	21.6	15.1	.0	.0	.0	.0
30	3.4	16.1	3.4	16.2	32.3	21.9	9.7	12.2	.0	21.9	13.5	.0	.0	.0	.0
31	1.2	5.7	1.9	9.0	14.7	20.0	8.6	11.5	.0	20.0	4.7	.0	.0	.0	.0

95.0 454.3 105.7 505.5 959.8 829.7 374.8 367.8 87.1 829.7 398.2 .0 .0 87.1 .0

OCT , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						TOTAL OUTPUT	THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT					
	PER SQ-M	TOTAL 40.0 SQ-M		SUPPLIED FROM							SUPPLIED FROM											
				T-1	T-S	PV-1	E-S	E-X	T-X		T-1	PV-1	E-X	T-X								
1	2.3	93.1	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.7	.3	.0	.0	75.6	.0	.0					
2	1.3	53.4	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	36.2	.0	.0					
3	2.2	87.3	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	69.6	.0	.0					
4	2.0	79.3	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	61.8	.0	.0					
5	.8	31.0	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	13.5	.0	.0					
6	1.1	42.8	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	25.3	.0	.0					
7	.6	25.3	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	7.8	.0	.0					
8	.6	24.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	7.1	.0	.0					
9	1.5	61.8	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	44.3	.0	.0					
10	1.2	48.9	17.5	10.2	7.3	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	31.9	.0	.0					
11	1.4	57.4	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	40.0	.0	.0					
12	1.9	76.0	17.5	8.8	8.7	.0	.0	.0	.0	17.5	8.6	.0	.0	.0	58.6	.0	.0					
13	2.1	84.7	17.5	8.9	8.6	.0	.0	.0	.0	17.5	8.5	.0	.0	.0	67.3	.0	.0					
14	1.5	59.3	17.5	9.6	7.9	.0	.0	.0	.0	17.5	8.1	.0	.0	.0	41.6	.0	.0					
15	1.5	58.4	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	41.0	.0	.0					
16	1.9	75.4	17.5	9.1	8.4	.0	.0	.0	.0	17.5	8.3	.0	.0	.0	58.0	.0	.0					
17	1.2	49.1	17.5	8.1	9.4	.0	.0	.0	.0	17.5	9.3	.0	.0	.0	31.7	.0	.0					
18	2.1	85.0	18.4	8.2	10.2	.0	.0	.0	.0	18.4	10.0	.3	.0	.0	66.8	.0	.0					
19	1.5	59.4	17.5	8.8	8.7	.0	.0	.0	.0	17.5	8.4	.0	.0	.0	42.2	.0	.0					
20	.8	33.4	28.5	11.8	16.7	.0	.0	.0	.0	28.5	8.9	.0	.0	.0	12.7	.0	.0					
21	2.3	92.3	39.1	11.6	27.5	.0	.0	.0	.0	39.1	33.0	8.4	.0	.0	47.7	.0	.0					
22	1.9	75.5	31.2	8.7	22.5	.0	.0	.0	.0	31.2	15.0	9.5	.0	.0	51.8	.0	.0					
23	2.0	81.0	26.8	8.4	18.4	.0	.0	.0	.0	26.8	10.4	9.0	.0	.0	62.2	.0	.0					
24	2.5	99.5	21.2	8.6	12.6	.0	.0	.0	.0	21.2	3.3	12.8	.0	.0	87.5	.0	.0					
25	2.5	100.3	32.2	12.3	19.9	.0	.0	.0	.0	32.2	5.8	15.9	.0	.0	82.2	.0	.0					
26	1.9	75.6	32.5	10.1	22.4	.0	.0	.0	.0	32.5	6.0	10.0	.0	.0	59.5	.0	.0					
27	1.7	69.9	26.8	9.4	17.4	.0	.0	.0	.0	26.8	9.1	8.0	.0	.0	51.4	.0	.0					
28	1.2	46.7	27.9	7.7	20.2	.0	.0	.0	.0	27.9	9.8	.0	.0	.0	29.2	.0	.0					
29	1.6	64.5	28.7	7.8	20.9	.0	.0	.0	.0	28.7	23.2	2.4	.0	.0	33.5	.0	.0					
30	1.8	70.8	19.9	8.9	11.0	.0	.0	.0	.0	19.9	8.9	5.5	.0	.0	53.0	.0	.0					
31	.4	15.4	21.4	9.0	12.4	.0	.0	.0	.0	21.4	3.4	.0	.0	.0	2.9	.0	.0					

49.4 1977.2 669.6 300.5 369.1 .0 .0 .0 .0 669.6 282.7 82.2 .0 .0 1394.0 .0 .0																						

NOV , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	40.0 SQ-M	AIR-COOLED PER SQ-M	40.0 SQ-M	TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X		
1	3.6	17.2	3.4	16.4	33.6	21.0	8.2	11.6	1.2	21.0	20.0	.0	1.2	.0
2	4.3	20.5	4.0	19.2	39.7	21.0	8.4	12.6	.0	21.0	13.5	.0	.0	.0
3	4.1	19.4	3.8	18.1	37.5	21.0	8.4	12.6	.0	21.0	13.5	.0	.0	.0
4	4.5	21.4	4.1	19.8	41.2	21.0	8.4	12.6	.0	21.0	13.5	.0	.0	.0
5	4.5	21.5	4.2	19.9	41.4	21.0	8.4	12.6	.0	21.0	13.5	.0	.0	.0
6	3.8	18.4	3.5	17.0	35.3	21.0	8.0	13.0	.0	21.0	14.0	.0	.0	.0
7	4.4	21.2	4.0	19.3	40.4	21.0	8.5	12.5	.0	21.0	13.5	.0	.0	.0
8	4.6	22.1	4.2	20.1	42.2	21.0	8.4	12.6	.0	21.0	13.5	.0	.0	.0
9	3.8	18.3	3.7	17.8	36.1	21.0	8.3	12.7	.0	21.0	13.6	.0	.0	.0
10	2.0	9.5	2.2	10.7	20.2	21.0	8.3	12.7	.0	21.0	9.6	.0	.0	.0
11	3.4	16.3	3.3	15.9	32.2	21.0	8.3	12.7	.0	21.0	17.8	.0	.0	.0
12	3.0	14.5	2.8	13.5	28.0	21.0	8.0	13.0	.0	21.0	14.0	.0	.0	.0
13	3.3	15.9	3.1	15.0	30.9	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0
14	4.1	19.8	3.7	17.8	37.6	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0
15	4.3	20.5	3.8	18.4	38.9	21.0	8.3	12.7	.0	21.0	13.6	.0	.0	.0
16	2.3	11.1	2.5	12.0	23.0	21.0	8.3	12.7	.0	21.0	12.0	.0	.0	.0
17	3.5	16.9	3.3	15.6	32.5	21.0	8.2	12.8	.0	21.0	15.4	.0	.0	.0
18	2.6	12.4	2.7	12.8	25.2	21.0	8.2	12.8	.0	21.0	13.8	.0	.0	.0
19	4.1	19.8	3.6	17.4	37.1	21.0	8.3	12.7	.0	21.0	13.8	.0	.0	.0
20	4.3	20.5	3.8	18.1	38.7	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0
21	3.8	18.3	3.5	16.7	35.0	21.0	8.1	12.9	.0	21.0	13.7	.0	.0	.0
22	1.3	6.3	1.8	8.5	14.8	21.0	8.1	12.9	.0	21.0	5.2	.0	.0	.0
23	1.2	5.6	1.6	7.6	13.3	21.0	7.7	5.1	8.1	21.0	4.2	.0	8.1	.0
24	1.8	8.5	2.0	9.6	18.1	21.0	7.9	7.5	5.5	21.0	8.1	.0	5.5	.0
25	2.2	10.4	2.4	11.2	21.6	21.0	8.0	9.3	3.7	21.0	11.1	.0	3.7	.0
26	2.4	11.3	2.4	11.5	22.8	21.0	7.9	10.5	2.6	21.0	12.1	.0	2.6	.0
27	2.0	9.8	2.1	9.8	19.6	21.0	7.6	10.8	2.6	21.0	9.7	.0	2.6	.0
28	2.8	13.2	2.6	12.3	25.5	21.0	8.0	9.1	3.9	21.0	14.4	.0	3.9	.0
29	3.0	14.5	2.9	13.9	28.4	21.0	8.3	12.7	.0	21.0	16.5	.0	.0	.0
30	4.5	21.7	3.9	18.4	40.2	21.0	8.3	12.7	.0	21.0	16.5	.0	.0	.0

99.7 476.8 95.0 454.4 931.2 630.0 245.7 356.7 27.6 630.0 391.0 .0 .0 27.6 .0														

NOV , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT		
	PER SQ-M	TOTAL 40.0 SQ-M		SUPPLIED FROM						SUPPLIED FROM								
		TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X					
1	1.9	74.5	43.7	10.2	33.5	.0	.0	.0	.0	43.7	31.8	1.2	.0	.0	32.5	.0		
2	2.3	93.8	34.3	10.9	23.4	.0	.0	.0	.0	34.3	26.8	13.7	.0	.0	56.1	.0		
3	2.1	85.3	36.1	12.0	24.1	.0	.0	.0	.0	36.1	5.1	11.7	.0	.0	68.3	.0		
4	2.4	95.6	44.3	12.6	31.8	.0	.0	.0	.0	44.3	21.5	15.1	.0	.0	61.5	.0		
5	2.5	98.6	38.4	10.9	27.5	.0	.0	.0	.0	38.4	12.3	15.3	.0	.0	75.5	.0		
6	2.0	78.7	54.9	13.7	41.3	.0	.0	.0	.0	54.9	22.7	9.6	.0	.0	42.3	.0		
7	2.2	89.9	64.8	18.5	46.3	.0	.0	.0	.0	64.8	30.3	14.4	.0	.0	41.2	.0		
8	2.3	93.9	67.1	21.9	45.2	.0	.0	.0	.0	67.1	34.7	16.1	.0	.0	37.3	.0		
9	1.9	76.8	43.7	16.4	27.3	.0	.0	.0	.0	43.7	19.9	10.4	.0	.0	40.4	.0		
10	.8	32.5	49.6	13.8	35.8	.0	.0	.0	.0	49.6	9.3	.0	.0	.0	9.4	.0		
11	1.6	64.1	70.0	21.6	48.5	.0	.0	.0	.0	70.0	42.5	2.2	.0	.0	.0	.0		
12	1.4	57.4	62.1	14.7	47.4	.0	.0	.0	.0	62.1	42.7	27.8	.0	.0	.0	.0		
13	1.7	66.5	42.8	12.0	30.7	.0	.0	.0	.0	42.8	48.6	5.5	.0	.0	5.8	.0		
14	2.2	89.1	34.6	10.9	23.6	.0	.0	.0	.0	34.6	21.6	11.7	.0	.0	56.6	.0		
15	2.3	92.8	31.4	11.7	19.7	.0	.0	.0	.0	31.4	9.6	13.0	.0	.0	71.4	.0		
16	1.1	45.1	24.2	9.6	14.7	.0	.0	.0	.0	24.2	2.3	.0	.0	.0	33.3	.0		
17	1.8	73.4	24.6	10.4	14.2	.0	.0	.0	.0	24.6	11.8	5.3	.0	.0	51.1	.0		
18	1.2	47.3	37.9	13.3	24.6	.0	.0	.0	.0	37.9	13.1	.1	.0	.0	21.0	.0		
19	2.2	86.6	48.1	13.6	34.5	.0	.0	.0	.0	48.1	36.1	11.1	.0	.0	36.9	.0		
20	2.3	92.9	32.9	12.4	20.5	.0	.0	.0	.0	32.9	13.9	12.7	.0	.0	66.6	.0		
21	2.0	80.2	31.3	13.0	18.3	.0	.0	.0	.0	31.3	8.0	9.5	.0	.0	59.2	.0		
22	.5	18.9	23.5	9.6	13.9	.0	.0	.0	.0	23.5	4.1	.0	.0	.0	5.1	.0		
23	.4	14.9	30.0	11.2	18.8	.0	.0	.0	.0	30.0	3.7	.0	.0	.0	.0	.0		
24	.7	28.3	31.2	10.8	20.5	.0	.0	.0	.0	31.2	17.5	.0	.0	.0	.0	.0		
25	1.0	39.8	27.7	8.2	19.5	.0	.0	.0	.0	27.7	31.6	.0	.0	.0	.0	.0		
26	1.1	44.6	22.4	9.7	12.8	.0	.0	.0	.0	22.4	18.4	.0	.0	.0	16.5	.0		
27	1.0	38.9	21.8	7.9	13.9	.0	.0	.0	.0	21.8	14.4	.0	.0	.0	16.6	.0		
28	1.3	53.4	36.9	9.5	27.5	.0	.0	.0	.0	36.9	14.7	.0	.0	.0	29.3	.0		
29	1.5	59.9	38.7	10.5	28.2	.0	.0	.0	.0	38.7	21.6	.0	.0	.0	27.8	.0		
30	2.2	89.0	82.3	28.5	53.8	.0	.0	.0	.0	82.3	47.5	11.1	.0	.0	12.9	.0		

50.1 2002.5 1231.5 389.6 841.9 .0 .0 .0 .0 1231.5 638.3 192.4 .0 .0 974.6 .0 .0																		

(ALL UNITS = K.W-HR)

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DEC , 1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD TOTAL	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL		THERMAL LOAD DEFICIT		
	PER SQ-M	TOTAL 40.0 SQ-M		SUPPLIED FROM						SUPPLIED FROM					THERMAL	THERMAL			
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X					
1	2.0	81.4	91.9	31.1	60.8	.0	.0	.0	.0	91.9	45.2	11.7	.0	.0	5.2	.0	.0		
2	2.2	87.7	88.7	29.8	58.9	.0	.0	.0	.0	88.7	52.6	12.7	.0	.0	5.3	.0	.0		
3	2.2	89.8	70.3	23.8	46.5	.0	.0	.0	.0	70.3	45.8	12.3	.0	.0	20.2	.0	.0		
4	2.2	87.8	53.9	18.8	35.1	.0	.0	.0	.0	53.9	30.0	11.0	.0	.0	39.0	.0	.0		
5	1.9	77.8	45.9	15.3	30.6	.0	.0	.0	.0	45.9	20.5	7.3	.0	.0	42.1	.0	.0		
6	2.1	82.9	36.7	12.6	24.1	.0	.0	.0	.0	36.7	18.9	8.1	.0	.0	51.3	.0	.0		
7	1.2	49.5	34.5	10.8	23.7	.0	.0	.0	.0	34.5	16.8	.0	.0	.0	21.9	.0	.0		
8	1.7	69.2	47.4	17.6	29.8	.0	.0	.0	.0	47.4	19.2	3.8	.0	.0	32.3	.0	.0		
9	2.1	84.0	73.3	24.0	49.3	.0	.0	.0	.0	73.3	38.8	10.3	.0	.0	21.2	.0	.0		
10	1.7	66.2	65.3	22.8	42.5	.0	.0	.0	.0	65.3	39.8	5.8	.0	.0	3.6	.0	.0		
11	.4	14.8	44.1	8.5	35.6	.0	.0	.0	.0	44.1	6.3	.0	.0	.0	.0	.0	.0		
12	1.6	62.5	86.5	27.6	59.0	.0	.0	.0	.0	86.5	35.0	.0	.0	.0	.0	.0	.0		
13	2.1	83.2	111.1	36.9	74.2	.0	.0	.0	.0	111.1	46.3	11.2	.0	.0	.0	.0	.0		
14	2.0	78.2	95.3	31.1	48.7	1.0	.0	.0	14.6	95.3	47.1	9.6	.0	.0	.0	14.6	.0		
15	.2	9.2	80.6	9.2	29.7	7.5	.0	.0	34.2	80.6	.0	.0	.0	.0	.0	34.2	.0		
16	2.0	78.1	83.6	26.7	33.5	1.4	.0	.0	22.1	83.6	51.4	2.0	.0	.0	.0	22.1	.0		
17	2.1	82.7	89.2	25.7	46.6	1.6	.0	.0	15.3	89.2	57.0	8.6	.0	.0	.0	15.3	.0		
18	1.8	71.1	81.1	22.6	58.4	.0	.0	.0	.0	81.1	48.5	5.3	.0	.0	.0	.0	.0		
19	2.1	82.6	71.0	19.9	51.1	.0	.0	.0	.0	71.0	62.7	8.0	.0	.0	.0	.0	.0		
20	1.5	61.2	63.2	21.5	41.7	.0	.0	.0	.0	63.2	39.7	2.5	.0	.0	.0	.0	.0		
21	1.3	53.8	95.2	32.1	63.1	.0	.0	.0	.0	95.2	21.7	.9	.0	.0	.0	.0	.0		
22	1.7	68.3	129.5	33.2	53.7	4.0	.0	.0	38.6	129.5	35.1	4.6	.0	.0	.0	38.6	.0		
23	1.8	73.5	107.6	32.2	34.5	2.7	.0	.0	38.3	107.6	41.3	6.3	.0	.0	.0	38.3	.0		
24	1.6	63.5	77.9	26.6	37.1	.0	.0	.0	14.1	77.9	36.9	4.1	.0	.0	.0	14.1	.0		
25	1.4	55.3	63.4	19.8	36.8	1.4	.0	.0	5.5	63.4	35.5	.0	.0	.0	.0	5.5	.0		
26	1.3	53.8	50.4	15.1	29.4	.5	.0	.0	5.4	50.4	38.7	.0	.0	.0	.0	5.4	.0		
27	.8	33.5	52.7	16.4	36.3	.0	.0	.0	.0	52.7	17.1	.0	.0	.0	.0	.0	.0		
28	1.6	64.8	67.0	22.8	34.0	.0	.0	.0	10.2	67.0	42.0	.0	.0	.0	.0	10.2	.0		
29	1.6	65.4	67.6	24.0	33.7	.0	.0	.0	9.9	67.6	41.4	2.9	.0	.0	.0	9.9	.0		
30	1.4	57.0	57.2	17.6	39.6	.0	.0	.0	.0	57.2	39.4	.0	.0	.0	.0	.0	.0		
31	.3	12.0	62.5	12.0	24.0	8.0	.0	.0	18.4	62.5	.0	.0	.0	.0	.0	18.4	.0		

50.0 2000.9 2244.7 688.11302.1 28.0 .0 .0 226.5 2244.7 1070.7 148.9 .0 .0 242.1 226.5 .0

1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM							
	PER SQ-M	40.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X						
JAN	79.	375.	77.	368.	744.	682.	256.	289.	137.	682.	311.	0.	0.	137.	0.			
FEB	89.	425.	94.	450.	876.	616.	258.	307.	52.	616.	330.	0.	0.	52.	0.			
MAR	114.	544.	131.	628.	1171.	668.	309.	327.	32.	668.	351.	0.	0.	32.	0.			
APR	120.	574.	157.	750.	1324.	788.	404.	374.	10.	788.	398.	0.	60.	10.	0.			
MAY	130.	621.	188.	898.	1520.	976.	519.	428.	29.	976.	459.	0.	174.	29.	0.			
JUN	113.	542.	171.	819.	1360.	1125.	629.	452.	44.	1125.	481.	0.	118.	44.	0.			
JUL	111.	532.	163.	779.	1311.	1344.	697.	431.	216.	1344.	463.	0.	17.	216.	0.			
AUG	100.	480.	136.	651.	1131.	1239.	606.	371.	262.	1239.	399.	0.	9.	262.	0.			
SEP	91.	437.	115.	550.	987.	1025.	484.	331.	210.	1025.	355.	0.	32.	210.	0.			
OCT	95.	454.	106.	506.	960.	830.	375.	368.	87.	830.	398.	0.	0.	87.	0.			
NOV	100.	477.	95.	454.	931.	630.	246.	357.	28.	630.	391.	0.	0.	28.	0.			
DEC	107.	513.	95.	454.	967.	699.	269.	410.	21.	699.	430.	0.	0.	21.	0.			

1250. 5974. 1529. 7308. 13281. 10622. 5051. 4443. 1128. 10622. 4767. 0. 409. 1128. 0.

1960 - ATLANTA, GEORGIA - (CSU)

(ALL UNITS = KW-HR)

| MONTH | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | | |
|-------|---------------|-----------------------|-----------------|----------------|-------|------|-----|-----|-------|-----------------|-----------------|-------|-----|-----|----------------------------|-----------------------|----------------------------|--|--|--|--|
| | PER
SQ-M | TOTAL
40.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-X | T-X | | | | | | | |
JAN	35.	1384.	1967.	472.	848.	32.	0.	0.	614.	1967.	786.	83.	0.	0.	125.	614.	0.				
FEB	41.	1644.	1693.	508.	1035.	10.	0.	0.	139.	1693.	860.	191.	0.	0.	276.	139.	0.				
MAR	55.	2187.	1900.	531.	1172.	14.	0.	0.	182.	1900.	809.	392.	0.	0.	847.	182.	0.				
APR	64.	2545.	700.	359.	341.	0.	0.	0.	0.	700.	35.	336.	0.	0.	2151.	0.	0.				
MAY	71.	2837.	657.	348.	310.	0.	0.	0.	0.	657.	30.	230.	0.	0.	2459.	0.	0.				
JUN	62.	2484.	525.	348.	177.	0.	0.	0.	0.	525.	178.	0.	0.	0.	1958.	0.	0.				
JUL	62.	2471.	543.	361.	182.	0.	0.	0.	0.	543.	182.	0.	0.	0.	1929.	0.	0.				
AUG	55.	2208.	543.	323.	220.	0.	0.	0.	0.	543.	220.	0.	0.	0.	1666.	0.	0.				
SEP	49.	1953.	525.	316.	209.	0.	0.	0.	0.	525.	192.	16.	0.	0.	1445.	0.	0.				
OCT	49.	1977.	670.	301.	369.	0.	0.	0.	0.	670.	283.	82.	0.	0.	1394.	0.	0.				
NOV	50.	2002.	1231.	390.	842.	0.	0.	0.	0.	1231.	638.	192.	0.	0.	975.	0.	0.				
DEC	50.	2001.	2245.	688.	1302.	28.	0.	0.	226.	2245.	1071.	149.	0.	0.	242.	226.	0.				

	642.	25695.	13198.	4943.	7008.	85.	0.	0.	1162.	13198.	5283.	1672.	0.	0.	15469.	1162.	0.				

QFIN

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION

VERSION X.1.

1957 - SANTA MARIA, CALIFORNIA (W)

WATER-COOLED COLLECTOR

AREA 20. SQ-M
TILT 34.0 DEGREES
EN .16
ET .83
EP .90

AIR-COOLED COLLECTOR

AREA 40. SQ-M
TILT 34.0 DEGREES
EC .90
EN .16
ET .83
EP .90

ET .93
ES .85

C1 F1 C2 F1 C3 F1 C4 F1 C5 F

HEATING SEASON: JUN 29 - JUN 29

COOLING SEASON: MAR 31 - OCT 31

ELECTRICAL STORAGE CAPACITY 15. KW-HR

THERMAL STORAGE CAPACITY 105. (180.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT KW-HR

S/H DEMAND CURVE: INTERCEPT 26000., SLOPE -433.

A/C DEMAND CURVE: INTERCEPT -36954., SLOPE 568.

JAN. 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM							
	20.0	40.0	20.0	40.0			PV-1	E-S	E-A		PV-1	E-A						
1	1.8	4.4	2.4	11.3	15.7	22.0	7.3	13.2	1.5	22.0	6.7	.0	.0	1.5	.0			
2	2.3	5.5	2.7	13.9	19.3	22.0	7.8	8.4	5.8	22.0	9.0	.0	.0	5.8	.0			
3	2.0	4.7	2.5	12.1	16.8	22.0	7.7	6.4	8.0	22.0	6.9	.0	.0	8.0	.0			
4	1.4	3.3	1.9	8.9	12.2	22.0	7.1	3.5	11.4	22.0	3.8	.0	.0	11.4	.0			
5	1.3	3.2	1.9	8.9	12.1	22.0	7.5	3.1	11.4	22.0	3.4	.0	.0	11.4	.0			
6	2.3	5.5	2.7	13.7	19.1	22.0	7.3	8.8	5.9	22.0	9.4	.0	.0	5.9	.0			
7	1.4	3.3	1.9	9.1	12.4	22.0	7.2	3.6	11.2	22.0	3.9	.0	.0	11.2	.0			
8	2.8	6.6	3.5	16.6	23.2	22.0	7.6	9.8	4.6	22.0	12.3	.0	.0	4.6	.0			
9	3.5	8.4	4.4	20.9	24.3	22.0	8.0	11.1	2.9	22.0	15.0	.0	.0	2.9	.0			
10	2.6	6.2	3.3	15.6	21.8	22.0	7.6	14.3	.1	22.0	11.1	.0	.0	.1	.0			
11	1.5	3.6	2.0	9.8	13.4	22.0	7.4	4.7	9.9	22.0	4.5	.0	.0	9.9	.0			
12	1.2	2.8	1.7	3.0	10.8	22.0	7.3	2.3	12.3	22.0	2.5	.0	.0	12.3	.0			
13	1.9	4.5	2.4	11.5	15.9	22.0	7.4	6.3	8.3	22.0	6.8	.0	.0	8.3	.0			
14	3.0	7.3	3.8	18.1	25.4	22.0	7.9	9.5	4.6	22.0	14.1	.0	.0	4.6	.0			
15	3.5	8.3	4.3	20.7	29.0	22.0	8.2	12.8	1.0	22.0	15.0	.0	.0	1.0	.0			
16	3.2	7.6	3.9	18.8	26.4	22.0	7.8	14.2	.0	22.0	14.8	.0	.0	.0	.0			
17	3.7	8.8	4.6	21.8	30.7	22.0	8.1	13.6	.3	22.0	15.0	.0	.0	.3	.0			
18	4.0	9.6	5.0	23.8	33.4	22.0	8.6	13.4	.0	22.0	14.9	.0	.0	.0	.0			
19	3.6	8.5	4.4	21.1	29.7	22.0	8.1	13.9	.0	22.0	14.4	.0	.0	.0	.0			
20	1.7	4.0	2.2	10.6	14.6	22.0	7.8	9.3	4.9	22.0	5.1	.0	.0	4.9	.0			
21	3.4	8.2	4.3	20.5	28.7	22.0	8.3	9.1	4.6	22.0	15.0	.0	.0	4.6	.0			
22	2.6	6.2	3.3	15.9	22.2	22.0	8.1	13.9	.0	22.0	10.9	.0	.0	.0	.0			
23	1.7	4.2	2.3	11.2	15.4	22.0	8.0	6.3	7.7	22.0	5.6	.0	.0	7.7	.0			
24	2.2	5.3	2.9	13.6	18.9	22.0	8.1	7.8	6.1	22.0	8.4	.0	.0	6.1	.0			
25	2.1	5.1	2.8	13.3	18.3	22.0	8.2	7.3	6.5	22.0	7.9	.0	.0	6.5	.0			
26	2.8	6.6	3.6	17.0	23.6	22.0	8.6	8.8	4.6	22.0	11.5	.0	.0	4.6	.0			
27	2.8	6.8	3.6	17.1	23.9	22.0	8.7	10.6	2.7	22.0	11.3	.0	.0	2.7	.0			
28	2.2	5.4	2.9	14.0	19.4	22.0	8.4	8.7	5.0	22.0	7.4	.0	.0	5.0	.0			
29	2.7	6.5	3.5	16.6	23.1	22.0	8.6	8.9	4.6	22.0	10.9	.0	.0	4.6	.0			
30	4.2	10.1	5.2	25.0	35.1	22.0	8.9	9.9	3.3	22.0	15.0	.0	.0	3.3	.0			
31	4.3	10.2	5.3	25.3	35.5	22.0	8.7	13.3	.0	22.0	14.1	.0	.0	.0	.0			
=====																		
	79.7	190.5	101.4	484.6	675.1	682.0	246.3	286.8	148.9	682.0	306.5	.0	.0	148.9	.0			

JAN , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL | | | |
|-------|---------------|-----------------------|-----------------|----------------|-------|------|-----|-----|-------|-----------------|-----------------|------|-----|-----|----------------------------|------------------|-----------------|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | THERMAL
INPUT | LOAD
DEFICIT | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-A | T-X | | | | | |
1	.8	15.5	52.1	9.0	43.1	.0	.0	.0	.0	52.1	8.5	.0	.0	.0	.0	.0	.0		
2	1.0	20.7	58.2	12.1	24.5	.9	.0	.0	20.7	58.2	8.6	.0	.0	.0	.0	20.7	.0		
3	.8	16.9	66.7	10.3	6.5	1.2	.0	.0	48.8	66.9	6.5	.0	.0	.0	.0	48.8	.0		
4	.5	9.8	55.8	8.3	1.5	.3	.0	.0	45.7	55.8	1.5	.0	.0	.0	.0	45.7	.0		
5	.5	9.7	47.2	8.2	1.5	.2	.0	.0	37.3	47.2	1.5	.0	.0	.0	.0	37.3	.0		
6	1.1	21.4	56.5	7.7	13.7	.4	.0	.0	34.7	56.5	13.7	.0	.0	.0	.0	34.7	.0		
7	.5	10.2	53.5	7.9	2.3	.1	.0	.0	43.2	53.5	2.3	.0	.0	.0	.0	43.2	.0		
8	1.3	26.3	65.9	12.5	13.8	1.3	.0	.0	38.3	65.9	13.8	.0	.0	.0	.0	38.3	.0		
9	1.3	36.0	68.0	11.8	24.8	1.3	.0	.0	30.2	68.0	24.3	2.4	.0	.0	.0	30.2	.0		
10	1.2	24.5	54.4	9.6	16.8	1.2	.0	.0	26.9	54.4	14.9	.0	.0	.0	.0	26.9	.0		
11	.6	11.8	38.8	8.9	2.9	.4	.0	.0	26.7	38.8	2.9	.0	.0	.0	.0	26.7	.0		
12	.4	7.9	25.5	6.0	1.9	.0	.0	.0	17.6	25.5	1.9	.0	.0	.0	.0	17.6	.0		
13	.8	16.6	33.5	6.8	9.8	.0	.0	.0	17.0	33.6	9.8	.0	.0	.0	.0	17.0	.0		
14	1.5	30.2	53.7	11.0	19.3	.7	.0	.0	22.7	53.7	19.3	.0	.0	.0	.0	22.7	.0		
15	1.8	36.2	42.3	8.6	12.0	1.2	.0	.0	20.5	42.3	27.6	1.9	.0	.0	.0	20.5	.0		
16	1.7	33.3	42.4	8.5	33.9	.0	.0	.0	.0	42.4	24.8	.6	.0	.0	.0	.0	.0		
17	2.0	40.1	52.2	8.0	29.8	1.3	.0	.0	13.2	52.2	32.1	3.5	.0	.0	.0	13.2	.0		
18	2.2	43.1	56.8	9.1	35.7	1.5	.0	.0	10.4	56.8	34.0	5.6	.0	.0	.0	10.4	.0		
19	1.9	37.0	61.8	10.2	38.9	2.2	.0	.0	10.5	61.8	26.9	3.0	.0	.0	.0	10.5	.0		
20	.6	12.8	54.2	10.7	11.7	.8	.0	.0	31.0	54.2	2.2	.0	.0	.0	.0	31.0	.0		
21	1.7	33.7	67.4	15.2	19.9	1.5	.0	.0	30.8	67.4	18.5	1.4	.0	.0	.0	30.8	.0		
22	1.2	23.5	74.0	14.5	9.0	1.5	.0	.0	49.0	74.0	9.0	.0	.0	.0	.0	49.0	.0		
23	.7	13.8	55.1	11.0	2.8	.6	.0	.0	40.7	55.1	2.8	.0	.0	.0	.0	40.7	.0		
24	1.0	19.4	54.9	10.8	8.7	.8	.0	.0	34.7	54.9	8.7	.0	.0	.0	.0	34.7	.0		
25	.9	17.6	65.0	13.5	4.1	.6	.0	.0	46.8	65.0	4.1	.0	.0	.0	.0	46.8	.0		
26	1.2	24.8	65.0	17.0	7.8	2.1	.0	.0	38.0	65.0	7.8	.0	.0	.0	.0	38.0	.0		
27	1.2	24.9	83.5	19.0	5.8	3.1	.0	.0	55.5	83.5	5.8	.0	.0	.0	.0	55.5	.0		
28	.9	17.8	84.2	16.3	1.4	4.1	.0	.0	62.4	84.2	1.4	.0	.0	.0	.0	62.4	.0		
29	1.2	24.7	66.6	14.2	10.4	2.5	.0	.0	39.4	66.6	10.4	.0	.0	.0	.0	39.4	.0		
30	2.2	43.8	72.8	15.5	23.8	1.0	.0	.0	32.6	72.8	28.3	7.0	.0	.0	.0	32.6	.0		
31	2.2	45.0	66.9	13.2	31.4	2.4	.0	.0	20.0	66.9	31.8	8.0	.0	.0	.0	20.0	.0		

	37.5	749.1	1795.2	345.4	469.5	35.1	.0	.0	945.1	1795.2	403.6	33.4	.0	.0	.0	945.1	.0		

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	3.8	9.1	4.7	22.5	31.5	22.0	8.6	13.4	.0	22.0	14.3	.0	.0	.0	.0
2	2.2	5.2	2.9	13.7	19.0	22.0	8.6	12.3	1.1	22.0	7.8	.0	.0	1.1	.0
3	4.3	10.4	5.4	25.7	36.1	22.0	9.1	8.3	4.5	22.0	15.0	.0	.0	4.5	.0
4	4.4	10.6	5.5	26.1	36.7	22.0	8.9	13.1	.0	22.0	13.7	.0	.0	.0	.0
5	4.0	9.7	5.0	23.8	33.5	22.0	8.8	13.2	.0	22.0	14.1	.0	.0	.0	.0
6	2.9	6.9	3.6	17.1	24.0	22.0	8.5	13.5	.0	22.0	12.3	.0	.0	.0	.0
7	2.0	4.7	2.6	12.6	17.3	22.0	8.6	9.0	4.4	22.0	6.2	.0	.0	4.4	.0
8	1.6	3.8	2.3	10.9	14.7	22.0	8.8	4.0	9.2	22.0	4.3	.0	.0	9.2	.0
9	1.7	4.0	2.3	11.2	15.2	22.0	8.8	4.3	8.9	22.0	4.6	.0	.0	8.9	.0
10	1.7	4.1	2.4	11.5	15.5	22.0	8.8	4.6	8.6	22.0	5.0	.0	.0	8.6	.0
11	1.6	3.9	2.3	10.9	14.8	22.0	8.9	4.0	9.1	22.0	4.3	.0	.0	9.1	.0
12	1.9	4.5	2.5	12.1	16.5	22.0	8.9	5.5	7.6	22.0	5.9	.0	.0	7.6	.0
13	1.7	4.1	2.4	11.5	15.7	22.0	8.9	4.7	8.4	22.0	5.1	.0	.0	8.4	.0
14	2.0	4.8	2.7	12.7	17.5	22.0	8.7	6.5	6.8	22.0	7.0	.0	.0	6.8	.0
15	1.9	4.5	2.6	12.6	17.1	22.0	9.0	5.4	7.6	22.0	5.8	.0	.0	7.6	.0
16	1.9	4.5	2.6	12.4	16.8	22.0	9.1	5.2	7.8	22.0	5.5	.0	.0	7.8	.0
17	2.0	4.7	2.7	13.0	17.7	22.0	9.1	5.8	7.1	22.0	6.2	.0	.0	7.1	.0
18	2.0	4.8	2.8	13.2	18.0	22.0	9.1	6.0	6.9	22.0	6.4	.0	.0	6.9	.0
19	2.2	5.1	2.9	13.9	19.1	22.0	9.1	6.8	6.0	22.0	7.3	.0	.0	6.0	.0
20	2.2	5.2	2.9	14.0	19.2	22.0	9.1	7.0	5.9	22.0	7.5	.0	.0	5.9	.0
21	3.6	8.7	4.5	21.7	30.5	22.0	9.3	8.4	4.3	22.0	15.0	.0	.0	4.3	.0
22	2.1	5.0	2.9	13.6	18.6	22.0	9.2	12.4	.4	22.0	7.4	.0	.0	.4	.0
23	2.0	4.9	2.8	13.3	18.2	22.0	9.3	6.5	6.2	22.0	7.0	.0	.0	6.2	.0
24	2.3	5.5	3.1	14.8	20.3	22.0	9.4	8.0	4.6	22.0	8.6	.0	.0	4.6	.0
25	2.6	6.3	3.4	16.4	22.7	22.0	9.4	8.5	4.0	22.0	10.4	.0	.0	4.0	.0
26	2.0	4.9	2.8	13.5	18.3	22.0	9.5	7.3	5.2	22.0	6.6	.0	.0	5.2	.0
27	2.8	6.7	3.6	17.2	23.9	22.0	9.4	8.5	4.1	22.0	11.7	.0	.0	4.1	.0
28	2.1	5.0	2.9	13.9	18.9	22.0	9.7	8.7	3.6	22.0	6.9	.0	.0	3.6	.0

	67.6	161.5	89.1	425.9	587.4	616.0	252.6	221.0	142.3	616.0	232.0	.0	.0	142.3	.0

FEB , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | |
|-------|---------------|-----------------------|-----------------|----------------|-------|------|-----|-----|-------|-----------------|-------|------|-----|----------------------------|-----------------------|----------------------------|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-A | TOTAL
OUTPUT | T-I | PV-I | E-X | T-X | | | | | |
1	1.9	38.4	67.5	14.5	42.2	2.2	.0	.0	8.5	67.5	23.9	4.4	.0	.0	.0	8.5			
2	.9	18.4	58.7	13.0	11.3	1.5	.0	.0	32.9	58.7	5.4	.0	.0	.0	.0	32.9			
3	2.3	46.1	58.6	12.4	20.7	1.4	.0	.0	24.1	58.6	33.8	7.5	.0	.0	.0	24.1			
4	2.4	47.2	67.9	11.2	43.2	2.2	.0	.0	11.3	67.9	36.0	9.4	.0	.0	.0	11.3			
5	2.1	43.0	58.6	9.6	43.3	1.7	.0	.0	3.9	58.6	33.3	6.3	.0	.0	.0	3.9			
6	1.4	28.4	52.9	8.7	38.8	.7	.0	.0	4.8	52.9	19.7	.0	.0	.0	.0	4.8			
7	.8	15.8	50.0	11.4	4.4	1.6	.0	.0	32.6	50.0	4.4	.0	.0	.0	.0	32.6			
8	.6	12.1	35.0	9.7	2.4	.5	.0	.0	22.4	35.0	2.4	.0	.0	.0	.0	22.4			
9	.7	13.1	33.4	8.2	5.0	.8	.0	.0	19.4	33.4	5.0	.0	.0	.0	.0	19.4			
10	.7	13.8	31.7	7.9	5.9	.7	.0	.0	17.2	31.7	5.9	.0	.0	.0	.0	17.2			
11	.7	13.6	26.1	7.5	6.1	.5	.0	.0	12.0	26.1	6.1	.0	.0	.0	.0	12.0			
12	.9	17.5	22.9	7.8	9.2	.3	.0	.0	5.6	22.9	9.7	.0	.0	.0	.0	5.6			
13	.7	14.9	22.4	7.8	7.5	.4	.0	.0	6.7	22.4	7.0	.0	.0	.0	.0	6.7			
14	1.0	19.1	27.4	8.1	11.0	.0	.0	.0	8.3	27.4	11.0	.0	.0	.0	.0	8.3			
15	.8	15.1	40.9	11.8	3.2	1.7	.0	.0	24.1	40.9	3.2	.0	.0	.0	.0	24.1			
16	.7	14.8	36.2	10.9	3.8	1.4	.0	.0	20.0	36.2	3.8	.0	.0	.0	.0	20.0			
17	.8	15.8	40.5	12.1	3.8	1.6	.0	.0	23.0	40.5	3.8	.0	.0	.0	.0	23.0			
18	.8	16.1	41.0	12.6	3.5	1.8	.0	.0	23.1	41.0	3.5	.0	.0	.0	.0	23.1			
19	.9	17.7	43.3	13.7	4.0	1.7	.0	.0	23.9	43.3	4.0	.0	.0	.0	.0	23.9			
20	.9	18.0	46.1	9.7	8.2	1.2	.0	.0	26.9	46.1	8.2	.0	.0	.0	.0	26.9			
21	1.9	37.9	38.4	9.1	13.6	.9	.0	.0	14.8	38.4	28.7	2.3	.0	.0	.0	14.8			
22	.9	18.1	28.8	8.5	20.3	.0	.0	.0	.0	28.8	9.7	.0	.0	.0	.0	.0			
23	.9	17.8	25.2	8.3	16.3	.0	.0	.0	.6	25.2	9.5	.0	.0	.0	.0	.6			
24	1.1	21.0	23.0	8.5	8.1	.0	.0	.0	6.4	23.0	12.6	.0	.0	.0	.0	6.4			
25	1.2	24.8	25.7	8.5	16.0	.7	.0	.0	.5	25.7	16.3	.0	.0	.0	.0	.5			
26	.9	17.1	29.6	9.0	12.8	1.1	.0	.0	6.7	29.6	8.1	.0	.0	.0	.0	6.7			
27	1.3	26.8	31.2	9.0	11.1	.3	.0	.0	10.9	31.2	17.9	.0	.0	.0	.0	10.9			
28	.9	17.5	29.0	9.6	14.6	.9	.0	.0	3.9	29.0	7.9	.0	.0	.0	.0	3.9			

	31.0	619.9	1091.8	279.1	390.6	27.8	.0	.0	394.3	1091.8	340.7	29.9	.0	.0	.0	394.3			

MA 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM				ELECTRICAL STORAGE SUPPLIED FROM		PHOTOVOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM							
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X						
1	2.6	6.2	3.4	16.4	22.5	21.0	9.4	7.8	3.8	21.0	10.4	.0	.0	3.8	.0			
2	2.2	5.4	3.1	14.6	20.0	21.0	9.3	9.2	2.5	21.0	8.0	.0	.0	2.5	.0			
3	3.1	7.4	4.0	19.1	26.5	21.0	9.5	7.9	3.7	21.0	13.8	.0	.0	3.7	.0			
4	2.6	6.1	3.4	16.2	22.3	21.0	9.4	11.6	.0	21.0	10.2	.0	.0	.0	.0			
5	2.6	6.3	3.4	16.4	22.7	21.0	9.5	10.5	.9	21.0	10.1	.0	.0	.9	.0			
6	3.2	7.6	4.1	19.5	27.2	21.0	9.6	9.4	2.0	21.0	14.3	.0	.0	2.0	.0			
7	4.0	9.7	5.0	24.1	33.8	21.0	9.6	11.4	.0	21.0	12.9	.0	.0	.0	.0			
8	2.3	5.5	3.1	15.0	20.5	21.0	9.6	11.4	.0	21.0	8.6	.0	.0	.0	.0			
9	2.3	5.6	3.2	15.2	20.8	21.0	9.6	10.6	.8	21.0	8.7	.0	.0	.8	.0			
10	4.6	10.9	5.7	27.2	38.1	21.0	9.6	8.1	3.3	21.0	15.0	.0	.0	3.3	.0			
11	4.2	10.0	5.2	24.9	34.9	21.0	9.7	11.4	.0	21.0	12.2	.0	.0	.0	.0			
12	2.5	6.0	3.4	16.4	22.4	21.0	9.6	11.4	.0	21.0	10.3	.0	.0	.0	.0			
13	4.5	10.7	5.6	26.8	37.5	21.0	9.6	11.4	.0	21.0	14.2	.0	.0	.0	.0			
14	4.5	10.8	5.7	27.1	37.9	21.0	9.6	11.4	.0	21.0	12.2	.0	.0	.0	.0			
15	2.9	6.8	3.9	18.4	25.2	21.0	9.8	11.2	.0	21.0	12.2	.0	.0	.0	.0			
16	4.5	10.7	5.6	26.6	37.3	21.0	9.7	11.3	.0	21.0	12.0	.0	.0	.0	.0			
17	2.8	6.8	3.8	18.1	24.9	21.0	9.7	11.3	.0	21.0	12.2	.0	.0	.0	.0			
18	3.5	8.3	4.5	21.5	29.8	21.0	9.8	11.2	.0	21.0	12.2	.0	.0	.0	.0			
19	3.2	7.7	4.2	20.3	28.0	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
20	3.8	9.2	4.9	23.3	32.4	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
21	4.9	11.8	6.2	29.6	41.4	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
22	5.2	12.5	6.5	31.0	43.4	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
23	5.3	12.7	6.6	31.5	44.2	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
24	5.1	12.2	6.4	30.5	42.7	21.0	9.8	11.2	.0	21.0	12.1	.0	.0	.0	.0			
25	3.2	7.8	4.3	20.4	28.1	21.0	9.9	11.1	.0	21.0	12.0	.0	.0	.0	.0			
26	3.4	8.2	4.3	20.8	29.0	21.0	9.8	11.2	.0	21.0	11.9	.0	.0	.0	.0			
27	3.5	8.4	4.5	21.4	29.8	21.0	10.1	10.9	.0	21.0	11.9	.0	.0	.0	.0			
28	3.7	8.9	4.7	22.7	31.6	21.0	10.2	10.8	.0	21.0	11.7	.0	.0	.0	.0			
29	4.2	9.9	5.3	25.2	35.1	21.0	10.3	10.7	.0	21.0	11.6	.0	.0	.0	.0			
30	4.9	11.7	6.2	29.5	41.2	21.0	9.9	11.1	.0	21.0	11.7	.0	.0	.0	.0			
31	4.3	10.4	5.5	26.3	36.7	21.0	10.0	11.0	.0	21.0	11.9	.0	.0	.0	.0			

113.8 272.1 145.6 696.0 968.1 651.0 301.3 332.7 17.0 651.0 364.6 .0 .0 17.0 .0

MAR , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT			
	PER
SQ-M	TOTAL
20.0
SQ-M		SUPPLIED FROM						SUPPLIED FROM				WASTED	THERMAL
INPUT	AUX. THERMAL
INPUT	
				T-1	T-S	PV-1	E-S	E-X	T-A	TOTAL
OUTPUT	T-1	PV-1	E-X	T-A			
1	1.2	23.6	32.6	9.9	12.8	.5	.0	.0	9.4	32.6	13.7	.0	.0	.0	.0	9.4	
2	.9	18.5	42.9	14.0	5.4	1.9	.0	.0	21.7	42.9	4.5	.0	.0	.0	.0	21.7	
3	1.5	29.3	43.3	12.2	14.1	.3	.0	.0	16.7	43.3	17.2	.0	.0	.0	.0	16.7	
4	1.2	23.2	31.8	9.3	15.9	.7	.0	.0	5.9	31.8	13.9	.0	.0	.0	.0	5.9	
5	1.2	23.4	32.7	10.3	14.1	1.3	.0	.0	7.1	32.7	13.5	.0	.0	.0	.0	7.1	
6	1.6	31.8	29.5	9.3	10.6	.0	.0	.0	9.6	29.5	22.5	.0	.0	.0	.0	9.6	
7	2.2	44.3	35.2	9.1	25.2	.0	.0	.0	1.0	35.2	35.2	7.8	.0	.0	.0	1.0	
8	.9	18.7	45.7	14.3	31.4	.0	.0	.0	.0	45.7	4.4	.0	.0	.0	.0	.0	
9	1.0	19.7	40.1	13.3	9.6	.7	.0	.0	16.5	40.1	6.3	.0	.0	.0	.0	16.5	
10	2.4	48.4	43.8	11.8	15.4	.3	.0	.0	16.2	43.8	36.6	9.3	.0	.0	.0	16.2	
11	2.2	43.3	39.2	11.2	28.0	.0	.0	.0	.0	39.2	32.0	9.4	.0	.0	.0	.0	
12	1.1	22.4	38.4	10.9	27.5	.0	.0	.0	.0	38.4	11.5	.0	.0	.0	.0	.0	
13	2.3	46.5	47.7	14.0	33.7	.0	.0	.0	.0	47.7	32.4	9.7	.0	.0	.0	.0	
14	2.4	47.5	51.0	12.1	38.9	.0	.0	.0	.0	51.0	35.4	12.2	.0	.0	.0	.0	
15	1.3	26.1	49.4	11.7	37.6	.0	.0	.0	.0	49.4	14.3	.3	.0	.0	.0	.0	
16	2.3	46.4	49.1	15.2	33.9	.0	.0	.0	.0	49.1	31.1	11.9	.0	.0	.0	.0	
17	1.3	25.8	50.0	13.9	36.1	.0	.0	.0	.0	50.0	11.9	.2	.0	.0	.0	.0	
18	1.7	33.8	47.1	12.5	22.4	1.0	.0	.0	11.2	47.1	21.2	4.3	.0	.0	.0	11.2	
19	1.6	31.9	36.8	10.0	25.4	.5	.0	.0	.9	36.8	21.9	2.9	.0	.0	.0	.9	
20	1.9	38.5	43.3	12.7	25.5	1.9	.0	.0	3.2	43.3	25.8	6.5	.0	.0	.0	3.2	
21	2.6	52.3	46.3	14.5	31.8	.0	.0	.0	.0	46.3	37.8	15.5	.0	.0	.0	.0	
22	2.8	56.5	51.6	12.3	39.4	.0	.0	.0	.0	51.6	44.3	17.4	.0	.0	.0	.0	
23	3.0	59.4	43.4	10.1	33.3	.0	.0	.0	.0	43.4	46.1	18.1	.0	.0	3.2	.0	
24	2.9	57.8	45.5	9.3	36.2	.0	.0	.0	.0	45.5	32.5	16.8	.0	.0	16.0	.0	
25	1.6	31.6	44.8	9.6	35.2	.0	.0	.0	.0	44.8	19.4	3.1	.0	.0	2.6	.0	
26	1.8	35.4	38.8	9.3	29.4	.0	.0	.0	.0	38.8	25.4	4.1	.0	.0	.7	.0	
27	1.8	35.7	38.3	10.8	27.5	.0	.0	.0	.0	38.3	24.4	4.6	.0	.0	.5	.0	
28	2.0	39.1	30.4	9.4	21.1	.0	.0	.0	.0	30.4	21.0	6.5	.0	.0	8.7	.0	
29	2.2	43.4	30.2	9.6	20.6	.0	.0	.0	.0	30.2	13.9	9.7	.0	.0	19.9	.0	
30	2.6	53.0	37.0	10.5	26.5	.0	.0	.0	.0	37.0	14.1	15.6	.0	.0	28.4	.0	
31	2.3	45.9	35.6	10.0	25.7	.0	.0	.0	.0	35.6	10.5	11.2	.0	.0	25.5	.0	
=====																	
57.7 1153.5 1271.4 353.2 789.9 9.1 .0 .0 119.2 1271.4 695.0 196.9 .0 .0 105.4 119.2 .0																	

APR , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	20.0 SQ-M	AIR-COOLED PER SQ-M	40.0 SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X		
1	5.0	12.1	6.3	30.2	42.3	20.0	9.5	10.5	.0	20.0	11.7	.0	.0	.0
2	5.2	12.4	6.5	31.1	43.5	21.3	10.8	10.4	.0	21.3	11.2	.0	.0	.0
3	4.6	11.1	5.9	28.0	39.1	23.2	12.7	10.4	.0	23.2	11.2	.0	.0	.0
4	4.5	10.8	5.7	27.3	38.1	20.7	10.3	10.4	.0	20.7	11.2	.0	.0	.0
5	4.5	10.6	5.6	26.9	37.6	20.1	9.7	10.4	.0	20.1	11.2	.0	.0	.0
6	4.6	11.0	5.8	27.7	38.7	20.0	9.8	10.2	.0	20.0	11.0	.0	.0	.0
7	3.9	9.3	5.0	23.9	33.2	20.3	10.0	10.3	.0	20.3	11.1	.0	.0	.0
8	4.6	11.0	5.8	27.6	38.6	20.0	9.7	10.3	.0	20.0	11.0	.0	.0	.0
9	4.5	10.7	5.7	27.1	37.8	20.0	9.7	10.3	.0	20.0	11.1	.0	.0	.0
10	4.4	10.5	5.5	26.4	36.9	20.0	9.8	10.2	.0	20.0	11.0	.0	.0	.0
11	4.5	10.7	5.6	26.9	37.6	20.0	9.9	10.1	.0	20.0	11.0	.0	.0	.0
12	4.6	11.1	5.9	28.1	39.2	20.0	9.9	10.1	.0	20.0	10.8	.0	.0	.0
13	4.0	9.5	5.1	24.4	33.9	21.0	10.7	10.3	.0	21.0	11.0	.0	.0	.0
14	2.5	5.9	3.5	16.9	22.8	20.1	10.2	9.8	.0	20.1	10.0	.0	.0	.0
15	4.5	10.7	5.8	27.6	38.3	20.0	9.9	10.1	.0	20.0	11.5	.0	.0	.0
16	4.5	10.7	5.8	27.6	38.3	20.0	9.9	10.1	.0	20.0	10.9	.0	.0	.0
17	2.7	6.4	3.8	18.0	24.4	20.0	10.2	9.8	.0	20.0	10.7	.0	.0	.0
18	4.0	9.6	5.2	24.9	34.6	20.0	10.1	9.9	.0	20.0	10.5	.0	.0	.0
19	2.9	7.0	4.1	19.4	26.5	20.0	10.0	10.0	.0	20.0	10.8	.0	.0	.0
20	3.0	7.2	4.1	19.8	27.0	20.0	10.1	9.9	.0	20.0	10.7	.0	.0	.0
21	3.0	7.2	4.1	19.8	27.0	20.0	10.1	9.9	.0	20.0	10.7	.0	.0	.0
22	3.0	7.1	4.1	19.7	26.8	20.0	10.2	9.8	.0	20.0	10.6	.0	.0	.0
23	3.5	8.4	4.7	22.6	31.0	20.0	10.2	9.8	.0	20.0	10.5	.0	.0	.0
24	4.3	10.4	5.6	26.8	37.1	20.0	10.1	9.9	.0	20.0	10.5	.0	.0	.0
25	4.7	11.3	6.1	29.2	40.5	22.3	12.2	10.0	.0	22.3	10.8	.0	.0	.0
26	4.8	11.4	6.2	29.6	41.1	21.7	11.8	10.0	.0	21.7	10.7	.0	.0	.0
27	4.8	11.4	6.2	29.4	40.8	24.7	14.5	10.3	.0	24.7	10.7	.0	.0	.0
28	4.4	10.6	5.8	27.5	38.1	22.6	12.6	10.0	.0	22.6	11.0	.0	.0	.0
29	3.0	7.1	4.2	19.8	27.0	20.0	10.2	9.8	.0	20.0	10.5	.0	.0	.0
30	3.0	7.1	4.1	19.8	27.0	20.0	10.1	9.9	.0	20.0	10.6	.0	.0	.0

121.4 290.3 157.8 754.2 1044.5 617.9 315.0 302.9 .0 617.9 326.2 .0 .0 .0 .0

APR , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | |
|-----|---------------|--------------|-----------------|----------------|------|------|-----|-----|-----|-----------------|------|------|-----|----------------------------|-----------------------|----------------------------|--|--|--|
| | TOTAL | | | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | | | | | | |
| | PER
SQ-M | 20-F
SQ-M | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-X | T-X | | | | | |
| 1 | 2.7 | 34.5 | 40.6 | 11.0 | 28.9 | .0 | .0 | .0 | .0 | 40.0 | 16.0 | 17.0 | .0 | .0 | 27.5 | .0 | | | |
| 2 | 2.9 | 38.3 | 41.9 | 7.8 | 32.3 | .0 | .0 | .0 | .0 | 41.9 | 19.0 | 17.3 | .0 | .0 | 29.7 | .0 | | | |
| 3 | 2.6 | 52.0 | 36.7 | 9.5 | 27.2 | .0 | .0 | .0 | .0 | 36.7 | 9.9 | 11.4 | .0 | .0 | 32.6 | .0 | | | |
| 4 | 2.4 | 48.9 | 37.5 | 9.5 | 30.1 | .0 | .0 | .0 | .0 | 39.5 | 16.5 | 12.9 | .0 | .0 | 22.9 | .0 | | | |
| 5 | 2.4 | 47.3 | 40.2 | 9.7 | 30.5 | .0 | .0 | .0 | .0 | 40.2 | 18.0 | 13.0 | .0 | .0 | 19.6 | .0 | | | |
| 6 | 2.4 | 48.0 | 45.8 | 12.3 | 33.6 | .0 | .0 | .0 | .0 | 45.8 | 16.1 | 14.2 | .0 | .0 | 19.6 | .0 | | | |
| 7 | 2.0 | 40.5 | 45.8 | 9.8 | 35.9 | .0 | .0 | .0 | .0 | 45.8 | 25.2 | 8.7 | .0 | .0 | 5.5 | .0 | | | |
| 8 | 2.4 | 48.9 | 32.7 | 10.0 | 22.7 | .0 | .0 | .0 | .0 | 32.7 | 14.1 | 14.1 | .0 | .0 | 24.7 | .0 | | | |
| 9 | 2.4 | 47.2 | 45.3 | 10.7 | 34.6 | .0 | .0 | .0 | .0 | 45.3 | 20.2 | 13.3 | .0 | .0 | 16.3 | .0 | | | |
| 10 | 2.3 | 45.6 | 47.4 | 11.6 | 35.8 | .0 | .0 | .0 | .0 | 47.4 | 20.1 | 12.5 | .0 | .0 | 13.9 | .0 | | | |
| 11 | 2.3 | 46.0 | 46.9 | 11.7 | 35.3 | .0 | .0 | .0 | .0 | 46.9 | 21.9 | 13.0 | .0 | .0 | 12.4 | .0 | | | |
| 12 | 2.5 | 49.1 | 36.3 | 10.0 | 26.3 | .0 | .0 | .0 | .0 | 36.3 | 16.7 | 14.7 | .0 | .0 | 22.4 | .0 | | | |
| 13 | 2.1 | 41.7 | 39.9 | 9.8 | 30.1 | .0 | .0 | .0 | .0 | 39.9 | 17.7 | 8.8 | .0 | .0 | 14.2 | .0 | | | |
| 14 | 1.1 | 21.8 | 30.1 | 9.8 | 20.3 | .0 | .0 | .0 | .0 | 30.1 | 10.2 | .0 | .0 | .0 | 1.8 | .0 | | | |
| 15 | 2.4 | 47.1 | 46.3 | 10.7 | 35.6 | .0 | .0 | .0 | .0 | 46.3 | 27.7 | 13.2 | .0 | .0 | 8.7 | .0 | | | |
| 16 | 2.4 | 47.3 | 36.4 | 10.2 | 26.2 | .0 | .0 | .0 | .0 | 36.4 | 21.6 | 13.8 | .0 | .0 | 15.5 | .0 | | | |
| 17 | 1.2 | 23.3 | 33.2 | 11.6 | 21.6 | .0 | .0 | .0 | .0 | 33.2 | 5.5 | .8 | .0 | .0 | 6.2 | .0 | | | |
| 18 | 2.0 | 40.5 | 33.4 | 11.5 | 21.9 | .0 | .0 | .0 | .0 | 33.4 | 20.8 | 10.6 | .0 | .0 | 8.2 | .0 | | | |
| 19 | 1.3 | 26.3 | 46.7 | 13.8 | 32.9 | .0 | .0 | .0 | .0 | 46.7 | 12.6 | 2.8 | .0 | .0 | .0 | .0 | | | |
| 20 | 1.3 | 26.4 | 49.4 | 16.7 | 32.6 | .0 | .0 | .0 | .0 | 49.4 | 9.7 | 3.4 | .0 | .0 | .0 | .0 | | | |
| 21 | 1.3 | 26.4 | 49.0 | 16.2 | 32.8 | .0 | .0 | .0 | .0 | 49.0 | 10.2 | 3.3 | .0 | .0 | .0 | .0 | | | |
| 22 | 1.3 | 26.6 | 37.3 | 14.1 | 23.2 | .0 | .0 | .0 | .0 | 37.3 | 12.5 | 3.2 | .0 | .0 | .0 | .0 | | | |
| 23 | 1.7 | 33.4 | 36.9 | 12.8 | 24.1 | .0 | .0 | .0 | .0 | 36.9 | 20.5 | 7.1 | .0 | .0 | .0 | .0 | | | |
| 24 | 2.2 | 44.3 | 38.3 | 12.1 | 26.2 | .0 | .0 | .0 | .0 | 38.3 | 32.3 | 12.8 | .0 | .0 | .0 | .0 | | | |
| 25 | 2.6 | 52.3 | 35.2 | 9.7 | 25.5 | .0 | .0 | .0 | .0 | 35.2 | 42.6 | 13.6 | .0 | .0 | .0 | .0 | | | |
| 26 | 2.6 | 52.8 | 34.3 | 9.7 | 24.6 | .0 | .0 | .0 | .0 | 34.3 | 25.9 | 14.7 | .0 | .0 | 17.3 | .0 | | | |
| 27 | 2.7 | 53.6 | 33.3 | 9.8 | 23.5 | .0 | .0 | .0 | .0 | 33.3 | 14.8 | 11.8 | .0 | .0 | 29.0 | .0 | | | |
| 28 | 2.4 | 48.2 | 30.3 | 9.9 | 20.4 | .0 | .0 | .0 | .0 | 30.3 | 6.7 | 10.7 | .0 | .0 | 31.6 | .0 | | | |
| 29 | 1.4 | 27.2 | 34.4 | 11.7 | 22.7 | .0 | .0 | .0 | .0 | 34.4 | 11.4 | 3.3 | .0 | .0 | 4.2 | .0 | | | |
| 30 | 1.4 | 28.0 | 30.0 | 10.2 | 19.8 | .0 | .0 | .0 | .0 | 30.0 | 14.4 | 3.4 | .0 | .0 | 3.4 | .0 | | | |

62.7 1253.3 1173.0 335.5 837.5 .0 .0 .0 .0 1173.0 530.7 299.5 .0 .0 387.1 .0 .0

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT					ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	ELECTRICAL STORAGE SUPPLIED FROM					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X				
1	3.1	7.5	4.2	20.1	27.6	19.3	10.2	9.1	.0	19.3	10.4	.0	.0	.0	.0	
2	4.3	10.3	5.7	27.2	37.5	19.2	9.9	9.3	.0	19.2	9.9	.0	.0	.0	.0	
3	4.8	11.6	6.3	30.0	41.5	25.1	15.7	9.4	.0	25.1	10.0	.0	.0	.0	.0	
4	4.6	11.0	6.0	28.7	39.7	23.6	14.1	9.5	.0	23.6	10.1	.0	.0	.0	.0	
5	3.0	7.1	4.1	19.8	26.9	19.1	10.2	8.8	.0	19.1	10.0	.0	.0	.0	.0	
6	3.1	7.3	4.2	20.0	27.4	19.8	10.8	9.0	.0	19.8	9.5	.0	.0	.0	.0	
7	2.8	6.7	4.0	19.0	25.8	19.1	10.1	8.9	.0	19.1	9.7	.0	.0	.0	.0	
8	3.3	7.9	4.5	21.7	29.6	19.2	10.2	9.0	.0	19.2	9.6	.0	.0	.0	.0	
9	2.9	6.9	4.1	19.5	26.4	19.1	9.8	9.3	.0	19.1	10.0	.0	.0	.0	.0	
10	3.7	8.9	5.0	24.0	32.8	19.2	9.9	9.3	.0	19.2	10.0	.0	.0	.0	.0	
11	2.8	6.7	4.0	19.0	25.7	19.0	10.0	9.0	.0	19.0	9.7	.0	.0	.0	.0	
12	3.4	8.2	4.7	22.3	30.5	19.2	10.1	9.1	.0	19.2	9.7	.0	.0	.0	.0	
13	3.7	8.9	5.0	24.1	33.0	19.0	10.0	9.0	.0	19.0	9.7	.0	.0	.0	.0	
14	3.7	8.9	5.0	24.1	33.0	19.0	10.0	9.0	.0	19.0	9.6	.0	.0	.0	.0	
15	4.6	11.0	6.0	28.8	39.8	19.2	10.0	9.1	.0	19.2	9.8	.0	.0	.0	.0	
16	3.3	7.9	4.5	21.5	29.4	19.1	10.7	8.5	.0	19.1	9.6	.0	.0	.0	.0	
17	3.3	7.9	4.5	21.5	29.4	19.1	10.7	8.5	.0	19.1	9.1	.0	.0	.0	.0	
18	2.6	6.3	3.9	18.5	24.8	19.0	10.9	8.1	.0	19.0	9.0	.0	.0	.0	.0	
19	4.1	9.8	5.4	26.0	35.8	19.0	10.1	8.9	.0	19.0	8.9	.0	.0	.0	.0	
20	2.9	7.0	4.2	19.9	26.9	19.0	10.5	8.5	.0	19.0	9.5	.0	.0	.0	.0	
21	3.4	8.2	4.7	22.7	30.8	19.0	10.2	8.8	.0	19.0	9.1	.0	.0	.0	.0	
22	4.5	10.7	5.9	28.2	38.9	19.0	10.0	9.0	.0	19.0	9.7	.0	.0	.0	.0	
23	4.5	10.7	5.9	28.2	38.9	19.0	10.0	9.0	.0	19.0	9.7	.0	.0	.0	.0	
24	3.6	8.7	5.0	23.8	32.5	19.0	10.2	8.8	.0	19.0	9.5	.0	.0	.0	.0	
25	4.4	10.4	5.8	27.7	38.1	19.1	10.3	8.8	.0	19.1	9.4	.0	.0	.0	.0	
26	4.5	10.6	5.9	28.3	39.0	25.3	16.4	8.9	.0	25.3	9.4	.0	.0	.0	.0	
27	4.0	9.6	5.4	25.6	35.2	19.3	10.6	8.6	.0	19.3	9.6	.0	.0	.0	.0	
28	2.7	6.5	4.0	18.9	25.4	19.0	10.7	8.3	.0	19.0	9.2	.0	.0	.0	.0	
29	2.7	6.4	3.9	18.5	25.0	19.0	10.4	8.6	.0	19.0	9.2	.0	.0	.0	.0	
30	4.4	10.5	5.9	28.1	38.5	19.1	10.2	8.9	.0	19.1	9.4	.0	.0	.0	.0	
31	4.4	10.5	5.9	28.0	38.4	19.7	11.1	8.6	.0	19.7	9.3	.0	.0	.0	.0	
=====																
	113.2	270.6	153.5	733.6	1004.2	609.6	333.9	275.7	.0	609.6	297.2	.0	.0	.0	.0	

MAY, 1957 - SANTA MARIA, CALIFORNIA (14)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | |
|---|---------------|-----------------------|-----------------|----------------|------|------|-----|-----|-----|-----------------|------|------|-----|----------------------------|-----------------------|----------------------------|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-A | TOTAL
OUTPUT | T-I | PV-I | E-X | T-A | | | | | |
1	1.5	30.1	30.1	9.9	20.2	.0	.0	.0	.0	30.1	19.5	4.0	.0	.0	.7	.0			
2	2.3	45.5	28.1	7.7	18.4	.0	.0	.0	.0	28.1	13.9	14.2	.0	.0	21.9	.0			
3	2.8	55.2	27.5	7.7	17.7	.0	.0	.0	.0	27.5	4.1	11.9	.0	.0	41.4	.0			
4	2.6	51.5	29.0	7.8	19.2	.0	.0	.0	.0	29.0	9.3	11.8	.0	.0	32.4	.0			
5	1.4	27.4	28.3	11.4	16.9	.0	.0	.0	.0	28.3	5.3	3.9	.0	.0	10.7	.0			
6	1.5	29.4	21.1	10.1	11.0	.0	.0	.0	.0	21.1	8.0	4.2	.0	.0	11.3	.0			
7	1.3	26.0	20.3	10.1	10.1	.0	.0	.0	.0	20.3	6.3	3.3	.0	.0	9.5	.0			
8	1.6	32.4	25.7	10.2	15.5	.0	.0	.0	.0	25.7	7.7	6.9	.0	.0	14.5	.0			
9	1.4	27.3	33.1	7.6	23.5	.0	.0	.0	.0	33.1	16.3	3.8	.0	.0	1.4	.0			
10	1.9	37.5	30.4	7.9	20.5	.0	.0	.0	.0	30.4	19.2	9.7	.0	.0	6.4	.0			
11	1.3	25.2	27.5	10.4	17.1	.0	.0	.0	.0	27.5	5.6	3.3	.0	.0	9.2	.0			
12	1.7	33.8	27.4	7.7	17.6	.0	.0	.0	.0	27.4	16.9	7.6	.0	.0	7.1	.0			
13	1.9	37.0	29.5	11.0	18.6	.0	.0	.0	.0	29.5	9.5	10.0	.0	.0	16.6	.0			
14	1.9	37.0	29.5	11.0	18.6	.0	.0	.0	.0	29.5	8.5	10.2	.0	.0	17.5	.0			
15	2.4	48.7	32.6	9.9	22.7	.0	.0	.0	.0	32.6	13.0	16.3	.0	.0	25.8	.0			
16	1.6	31.4	24.8	10.9	13.9	.0	.0	.0	.0	24.8	.0	6.2	.0	.0	20.4	.0			
17	1.6	31.4	24.8	10.9	13.9	.0	.0	.0	.0	24.8	7.1	6.7	.0	.0	13.3	.0			
18	1.1	22.8	20.4	10.8	9.6	.0	.0	.0	.0	20.4	4.0	2.4	.0	.0	8.1	.0			
19	2.1	41.6	28.0	10.3	17.7	.0	.0	.0	.0	28.0	10.6	13.5	.0	.0	20.7	.0			
20	1.3	26.7	31.2	10.7	20.5	.0	.0	.0	.0	31.2	9.4	4.1	.0	.0	6.6	.0			
21	1.6	32.9	28.5	10.5	18.0	.0	.0	.0	.0	28.5	11.2	6.5	.0	.0	11.2	.0			
22	2.3	46.0	30.7	10.8	19.9	.0	.0	.0	.0	30.7	12.6	15.5	.0	.0	22.6	.0			
23	2.3	46.0	30.7	10.8	19.9	.0	.0	.0	.0	30.7	4.4	15.5	.0	.0	30.8	.0			
24	1.8	35.4	29.2	11.3	17.8	.0	.0	.0	.0	29.2	1.3	9.7	.0	.0	22.8	.0			
25	2.3	45.2	31.4	10.5	20.9	.0	.0	.0	.0	31.4	12.0	14.8	.0	.0	22.6	.0			
26	2.5	49.4	28.7	10.2	18.5	.0	.0	.0	.0	28.7	5.9	9.5	.0	.0	33.2	.0			
27	2.0	40.8	29.8	10.5	19.3	.0	.0	.0	.0	29.8	8.5	11.6	.0	.0	21.8	.0			
28	1.2	23.2	27.6	12.5	15.2	.0	.0	.0	.0	27.6	4.4	2.9	.0	.0	6.4	.0			
29	1.2	23.4	25.6	11.0	14.6	.0	.0	.0	.0	25.6	10.9	2.8	.0	.0	1.5	.0			
30	2.3	45.8	28.1	7.9	18.2	.0	.0	.0	.0	28.1	14.9	15.4	.0	.0	21.0	.0			
31	2.3	45.9	28.2	10.3	18.0	.0	.0	.0	.0	28.2	3.6	14.5	.0	.0	32.1	.0			

56.6 1131.7 867.8 324.2 543.6 .0 .0 .0 .0 867.8 283.9 274.8 .0 .0 523.6 .0 .0																			

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	4.3	10.3	5.8	27.6	37.9	21.3	12.9	8.4	.0	21.3	9.3	.0	.0	.0	.0
2	4.4	10.5	5.9	28.1	38.6	23.6	15.3	8.4	.0	23.6	9.0	.0	.0	.0	.0
3	4.3	10.2	5.7	27.5	37.7	20.3	12.0	8.3	.0	20.3	8.8	.0	.0	.0	.0
4	4.1	9.8	5.5	26.5	36.3	20.1	12.1	8.0	.0	20.1	8.9	.0	.0	.0	.0
5	3.8	9.0	5.1	24.6	33.6	18.1	10.1	8.0	.0	18.1	8.6	.0	.0	.0	.0
6	4.3	10.3	5.8	27.5	37.8	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0
7	3.9	9.3	5.3	25.1	34.4	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0
8	4.3	10.3	5.8	27.5	37.9	18.1	10.0	8.1	.0	18.1	8.7	.0	.0	.0	.0
9	2.7	6.4	3.9	18.7	25.1	18.1	10.6	7.5	.0	18.1	8.7	.0	.0	.0	.0
10	3.9	9.3	5.2	25.1	34.3	18.0	10.0	8.0	.0	18.0	8.0	.0	.0	.0	.0
11	3.4	8.1	4.7	22.4	30.5	18.3	10.4	7.8	.0	18.3	8.6	.0	.0	.0	.0
12	4.1	9.9	5.6	26.6	36.5	18.9	10.9	8.0	.0	18.9	8.6	.0	.0	.0	.0
13	4.4	10.6	6.0	28.5	39.1	18.1	9.9	8.2	.0	18.1	8.6	.0	.0	.0	.0
14	3.9	9.4	5.3	25.5	34.9	18.0	9.9	8.1	.0	18.0	8.8	.0	.0	.0	.0
15	4.4	10.5	5.9	28.4	39.0	18.1	9.8	8.3	.0	18.1	8.8	.0	.0	.0	.0
16	4.7	11.2	6.3	29.9	41.1	26.0	17.3	8.7	.0	26.0	8.9	.0	.0	.0	.0
17	4.9	11.7	6.5	31.1	42.8	40.1	26.7	13.4	.0	40.1	9.5	.0	.0	.0	.0
18	4.5	10.8	6.1	29.0	39.9	30.6	21.2	9.4	.0	30.6	14.4	.0	.0	.0	.0
19	4.3	10.4	5.8	27.8	38.2	19.9	11.9	8.0	.0	19.9	9.7	.0	.0	.0	.0
20	4.3	10.3	5.8	27.8	38.1	18.9	10.7	8.2	.0	18.9	8.9	.0	.0	.0	.0
21	4.3	10.3	5.8	27.7	38.0	21.9	13.5	8.4	.0	21.9	8.5	.0	.0	.0	.0
22	4.0	9.6	5.5	26.1	35.7	22.6	14.1	8.5	.0	22.6	9.3	.0	.0	.0	.0
23	3.9	9.2	5.2	25.0	34.3	21.5	13.7	7.8	.0	21.5	8.8	.0	.0	.0	.0
24	4.0	9.5	5.3	25.5	35.0	24.1	14.8	9.3	.0	24.1	8.5	.0	.0	.0	.0
25	3.2	7.7	4.5	21.7	29.5	26.9	17.7	9.2	.0	26.9	8.9	.0	.0	.0	.0
26	4.0	9.6	5.4	25.9	35.5	18.6	10.9	7.7	.0	18.6	11.1	.0	.0	.0	.0
27	4.0	9.6	5.4	25.9	35.5	18.6	10.9	7.7	.0	18.6	8.3	.0	.0	.0	.0
28	2.9	6.9	4.2	19.9	26.9	19.2	11.5	7.7	.0	19.2	8.3	.0	.0	.0	.0
29	2.7	6.4	3.9	18.8	25.1	18.7	10.7	8.0	.0	18.7	8.2	.0	.0	.0	.0
30	2.8	6.8	4.1	19.5	26.3	19.6	11.9	7.7	.0	19.6	8.6	.0	.0	.0	.0

	118.8	284.0	161.4	771.4	1055.4	632.1	381.4	250.7	.0	632.1	270.4	.0	.0	.0	.0

JUL , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | TOTAL
OUTPUT | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | | |
|-----|---------------|-----------------------|-----------------|----------------|------|-----|-----|-----|-----|-----------------|-----------------|------|-----|----|----------------------------|-----------------------|----------------------------|--|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | | | | | |
		TOTAL	T-I	T-S	PV-I	E-S	E-X	T-A	T-I		PV-I	E-A	T-A								
1	2.3	46.4	27.3	9.9	17.4	.0	.0	.0	.0	27.3	4.2	12.2	.0	.0	32.3	.0	.0				
2	2.4	48.5	25.9	9.9	16.0	.0	.0	.0	.0	25.9	3.4	10.8	.0	.0	35.2	.0	.0				
3	2.3	46.4	27.2	10.2	17.0	.0	.0	.0	.0	27.2	5.7	13.4	.0	.0	29.4	.0	.0				
4	2.1	42.9	30.7	10.4	20.3	.0	.0	.0	.0	30.7	5.1	11.9	.0	.0	27.4	.0	.0				
5	1.9	37.1	32.3	12.2	20.1	.0	.0	.0	.0	32.3	7.9	11.8	.0	.0	16.9	.0	.0				
6	2.2	43.8	32.4	10.8	21.7	.0	.0	.0	.0	32.4	9.9	15.7	.0	.0	23.1	.0	.0				
7	1.9	38.3	29.0	10.8	18.2	.0	.0	.0	.0	29.0	3.4	12.5	.0	.0	24.1	.0	.0				
8	2.2	44.6	26.8	10.4	16.4	.0	.0	.0	.0	26.8	4.5	15.8	.0	.0	29.7	.0	.0				
9	1.2	23.1	26.9	10.9	16.0	.0	.0	.0	.0	26.9	.5	3.3	.0	.0	11.8	.0	.0				
10	1.9	38.3	27.4	11.2	16.2	.0	.0	.0	.0	27.4	11.0	13.2	.0	.0	16.1	.0	.0				
11	1.6	32.2	25.8	10.6	15.2	.0	.0	.0	.0	25.8	3.4	8.5	.0	.0	18.2	.0	.0				
12	2.1	42.6	27.4	10.8	16.6	.0	.0	.0	.0	27.4	9.9	13.6	.0	.0	22.0	.0	.0				
13	2.3	46.5	26.5	10.1	16.5	.0	.0	.0	.0	26.6	1.3	17.0	.0	.0	35.2	.0	.0				
14	2.0	39.2	30.2	9.8	20.4	.0	.0	.0	.0	30.2	1.8	12.9	.0	.0	27.6	.0	.0				
15	2.3	46.0	32.9	10.0	22.9	.0	.0	.0	.0	32.9	9.8	16.8	.0	.0	26.1	.0	.0				
16	2.7	53.0	30.8	9.9	20.9	.0	.0	.0	.0	30.8	6.9	11.2	.0	.0	36.2	.0	.0				
17	3.0	59.7	21.3	9.9	11.5	.0	.0	.0	.0	21.3	2.2	2.8	.0	.0	47.6	.0	.0				
18	2.6	52.4	21.4	9.9	11.5	.0	.0	.0	.0	21.4	6.9	.1	.0	.0	35.6	.0	.0				
19	2.3	45.9	28.1	10.2	17.9	.0	.0	.0	.0	28.1	16.8	13.0	.0	.0	19.0	.0	.0				
20	2.3	45.6	27.6	9.9	17.7	.0	.0	.0	.0	27.6	5.8	15.0	.0	.0	29.9	.0	.0				
21	2.3	45.8	27.0	10.8	16.1	.0	.0	.0	.0	27.0	2.0	12.5	.0	.0	32.9	.0	.0				
22	2.1	42.8	22.7	10.1	12.7	.0	.0	.0	.0	22.7	1.2	9.0	.0	.0	31.5	.0	.0				
23	2.0	40.0	17.7	10.5	7.2	.0	.0	.0	.0	17.7	.0	8.6	.0	.0	29.5	.0	.0				
24	2.1	41.9	18.7	10.5	8.2	.0	.0	.0	.0	18.7	.0	8.5	.0	.0	31.4	.0	.0				
25	1.7	33.5	17.9	10.3	7.6	.0	.0	.0	.0	17.9	.0	.0	.0	.0	23.2	.0	.0				
26	2.0	40.4	24.8	11.1	13.8	.0	.0	.0	.0	24.8	9.4	10.0	.0	.0	19.9	.0	.0				
27	2.0	40.4	24.8	11.1	13.8	.0	.0	.0	.0	24.8	3.8	13.1	.0	.0	25.5	.0	.0				
28	1.3	26.9	19.7	10.4	9.3	.0	.0	.0	.0	19.7	.0	4.4	.0	.0	16.5	.0	.0				
29	1.2	23.4	18.5	10.6	7.8	.0	.0	.0	.0	18.5	1.0	3.6	.0	.0	11.7	.0	.0				
30	1.3	26.0	17.5	10.6	6.9	.0	.0	.0	.0	17.5	3.6	3.2	.0	.0	11.8	.0	.0				

61.6 1232.5 767.4 313.6 453.9 .0 .0 .0 .0 767.4 141.5 304.3 .0 .0 777.5 .0 .0

JUL , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-1	E-S	E-X					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X									
1	2.9	6.8	4.2	19.9	26.7	18.0	9.9	8.1	.0	18.0	8.4	.0	.0	.0	.0	.0		
2	4.0	9.5	5.4	25.8	35.3	18.0	9.9	8.1	.0	18.0	8.7	.0	.0	.0	.0	.0		
3	4.1	9.8	5.5	26.4	36.3	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
4	4.3	10.4	5.8	27.7	38.1	18.1	10.1	8.0	.0	18.1	8.6	.0	.0	.0	.0	.0		
5	4.3	10.2	5.7	27.4	37.6	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
6	4.3	10.3	5.7	27.5	37.7	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
7	4.3	10.3	5.8	27.6	38.0	18.0	10.1	7.9	.0	18.0	8.6	.0	.0	.0	.0	.0		
8	3.9	9.2	5.2	25.1	34.3	18.0	10.0	8.0	.0	18.0	8.5	.0	.0	.0	.0	.0		
9	4.1	9.9	5.5	26.4	36.3	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
10	4.3	10.2	5.7	27.2	37.4	18.2	10.2	8.0	.0	18.2	8.6	.0	.0	.0	.0	.0		
11	4.2	10.2	5.7	27.1	37.3	18.4	10.4	8.0	.0	18.4	8.6	.0	.0	.0	.0	.0		
12	2.7	6.4	3.9	18.8	25.2	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
13	3.8	9.1	5.2	24.8	33.9	18.5	10.4	8.1	.0	18.5	8.6	.0	.0	.0	.0	.0		
14	3.8	9.1	5.2	24.7	33.9	18.4	10.3	8.1	.0	18.4	8.7	.0	.0	.0	.0	.0		
15	4.0	9.5	5.3	25.5	35.1	18.2	10.1	8.1	.0	18.2	8.7	.0	.0	.0	.0	.0		
16	4.0	9.7	5.4	25.9	35.6	18.0	10.0	8.0	.0	18.0	8.6	.0	.0	.0	.0	.0		
17	4.3	10.3	5.7	27.2	37.5	18.1	10.0	8.0	.0	18.1	8.7	.0	.0	.0	.0	.0		
18	2.7	6.5	3.9	18.7	25.1	19.3	11.2	8.1	.0	19.3	8.7	.0	.0	.0	.0	.0		
19	4.2	9.9	5.6	26.7	36.6	18.9	11.1	7.8	.0	18.9	8.7	.0	.0	.0	.0	.0		
20	4.1	9.8	5.5	26.1	35.8	18.3	10.5	7.9	.0	18.3	8.4	.0	.0	.0	.0	.0		
21	4.2	10.1	5.6	26.9	37.0	18.7	10.6	8.1	.0	18.7	8.5	.0	.0	.0	.0	.0		
22	4.3	10.2	5.7	27.2	37.4	20.1	12.0	8.1	.0	20.1	8.7	.0	.0	.0	.0	.0		
23	3.5	8.4	4.8	22.8	31.1	22.6	14.2	8.4	.0	22.6	9.0	.0	.0	.0	.0	.0		
24	3.8	9.0	5.1	24.4	33.5	20.2	12.2	8.1	.0	20.2	8.9	.0	.0	.0	.0	.0		
25	4.3	10.2	5.7	27.1	37.3	18.7	10.6	8.1	.0	18.7	8.7	.0	.0	.0	.0	.0		
26	3.7	8.9	5.0	24.1	33.0	19.0	10.9	8.0	.0	19.0	8.7	.0	.0	.0	.0	.0		
27	3.8	9.2	5.1	24.6	33.8	18.1	10.0	8.1	.0	18.1	8.6	.0	.0	.0	.0	.0		
28	4.1	9.8	5.4	26.0	35.9	18.1	9.9	8.2	.0	18.1	8.8	.0	.0	.0	.0	.0		
29	4.2	10.0	5.5	26.4	36.4	18.2	10.0	8.2	.0	18.2	8.8	.0	.0	.0	.0	.0		
30	4.2	9.9	5.5	26.2	36.2	18.2	9.9	8.2	.0	18.2	8.8	.0	.0	.0	.0	.0		
31	3.4	8.2	4.6	22.2	30.4	18.1	9.8	8.3	.0	18.1	8.9	.0	.0	.0	.0	.0		
69	118.4	282.9	159.4	762.2	1045.1	556.3	314.4	241.9	.0	556.3	259.8	.0	.0	.0	.0	.0		

JUL , 1957 - SANTA MARIA, CALIFORNIA (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | TOTAL
OUTPUT | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL | |
|-----|---------------|-----------------------|-----------------|----------------|------|------|-----|-----|-----|-----------------|-----------------|------|-----|-----|----------------------------|------------------|-----------------|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | THERMAL
INPUT | LOAD
DEFICIT |
			TOTAL	T-I	T-S	PV-I	E-S	E-X	T-A		T-I	PV-I	E-A	T-A			
1	1.3	25.3	25.9	11.6	17.3	.0	.0	.0	.0	28.9	9.3	5.7	.0	.0	4.4	.0	.0
2	2.0	40.2	26.5	10.2	16.2	.0	.0	.0	.0	26.5	12.1	13.4	.0	.0	17.9	.0	.0
3	2.1	41.7	27.0	10.3	16.7	.0	.0	.0	.0	27.0	2.2	14.3	.0	.0	29.2	.0	.0
4	2.2	44.9	26.5	10.1	16.4	.0	.0	.0	.0	26.5	2.5	15.9	.0	.0	32.3	.0	.0
5	2.2	43.9	29.1	10.6	17.6	.0	.0	.0	.0	28.1	1.4	15.6	.0	.0	31.9	.0	.0
6	2.2	43.7	31.3	10.7	20.6	.0	.0	.0	.0	31.3	3.5	15.7	.0	.0	29.6	.0	.0
7	2.2	44.5	30.8	10.4	20.4	.0	.0	.0	.0	30.8	4.6	15.8	.0	.0	29.4	.0	.0
8	1.9	38.2	31.7	11.9	19.8	.0	.0	.0	.0	31.7	5.5	12.6	.0	.0	20.8	.0	.0
9	2.1	42.2	26.9	10.5	16.4	.0	.0	.0	.0	26.9	3.9	14.3	.0	.0	27.8	.0	.0
10	2.2	44.1	27.5	10.4	17.1	.0	.0	.0	.0	27.5	2.2	15.2	.0	.0	31.5	.0	.0
11	2.2	44.1	28.5	10.3	18.2	.0	.0	.0	.0	28.5	3.5	14.8	.0	.0	30.3	.0	.0
12	1.2	23.3	28.7	11.9	16.7	.0	.0	.0	.0	28.7	2.7	4.0	.0	.0	8.7	.0	.0
13	1.9	38.7	26.2	10.4	15.8	.0	.0	.0	.0	26.2	11.5	11.6	.0	.0	16.8	.0	.0
14	1.9	38.7	29.0	10.2	18.8	.0	.0	.0	.0	29.0	8.3	11.6	.0	.0	20.2	.0	.0
15	2.0	40.5	30.0	10.5	19.5	.0	.0	.0	.0	30.0	7.1	13.0	.0	.0	23.0	.0	.0
16	2.0	40.7	28.0	10.8	17.2	.0	.0	.0	.0	28.0	3.6	13.7	.0	.0	26.3	.0	.0
17	2.2	44.5	28.4	10.3	18.1	.0	.0	.0	.0	28.4	4.2	15.4	.0	.0	30.0	.0	.0
18	1.2	24.9	24.4	10.1	14.3	.0	.0	.0	.0	24.4	1.6	2.7	.0	.0	13.2	.0	.0
19	2.1	42.9	24.8	10.2	14.6	.0	.0	.0	.0	24.8	11.2	13.4	.0	.0	21.5	.0	.0
20	2.1	41.7	25.5	10.8	14.6	.0	.0	.0	.0	25.5	.7	13.7	.0	.0	30.2	.0	.0
21	2.2	44.1	25.3	10.2	15.1	.0	.0	.0	.0	25.3	.9	14.5	.0	.0	33.0	.0	.0
22	2.3	45.3	25.6	10.1	15.4	.0	.0	.0	.0	25.6	1.4	13.3	.0	.0	33.8	.0	.0
23	1.8	36.4	24.0	10.0	14.1	.0	.0	.0	.0	24.0	2.3	5.0	.0	.0	24.1	.0	.0
24	1.9	38.9	25.3	10.1	15.3	.0	.0	.0	.0	25.3	9.1	9.3	.0	.0	19.7	.0	.0
25	2.2	44.7	24.7	10.1	14.6	.0	.0	.0	.0	24.7	5.5	14.5	.0	.0	29.1	.0	.0
26	1.9	37.5	25.2	10.4	14.8	.0	.0	.0	.0	25.2	.0	10.2	.0	.0	27.1	.0	.0
27	1.9	38.6	26.7	10.8	15.9	.0	.0	.0	.0	26.7	5.2	12.0	.0	.0	22.5	.0	.0
28	2.1	42.2	27.1	10.7	16.4	.0	.0	.0	.0	27.1	3.4	13.9	.0	.0	28.2	.0	.0
29	2.2	43.2	29.3	10.6	18.6	.0	.0	.0	.0	29.3	4.4	14.2	.0	.0	28.2	.0	.0
30	2.1	42.8	30.7	10.9	19.7	.0	.0	.0	.0	30.7	5.2	14.1	.0	.0	26.7	.0	.0
31	1.7	33.4	28.5	10.1	18.4	.0	.0	.0	.0	28.5	5.5	8.7	.0	.0	17.8	.0	.0

60.1 1202.4 822.5 316.0 506.5 .0 .0 .0 .0 822.5 139.0 373.3 .0 .0 747.4 .0 .0

ALL UNITS = KG-MIN)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	3.4	8.2	4.6	22.2	30.4	18.1	9.8	8.3	.0	18.1	8.9	.0	.0	.0	.0
2	4.7	11.1	6.1	29.2	40.3	18.1	9.7	8.4	.0	18.1	9.0	.0	.0	.0	.0
3	4.0	9.6	5.3	25.5	35.1	18.1	9.7	8.4	.0	18.1	9.0	.0	.0	.0	.0
4	4.6	11.0	6.0	28.8	39.7	18.1	9.7	8.4	.0	18.1	9.0	.0	.0	.0	.0
5	4.5	10.8	5.9	28.3	39.0	18.1	9.7	8.3	.0	18.1	9.0	.0	.0	.0	.0
6	4.5	10.8	5.9	28.3	39.1	18.3	9.7	8.5	.0	18.3	9.1	.0	.0	.0	.0
7	3.7	8.8	4.9	23.6	32.3	18.0	9.6	8.4	.0	18.0	9.1	.0	.0	.0	.0
8	4.3	10.3	5.6	27.0	37.3	18.0	9.6	8.4	.0	18.0	9.1	.0	.0	.0	.0
9	4.3	10.2	5.6	26.7	36.9	18.3	10.0	8.4	.0	18.3	9.1	.0	.0	.0	.0
10	3.7	8.9	4.9	23.6	32.5	18.6	10.1	8.5	.0	18.6	9.0	.0	.0	.0	.0
11	3.8	9.2	5.1	24.5	33.6	18.0	9.6	8.4	.0	18.0	9.2	.0	.0	.0	.0
12	4.2	10.0	5.5	26.1	36.1	18.0	9.5	8.5	.0	18.0	9.1	.0	.0	.0	.0
13	4.2	10.0	5.5	26.1	36.1	18.0	9.5	8.5	.0	18.0	9.2	.0	.0	.0	.0
14	4.4	10.6	5.7	27.3	37.9	18.4	9.9	8.5	.0	18.4	9.1	.0	.0	.0	.0
15	4.5	10.8	5.8	27.9	38.6	18.2	9.6	8.5	.0	18.2	9.2	.0	.0	.0	.0
16	4.4	10.5	5.7	27.2	37.7	18.1	9.6	8.6	.0	18.1	9.2	.0	.0	.0	.0
17	3.7	8.9	5.0	23.7	32.6	18.4	9.9	8.5	.0	18.4	9.2	.0	.0	.0	.0
18	3.4	8.2	4.6	21.9	30.2	18.1	9.5	8.5	.0	18.1	9.2	.0	.0	.0	.0
19	4.2	10.1	5.5	26.1	36.2	18.2	9.5	8.6	.0	18.2	9.2	.0	.0	.0	.0
20	4.5	10.7	5.8	27.5	38.2	18.4	9.8	8.6	.0	18.4	9.3	.0	.0	.0	.0
21	4.4	10.6	5.7	27.2	37.8	18.4	9.8	8.7	.0	18.4	9.3	.0	.0	.0	.0
22	4.4	10.5	5.6	27.0	37.5	19.1	10.4	8.7	.0	19.1	9.4	.0	.0	.0	.0
23	4.5	10.7	5.8	27.5	38.2	20.4	11.7	8.7	.0	20.4	9.3	.0	.0	.0	.0
24	4.4	10.6	5.7	27.4	38.0	21.1	12.2	8.9	.0	21.1	9.5	.0	.0	.0	.0
25	4.2	10.1	5.4	25.8	35.9	18.1	9.5	8.6	.0	18.1	9.4	.0	.0	.0	.0
26	3.9	9.2	5.0	24.1	33.3	18.1	9.3	8.8	.0	18.1	9.2	.0	.0	.0	.0
27	3.8	9.1	5.0	23.8	33.0	19.2	10.4	8.8	.0	19.2	9.5	.0	.0	.0	.0
28	2.9	6.9	4.0	19.1	26.0	18.6	9.9	8.8	.0	18.6	9.5	.0	.0	.0	.0
29	3.9	9.2	5.0	23.9	33.1	19.2	10.4	8.8	.0	19.2	9.5	.0	.0	.0	.0
30	4.4	10.5	5.6	26.8	37.3	18.7	9.8	8.9	.0	18.7	9.6	.0	.0	.0	.0
31	3.0	7.1	4.1	19.6	26.8	18.0	9.2	8.8	.0	18.0	9.5	.0	.0	.0	.0

	130.2	311.2	170.7	816.0	1127.1	590.3	316.2	274.1	.0	590.3	294.3	.0	.0	.0	.0

AUG , 1957 - SANTA MARIA, CALIFORNIA (#)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | TOTAL
OUTPUT | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL | | | | |
|---|---------------|-----------------------|-----------------|----------------|------|------|-----|-----|-----|-----------------|-----------------|------|-----|-----|----------------------------|------------------|-----------------|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | THERMAL
INPUT | LOAD
DEFICIT | | | |
				T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X						
1	1.7	33.4	28.5	10.1	18.4	.0	.0	.0	.0	28.5	9.7	8.7	.0	.0	13.6	.0	.0			
2	2.5	49.1	33.2	10.4	22.8	.0	.0	.0	.0	33.2	12.9	18.0	.0	.0	25.8	.0	.0			
3	2.0	40.9	29.8	10.5	19.3	.0	.0	.0	.0	29.8	2.5	13.1	.0	.0	28.0	.0	.0			
4	2.4	48.6	26.3	9.9	16.5	.0	.0	.0	.0	26.3	3.3	17.3	.0	.0	35.5	.0	.0			
5	2.4	47.4	29.8	9.8	19.9	.0	.0	.0	.0	29.8	1.3	16.8	.0	.0	36.3	.0	.0			
6	2.4	48.0	33.1	9.7	23.4	.0	.0	.0	.0	33.1	7.0	16.7	.0	.0	31.3	.0	.0			
7	1.8	36.1	34.7	10.1	24.7	.0	.0	.0	.0	34.7	7.2	10.6	.0	.0	18.8	.0	.0			
8	2.2	44.7	32.4	11.3	21.2	.0	.0	.0	.0	32.4	10.8	15.2	.0	.0	22.6	.0	.0			
9	2.2	44.5	32.4	10.9	21.6	.0	.0	.0	.0	32.4	5.6	14.4	.0	.0	28.0	.0	.0			
10	1.9	37.7	30.7	10.1	20.6	.0	.0	.0	.0	30.7	7.3	10.2	.0	.0	20.4	.0	.0			
11	1.9	38.6	30.5	10.8	19.8	.0	.0	.0	.0	30.5	10.5	11.7	.0	.0	17.4	.0	.0			
12	2.2	43.1	33.6	10.4	23.2	.0	.0	.0	.0	33.6	10.7	14.2	.0	.0	22.0	.0	.0			
13	2.2	43.1	33.6	10.4	23.2	.0	.0	.0	.0	33.6	9.1	14.0	.0	.0	23.6	.0	.0			
14	2.3	46.7	28.5	10.5	18.0	.0	.0	.0	.0	28.5	5.8	15.3	.0	.0	30.4	.0	.0			
15	2.4	47.8	29.5	9.9	19.6	.0	.0	.0	.0	29.5	3.5	16.3	.0	.0	34.4	.0	.0			
16	2.3	46.3	31.0	10.2	20.9	.0	.0	.0	.0	31.0	3.8	15.5	.0	.0	32.3	.0	.0			
17	1.9	37.7	29.3	10.7	18.6	.0	.0	.0	.0	29.3	4.3	10.4	.0	.0	22.7	.0	.0			
18	1.7	34.0	28.3	10.5	17.8	.0	.0	.0	.0	28.3	6.4	8.5	.0	.0	17.2	.0	.0			
19	2.2	43.7	29.3	10.9	18.4	.0	.0	.0	.0	29.3	9.9	14.0	.0	.0	22.9	.0	.0			
20	2.4	47.4	26.2	9.9	16.4	.0	.0	.0	.0	26.2	3.5	15.6	.0	.0	34.0	.0	.0			
21	2.3	46.8	25.3	9.8	15.5	.0	.0	.0	.0	25.3	.4	15.2	.0	.0	36.6	.0	.0			
22	2.3	46.8	27.4	9.5	17.8	.0	.0	.0	.0	27.4	1.6	14.2	.0	.0	35.7	.0	.0			
23	2.4	48.6	24.7	9.8	14.9	.0	.0	.0	.0	24.7	2.5	13.6	.0	.0	36.4	.0	.0			
24	2.4	49.0	26.7	9.7	17.0	.0	.0	.0	.0	26.7	2.2	12.7	.0	.0	37.0	.0	.0			
25	2.2	44.0	29.3	10.1	19.2	.0	.0	.0	.0	29.3	6.0	13.7	.0	.0	27.9	.0	.0			
26	2.0	39.4	25.0	10.3	14.7	.0	.0	.0	.0	25.0	1.6	11.6	.0	.0	27.6	.0	.0			
27	2.0	39.7	25.8	10.0	15.9	.0	.0	.0	.0	25.8	4.0	9.9	.0	.0	25.8	.0	.0			
28	1.3	27.0	27.5	10.0	17.5	.0	.0	.0	.0	27.5	6.7	4.0	.0	.0	10.3	.0	.0			
29	2.0	40.3	23.3	9.8	13.5	.0	.0	.0	.0	23.3	10.8	10.0	.0	.0	19.7	.0	.0			
30	2.3	46.9	27.0	9.7	17.3	.0	.0	.0	.0	27.0	8.1	14.4	.0	.0	29.1	.0	.0			
31	1.4	27.9	25.2	10.4	14.8	.0	.0	.0	.0	25.2	.0	5.4	.0	.0	17.5	.0	.0			

67.4 1348.7 926.3 325.7 600.6 .0 .0 .0 .0 926.3 184.5 410.0 .0 .0 838.4 .0 .0																				

SEP , 1957 - SANTA MARIA, CALIFORNIA (N)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM							
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X						
1	4.3	10.3	5.5	26.1	36.4	19.9	10.4	9.4	.0	19.9	9.7	.0	.0	.0	.0			
2	4.2	10.1	5.4	25.8	35.9	19.8	10.4	9.4	.0	19.8	10.1	.0	.0	.0	.0			
3	4.2	10.0	5.3	25.5	35.5	19.8	10.5	9.3	.0	19.8	10.1	.0	.0	.0	.0			
4	4.4	10.6	5.6	26.8	37.3	19.7	10.3	9.4	.0	19.7	10.0	.0	.0	.0	.0			
5	4.3	10.2	5.4	26.0	36.2	19.1	9.6	9.5	.0	19.1	10.2	.0	.0	.0	.0			
6	4.3	10.4	5.5	26.3	36.7	19.3	9.8	9.6	.0	19.3	10.2	.0	.0	.0	.0			
7	4.7	11.2	5.9	28.2	39.4	20.6	10.9	9.6	.0	20.6	10.3	.0	.0	.0	.0			
8	4.6	11.0	5.8	27.8	38.7	22.8	12.8	10.0	.0	22.8	10.5	.0	.0	.0	.0			
9	4.3	10.3	5.5	26.2	36.4	25.3	14.6	10.7	.0	25.3	10.7	.0	.0	.0	.0			
10	4.4	10.5	5.6	26.5	37.0	21.2	11.5	9.8	.0	21.2	11.5	.0	.0	.0	.0			
11	4.4	10.6	5.6	26.8	37.4	19.7	10.0	9.7	.0	19.7	10.4	.0	.0	.0	.0			
12	4.7	11.3	6.0	28.5	39.8	19.3	9.5	9.9	.0	19.3	10.6	.0	.0	.0	.0			
13	4.6	11.0	5.8	27.7	38.7	19.7	9.9	9.9	.0	19.7	10.6	.0	.0	.0	.0			
14	4.5	10.7	5.7	27.0	37.8	21.2	11.3	9.9	.0	21.2	10.6	.0	.0	.0	.0			
15	4.5	10.8	5.7	27.1	37.9	22.7	12.7	10.0	.0	22.7	10.7	.0	.0	.0	.0			
16	3.4	8.2	4.5	21.5	29.7	30.5	18.0	12.5	.0	30.5	8.7	.0	.0	.0	.0			
17	3.4	8.2	4.5	21.5	29.7	30.5	18.0	10.7	1.8	30.5	8.7	.0	.0	1.8	.0			
18	4.1	9.8	5.2	24.8	34.6	24.9	14.5	7.3	3.0	24.9	15.0	.0	.0	3.0	.0			
19	3.7	8.7	4.7	22.4	31.2	19.6	9.6	10.0	.0	19.6	11.1	.0	.0	.0	.0			
20	4.4	10.6	5.5	26.5	37.1	19.7	9.8	9.9	.0	19.7	10.6	.0	.0	.0	.0			
21	4.3	10.4	5.5	26.1	36.5	24.4	13.9	10.5	.0	24.4	10.7	.0	.0	.0	.0			
22	4.1	9.9	5.2	24.9	34.9	23.6	13.5	10.0	.0	23.6	11.4	.0	.0	.0	.0			
23	4.1	9.8	5.1	24.5	34.3	19.3	9.5	9.8	.0	19.3	10.6	.0	.0	.0	.0			
24	4.2	10.1	5.3	25.2	35.2	20.4	10.4	9.9	.0	20.4	10.6	.0	.0	.0	.0			
25	4.0	9.5	5.0	23.8	33.2	20.0	9.9	10.1	.0	20.0	10.7	.0	.0	.0	.0			
26	2.9	6.9	3.7	17.9	24.8	21.1	10.8	10.3	.0	21.1	10.8	.0	.0	.0	.0			
27	3.7	8.9	4.7	22.4	31.3	23.1	12.8	10.4	.0	23.1	11.1	.0	.0	.0	.0			
28	3.7	8.7	4.6	22.0	30.7	32.6	19.0	13.5	.0	32.6	8.7	.0	.0	.0	.0			
29	4.1	9.9	5.2	24.8	34.7	27.5	16.7	8.9	1.9	27.5	14.2	.0	.0	1.9	.0			
30	3.8	9.1	4.8	22.8	31.9	19.4	9.2	10.2	.0	19.4	12.3	.0	.0	.0	.0			
73	124.4	297.4	157.6	753.3	1050.7	666.7	359.9	300.1	6.7	666.7	321.7	.0	.0	6.7	.0			

SEP , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | TOTAL
OUTPUT | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT DEFICIT | | | | | | |
|-------|---------------|-----------------------|-----------------|----------------|-------|------|-----|-----|-----|-----------------|-----------------|-------|-----|-----|----------------------------|-------------------------------|----|--|--|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | | | | | | |
				T-I	T-S	PV-I	E-S	E-X	T-A		T-I	PV-I	E-A	T-X								
1	2.3	45.6	25.2	10.1	15.1	.0	.0	.0	.0	25.2	8.7	12.7	.0	.0	26.8	.0	.0					
2	2.2	44.7	27.0	10.2	16.7	.0	.0	.0	.0	27.0	4.5	11.9	.0	.0	29.9	.0	.0					
3	2.2	43.8	25.7	10.4	16.3	.0	.0	.0	.0	26.7	3.9	11.5	.0	.0	29.4	.0	.0					
4	2.4	47.1	25.8	10.2	15.6	.0	.0	.0	.0	25.8	4.3	13.6	.0	.0	32.6	.0	.0					
5	2.2	44.9	27.2	10.1	17.2	.0	.0	.0	.0	27.2	3.0	12.9	.0	.0	31.8	.0	.0					
6	2.3	45.9	26.6	10.7	18.0	.0	.0	.0	.0	28.6	4.3	13.1	.0	.0	30.9	.0	.0					
7	2.6	51.0	31.0	10.1	21.0	.0	.0	.0	.0	31.0	9.1	14.4	.0	.0	31.8	.0	.0					
8	2.6	51.2	32.2	9.7	22.5	.0	.0	.0	.0	32.2	7.9	11.7	.0	.0	33.7	.0	.0					
9	2.4	48.1	22.2	9.7	12.5	.0	.0	.0	.0	22.2	4.0	7.5	.0	.0	34.4	.0	.0					
10	2.4	48.0	21.4	9.7	11.7	.0	.0	.0	.0	21.4	2.6	10.4	.0	.0	35.8	.0	.0					
11	2.4	47.8	27.4	10.0	17.4	.0	.0	.0	.0	27.4	5.0	13.5	.0	.0	32.9	.0	.0					
12	2.6	51.8	32.6	9.6	22.9	.0	.0	.0	.0	32.6	9.8	16.0	.0	.0	32.4	.0	.0					
13	2.5	50.1	32.4	9.7	22.8	.0	.0	.0	.0	32.4	5.8	14.5	.0	.0	34.7	.0	.0					
14	2.5	49.5	33.2	9.6	23.6	.0	.0	.0	.0	33.2	9.9	12.2	.0	.0	30.0	.0	.0					
15	2.5	50.5	29.0	9.6	19.4	.0	.0	.0	.0	29.0	7.3	10.8	.0	.0	33.7	.0	.0					
16	1.9	38.2	23.1	9.7	13.5	.0	.0	.0	.0	23.1	6.1	.0	.0	.0	22.4	.0	.0					
17	1.9	38.2	23.1	9.7	13.5	.0	.0	.0	.0	23.1	13.5	.0	.0	.0	15.1	.0	.0					
18	2.3	45.9	18.8	9.6	9.2	.0	.0	.0	.0	18.8	8.7	1.2	.0	.0	27.6	.0	.0					
19	1.9	37.9	23.6	9.4	14.1	.0	.0	.0	.0	23.6	10.9	7.2	.0	.0	17.6	.0	.0					
20	2.4	47.9	27.7	9.3	18.4	.0	.0	.0	.0	27.7	9.1	13.2	.0	.0	29.4	.0	.0					
21	2.4	48.8	25.1	9.5	15.6	.0	.0	.0	.0	25.1	5.4	8.3	.0	.0	33.9	.0	.0					
22	2.3	46.1	23.2	9.4	13.8	.0	.0	.0	.0	23.2	4.4	6.4	.0	.0	32.3	.0	.0					
23	2.1	42.9	28.1	9.9	18.2	.0	.0	.0	.0	28.1	10.8	10.8	.0	.0	22.3	.0	.0					
24	2.3	45.3	26.0	9.6	16.3	.0	.0	.0	.0	26.0	6.3	10.8	.0	.0	29.3	.0	.0					
25	2.1	41.8	27.6	10.5	17.1	.0	.0	.0	.0	27.6	6.5	9.3	.0	.0	24.8	.0	.0					
26	1.4	28.5	25.2	9.5	15.7	.0	.0	.0	.0	25.2	8.1	.4	.0	.0	10.9	.0	.0					
27	2.0	40.8	22.9	9.1	13.8	.0	.0	.0	.0	22.9	14.3	4.2	.0	.0	17.5	.0	.0					
28	2.1	42.2	21.1	9.2	11.9	.0	.0	.0	.0	21.1	7.6	.0	.0	.0	25.4	.0	.0					
29	2.4	47.6	23.4	9.3	14.1	.0	.0	.0	.0	23.4	11.3	.0	.0	.0	26.9	.0	.0					
30	2.0	39.8	25.3	9.8	15.5	.0	.0	.0	.0	25.3	16.9	7.0	.0	.0	13.0	.0	.0					
=====																						
	67.6	1351.9	786.2	292.7	493.4	.0	.0	.0	.0	786.2	230.0	265.3	.0	.0	829.2	.0	.0					

OCT , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT			
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-1	E-X						
	PER 20.0 SQ-M	PER 20.0 SQ-M	PER 40.0 SQ-M	PER 40.0 SQ-M			PV-1	E-S	E-X									
1	3.9	9.3	4.8	23.2	32.5	21.2	10.4	10.8	.0	21.2	11.2	.0	.0	.0	.0			
2	2.3	5.6	3.2	15.3	20.9	21.3	10.6	10.8	.0	21.3	8.1	.0	.0	.0	.0			
3	3.2	7.7	4.1	19.6	27.3	22.2	11.3	10.8	.0	22.2	12.8	.0	.0	.0	.0			
4	2.2	5.3	3.1	14.8	20.1	20.0	9.2	10.8	.0	20.0	8.6	.0	.0	.0	.0			
5	2.2	5.4	3.1	14.9	20.3	20.0	9.1	9.3	1.6	20.0	8.9	.0	.0	1.6	.0			
6	2.2	5.3	3.1	14.7	20.0	20.1	9.2	8.3	2.6	20.1	8.6	.0	.0	2.6	.0			
7	2.3	5.5	3.2	15.2	20.7	20.8	9.8	8.1	2.9	20.8	8.7	.0	.0	2.9	.0			
8	2.7	6.5	3.6	17.2	23.7	20.1	9.0	8.2	3.0	20.1	11.9	.0	.0	3.0	.0			
9	3.1	7.4	3.9	18.9	26.3	20.4	9.2	11.1	.1	20.4	13.9	.0	.0	.1	.0			
10	3.6	8.7	4.6	21.8	30.4	20.4	9.2	11.2	.0	20.4	13.1	.0	.0	.0	.0			
11	2.9	6.9	3.8	18.0	24.9	20.1	8.7	11.3	.0	20.1	12.2	.0	.0	.0	.0			
12	4.3	10.4	5.4	25.6	36.0	20.7	9.3	11.4	.0	20.7	12.2	.0	.0	.0	.0			
13	4.4	10.6	5.5	26.2	36.8	22.4	11.0	11.4	.0	22.4	12.3	.0	.0	.0	.0			
14	4.2	9.9	5.2	24.7	34.6	21.4	10.0	11.5	.0	21.4	12.3	.0	.0	.0	.0			
15	4.1	9.8	5.1	24.2	34.0	21.0	9.4	11.6	.0	21.0	12.3	.0	.0	.0	.0			
16	2.8	6.6	3.6	17.1	23.7	20.0	8.5	11.5	.0	20.0	12.3	.0	.0	.0	.0			
17	3.9	9.4	4.9	23.3	32.7	20.0	8.5	11.5	.0	20.0	12.4	.0	.0	.0	.0			
18	2.7	6.5	3.6	17.0	23.5	20.2	8.6	11.6	.0	20.2	12.1	.0	.0	.0	.0			
19	3.8	9.0	4.7	22.4	31.5	21.5	9.8	11.6	.0	21.5	12.8	.0	.0	.0	.0			
20	3.9	9.2	4.8	22.8	32.1	22.9	11.3	11.7	.0	22.9	12.5	.0	.0	.0	.0			
21	4.1	9.8	5.1	24.3	34.2	24.7	12.8	11.9	.0	24.7	12.5	.0	.0	.0	.0			
22	2.7	6.4	3.4	16.4	22.8	20.1	8.3	11.7	.0	20.1	11.7	.0	.0	.0	.0			
23	2.1	5.1	2.9	13.9	19.0	20.0	8.3	11.7	.0	20.0	8.5	.0	.0	.0	.0			
24	4.5	10.9	5.6	27.0	37.9	20.0	8.7	8.8	2.5	20.0	15.0	.0	.0	2.5	.0			
25	4.9	11.8	6.1	29.0	40.9	22.4	10.7	11.7	.0	22.4	12.1	.0	.0	.0	.0			
26	3.8	9.2	4.7	22.7	31.8	20.0	8.4	11.6	.0	20.0	12.6	.0	.0	.0	.0			
27	3.8	9.0	4.7	22.4	31.4	20.0	8.2	11.8	.0	20.0	12.5	.0	.0	.0	.0			
28	4.3	10.3	5.3	25.4	35.7	20.0	8.2	11.8	.0	20.0	12.7	.0	.0	.0	.0			
29	4.3	10.2	5.2	25.1	35.2	20.0	8.1	11.9	.0	20.0	12.7	.0	.0	.0	.0			
30	2.0	4.8	2.7	12.9	17.7	20.0	8.1	11.9	.0	20.0	7.7	.0	.0	.0	.0			
31	4.0	9.7	5.0	24.0	33.7	20.0	8.2	9.1	2.7	20.0	15.0	.0	.0	2.7	.0			
=====																		
	105.4	251.9	133.9	640.1	892.0	643.7	290.3	338.0	15.4	643.7	362.1	.0	.0	15.4	.0			

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 20.0 SQ-M	TOTAL	SUPPLIED FROM							TOTAL OUTPUT	SUPPLIED FROM						
				T-1	T-5	PV-1	E-S	E-X	T-X	T-1		PV-1	E-X	T-X				
1	2.1	41.1	24.8	9.5	15.3	.0	.0	.0	.0	24.8	7.6	7.5	.0	.0	24.0	.0	.0	
2	1.1	21.5	21.0	9.3	11.7	.0	.0	.0	.0	21.0	5.5	.0	.0	.0	6.7	.0	.0	
3	1.7	33.1	20.7	9.2	11.6	.0	.0	.0	.0	20.7	11.6	.0	.0	.0	12.3	.0	.0	
4	1.0	19.2	19.5	9.2	10.2	.0	.0	.0	.0	19.5	9.7	.0	.0	.0	.3	.0	.0	
5	1.0	19.8	22.9	9.2	13.7	.0	.0	.0	.0	22.9	10.5	.0	.0	.0	.0	.0	.0	
6	1.0	19.3	21.8	9.6	12.2	.0	.0	.0	.0	21.8	9.7	.0	.0	.0	.0	.0	.0	
7	1.1	21.4	19.3	9.1	10.3	.0	.0	.0	.0	19.3	12.3	.0	.0	.0	.0	.0	.0	
8	1.3	25.7	23.9	9.3	14.6	.0	.0	.0	.0	23.9	16.1	.0	.0	.0	.3	.0	.0	
9	1.6	31.1	28.4	9.6	18.8	.0	.0	.0	.0	28.4	19.8	.0	.0	.0	1.7	.0	.0	
10	1.9	37.9	24.3	9.1	15.3	.0	.0	.0	.0	24.3	16.5	4.7	.0	.0	12.3	.0	.0	
11	1.4	28.1	27.2	8.6	18.6	.0	.0	.0	.0	27.2	10.3	1.1	.0	.0	9.2	.0	.0	
12	2.4	47.5	34.1	8.9	25.2	.0	.0	.0	.0	34.1	22.7	10.8	.0	.0	15.9	.0	.0	
13	2.5	49.7	36.2	8.7	27.5	.0	.0	.0	.0	36.2	17.1	9.8	.0	.0	23.9	.0	.0	
14	2.3	45.6	37.1	8.6	28.5	.0	.0	.0	.0	37.1	17.5	8.8	.0	.0	19.4	.0	.0	
15	2.2	44.2	39.2	9.1	30.1	.0	.0	.0	.0	39.2	22.5	8.7	.0	.0	12.6	.0	.0	
76 16	1.3	25.6	35.0	10.8	24.2	.0	.0	.0	.0	35.0	14.7	.0	.0	.0	.1	.0	.0	
17	2.1	41.2	31.8	9.5	22.4	.0	.0	.0	.0	31.8	22.9	6.4	.0	.0	6.8	.0	.0	
18	1.3	25.9	32.6	9.6	23.0	.0	.0	.0	.0	32.6	15.1	.0	.0	.0	1.2	.0	.0	
19	2.0	40.6	33.6	8.4	25.2	.0	.0	.0	.0	33.6	24.2	5.5	.0	.0	8.0	.0	.0	
20	2.1	42.4	35.9	8.5	27.4	.0	.0	.0	.0	35.9	21.8	4.9	.0	.0	12.1	.0	.0	
21	2.3	46.4	36.7	8.6	28.2	.0	.0	.0	.0	36.7	23.7	5.3	.0	.0	14.1	.0	.0	
22	1.3	25.5	36.9	8.7	28.2	.0	.0	.0	.0	36.9	16.9	.0	.0	.0	.0	.0	.0	
23	.9	18.5	40.9	9.2	31.6	.0	.0	.0	.0	40.9	9.2	.0	.0	.0	.0	.0	.0	
24	2.5	49.3	37.1	9.9	27.3	.0	.0	.0	.0	37.1	39.5	10.1	.0	.0	.0	.0	.0	
25	2.8	56.3	31.0	8.9	22.1	.0	.0	.0	.0	31.0	27.1	14.0	.0	.0	20.2	.0	.0	
26	2.0	40.4	34.9	8.7	26.2	.0	.0	.0	.0	34.9	13.9	7.4	.0	.0	17.8	.0	.0	
27	2.0	39.0	33.6	9.2	24.4	.0	.0	.0	.0	33.6	12.8	7.3	.0	.0	17.0	.0	.0	
28	2.3	45.2	52.0	12.4	39.6	.0	.0	.0	.0	52.0	24.6	11.1	.0	.0	8.2	.0	.0	
29	2.2	44.9	55.2	11.6	43.6	.0	.0	.0	.0	55.2	30.3	10.7	.0	.0	3.0	.0	.0	
30	.9	17.1	38.5	8.4	30.2	.0	.0	.0	.0	38.5	8.7	.0	.0	.0	.0	.0	.0	
31	2.1	42.3	43.4	11.4	32.0	.0	.0	.0	.0	43.4	30.9	6.7	.0	.0	.0	.0	.0	
=====																		
	54.3	1085.7	1009.7	290.8	718.9	.0	.0	.0	.0	1009.7	546.0	143.0	.0	.0	248.9	.0	.0	

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	4.1	9.7	5.0	24.1	33.8	21.0	8.4	12.6	.0	21.0	12.9	.0	.0	.0	.0
2	3.9	9.3	4.9	23.2	32.5	21.0	8.6	12.4	.0	21.0	13.5	.0	.0	.0	.0
3	4.6	11.0	5.7	27.1	38.0	21.0	8.5	12.5	.0	21.0	13.3	.0	.0	.0	.0
4	4.9	11.8	6.1	29.1	41.0	21.0	8.6	12.4	.0	21.0	13.4	.0	.0	.0	.0
5	4.3	10.4	5.3	25.5	35.9	21.0	8.4	12.6	.0	21.0	13.4	.0	.0	.0	.0
6	4.3	10.3	5.3	25.2	35.4	21.0	8.3	12.7	.0	21.0	13.6	.0	.0	.0	.0
7	4.5	10.6	5.5	26.1	36.8	21.0	8.4	12.6	.0	21.0	13.6	.0	.0	.0	.0
8	4.5	10.9	5.6	26.8	37.7	21.0	8.5	12.5	.0	21.0	13.6	.0	.0	.0	.0
9	4.6	11.0	5.7	27.1	38.1	21.0	8.5	12.5	.0	21.0	13.4	.0	.0	.0	.0
10	4.5	10.8	5.5	26.5	37.3	21.0	8.3	12.7	.0	21.0	13.4	.0	.0	.0	.0
11	3.6	8.6	4.5	21.3	29.9	21.0	8.3	12.7	.0	21.0	13.6	.0	.0	.0	.0
12	2.5	6.1	3.3	15.6	21.6	21.0	8.1	12.9	.0	21.0	11.0	.0	.0	.0	.0
13	2.6	6.2	3.3	15.9	22.1	21.0	7.9	11.3	1.8	21.0	11.5	.0	.0	1.8	.0
14	4.5	10.9	5.6	26.9	37.8	21.0	8.4	10.5	2.0	21.0	15.0	.0	.0	2.0	.0
15	4.2	9.9	5.1	24.5	34.4	21.0	8.3	12.7	.0	21.0	13.5	.0	.0	.0	.0
16	4.4	10.6	5.5	26.3	36.9	21.0	8.5	12.5	.0	21.0	13.6	.0	.0	.0	.0
17	3.7	8.9	4.6	22.0	30.9	21.0	8.2	12.8	.0	21.0	13.6	.0	.0	.0	.0
18	3.5	8.4	4.3	20.7	29.1	21.0	7.9	13.1	.0	21.0	13.9	.0	.0	.0	.0
19	4.5	10.8	5.6	26.6	37.4	21.0	8.3	12.7	.0	21.0	13.9	.0	.0	.0	.0
20	4.4	10.6	5.5	26.3	36.9	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0	.0
21	4.4	10.5	5.4	25.9	36.4	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0	.0
22	4.5	10.7	5.5	26.4	37.1	21.0	8.3	12.7	.0	21.0	13.6	.0	.0	.0	.0
23	4.4	10.6	5.5	26.1	36.7	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0	.0
24	4.3	10.4	5.4	25.7	36.0	21.0	8.3	12.7	.0	21.0	13.7	.0	.0	.0	.0
25	4.3	10.3	5.4	25.6	35.9	21.0	8.2	12.8	.0	21.0	13.7	.0	.0	.0	.0
26	2.6	6.1	3.3	15.7	21.8	21.0	7.8	13.2	.0	21.0	11.4	.0	.0	.0	.0
27	2.7	6.4	3.3	15.9	22.2	21.0	7.5	11.6	1.8	21.0	12.0	.0	.0	1.8	.0
28	3.4	8.2	4.3	20.3	28.5	21.0	7.7	11.0	2.2	21.0	15.0	.0	.0	2.2	.0
29	4.2	9.9	5.1	24.5	34.5	21.0	8.0	13.0	.0	21.0	14.2	.0	.0	.0	.0
30	4.3	10.2	5.3	25.3	35.5	21.0	8.1	12.9	.0	21.0	13.9	.0	.0	.0	.0
*****															
	121.2	289.8	150.2	718.2	1008.0	630.0	247.3	374.8	7.9	630.0	402.3	.0	.0	7.9	.0

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 2000 SQ-M	TOTAL	SUPPLIED FROM					TOTAL OUTPUT	SUPPLIED FROM				T-A			
				T-I	T-S	PV-I	E-S	E-X		T-I	PV-I	E-A	T-A				
1	2.1	42.7	46.8	10.5	36.3	.0	.0	.0	.0	46.8	32.2	8.9	.0	.0	.0	.0	.0
2	2.1	42.1	34.5	8.6	25.8	.0	.0	.0	.0	34.5	33.4	6.8	.0	.0	.0	.0	.0
3	2.6	51.5	43.9	8.8	35.1	.0	.0	.0	.0	43.9	29.7	12.3	.0	.0	13.0	.0	.0
4	2.8	56.3	48.4	8.8	39.6	.0	.0	.0	.0	48.4	24.9	14.9	.0	.0	22.6	.0	.0
5	2.4	47.7	48.6	9.0	39.5	.0	.0	.0	.0	48.6	27.0	10.4	.0	.0	11.6	.0	.0
6	2.5	49.4	41.7	8.5	33.2	.0	.0	.0	.0	41.7	25.8	9.7	.0	.0	15.1	.0	.0
7	2.6	52.8	35.7	8.3	27.4	.0	.0	.0	.0	35.7	20.5	10.9	.0	.0	24.0	.0	.0
8	2.7	54.6	27.2	8.3	18.9	.0	.0	.0	.0	27.2	10.5	11.7	.0	.0	35.8	.0	.0
9	2.8	55.5	24.2	8.4	15.8	.0	.0	.0	.0	24.2	3.4	12.2	.0	.0	43.8	.0	.0
10	2.7	54.1	30.3	8.3	22.0	.0	.0	.0	.0	30.3	7.8	11.7	.0	.0	38.0	.0	.0
11	1.9	38.0	39.7	8.1	31.6	.0	.0	.0	.0	39.7	15.8	9.6	.0	.0	14.1	.0	.0
12	1.2	23.1	45.9	10.8	35.1	.0	.0	.0	.0	45.9	12.3	.0	.0	.0	.0	.0	.0
13	1.2	24.4	43.3	10.0	33.3	.0	.0	.0	.0	43.3	14.4	.0	.0	.0	.0	.0	.0
14	2.5	50.7	42.0	8.8	33.1	.0	.0	.0	.0	42.0	41.9	10.3	.0	.0	.0	.0	.0
15	2.3	45.7	52.9	8.9	44.0	.0	.0	.0	.0	52.9	36.8	8.9	.0	.0	.0	.0	.0
16	2.5	50.7	41.5	8.9	32.7	.0	.0	.0	.0	41.5	41.8	10.9	.0	.0	.0	.0	.0
17	2.1	41.3	36.1	8.5	27.6	.0	.0	.0	.0	36.1	28.0	5.6	.0	.0	4.8	.0	.0
18	1.9	38.2	30.0	7.6	22.4	.0	.0	.0	.0	30.0	10.1	4.0	.0	.0	20.6	.0	.0
19	2.5	50.1	54.4	3.9	45.5	.0	.0	.0	.0	54.4	34.2	11.3	.0	.0	7.0	.0	.0
20	2.4	48.3	58.3	9.6	48.8	.0	.0	.0	.0	58.3	35.1	11.1	.0	.0	3.6	.0	.0
21	2.4	48.8	58.1	9.6	48.5	.0	.0	.0	.0	58.1	36.7	10.5	.0	.0	2.5	.0	.0
22	2.6	51.5	47.0	8.2	38.8	.0	.0	.0	.0	47.0	34.7	11.3	.0	.0	8.6	.0	.0
23	2.5	50.8	45.9	8.5	37.3	.0	.0	.0	.0	45.9	30.7	10.8	.0	.0	11.5	.0	.0
24	2.5	50.3	43.1	8.1	35.0	.0	.0	.0	.0	43.1	25.5	10.3	.0	.0	16.8	.0	.0
25	2.5	50.0	45.4	7.9	37.5	.0	.0	.0	.0	45.4	26.0	10.2	.0	.0	16.0	.0	.0
26	1.3	26.7	40.2	7.7	32.5	.0	.0	.0	.0	40.2	19.0	.0	.0	.0	.0	.0	.0
27	1.4	28.3	33.1	7.6	25.5	.0	.0	.0	.0	33.1	20.8	.0	.0	.0	.0	.0	.0
28	1.8	36.2	55.4	9.3	46.2	.0	.0	.0	.0	55.4	27.0	2.4	.0	.0	.0	.0	.0
29	2.4	47.4	44.1	8.4	35.7	.0	.0	.0	.0	44.1	39.0	8.6	.0	.0	.0	.0	.0
30	2.4	48.9	41.3	8.4	32.9	.0	.0	.0	.0	41.3	39.5	9.7	.0	.0	1.0	.0	.0

	67.8	1356.3	1278.8	261.3	1017.5	.0	.0	.0	.0	1278.8	784.5	250.0	.0	.0	310.5	.0	.0

DEC 7 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM					
	PER SQ-M	20.0 SQ-M	PER SQ-M	40.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X				
1	4.0	9.5	4.9	23.6	33.1	22.0	8.3	13.7	.0	22.0	14.2	.0	.0	.0	.0	
2	3.6	8.6	4.5	21.3	29.9	22.0	7.7	14.3	.0	22.0	14.8	.0	.0	.0	.0	
3	1.7	4.1	2.3	10.8	14.9	22.0	7.2	9.5	5.2	22.0	6.0	.0	.0	5.2	.0	
4	1.7	4.0	2.2	10.5	14.5	22.0	7.2	5.3	9.5	22.0	5.7	.0	.0	9.5	.0	
5	1.2	2.9	1.7	8.4	11.3	22.0	7.3	2.8	12.0	22.0	3.0	.0	.0	12.0	.0	
6	2.4	5.7	3.0	14.4	20.1	22.0	7.3	9.2	5.5	22.0	9.9	.0	.0	5.5	.0	
7	3.4	8.2	4.3	20.6	28.8	22.0	7.9	9.6	4.5	22.0	15.0	.0	.0	4.5	.0	
8	4.0	9.5	4.9	23.4	32.9	22.0	8.0	14.0	.1	22.0	15.0	.0	.0	.1	.0	
9	4.1	9.9	5.1	24.4	34.3	22.0	8.0	14.0	.0	22.0	15.0	.0	.0	.0	.0	
10	3.4	8.0	4.1	19.8	27.8	22.0	7.3	14.7	.0	22.0	15.0	.0	.0	.0	.0	
11	1.8	4.2	2.3	11.0	15.2	22.0	7.2	9.5	5.3	22.0	6.3	.0	.0	5.3	.0	
12	2.5	6.0	3.2	15.2	21.2	22.0	7.3	10.1	4.5	22.0	11.2	.0	.0	4.5	.0	
13	2.5	6.1	3.2	15.2	21.3	22.0	7.3	10.4	4.3	22.0	11.5	.0	.0	4.3	.0	
14	2.8	6.8	3.5	16.8	23.5	22.0	7.4	10.5	4.1	22.0	13.2	.0	.0	4.1	.0	
15	3.4	8.2	4.2	20.2	28.3	23.0	7.9	12.5	2.5	23.0	15.0	.0	.0	2.5	.0	
79	16	3.4	8.1	4.2	20.1	28.1	23.0	8.2	13.7	1.1	23.0	15.0	.0	.0	1.1	.0
	17	3.5	8.3	4.3	20.7	29.0	23.0	8.2	13.9	.9	23.0	15.0	.0	.0	.9	.0
	18	3.9	9.3	4.8	23.0	32.3	23.0	8.2	14.0	.9	23.0	15.0	.0	.0	.9	.0
	19	4.0	9.5	4.9	23.6	33.1	23.0	8.1	14.0	.9	23.0	15.0	.0	.0	.9	.0
20	3.8	9.0	4.7	22.3	31.3	23.0	8.0	14.1	.9	23.0	15.0	.0	.0	.9	.0	
21	3.3	7.9	4.1	19.8	27.7	23.0	8.2	13.8	1.0	23.0	15.0	.0	.0	1.0	.0	
22	4.0	9.5	4.9	23.7	33.2	23.0	8.3	13.8	.9	23.0	15.0	.0	.0	.9	.0	
23	3.7	9.0	4.6	22.1	31.1	23.0	8.1	14.1	.8	23.0	15.0	.0	.0	.8	.0	
24	3.8	9.2	4.7	22.7	31.9	23.0	8.2	13.9	.9	23.0	15.0	.0	.0	.9	.0	
25	3.9	9.4	4.9	23.2	32.7	23.0	8.2	13.9	.9	23.0	15.0	.0	.0	.9	.0	
26	3.8	9.2	4.7	22.6	31.8	23.0	8.2	14.0	.9	23.0	15.0	.0	.0	.9	.0	
27	4.0	9.4	4.9	23.3	32.8	23.0	8.2	13.9	.9	23.0	15.0	.0	.0	.9	.0	
28	4.2	10.0	5.2	24.7	34.7	23.0	8.4	13.7	.9	23.0	15.0	.0	.0	.9	.0	
29	3.8	9.1	4.7	22.3	31.3	23.0	8.2	14.2	.7	23.0	15.0	.0	.0	.7	.0	
30	2.0	4.7	2.5	12.1	16.8	23.0	7.5	10.8	4.7	23.0	7.4	.0	.0	4.7	.0	
31	2.5	5.9	3.1	14.9	20.8	23.0	8.0	9.1	5.9	23.0	9.8	.0	.0	5.9	.0	

DEC , 1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 20.0 SQ-M	TOTAL	SUPPLIED FROM						SUPPLIED FROM							
				T-1	T-5	PV-1	E-S	E-X	T-X	TOTAL OUTPUT	T-1	PV-1	E-X				T-X
1	2.2	44.4	44.0	8.2	35.8	.0	.0	.0	.0	44.0	30.2	6.9	.0	.0	6.0	.0	.0
2	1.9	38.7	52.5	8.4	44.1	.0	.0	.0	.0	52.5	30.3	3.9	.0	.0	.0	.0	.0
3	.7	14.0	58.4	8.8	49.6	.0	.0	.0	.0	58.4	5.2	.0	.0	.0	.0	.0	.0
4	.7	14.0	40.6	7.0	33.6	.0	.0	.0	.0	40.6	7.0	.0	.0	.0	.0	.0	.0
5	.4	8.4	37.9	8.1	11.3	.0	.0	.0	18.5	37.9	.3	.0	.0	.0	.0	18.5	.0
6	1.1	21.8	53.5	12.0	9.9	1.7	.0	.0	30.1	53.5	9.9	.0	.0	.0	.0	30.1	.0
7	1.7	34.7	63.7	14.0	22.1	2.0	.0	.0	25.7	63.7	20.7	1.8	.0	.0	.0	25.7	.0
8	2.1	41.9	58.5	11.3	27.7	1.2	.0	.0	18.3	58.5	30.6	5.8	.0	.0	.0	18.3	.0
9	2.3	45.4	66.2	9.8	31.7	1.5	.0	.0	23.2	66.2	35.5	6.9	.0	.0	.0	23.2	.0
10	1.8	35.4	57.6	8.6	38.7	.6	.0	.0	9.6	57.6	26.8	1.9	.0	.0	.0	9.6	.0
11	.8	16.3	32.1	6.2	20.0	.1	.0	.0	5.8	32.1	10.1	.0	.0	.0	.0	5.8	.0
12	1.3	26.1	26.7	6.9	9.7	.6	.0	.0	9.6	26.7	19.2	.0	.0	.0	.0	9.6	.0
13	1.3	26.4	25.0	7.0	18.8	.0	.0	.0	.0	25.8	19.4	.0	.0	.0	.0	.0	.0
14	1.5	29.8	25.1	7.2	17.9	.0	.0	.0	.0	25.1	22.6	.0	.0	.0	.0	.0	.0
15	1.9	37.0	50.2	8.0	35.1	1.1	.0	.0	6.0	50.2	29.1	1.6	.0	.0	.0	6.0	.0
16	1.8	36.4	40.6	8.3	18.1	1.2	.0	.0	13.1	40.6	28.2	1.2	.0	.0	.0	13.1	.0
17	1.9	38.1	44.9	8.2	36.6	.0	.0	.0	.0	44.9	29.9	2.4	.0	.0	.0	.0	.0
18	2.2	43.1	51.9	8.4	38.2	1.0	.0	.0	4.3	51.9	34.8	5.1	.0	.0	.0	4.3	.0
19	2.2	44.7	55.2	8.4	38.9	.9	.0	.0	7.0	55.2	36.3	5.9	.0	.0	.0	7.0	.0
20	2.1	41.7	52.7	8.8	41.7	1.5	.0	.0	.8	52.7	32.9	4.1	.0	.0	.0	.8	.0
21	1.7	33.9	59.6	10.1	38.1	1.7	.0	.0	9.7	59.6	23.8	.5	.0	.0	.0	9.7	.0
22	2.1	42.3	56.8	11.3	22.5	1.3	.0	.0	21.7	56.8	31.0	5.7	.0	.0	.0	21.7	.0
23	2.0	40.0	63.5	9.6	40.9	2.0	.0	.0	11.1	63.5	30.4	3.7	.0	.0	.0	11.1	.0
24	2.1	42.6	58.6	8.9	31.0	1.9	.0	.0	16.8	58.6	33.7	4.4	.0	.0	.0	16.8	.0
25	2.2	44.9	50.2	8.3	37.4	1.0	.0	.0	3.5	50.2	36.5	5.4	.0	.0	.0	3.5	.0
26	2.1	42.6	52.4	8.2	43.9	.3	.0	.0	.0	52.4	34.4	4.9	.0	.0	.0	.0	.0
27	2.3	45.3	52.9	8.5	38.3	.2	.0	.0	5.9	52.9	36.8	5.8	.0	.0	.0	5.9	.0
28	2.4	48.1	45.9	8.4	37.5	.0	.0	.0	.0	45.9	39.7	7.4	.0	.0	.0	.0	.0
29	2.2	43.2	43.5	7.7	35.7	.0	.0	.0	.0	43.5	35.4	4.5	.0	.0	.0	.0	.0
30	.9	18.0	51.5	7.1	44.4	.0	.0	.0	.0	51.5	10.9	.0	.0	.0	.0	.0	.0
31	1.2	23.0	57.7	11.1	15.1	1.8	.0	.0	29.8	57.7	12.0	.0	.0	.0	.0	29.8	.0
=====																	
53.1 1062.3 1530.6 272.5 964.3 23.6 .0 .0 270.3 1530.6 783.8 89.9 .0 .0 6.0 270.3 .0																	

1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	20.0 SQ-M	AIR-COOLED PER SQ-M	40.0 SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
JAN	80.	190.	101.	485.	675.	682.	246.	287.	149.	682.	306.	0.	0.	149.	0.
FEB	68.	162.	89.	426.	587.	616.	253.	221.	142.	616.	232.	0.	0.	142.	0.
MAR	114.	272.	146.	696.	968.	651.	301.	333.	17.	651.	365.	0.	0.	17.	0.
APR	121.	290.	158.	754.	1044.	618.	315.	303.	0.	618.	326.	0.	0.	0.	0.
MAY	113.	271.	153.	734.	1004.	610.	334.	276.	0.	610.	297.	0.	0.	0.	0.
JUN	119.	284.	161.	771.	1055.	632.	381.	251.	0.	632.	270.	0.	0.	0.	0.
JUL	118.	283.	159.	762.	1045.	556.	314.	242.	0.	556.	260.	0.	0.	0.	0.
AUG	130.	311.	171.	816.	1127.	590.	316.	274.	0.	590.	294.	0.	0.	0.	0.
SEP	124.	297.	158.	753.	1051.	667.	360.	300.	7.	667.	322.	0.	0.	7.	0.
OCT	105.	252.	134.	640.	892.	644.	290.	338.	15.	644.	362.	0.	0.	15.	0.
NOV	121.	290.	150.	718.	1008.	630.	247.	375.	8.	630.	402.	0.	0.	8.	0.
DEC	100.	239.	125.	596.	836.	699.	243.	375.	81.	699.	398.	0.	0.	81.	0.
	1314.	3141.	1705.	8152.	11293.	7595.	3602.	3574.	419.	7595.	3835.	0.	0.	419.	0.

1957 - SANTA MARIA, CALIFORNIA (W)

(ALL UNITS = KW-HR)

| MONTH | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | | | | |
|-------|---------------|-----------------------|-----------------|----------------|-------|------|-----|-----|-------|-----------------|-----------------|-------|-----|-----|----------------------------|-----------------------|----------------------------|--|--|--|--|
| | PER
SQ-M | TOTAL
20.0
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-A | T-X | | | | | | | |
JAN	37.	749.	1795.	345.	470.	35.	0.	0.	945.	1795.	404.	33.	0.	0.	0.	945.	0.				
FEB	31.	620.	1092.	279.	391.	28.	0.	0.	394.	1092.	341.	30.	0.	0.	0.	394.	0.				
MAR	58.	1154.	1271.	353.	790.	9.	0.	0.	119.	1271.	695.	197.	0.	0.	105.	119.	0.				
APR	63.	1253.	1173.	336.	837.	0.	0.	0.	0.	1173.	531.	299.	0.	0.	367.	0.	0.				
MAY	57.	1132.	868.	324.	544.	0.	0.	0.	0.	868.	284.	275.	0.	0.	524.	0.	0.				
JUN	62.	1233.	767.	314.	454.	0.	0.	0.	0.	767.	142.	304.	0.	0.	777.	0.	0.				
JUL	60.	1202.	822.	316.	506.	0.	0.	0.	0.	822.	139.	373.	0.	0.	747.	0.	0.				
AUG	67.	1349.	926.	326.	601.	0.	0.	0.	0.	926.	185.	410.	0.	0.	838.	0.	0.				
SEP	68.	1352.	786.	293.	493.	0.	0.	0.	0.	786.	230.	265.	0.	0.	829.	0.	0.				
OCT	54.	1086.	1010.	291.	719.	0.	0.	0.	0.	1010.	546.	143.	0.	0.	249.	0.	0.				
NOV	68.	1356.	1279.	261.	1018.	0.	0.	0.	0.	1279.	785.	250.	0.	0.	310.	0.	0.				
DEC	53.	1062.	1531.	273.	964.	24.	0.	0.	270.	1531.	784.	90.	0.	0.	6.	270.	0.				
=====																					
	677.	13547.	13321.	3710.	7786.	96.	0.	0.	1729.	13321.	5063.	2670.	0.	0.	4774.	1729.	0.				

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION
=====

VERSION X.1.

1958 - WILMINGTON, DELAWARE - IN

WATER-COOLED COLLECTOR

AREA 50. SQ-M

TILT 39.5 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 30. SQ-M

TILT 39.5 DEGREES

EC .90

EN .16

ET .83

EP .90

ET .93

ES .85

C1 F; C2 F; C3 F; C4 F; C5 F

HEATING SEASON: SEP -1 - MAY 31

COOLING SEASON: MAY 1 - OCT 15

ELECTRICAL STORAGE CAPACITY 20. KW-HR

THERMAL STORAGE CAPACITY 105. (180.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT 1.5 KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT ***** KW-HR

S/H DEMAND CURVE: INTERCEPT 19865., SLOPE -348.

A/C DEMAND CURVE: INTERCEPT -47000., SLOPE 701.

JAN , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT		
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	PV-1	E-5	E-X	TOTAL OUTPUT	PV-1	E-X				
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M												
1	1.4	8.4	1.8	6.6	15.1	22.0	6.7	15.3	.0	22.0	6.7	.0	.0	.0		
2	2.2	12.9	2.7	9.6	22.6	22.0	7.0	14.0	.9	22.0	12.7	5.2	7.5	.0		
3	3.0	18.2	3.7	13.4	31.7	22.0	7.8	13.5	.7	22.0	19.3	1.9	3.0	.0		
4	2.0	11.8	2.5	9.1	20.9	22.0	7.4	14.6	.0	22.0	11.0	.0	.0	.0		
5	3.0	17.8	3.7	13.4	31.2	22.0	7.8	14.2	.0	22.0	10.7	.0	.0	.0		
6	3.7	22.3	4.6	16.5	38.8	22.0	7.8	14.2	.0	22.0	16.5	.0	.0	.0		
7	2.7	16.0	3.3	11.9	27.9	22.0	7.8	14.2	.0	22.0	15.2	.0	.0	.0		
8	2.6	15.3	3.2	11.5	26.8	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0		
9	3.3	20.0	4.1	14.7	34.7	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0		
10	2.5	14.9	3.2	11.3	26.2	22.0	7.8	14.2	.0	22.0	14.8	.0	.0	.0		
11	2.3	13.5	2.9	10.2	23.7	22.0	7.8	14.2	.0	22.0	12.7	.0	.0	.0		
12	3.2	18.9	3.9	13.9	32.8	22.0	7.8	14.2	.0	22.0	18.4	.0	.0	.0		
13	2.5	14.9	3.1	11.2	26.1	22.0	7.8	14.2	.0	22.0	14.4	.0	.0	.0		
14	3.1	18.3	3.7	13.4	31.7	22.0	7.8	14.2	.0	22.0	16.1	.0	.0	.0		
15	1.3	7.9	1.8	6.3	14.2	22.0	6.8	14.8	.4	22.0	5.8	.9	1.5	.0		
16	1.4	8.5	1.9	6.7	15.2	22.0	7.1	11.5	3.4	22.0	6.4	5.6	10.5	.0		
17	3.3	19.9	4.1	14.7	34.6	22.0	8.0	12.9	1.1	22.0	19.7	3.9	6.0	.0		
18	4.0	23.9	4.9	17.5	41.6	22.0	8.1	13.9	.0	22.0	15.1	.0	.0	.0		
19	2.1	12.8	2.8	9.9	22.7	22.0	7.8	14.2	.0	22.0	10.9	.0	.0	.0		
20	1.5	8.8	2.0	7.0	15.9	22.0	7.3	13.6	1.1	22.0	6.6	2.7	4.5	.0		
21	1.0	5.9	1.4	5.2	11.1	22.0	7.1	11.0	3.9	22.0	3.0	8.8	15.0	.0		
22	3.0	18.0	3.7	13.2	31.2	22.0	7.8	13.2	.9	22.0	16.9	5.2	7.5	.0		
23	3.6	21.7	4.5	16.1	37.8	22.0	8.3	13.7	.0	22.0	14.9	.0	.0	.0		
24	2.7	16.3	3.4	12.1	28.3	22.0	8.2	13.8	.0	22.0	14.7	.0	.0	.0		
25	2.8	16.7	3.4	12.4	29.1	22.0	7.9	14.1	.0	22.0	14.9	.0	.0	.0		
26	2.0	11.9	2.6	9.3	21.2	22.0	8.0	14.0	.0	22.0	10.7	.0	.0	.0		
27	1.9	11.2	2.5	8.8	20.0	22.0	8.0	14.0	.1	22.0	9.1	1.1	1.5	.0		
28	4.1	24.4	5.0	18.0	42.5	22.0	8.5	11.9	1.6	22.0	19.1	3.5	6.0	.0		
29	1.9	11.4	2.5	8.9	20.2	22.0	8.0	14.0	.0	22.0	9.9	.0	.0	.0		
30	1.4	8.6	1.9	6.7	15.6	22.0	7.7	12.7	1.6	22.0	6.2	2.3	4.5	.0		
31	3.6	21.3	4.4	15.8	37.2	22.0	8.6	12.2	1.2	22.0	19.8	3.8	6.0	.0		
=====																
	79.1	472.6	99.2	355.9	828.5	682.0	240.3	424.6	17.0	682.0	412.5	44.6	73.5	.0		

JAN , 1958 - WILMINGTON, DELAWARE - TW

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED		AUX. THERMAL INPUT		THERMAL LOAD DEFICIT	
	PER SQ-H	TOTAL SQ-M	TOTAL	T-1	SUPPLIED FROM					TOTAL OUTPUT	SUPPLIED FROM				T-1	PV-1	E-X	T-X		
					T-S	PV-1	E-S	E-X	T-X		T-1	PV-1	E-X	T-X						
1	.4	21.7	75.4	15.7	58.5	.0	.0	.0	1.2	75.4	6.0	.0	.0	.0	.0			1.2	.0	
2	.9	46.0	55.5	14.3	25.0	.0	.0	.0	16.2	55.5	31.7	.0	.0	.0	.0			16.2	.0	
3	1.4	70.0	72.2	18.2	31.4	.5	.0	.0	22.1	72.2	51.7	.4	.0	.0	.0			22.1	.0	
4	.8	38.6	74.3	16.4	49.6	.0	.0	.0	8.3	74.3	22.2	.0	.0	.0	.0			8.3	.0	
5	1.1	57.5	114.0	32.5	25.0	3.1	.0	.0	53.4	114.0	25.0	.0	.0	.0	.0			53.4	.0	
6	1.6	80.9	112.7	31.8	38.3	2.8	.0	.0	39.8	112.7	49.1	9.4	.0	.0	.0			39.8	.0	
7	1.1	53.5	97.5	23.4	50.3	5.0	.0	.0	18.7	97.5	30.1	.0	.0	.0	.0			18.7	.0	
8	1.0	50.8	93.0	23.9	27.2	.2	.0	.0	41.7	93.0	26.9	.2	.0	.0	.0			41.7	.0	
9	1.5	73.4	95.8	25.8	32.9	.2	.0	.0	36.9	95.8	47.6	7.7	.0	.0	.0			36.9	.0	
10	1.0	47.9	93.9	25.5	44.7	1.1	.0	.0	22.5	93.9	22.3	.0	.0	.0	.0			22.5	.0	
11	.9	43.1	82.5	22.4	20.7	1.3	.0	.0	38.2	82.5	20.7	.0	.0	.0	.0			38.2	.0	
12	1.4	71.2	80.9	21.5	28.3	.0	.0	.0	31.2	80.9	49.7	2.6	.0	.0	.0			31.2	.0	
13	1.1	52.7	76.1	17.3	52.0	2.3	.0	.0	4.5	76.1	35.4	.0	.0	.0	.0			4.5	.0	
14	1.4	68.5	83.2	20.8	35.0	.1	.0	.0	27.3	83.2	47.7	4.1	.0	.0	.0			27.3	.0	
15	.4	21.3	59.7	13.5	32.1	.4	.0	.0	13.7	59.7	7.8	.0	.0	.0	.0			13.7	.0	
16	.9	22.3	67.0	15.1	7.2	.0	.0	.0	44.7	67.0	7.2	.0	.0	.0	.0			44.7	.0	
17	1.4	69.0	113.0	30.3	40.6	3.0	.0	.0	39.1	113.0	38.8	1.8	.0	.0	.0			39.1	.0	
18	1.7	87.1	117.9	34.0	39.9	2.6	.0	.0	41.4	117.9	53.2	13.2	.0	.0	.0			41.4	.0	
19	.8	39.0	91.8	21.3	44.2	4.6	.0	.0	21.8	91.8	17.8	.0	.0	.0	.0			21.8	.0	
20	.5	23.5	71.5	16.0	7.6	1.0	.0	.0	47.0	71.5	7.6	.0	.0	.0	.0			47.0	.0	
21	.3	14.7	38.8	7.0	7.7	.0	.0	.0	24.2	38.8	7.7	.0	.0	.0	.0			24.2	.0	
22	1.4	68.8	54.6	18.3	30.3	.7	.0	.0	5.2	54.6	50.5	.3	.0	.0	.0			5.2	.0	
23	1.6	80.9	92.2	27.0	53.1	1.1	.0	.0	11.1	92.2	53.9	10.2	.0	.0	.0			11.1	.0	
24	1.1	55.7	87.2	22.5	59.2	2.3	.0	.0	3.3	87.2	33.1	1.3	.0	.0	.0			3.3	.0	
25	1.3	65.9	50.5	12.1	23.7	.4	.0	.0	14.3	50.5	53.8	2.8	.0	.0	.0			14.3	.0	
26	.7	33.1	88.9	23.6	49.1	.0	.0	.0	16.2	88.9	9.5	.0	.0	.0	.0			16.2	.0	
27	.6	30.8	93.9	21.9	8.8	2.1	.0	.0	60.9	93.9	8.8	.0	.0	.0	.0			60.9	.0	
28	1.8	92.2	104.1	28.8	33.7	3.3	.0	.0	38.2	104.1	63.3	9.1	.0	.0	.0			38.2	.0	
29	.7	33.0	78.2	20.1	51.6	.0	.0	.0	6.4	78.2	12.9	.0	.0	.0	.0			6.4	.0	
30	.5	26.4	50.9	9.6	16.8	.0	.0	.0	24.5	50.9	16.8	.0	.0	.0	.0			24.5	.0	
31	1.6	82.2	74.9	21.2	30.0	1.1	.0	.0	22.5	74.9	61.0	4.1	.0	.0	.0			22.5	.0	
=====																				
	32.4	1621.6	2542.0	651.8	1054.5	39.1	.0	.0	796.6	2542.0	469.8	67.2	.0	.0	.0			796.6	.0	

(ALL UNITS = Kilo-HK)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	30.0 SQ-M	PLR SQ-M	30.0 SQ-M			PV-1	E-S	E-A	TOTAL OUTPUT	PV-1	E-R			
1	3.3	19.6	4.1	14.7	34.3	22.0	8.8	13.2	.0	22.0	14.4	.0	.0	.0	
2	4.1	24.6	5.1	18.3	42.9	22.0	8.8	13.2	.0	22.0	14.2	.0	.0	.0	
3	3.9	23.5	4.8	17.3	40.8	22.0	8.4	13.6	.0	22.0	14.2	.0	.0	.0	
4	1.8	10.5	2.3	8.3	18.8	22.0	8.1	13.9	.0	22.0	8.5	.0	.0	.0	
5	3.9	23.6	4.8	17.4	41.0	22.0	8.7	13.3	.0	22.0	19.7	1.2	.0	1.5	
6	4.1	24.4	5.0	17.9	42.4	22.0	9.0	13.0	.0	22.0	14.3	.0	.0	.0	
7	4.4	26.3	5.4	19.4	45.7	22.0	9.0	13.0	.0	22.0	14.0	.0	.0	.0	
8	2.3	13.7	3.0	10.7	29.4	22.0	8.4	13.6	.0	22.0	13.0	.0	.0	.0	
9	2.2	13.3	2.9	10.4	23.6	22.0	8.5	13.5	.0	22.0	12.3	.0	.0	.0	
10	1.5	9.1	2.1	7.5	16.6	22.0	8.3	13.1	.6	22.0	6.5	.7	.0	1.5	
11	3.0	18.1	3.9	13.0	32.0	22.0	9.1	11.3	1.6	22.0	18.8	3.5	.0	6.0	
12	4.6	27.4	5.6	20.2	47.6	22.0	9.3	12.7	.0	22.0	14.3	.0	.0	.0	
13	1.9	11.4	2.5	9.1	20.6	22.0	8.5	13.5	.0	22.0	9.7	.0	.0	.0	
14	2.1	12.3	2.7	9.7	22.0	22.0	8.6	13.4	.0	22.0	10.8	.0	.0	.0	
15	2.4	14.2	3.1	11.1	25.3	22.0	8.9	12.7	.4	22.0	13.3	2.0	.0	3.0	
16	3.3	19.5	4.1	14.7	34.2	22.0	9.0	12.8	.3	22.0	19.0	1.0	.0	1.5	
17	2.2	13.2	2.9	10.4	23.6	22.0	8.8	13.2	.0	22.0	11.9	.0	.0	.0	
18	2.1	12.3	2.7	9.3	22.1	22.0	8.8	13.2	.0	22.0	10.3	.0	.0	.0	
19	4.3	25.5	5.3	18.9	44.4	22.0	9.5	12.5	.0	22.0	19.9	.0	.0	.0	
20	4.0	23.8	5.0	17.9	41.7	22.0	9.7	12.3	.0	22.0	13.3	.0	.0	.0	
21	5.1	30.2	6.2	22.3	52.5	22.0	9.7	12.3	.0	22.0	13.2	.0	.0	.0	
22	4.7	28.1	5.8	20.8	48.9	22.0	9.6	12.4	.0	22.0	13.3	.0	.0	.0	
23	2.4	14.4	3.2	11.3	25.7	22.0	9.1	12.9	.0	22.0	13.5	.0	.0	.0	
24	3.5	20.8	4.3	15.4	36.2	22.0	9.4	12.6	.0	22.0	13.8	.0	.0	.0	
25	5.1	30.6	6.3	22.6	53.2	22.0	9.8	12.2	.0	22.0	13.1	.0	.0	.0	
26	3.4	20.3	4.4	15.5	35.7	22.0	9.5	12.5	.0	22.0	13.4	.0	.0	.0	
27	2.9	17.3	3.7	13.4	30.6	22.0	9.5	12.5	.0	22.0	13.4	.0	.0	.0	
28	3.3	19.5	4.2	15.0	34.5	22.0	9.7	12.3	.0	22.0	13.2	.0	.0	.0	
98	91.6	547.3	115.4	413.9	961.2	616.0	252.7	360.4	2.9	616.0	379.7	6.4	.0	13.5	

FEB , 1950 - WILMINGTON, DELAWARE - 1W

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT					THERMAL STORAGE				THERMAL INPUT		AUX. THERMAL		THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL SQ-M	TOTAL	T-1	T-S	SUPPLIED FROM				TOTAL OUTPUT	SUPPLIED FROM				WASTED	THERMAL INPUT	THERMAL INPUT		
						PV-1	E-S	E-X	T-X		T-1	PV-1	E-X	T-X					
1	1.3	66.6	100.2	30.8	69.4	.0	.0	.0	.0	100.2	35.8	7.4	.0	.0	.0	.0	.0	.0	
2	1.8	88.3	115.6	35.3	48.2	3.7	.0	.0	28.7	115.6	53.1	14.4	.0	.0	.0	28.7	.0	.0	
3	1.8	90.5	94.1	25.7	55.5	3.5	.0	.0	9.5	94.1	64.8	13.1	.0	.0	.0	9.5	.0	.0	
4	.6	30.1	67.3	17.9	49.4	.0	.0	.0	.0	67.3	12.1	.0	.0	.0	.0	.0	.0	.0	
5	1.9	95.0	65.2	20.5	36.2	1.7	.0	.0	6.8	65.2	74.5	7.4	.0	.0	.0	6.8	.0	.0	
6	1.9	97.3	75.1	22.3	52.8	.0	.0	.0	.0	75.1	63.0	14.7	.0	.0	11.9	.0	.0	.0	
7	2.1	106.6	74.5	23.9	55.6	.0	.0	.0	.0	74.5	51.2	18.2	.0	.0	31.5	.0	.0	.0	
8	.9	46.3	61.1	16.9	44.3	.0	.0	.0	.0	61.1	27.2	.0	.0	.0	2.3	.0	.0	.0	
9	.8	38.6	81.5	25.5	56.0	.0	.0	.0	.0	81.5	13.2	.0	.0	.0	.0	.0	.0	.0	
10	.5	26.5	47.0	12.0	35.0	.0	.0	.0	.0	47.0	14.5	.0	.0	.0	.0	.0	.0	.0	
11	1.3	64.6	63.0	23.8	39.2	.0	.0	.0	.0	63.0	40.8	.0	.0	.0	.0	.0	.0	.0	
12	2.2	108.2	87.6	24.2	46.9	1.6	.0	.0	9.8	87.6	79.0	18.8	.0	.0	.0	9.8	.0	.0	
13	.7	35.4	54.5	16.2	38.3	.0	.0	.0	.0	54.5	19.2	.0	.0	.0	.0	.0	.0	.0	
14	.7	37.2	58.1	20.8	37.3	.0	.0	.0	.0	58.1	16.4	.0	.0	.0	.0	.0	.0	.0	
15	1.0	48.3	59.2	17.5	41.6	.0	.0	.0	.0	59.2	30.8	.0	.0	.0	.0	.0	.0	.0	
16	1.4	72.2	74.8	23.3	43.1	.7	.0	.0	7.7	74.8	48.9	1.9	.0	.0	.0	7.7	.0	.0	
17	.8	42.5	62.1	18.8	43.4	.0	.0	.0	.0	62.1	23.7	.0	.0	.0	.0	.0	.0	.0	
18	.8	37.6	61.7	14.5	25.4	1.8	.0	.0	15.1	61.7	18.2	.0	.0	.0	.0	15.1	.0	.0	
19	1.9	94.4	97.8	34.3	36.9	.7	.0	.0	25.8	97.8	60.1	9.8	.0	.0	.0	25.8	.0	.0	
20	1.6	82.7	116.4	35.9	69.9	5.4	.0	.0	5.4	116.4	46.3	13.1	.0	.0	.0	5.4	.0	.0	
21	2.5	123.0	88.9	29.0	47.7	.5	.0	.0	11.7	88.9	88.2	24.5	.0	.0	5.8	11.7	.0	.0	
22	2.3	114.8	76.3	24.2	51.1	.0	.0	.0	.0	76.3	43.6	21.3	.0	.0	46.0	.0	.0	.0	
23	.9	45.0	74.0	24.4	49.5	.0	.0	.0	.0	74.0	20.6	.0	.0	.0	.0	.0	.0	.0	
24	1.6	79.4	64.7	21.4	43.2	.0	.0	.0	.0	64.7	47.8	9.2	.0	.0	10.2	.0	.0	.0	
25	2.5	123.8	86.2	30.7	55.6	.0	.0	.0	.0	86.2	44.5	25.3	.0	.0	48.6	.0	.0	.0	
26	1.5	76.1	72.1	22.0	50.2	.0	.0	.0	.0	72.1	34.1	9.0	.0	.0	20.1	.0	.0	.0	
27	1.2	61.0	67.4	22.0	45.4	.0	.0	.0	.0	67.4	35.4	4.3	.0	.0	3.6	.0	.0	.0	
28	1.4	71.6	66.7	22.5	44.2	.0	.0	.0	.0	66.7	40.3	7.9	.0	.0	8.7	.0	.0	.0	

40.1 2003.2 2118.5 667.31311.1 19.6 .0 .0 120.5 2118.5 1147.3 220.1 .0 .0 188.7 120.5 .0

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | TOTAL
INPUT | ELECTRICAL
LOAD
TOTAL | ELECTRICAL OUTPUT | | | TOTAL
OUTPUT | ELECTRICAL
STORAGE
SUPPLIED FROM | | PHOTO-
VOLTALIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT | |
|-------|--------------------|--------------|-------------|--------------|----------------|-----------------------------|-------------------|-------|----|-----------------|--|-----|---------------------------------------|-------------------------|---------------------------|-----|
| | WATER-COOLED | | AIR-COOLED | | | | SUPPLIED FROM | | | | PV-1 | E-S | | | | E-A |
| | PER
SQ-M | 50.0
SQ-M | PER
SQ-M | 30.0
SQ-M | | | | | | | | | | | | |
| 1 | 2.4 | 14.6 | 3.3 | 11.7 | 26.3 | 21.0 | 9.2 | 11.8 | .0 | 21.0 | 13.1 | .0 | .0 | .0 | .0 | |
| 2 | 2.8 | 17.0 | 3.7 | 13.2 | 30.2 | 21.0 | 9.3 | 11.7 | .0 | 21.0 | 12.6 | .0 | .0 | .0 | .0 | |
| 3 | 4.3 | 25.9 | 5.4 | 19.4 | 45.3 | 21.0 | 9.5 | 11.5 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 4 | 4.4 | 26.2 | 5.5 | 19.6 | 45.9 | 21.0 | 9.5 | 11.5 | .0 | 21.0 | 12.4 | .0 | .0 | .0 | .0 | |
| 5 | 4.4 | 26.4 | 5.4 | 19.5 | 45.9 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 6 | 2.1 | 12.3 | 2.8 | 10.1 | 22.4 | 21.0 | 9.3 | 11.7 | .0 | 21.0 | 10.5 | .0 | .0 | .0 | .0 | |
| 7 | 3.6 | 21.6 | 4.6 | 16.5 | 38.2 | 21.0 | 9.5 | 11.5 | .0 | 21.0 | 14.5 | .0 | .0 | .0 | .0 | |
| 8 | 4.5 | 26.9 | 5.6 | 20.0 | 46.9 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 9 | 2.7 | 16.1 | 3.5 | 12.7 | 28.8 | 21.0 | 9.5 | 11.5 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 10 | 2.7 | 16.0 | 3.5 | 12.7 | 28.7 | 21.0 | 9.5 | 11.5 | .0 | 21.0 | 12.4 | .0 | .0 | .0 | .0 | |
| 11 | 3.5 | 20.7 | 4.4 | 15.8 | 36.5 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 12 | 2.8 | 16.9 | 3.8 | 13.5 | 30.4 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 13 | 4.1 | 24.4 | 5.2 | 18.7 | 43.1 | 21.0 | 9.7 | 11.3 | .0 | 21.0 | 12.3 | .0 | .0 | .0 | .0 | |
| 14 | 3.2 | 19.3 | 4.2 | 14.9 | 34.2 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.2 | .0 | .0 | .0 | .0 | |
| 15 | 2.7 | 15.9 | 3.5 | 12.7 | 28.6 | 21.0 | 9.7 | 11.3 | .0 | 21.0 | 12.2 | .0 | .0 | .0 | .0 | |
| 16 | 4.8 | 28.8 | 6.1 | 21.8 | 50.6 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 17 | 4.7 | 28.0 | 5.8 | 20.8 | 48.8 | 21.0 | 9.6 | 11.4 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 18 | 5.1 | 30.5 | 6.4 | 22.9 | 53.4 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.2 | .0 | .0 | .0 | .0 | |
| 19 | 5.4 | 32.3 | 6.7 | 24.1 | 56.4 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 20 | 5.5 | 32.7 | 6.8 | 24.3 | 57.0 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 21 | 3.3 | 19.7 | 4.2 | 14.9 | 34.6 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.0 | .0 | .0 | .0 | .0 | |
| 22 | 5.5 | 32.9 | 6.9 | 25.7 | 57.6 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.0 | .0 | .0 | .0 | .0 | |
| 23 | 5.7 | 34.2 | 7.1 | 25.6 | 59.8 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.0 | .0 | .0 | .0 | .0 | |
| 24 | 5.0 | 29.9 | 6.2 | 22.3 | 52.1 | 21.0 | 9.7 | 11.3 | .0 | 21.0 | 12.0 | .0 | .0 | .0 | .0 | |
| 25 | 5.0 | 30.1 | 6.3 | 22.5 | 52.6 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 26 | 4.9 | 29.3 | 6.1 | 21.9 | 51.2 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 12.1 | .0 | .0 | .0 | .0 | |
| 27 | 2.8 | 16.9 | 3.8 | 13.7 | 30.6 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.9 | .0 | .0 | .0 | .0 | |
| 28 | 5.6 | 33.5 | 7.0 | 25.1 | 58.6 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.9 | .0 | .0 | .0 | .0 | |
| 29 | 5.0 | 29.9 | 6.3 | 22.5 | 52.3 | 21.0 | 9.9 | 11.1 | .0 | 21.0 | 11.8 | .0 | .0 | .0 | .0 | |
| 30 | 2.9 | 17.5 | 3.9 | 14.2 | 31.7 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.9 | .0 | .0 | .0 | .0 | |
| 31 | 3.8 | 22.9 | 4.9 | 17.5 | 40.3 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.8 | .0 | .0 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 125.4 | 749.5 | 158.8 | 509.5 | 1319.0 | 651.0 | 300.0 | 351.0 | .0 | 651.0 | 378.1 | .0 | .0 | .0 | .0 | |

(ALL UNITS = KN-HR)

THERMAL INPUT			THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	ACC. THERMAL INPUT DEFICIT	
DAY	PER SQ-M	TOTAL SQ-M	TOTAL	T-1	T-S	PV-1	E-S	E-X	T-A	TOTAL OUTPUT	T-1	PV-1	E-A	T-A		
1	1.0	50.3	53.8	17.4	36.3	.0	.0	.0	.0	53.8	32.8	.9	.0	.0	.0	.0
2	1.2	60.0	56.8	20.8	36.0	.0	.0	.0	.0	56.8	33.2	5.0	.0	.0	6.1	.0
3	2.2	107.5	58.9	18.7	40.2	.0	.0	.0	.0	58.9	39.0	19.1	.0	.0	49.9	.0
4	2.2	110.1	54.3	17.0	37.2	.0	.0	.0	.0	54.3	15.1	19.6	.0	.0	78.0	.0
5	2.1	106.9	67.2	22.6	44.7	.0	.0	.0	.0	67.2	22.7	19.6	.0	.0	61.7	.0
6	.9	43.0	36.6	10.8	25.8	.0	.0	.0	.0	36.6	12.4	.0	.0	.0	19.8	.0
7	1.6	82.0	64.5	23.6	40.9	.0	.0	.0	.0	64.5	31.1	10.2	.0	.0	27.3	.0
8	2.2	107.6	74.8	25.8	49.0	.0	.0	.0	.0	74.8	41.5	20.5	.0	.0	40.4	.0
9	1.2	57.8	51.1	16.3	34.8	.0	.0	.0	.0	51.1	20.5	3.8	.0	.0	21.1	.0
10	1.0	52.1	62.5	25.1	37.5	.0	.0	.0	.0	62.5	25.4	3.7	.0	.0	1.6	.0
11	1.5	74.6	72.7	26.0	46.8	.0	.0	.0	.0	72.7	39.4	11.0	.0	.0	9.3	.0
12	1.1	55.7	73.8	25.7	48.1	.0	.0	.0	.0	73.8	30.1	5.2	.0	.0	.0	.0
13	1.9	92.6	76.7	27.2	49.5	.0	.0	.0	.0	76.7	48.6	17.0	.0	.0	16.8	.0
14	1.4	69.7	62.8	22.8	40.0	.0	.0	.0	.0	62.8	34.2	8.8	.0	.0	12.7	.0
15	1.1	56.9	43.6	15.1	28.6	.0	.0	.0	.0	43.6	28.1	3.5	.0	.0	13.7	.0
16	2.4	122.3	49.7	17.9	31.8	.0	.0	.0	.0	49.7	20.8	24.1	.0	.0	83.6	.0
17	2.3	116.7	63.8	20.3	43.5	.0	.0	.0	.0	63.8	15.7	22.5	.0	.0	80.7	.0
18	2.5	122.7	79.1	24.5	49.6	.0	.0	.0	.0	79.1	23.1	26.5	.0	.0	70.1	.0
19	2.8	141.7	56.6	17.0	39.6	.0	.0	.0	.0	56.6	25.6	29.5	.0	.0	99.1	.0
20	3.0	151.0	40.5	12.3	28.2	.0	.0	.0	.0	40.5	1.0	30.0	.0	.0	137.7	.0
21	1.7	83.0	32.8	10.2	22.6	.0	.0	.0	.0	32.8	.0	9.2	.0	.0	72.8	.0
22	2.7	134.6	77.6	31.1	46.5	.0	.0	.0	.0	77.6	17.1	30.6	.0	.0	86.4	.0
23	2.9	145.5	72.9	25.2	47.8	.0	.0	.0	.0	72.9	24.1	32.6	.0	.0	96.2	.0
24	2.7	136.1	42.5	12.6	29.9	.0	.0	.0	.0	42.5	6.9	25.6	.0	.0	116.6	.0
25	2.8	138.3	28.5	11.3	17.3	.0	.0	.0	.0	28.5	.0	25.9	.0	.0	127.0	.0
26	2.6	129.0	33.7	12.9	20.8	.0	.0	.0	.0	33.7	.0	24.6	.0	.0	116.1	.0
27	1.1	57.1	57.7	22.8	34.9	.0	.0	.0	.0	57.7	.0	5.4	.0	.0	34.3	.0
28	2.8	139.2	74.1	24.0	45.0	.0	.0	.0	.0	74.1	22.6	31.5	.0	.0	87.5	.0
29	2.4	121.7	73.4	26.4	47.0	.0	.0	.0	.0	73.4	18.1	25.8	.0	.0	77.2	.0
30	1.2	58.8	62.2	24.9	37.3	.0	.0	.0	.0	62.2	12.3	6.5	.0	.0	21.7	.0
31	1.9	93.6	37.9	13.9	24.0	.0	.0	.0	.0	37.9	26.7	14.7	.0	.0	53.0	.0
=====																
60.4		3018.3	1795.2	631.9	1163.3	.0	.0	.0	.0	1795.2	668.1	513.0	.0	.0	1718.3	.0

APR , 1958. - WILMINGTON, DELAWARE - (W

(ALL UNITS = KH-HR)

DAY	PHOTOVOLTAIC INPUT					ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM						
	PER SQ-M	SQ-M	PER SQ-M	SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X				
1	3.5	20.9	4.6	16.3	37.2	20.0	9.5	10.5	.0	20.0	11.7	.0	.0	.0	.0	
2	2.9	14.4	3.4	12.1	26.9	20.0	9.9	10.1	.0	20.0	11.0	.0	.0	.0	.0	
3	4.5	26.7	5.7	20.4	47.1	20.0	9.6	10.4	.0	20.0	11.1	.0	.0	.0	.0	
4	3.4	20.5	4.5	16.3	36.8	20.0	9.6	10.4	.0	20.0	11.2	.0	.0	.0	.0	
5	4.8	28.6	6.1	21.7	50.3	20.0	9.7	10.3	.0	20.0	11.2	.0	.0	.0	.0	
6	3.7	22.1	4.8	17.3	39.5	20.0	9.7	10.3	.0	20.0	11.1	.0	.0	.0	.0	
7	5.1	30.5	6.4	23.1	53.6	20.0	9.7	10.3	.0	20.0	11.1	.0	.0	.0	.0	
8	3.8	22.8	4.9	17.4	40.2	20.0	9.8	10.2	.0	20.0	11.1	.0	.0	.0	.0	
9	3.0	18.2	4.0	14.5	32.6	20.0	10.1	9.9	.0	20.0	10.9	.0	.0	.0	.0	
10	2.7	16.4	3.8	13.5	29.9	20.0	10.1	9.9	.0	20.0	10.4	.0	.0	.0	.0	
11	2.7	16.0	3.7	13.3	29.3	20.0	10.2	9.8	.0	20.0	10.7	.0	.0	.0	.0	
12	3.1	18.6	4.2	15.1	34.7	20.0	9.9	10.1	.0	20.0	10.7	.0	.0	.0	.0	
13	4.9	29.6	6.3	22.5	52.1	20.0	9.9	10.1	.0	20.0	10.8	.0	.0	.0	.0	
14	5.4	32.2	6.8	24.5	56.7	20.0	9.8	10.2	.0	20.0	10.9	.0	.0	.0	.0	
15	5.3	31.7	6.7	24.2	55.9	20.0	9.9	10.1	.0	20.0	10.9	.0	.0	.0	.0	
16	5.2	31.1	6.6	23.7	54.9	20.0	9.9	10.1	.0	20.0	10.9	.0	.0	.0	.0	
17	5.1	30.3	6.4	23.1	53.4	20.0	9.9	10.1	.0	20.0	10.9	.0	.0	.0	.0	
18	4.1	24.4	5.3	18.0	43.3	20.0	10.1	9.9	.0	20.0	10.8	.0	.0	.0	.0	
19	2.5	14.9	3.6	12.8	27.7	20.0	10.9	9.1	.0	20.0	10.4	.0	.0	.0	.0	
20	2.8	16.9	3.9	14.1	30.9	20.0	10.5	9.5	.0	20.0	9.7	.0	.0	.0	.0	
21	3.2	18.9	4.3	15.4	34.2	20.0	10.1	9.9	.0	20.0	10.4	.0	.0	.0	.0	
22	5.4	32.4	7.0	25.0	57.4	20.0	10.0	10.0	.0	20.0	10.8	.0	.0	.0	.0	
23	3.3	19.7	4.5	16.0	35.7	20.0	10.0	10.0	.0	20.0	10.7	.0	.0	.0	.0	
24	5.3	31.8	6.8	24.5	56.3	20.0	10.0	10.0	.0	20.0	10.8	.0	.0	.0	.0	
25	4.6	27.6	6.0	21.6	49.1	20.0	10.1	9.9	.0	20.0	10.7	.0	2.6	.0	.0	
26	3.0	17.7	4.0	14.5	32.3	20.0	10.7	9.3	.0	20.0	10.4	.0	.5	.0	.0	
27	2.9	17.5	4.1	14.7	32.2	20.0	10.6	9.4	.0	20.0	9.9	.0	2.3	.0	.0	
28	3.0	17.8	4.2	14.9	32.7	20.0	10.5	9.5	.0	20.0	10.2	.0	.0	.0	.0	
29	3.8	22.5	5.0	17.8	40.3	20.0	10.2	9.8	.0	20.0	10.4	.0	.0	.0	.0	
30	3.2	19.3	4.5	16.0	35.3	20.0	10.6	9.4	.0	20.0	10.2	.0	.0	.0	.0	
=====																
	115.7	691.6	152.0	545.0	1236.7	600.0	301.6	298.4	.0	600.0	321.7	.0	5.4	.0	.0	

APR , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED		AUX. THERMAL INPUT		THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL SQ-M	TOTAL	T-I	SUPPLIED FROM					TOTAL OUTPUT	SUPPLIED FROM				T-I	PV-I	E-X	T-X		
					T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X						
1	1.7	85.5	35.6	11.9	23.7	.0	.0	.0	.0	35.6	8.0	12.3	.0	.0	65.6	.0	.0	.0	.0	.0
2	1.0	49.1	34.5	12.5	22.0	.0	.0	.0	.0	34.5	6.9	2.6	.0	.0	29.7	.0	.0	.0	.0	.0
3	2.3	115.6	36.2	12.8	23.4	.0	.0	.0	.0	36.2	25.8	22.1	.0	.0	77.0	.0	.0	.0	.0	.0
4	1.6	79.9	39.8	15.2	24.6	.0	.0	.0	.0	39.8	.0	12.4	.0	.0	64.7	.0	.0	.0	.0	.0
5	2.5	126.5	37.3	12.1	25.2	.0	.0	.0	.0	37.3	15.3	24.9	.0	.0	99.2	.0	.0	.0	.0	.0
6	1.8	89.8	29.2	13.0	16.2	.0	.0	.0	.0	29.2	.0	14.9	.0	.0	76.7	.0	.0	.0	.0	.0
7	2.8	137.8	36.9	12.2	24.7	.0	.0	.0	.0	36.9	1.4	28.1	.0	.0	124.2	.0	.0	.0	.0	.0
8	2.1	104.1	21.9	10.2	11.7	.0	.0	.0	.0	21.9	.0	15.4	.0	.0	93.9	.0	.0	.0	.0	.0
9	1.6	79.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	6.3	.0	.0	68.9	.0	.0	.0	.0	.0
10	1.2	59.8	21.9	10.6	11.3	.0	.0	.0	.0	21.9	.0	6.3	.0	.0	49.2	.0	.0	.0	.0	.0
11	1.1	55.0	35.7	15.9	19.7	.0	.0	.0	.0	35.7	.0	5.4	.0	.0	39.1	.0	.0	.0	.0	.0
12	1.3	64.4	59.0	23.3	35.7	.0	.0	.0	.0	59.0	6.6	9.7	.0	.0	34.5	.0	.0	.0	.0	.0
13	2.5	123.4	54.9	20.6	34.3	.0	.0	.0	.0	54.9	32.6	26.8	.0	.0	70.2	.0	.0	.0	.0	.0
14	2.8	142.3	41.2	14.5	26.7	.0	.0	.0	.0	41.2	5.3	30.9	.0	.0	122.5	.0	.0	.0	.0	.0
15	2.9	147.4	31.0	10.8	20.1	.0	.0	.0	.0	31.0	.0	30.2	.0	.0	136.5	.0	.0	.0	.0	.0
16	2.9	147.0	26.9	10.9	15.9	.0	.0	.0	.0	26.9	.0	29.3	.0	.0	136.1	.0	.0	.0	.0	.0
17	2.9	144.9	23.6	10.2	13.4	.0	.0	.0	.0	23.6	.0	27.9	.0	.0	134.7	.0	.0	.0	.0	.0
18	2.2	111.2	20.2	10.4	9.8	.0	.0	.0	.0	20.2	.0	18.3	.0	.0	100.8	.0	.0	.0	.0	.0
19	1.1	56.3	17.8	11.0	6.8	.0	.0	.0	.0	17.8	.0	3.4	.0	.0	45.2	.0	.0	.0	.0	.0
20	1.2	60.3	24.0	14.2	9.9	.0	.0	.0	.0	24.0	.0	7.6	.0	.0	46.2	.0	.0	.0	.0	.0
21	1.4	68.6	40.7	18.3	22.4	.0	.0	.0	.0	40.7	.0	10.4	.0	.0	50.3	.0	.0	.0	.0	.0
22	2.9	143.5	36.1	14.8	21.3	.0	.0	.0	.0	36.1	.0	31.6	.0	.0	128.7	.0	.0	.0	.0	.0
23	1.5	76.6	33.8	12.9	21.0	.0	.0	.0	.0	33.8	.0	11.5	.0	.0	63.8	.0	.0	.0	.0	.0
24	3.0	147.6	30.4	10.5	19.8	.0	.0	.0	.0	30.4	.0	30.5	.0	.0	137.1	.0	.0	.0	.0	.0
25	2.5	125.2	24.1	10.7	13.5	.0	.0	.0	.0	24.1	.0	21.5	.0	.0	114.5	.0	.0	.0	.0	.0
26	1.5	72.8	17.5	11.2	6.3	.0	.0	.0	.0	17.5	.0	7.3	.0	.0	61.6	.0	.0	.0	.0	.0
27	1.3	64.1	25.9	12.4	13.5	.0	.0	.0	.0	25.9	.0	6.3	.0	.0	51.7	.0	.0	.0	.0	.0
28	1.2	60.7	46.2	21.5	24.7	.0	.0	.0	.0	46.2	.0	8.7	.0	.0	39.1	.0	.0	.0	.0	.0
29	1.8	91.6	32.7	14.0	18.8	.0	.0	.0	.0	32.7	.0	15.9	.0	.0	77.7	.0	.0	.0	.0	.0
30	1.5	74.4	28.7	14.0	14.8	.0	.0	.0	.0	28.7	.0	11.1	.0	.0	60.4	.0	.0	.0	.0	.0
*****																				
		58.1	2904.7	961.1	403.2	557.9	.0	.0	.0	.0	961.1	101.7	491.5	.0	.0	2399.7	.0	.0	.0	.0

MAY, 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER 50.0 SQ-M	PER 50.0 SQ-M	PER 50.0 SQ-M	PER 50.0 SQ-M			PV-1	E-S	E-A	TOTAL OUTPUT	PV-1	E-A			
1	3.6	21.7	4.9	17.7	39.3	19.0	10.0	9.0	.0	19.0	9.9	.0	.0	.0	.0
2	3.2	18.9	4.4	15.6	34.5	19.0	10.0	9.0	.0	19.0	10.1	.0	.0	.0	.0
3	3.6	21.6	4.8	17.2	38.8	23.3	13.2	10.1	.0	23.3	9.3	.0	.0	.0	.0
4	5.0	29.6	6.5	23.1	52.7	20.9	11.1	9.7	.0	20.9	11.1	.0	.0	.0	.0
5	3.9	23.3	5.2	18.6	42.0	20.1	10.9	9.1	.0	20.1	10.4	.0	.0	.0	.0
6	4.0	23.9	5.3	19.1	42.9	24.3	13.8	10.5	.0	24.3	9.7	.0	.0	.0	.0
7	3.1	18.8	4.3	15.5	34.3	34.8	18.6	16.2	.0	34.8	11.1	.0	.0	.0	.0
8	3.7	22.2	5.0	18.0	40.3	19.6	10.4	9.3	.0	19.6	17.6	.0	.0	.0	.0
9	4.2	24.9	5.5	19.8	44.8	19.0	9.9	9.1	.0	19.0	10.0	.0	.0	.0	.0
10	2.9	17.3	4.1	14.6	31.9	19.6	11.4	8.2	.0	19.6	9.6	.0	.0	.0	.0
11	2.6	15.7	3.7	13.4	29.0	29.3	16.8	12.5	.0	29.3	8.3	.0	.0	.0	.0
12	3.7	22.3	5.1	18.1	40.4	31.8	22.5	9.2	.0	31.8	13.7	.0	.0	.0	.0
13	2.1	12.8	3.2	11.6	24.4	20.7	13.5	7.2	.0	20.7	6.3	.0	.0	.0	.0
14	4.4	26.5	5.8	20.9	47.4	19.0	10.6	8.4	.0	19.0	9.1	.0	.0	.0	.0
92 15	3.5	20.9	4.9	17.5	38.4	19.0	10.3	8.7	.0	19.0	9.7	.0	.0	.0	.0
16	4.7	28.0	6.2	22.2	50.3	19.0	10.0	9.0	.0	19.0	9.4	.0	.0	.0	.0
17	4.3	25.7	5.7	20.5	46.3	19.2	10.2	9.0	.0	19.2	9.5	.0	.0	.0	.0
18	3.6	21.4	4.8	17.4	38.8	20.6	11.9	8.7	.0	20.6	9.8	.0	.5	.0	.0
19	2.5	14.9	3.7	13.2	28.1	28.4	15.7	12.7	.0	28.4	8.9	.0	.0	.0	.0
20	2.7	16.2	3.9	14.0	30.2	33.5	19.3	14.2	.0	33.5	8.0	.0	.0	.0	.0
21	2.7	15.9	3.9	14.0	29.9	32.1	20.6	9.2	2.4	32.1	6.6	2.9	.0	6.0	.0
22	2.7	16.1	3.9	14.0	30.1	37.0	22.6	7.2	7.0	36.9	4.9	2.7	.0	10.5	.1
23	3.6	21.8	5.0	17.9	39.6	28.2	19.4	8.2	.6	28.2	16.0	1.9	.0	3.0	.0
24	4.2	25.0	5.6	20.0	45.1	20.8	11.9	8.9	.0	20.8	12.4	.0	.0	.0	.0
25	4.7	28.0	6.2	22.3	50.3	19.6	10.9	8.8	.0	19.6	10.0	.0	.0	.0	.0
26	4.1	18.8	4.4	15.6	34.4	21.6	13.4	8.2	.0	21.6	9.2	.0	.0	.0	.0
27	2.9	17.3	4.1	14.7	32.0	32.7	19.4	13.3	.0	32.7	8.5	.0	.0	.0	.0
28	3.0	18.0	4.2	15.2	33.2	42.4	23.7	13.7	4.9	42.3	6.6	.8	.0	6.0	.1
29	2.4	14.3	3.5	12.5	26.8	38.8	23.3	6.9	8.6	38.8	1.5	6.3	.0	16.5	.0
30	3.8	22.5	5.1	18.2	40.8	42.4	24.8	14.5	3.0	42.4	12.0	3.5	.0	7.5	.0
31	2.7	16.3	3.9	13.9	30.2	33.1	21.2	10.0	2.0	33.1	6.3	4.3	.0	7.5	.0
=====															
	107.2	640.5	146.9	526.6	1167.1	808.8	471.3	306.8	28.5	808.5	297.5	22.5	.5	57.0	.2

MAY, 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM						SUPPLIED FROM				T-I	PV-I	E-X	T-X
		TOTAL		T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X				
1	1.8	90.5	21.4	10.7	10.7	.0	.0	.0	.0	21.4	.0	15.7	.0	.0	79.7	.0	.0
2	1.5	73.5	22.9	11.2	11.8	.0	.0	.0	.0	22.9	.0	11.0	.0	.0	62.4	.0	.0
3	1.9	93.8	19.6	10.7	9.0	.0	.0	.0	.0	19.6	.0	12.7	.0	.0	83.2	.0	.0
4	2.7	136.9	23.3	10.0	13.3	.0	.0	.0	.0	23.3	.0	25.8	.0	.0	126.8	.0	.0
5	2.0	100.8	24.6	10.3	14.4	.0	.0	.0	.0	24.6	.0	16.7	.0	.0	90.5	.0	.0
6	2.1	106.7	23.7	10.4	13.3	.0	.0	.0	.0	23.7	.0	15.5	.0	.0	96.5	.0	.0
7	1.6	81.7	17.7	11.4	6.4	.0	.0	.0	.0	17.7	.0	1.1	.0	.0	70.3	.0	.0
8	1.9	95.3	18.1	9.7	8.4	.0	.0	.0	.0	18.1	.0	7.8	.0	.0	85.5	.0	.0
9	2.1	107.4	27.4	10.3	17.1	.0	.0	.0	.0	27.4	.0	20.8	.0	.0	97.1	.0	.0
10	1.3	66.9	21.8	11.0	10.7	.0	.0	.0	.0	21.8	.0	7.8	.0	.0	55.8	.0	.0
11	1.2	62.4	17.5	12.4	5.1	.0	.0	.0	.0	17.5	.0	1.1	.0	.0	50.0	.0	.0
12	2.0	100.3	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.1	.0	.0	87.7	.0	.0
13	.9	44.2	17.5	11.9	5.6	.0	.0	.0	.0	17.5	.0	.0	.0	.0	32.3	.0	.0
14	2.3	113.9	19.5	10.7	8.8	.0	.0	.0	.0	19.5	.0	23.6	.0	.0	103.2	.0	.0
15	1.6	81.2	32.2	12.4	19.8	.0	.0	.0	.0	32.2	.0	14.9	.0	.0	66.8	.0	.0
16	2.4	119.6	35.9	13.4	22.5	.0	.0	.0	.0	35.9	.0	26.5	.0	.0	106.2	.0	.0
17	2.2	111.0	28.7	11.1	17.6	.0	.0	.0	.0	28.7	.0	22.4	.0	.0	99.8	.0	.0
18	1.8	91.0	18.3	10.1	8.3	.0	.0	.0	.0	18.3	.0	13.0	.0	.0	81.0	.0	.0
19	1.1	57.0	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.8	.0	.0	44.4	.0	.0
20	1.3	66.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	54.2	.0	.0
21	1.3	64.6	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	52.0	.0	.0
22	1.3	67.4	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	54.8	.0	.0
23	1.9	97.1	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	85.4	.0	.0
24	2.2	110.4	17.5	10.9	6.6	.0	.0	.0	.0	17.5	.0	16.5	.0	.0	99.5	.0	.0
25	2.5	125.7	21.4	9.9	11.5	.0	.0	.0	.0	21.4	.0	25.0	.0	.0	115.8	.0	.0
26	1.5	76.6	20.0	11.2	8.7	.0	.0	.0	.0	20.0	.0	8.5	.0	.0	65.4	.0	.0
27	1.4	72.4	17.5	12.5	5.0	.0	.0	.0	.0	17.5	.0	1.0	.0	.0	59.8	.0	.0
28	1.6	79.7	17.5	12.4	5.1	.0	.0	.0	.0	17.5	.0	.0	.0	.0	67.3	.0	.0
29	1.2	59.1	17.5	12.1	5.4	.0	.0	.0	.0	17.5	.0	.0	.0	.0	47.0	.0	.0
30	2.1	105.4	17.5	12.4	5.1	.0	.0	.0	.0	17.5	.0	.0	.0	.0	93.0	.0	.0
31	1.4	68.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	56.5	.0	.0
=====																	
	54.6	2727.7	641.7	355.7	286.0	.0	.0	.0	.0	641.7	.0	286.2	.0	.0	2372.0	.0	.0

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JUN , 1958 - WILMINGTON, DELAWARE - (B)																
ALL UNITS = KW-HR)																
DAY	PHOTOVOLTAIC INPUT					ELECTRICAL
LOAD
TOTAL	ELECTRICAL OUTPUT				ELECTRICAL
STORAGE
SUPPLIED FROM		PHOTO-
VOLTAIC
INPUT
WASTED	AUX.
ELECT.
INPUT	ELECT.
LOAD
DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL
INPUT		SUPPLIED FROM			TOTAL
OUTPUT	SUPPLIED FROM					
	PER
SQ-M	PER
SQ-M	PER
SQ-M	PER
SQ-M			PV-1	E-S	E-A		PV-1	E-A				
1	2.7	16.3	4.0	14.4	30.6	18.0	11.5	6.3	.2	18.0	15.6	2.2	.0	3.0	.0	
2	2.5	15.0	3.9	13.7	28.7	18.6	12.3	6.2	.0	18.6	10.2	.0	3.5	.0	.0	
3	3.1	18.3	4.3	15.3	33.6	24.3	14.2	10.1	.0	24.3	7.0	.0	10.2	.0	.0	
4	3.7	22.3	5.1	18.3	40.6	29.8	18.9	10.9	.0	29.8	11.1	.0	7.3	.0	.0	
5	3.5	21.1	4.8	17.2	38.3	25.8	17.5	8.3	.0	25.8	11.3	.0	6.1	.0	.0	
6	3.7	22.0	5.0	18.0	40.1	29.4	17.9	11.5	.0	29.4	9.2	.0	10.0	.0	.0	
7	4.1	24.7	5.6	20.0	44.7	31.4	19.2	12.2	.0	31.4	12.3	.0	9.6	.0	.0	
8	4.2	25.1	5.6	20.2	45.3	36.2	21.9	14.3	.0	36.2	13.0	.0	6.4	.0	.0	
9	3.9	23.4	5.3	19.1	42.5	43.9	26.2	17.4	.3	43.9	12.2	1.0	.0	1.5	.0	
10	3.5	21.6	5.0	17.9	39.6	45.0	27.2	10.7	6.3	44.2	6.8	2.1	.0	9.0	.9	
11	3.5	20.9	4.8	17.2	38.1	37.0	26.5	9.0	1.5	37.0	6.2	2.4	.0	4.5	.0	
12	2.5	14.9	3.6	13.0	27.9	27.6	17.0	10.7	.4	27.6	8.2	2.0	.0	3.0	.0	
13	2.2	12.9	3.3	11.7	24.6	26.6	17.7	7.8	1.1	26.6	4.7	3.9	.0	6.0	.0	
14	4.6	27.4	6.2	22.1	49.5	19.1	10.4	8.3	.4	19.1	19.2	2.0	15.7	3.0	.0	
15	4.1	24.5	5.5	19.9	44.4	21.1	11.8	9.3	.0	21.1	9.4	.0	20.6	.0	.0	
16	3.1	18.6	4.4	15.7	34.3	18.4	11.0	7.4	.0	18.4	9.9	.0	10.6	.0	.0	
17	2.8	16.8	4.1	14.6	31.4	18.0	10.5	7.5	.0	18.0	7.7	.0	11.0	.0	.0	
18	3.3	19.6	4.6	16.4	36.0	18.3	10.7	7.6	.0	18.3	6.3	.0	14.8	.0	.0	
19	2.8	16.9	4.1	14.7	31.7	22.0	13.9	8.0	.0	22.0	7.8	.0	7.5	.0	.0	
20	3.9	23.6	5.4	19.4	43.0	31.2	19.1	12.2	.0	31.2	8.7	.0	12.3	.0	.0	
21	3.6	21.5	4.9	17.6	39.1	31.4	18.7	12.7	.0	31.4	13.2	.0	3.5	.0	.0	
22	3.0	18.0	4.2	15.2	33.2	40.7	22.4	15.9	2.4	40.7	7.7	1.6	.0	4.5	.0	
23	2.6	15.7	3.8	13.7	29.4	33.0	18.2	11.9	2.9	33.0	6.3	4.6	.0	9.0	.0	
24	3.5	21.1	4.9	17.9	38.6	29.8	18.6	10.9	.3	29.8	15.8	1.0	.0	1.5	.0	
25	2.4	14.6	3.4	12.0	26.6	31.4	17.1	12.4	1.9	31.4	7.0	.9	.0	3.0	.0	
26	2.8	17.0	3.9	14.1	31.1	44.6	23.2	8.3	9.3	40.8	5.2	3.3	.0	13.5	3.7	
27	2.2	13.0	3.2	11.4	24.4	40.2	22.6	5.9	14.5	42.9	.1	6.3	.0	22.5	5.3	
28	2.2	13.3	3.1	11.2	24.4	34.7	17.6	8.0	8.5	34.1	4.7	4.0	.0	13.5	.5	
29	2.7	16.3	3.0	13.4	30.0	54.9	26.3	6.9	14.0	47.3	1.5	5.5	.0	21.0	7.6	
30	2.3	13.9	3.3	11.7	25.9	55.6	23.4	6.1	19.6	49.3	.6	6.9	.0	26.5	6.3	
=====																
	95.4	570.4	133.1	477.2	1047.6	945.9	543.6	294.2	83.6	921.7	266.7	49.9	149.3	147.0	24.2	

(ALL UNITS = KW-HR)

THERMAL INPUT			THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
DAY	PER SQ-M	TOTAL	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM				T-X		
		50.0 SQ-M		T-1	T-5	PV-1	E-5	E-X	T-X		T-1	PV-1	E-X	T-X			
1	1.2	58.4	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	45.7	.0	.0
2	1.1	53.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	41.2	.0	.0
3	1.5	77.2	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	.0	.0	.0	66.2	.0	.0
4	2.0	101.5	17.5	11.4	6.1	.0	.0	.0	.0	17.5	.0	.0	.0	.0	90.1	.0	.0
5	1.8	92.3	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	80.6	.0	.0
6	2.0	98.7	17.5	11.5	6.0	.0	.0	.0	.0	17.5	.0	.0	.0	.0	87.2	.0	.0
7	2.3	114.1	17.5	11.6	5.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	102.5	.0	.0
8	2.4	118.3	17.5	11.6	5.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	106.7	.0	.0
9	2.2	112.1	17.5	12.3	5.3	.0	.0	.0	.0	17.5	4.3	.0	.0	.0	95.5	.0	.0
10	2.0	101.4	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.2	.0	.0	.0	83.6	.0	.0
11	1.9	95.6	17.5	12.3	5.2	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	78.4	.0	.0
12	1.2	58.5	17.5	12.4	5.1	.0	.0	.0	.0	17.5	5.2	.0	.0	.0	41.0	.0	.0
13	1.0	48.1	17.5	11.8	5.7	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	31.2	.0	.0
14	2.4	121.2	17.5	10.0	7.5	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	104.5	.0	.0
15	2.2	108.3	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	90.7	.0	.0
16	1.5	73.5	17.5	11.1	6.4	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	55.4	.0	.0
17	1.2	61.4	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	44.4	.0	.0
18	1.6	78.6	17.5	10.8	6.7	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	60.6	.0	.0
19	1.3	65.3	17.5	12.5	5.0	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	46.9	.0	.0
20	2.2	107.8	17.5	11.4	6.1	.0	.0	.0	.0	17.5	5.5	.0	.0	.0	91.0	.0	.0
21	1.9	96.9	17.5	11.6	5.9	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	79.4	.0	.0
22	1.6	79.4	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.5	.0	.0	.0	61.3	.0	.0
23	1.3	64.2	17.5	11.8	5.7	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	47.5	.0	.0
24	1.9	94.7	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	77.2	.0	.0
25	1.2	59.7	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	42.2	.0	.0
26	1.5	75.4	17.5	11.5	6.0	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	57.7	.0	.0
27	1.1	54.3	17.5	11.6	5.9	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	36.7	.0	.0
28	1.1	53.1	17.5	11.3	6.2	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	35.7	.0	.0
29	1.5	75.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	57.4	.0	.0
30	1.2	62.0	17.5	11.7	5.8	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	44.5	.0	.0
=====																	
49.2		2460.9	525.0	348.3	176.7	.0	.0	.0	.0	525.0	129.5	.0	.0	.0	1983.0	.0	.0

JUL , 1958 - WILMINGTON, DELAWARE - (W

(ALL UNITS = KN-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	30.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A	TOTAL OUTPUT	PV-1	E-A			
1	3.5	20.9	4.8	17.3	38.2	42.0	25.1	12.0	4.3	42.0	9.5	3.7	.0	9.0	.0
2	3.6	21.3	4.9	17.0	38.9	45.7	27.3	10.4	0.7	44.3	0.2	3.0	.0	10.5	1.4
3	3.4	20.2	4.7	16.8	37.0	47.3	25.5	10.7	8.1	44.3	8.2	3.1	.0	12.0	3.0
4	3.6	21.3	4.9	17.7	39.0	42.6	25.2	14.0	3.4	42.6	10.2	5.6	.0	10.5	.0
5	1.6	9.6	2.5	8.9	18.5	42.6	17.2	8.0	14.3	40.1	.0	8.9	.0	25.5	2.6
6	2.0	12.2	3.0	10.7	22.9	39.2	19.7	9.3	5.2	34.2	1.5	8.9	.0	16.5	.0
7	1.7	10.1	2.6	9.3	19.3	37.1	17.5	7.0	11.3	35.7	.5	6.5	.0	19.5	1.4
8	1.9	11.5	2.8	10.1	21.7	40.7	20.1	12.0	8.5	40.7	.0	13.4	.0	25.5	.0
9	2.6	15.4	3.8	13.0	29.0	25.2	16.4	7.9	.8	25.2	9.6	1.7	.0	3.0	.0
10	3.1	18.7	4.4	15.0	34.5	30.5	18.8	11.6	.0	30.5	12.1	.0	.0	.0	.0
11	2.0	12.2	3.0	10.9	23.1	35.3	20.9	8.3	0.2	35.3	.6	5.6	.0	13.5	.0
12	1.9	11.1	2.8	10.1	21.2	31.4	18.5	8.6	4.3	31.4	1.0	8.5	.0	15.0	.0
13	2.9	17.5	4.1	14.7	32.2	34.7	19.9	12.0	2.2	34.7	9.2	4.2	.0	7.5	.0
14	1.5	8.7	2.3	8.1	16.8	32.0	15.2	7.1	9.4	31.8	.4	6.8	.0	18.0	.2
15	2.5	14.9	3.5	12.6	27.6	40.1	21.9	7.4	12.7	42.0	3.4	4.2	.0	16.0	4.1
16	2.2	13.2	3.2	11.0	24.8	44.4	22.2	7.0	13.4	42.6	.8	7.2	.0	22.5	1.8
17	3.0	17.7	4.2	14.9	32.6	26.9	15.7	10.6	.6	26.9	13.4	3.1	.0	4.5	.0
18	2.9	17.5	4.2	15.0	32.5	23.3	15.7	7.6	.0	23.3	13.2	.0	.0	.0	.0
19	3.3	19.6	4.5	16.1	35.6	33.5	20.7	12.7	.0	33.5	11.3	.0	.0	.0	.0
20	3.5	20.8	4.7	17.0	37.8	24.9	14.1	10.8	.0	24.9	14.4	.0	5.7	.0	.0
21	2.6	15.6	3.8	13.7	29.3	23.9	14.1	9.8	.0	23.9	11.5	.0	.6	.0	.0
22	2.2	13.0	3.3	11.8	24.8	25.5	14.2	11.4	.0	25.5	8.1	.0	.0	.0	.0
23	2.6	15.4	3.8	13.5	29.0	30.2	22.3	12.6	1.3	36.2	4.2	2.5	.0	4.5	.0
24	2.4	14.5	3.6	12.9	27.4	32.2	20.1	8.8	3.4	32.2	4.9	4.5	.0	9.0	.0
25	3.2	19.4	4.6	16.5	35.9	37.3	22.4	12.2	2.6	37.3	10.0	2.7	.0	6.0	.0
26	3.0	18.1	4.3	15.3	33.5	42.7	24.1	9.2	0.0	41.3	6.4	3.2	.0	12.0	1.4
27	1.6	9.8	2.6	9.3	19.1	39.1	16.9	10.8	11.5	39.1	.8	11.1	.0	25.5	.0
28	1.7	10.4	2.7	9.0	20.0	40.4	16.9	8.7	12.9	38.5	1.5	7.6	.0	22.5	1.8
29	2.8	16.5	4.0	14.2	30.7	40.9	23.3	8.7	0.6	40.7	4.8	5.0	.0	15.0	.2
30	3.3	19.6	4.5	16.1	36.4	39.0	23.3	12.1	3.5	39.0	9.6	3.1	.0	7.5	.0
31	2.5	15.2	3.6	12.7	27.9	46.3	24.6	6.6	11.7	43.1	1.3	6.2	.0	19.5	3.2
=====															
	80.7	482.2	115.7	414.7	897.1	1124.0	619.9	308.0	175.0	1102.9	190.5	140.3	6.4	352.5	21.1

JUL , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
		T-I		T-S	PV-I	E-S	E-X	T-A	T-I		PV-I	E-A	T-X				
1	1.9	95.7	17.5	11.8	5.7	.0	.0	.0	.0	17.5	5.4	.0	.0	.0	78.5	.0	.0
2	2.0	98.6	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.7	.0	.0	.0	80.3	.0	.0
3	1.9	92.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	75.3	.0	.0
4	2.0	97.5	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	80.0	.0	.0
5	.7	34.9	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	17.4	.0	.0
6	.9	46.9	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	29.4	.0	.0
7	.7	35.9	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	18.4	.0	.0
8	.9	44.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	27.3	.0	.0
9	1.2	59.5	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	42.0	.0	.0
10	1.6	79.9	17.5	12.6	5.1	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	62.4	.0	.0
11	.9	47.3	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	29.8	.0	.0
12	.8	40.5	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	23.0	.0	.0
13	1.5	74.5	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	57.0	.0	.0
14	.6	27.9	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	10.4	.0	.0
15	1.3	64.1	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	46.6	.0	.0
16	1.1	54.1	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	36.6	.0	.0
17	1.5	73.8	17.5	11.2	6.3	.0	.0	.0	.0	17.5	5.0	.0	.0	.0	57.6	.0	.0
18	1.4	71.0	17.5	12.2	5.3	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	52.2	.0	.0
19	1.7	86.8	17.5	11.6	5.9	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	70.0	.0	.0
20	1.8	90.3	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	73.2	.0	.0
21	1.2	60.6	17.5	12.4	5.1	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	42.1	.0	.0
22	.9	46.4	17.5	12.5	5.0	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	28.9	.0	.0
23	1.3	63.5	17.5	12.5	5.0	.0	.0	.0	.0	17.5	5.0	.0	.0	.0	46.0	.0	.0
24	1.2	58.1	17.5	12.4	5.1	.0	.0	.0	.0	17.5	5.0	.0	.0	.0	40.7	.0	.0
25	1.7	84.8	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	67.1	.0	.0
26	1.6	79.6	17.5	12.6	4.9	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	62.1	.0	.0
27	.7	35.0	17.5	12.5	5.0	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	17.7	.0	.0
28	.8	37.6	17.5	12.6	4.9	.0	.0	.0	.0	17.5	5.0	.0	.0	.0	20.0	.0	.0
29	1.4	70.7	17.5	12.4	5.1	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	53.4	.0	.0
30	1.8	89.7	17.5	12.4	5.1	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	72.2	.0	.0
31	1.3	66.3	17.5	12.5	5.0	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	48.7	.0	.0
=====																	
	40.2	2009.1	542.5	384.4	158.1	.0	.0	.0	.0	542.5	158.5	.0	.0	.0	1466.2	.0	.0

AUG. 1958 - WILMINGTON, DELAWARE - (H)

(ALL UNITS = Kw-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | ELECTRICAL
LOAD
TOTAL | ELECTRICAL OUTPUT
SUPPLIED FROM | | | | ELECTRICAL
STORAGE
SUPPLIED FROM | | PHOTO-
VOLTAIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT | |
|-------|--------------------|-------|-------------|-------|-----------------------------|------------------------------------|-------|-------|-----------------|--|-------|--------------------------------------|-------------------------|---------------------------|-----|
| | WATER-COOLED | | AIR-COOLED | | | TOTAL | | | TOTAL
OUTPUT | PV-1 | E-S | | | | E-A |
| | PER
SQ-M | SQ-M | PER
SQ-M | SQ-M | | TOTAL
INPUT | PV-1 | E-S | | | | | | | |
| 1 | 2.4 | 14.5 | 3.5 | 12.7 | 27.2 | 30.0 | 16.0 | 12.3 | 1.7 | 30.0 | 8.5 | 4.6 | .0 | 7.5 | .0 |
| 2 | 3.6 | 21.6 | 4.9 | 17.3 | 39.1 | 29.9 | 19.2 | 10.3 | .4 | 29.9 | 15.7 | 2.0 | .0 | 3.0 | .0 |
| 3 | 2.5 | 15.0 | 3.7 | 13.3 | 28.3 | 23.7 | 16.6 | 7.1 | .0 | 23.7 | 8.9 | .0 | .0 | .0 | .0 |
| 4 | 3.7 | 22.3 | 5.0 | 18.0 | 40.3 | 31.5 | 18.3 | 13.2 | .0 | 31.5 | 13.8 | .0 | 4.3 | .0 | .0 |
| 5 | 3.7 | 21.8 | 4.9 | 17.5 | 39.3 | 34.2 | 20.4 | 13.8 | .0 | 34.2 | 14.7 | .0 | .0 | .0 | .0 |
| 6 | 2.6 | 15.6 | 3.5 | 12.7 | 28.2 | 32.2 | 17.9 | 14.3 | .0 | 32.2 | 7.7 | .0 | .0 | .0 | .0 |
| 7 | 2.7 | 16.4 | 3.8 | 13.5 | 29.8 | 42.5 | 22.3 | 8.2 | 9.6 | 40.4 | 5.0 | 4.1 | .0 | 15.0 | 2.1 |
| 8 | 2.2 | 13.2 | 3.2 | 11.4 | 24.6 | 40.2 | 20.7 | 8.4 | 10.3 | 39.4 | 2.0 | 7.3 | .0 | 19.5 | .7 |
| 9 | 4.4 | 26.1 | 5.7 | 20.5 | 46.6 | 28.7 | 16.7 | 11.5 | .4 | 28.7 | 18.9 | 3.2 | 6.5 | 4.5 | .0 |
| 10 | 2.3 | 17.0 | 3.9 | 14.0 | 31.0 | 38.0 | 20.2 | 17.0 | .9 | 38.0 | 7.9 | .5 | .0 | 1.5 | .0 |
| 11 | 1.4 | 8.4 | 2.1 | 7.7 | 16.0 | 31.1 | 14.4 | 6.0 | 10.2 | 30.6 | .5 | 6.2 | .0 | 18.0 | .4 |
| 12 | 1.3 | 7.5 | 1.9 | 6.9 | 14.5 | 31.7 | 13.0 | 10.9 | 7.6 | 31.7 | .4 | 11.6 | .0 | 22.5 | .0 |
| 13 | 1.3 | 7.6 | 2.0 | 7.1 | 14.7 | 30.5 | 13.2 | 6.6 | 9.6 | 29.6 | .4 | 6.5 | .0 | 18.0 | .7 |
| 14 | 1.2 | 7.2 | 1.9 | 6.9 | 13.8 | 33.1 | 12.8 | 9.0 | 10.5 | 33.1 | .0 | 10.7 | .0 | 24.0 | .0 |
| 15 | 2.7 | 16.0 | 3.6 | 13.1 | 29.1 | 43.7 | 22.9 | 8.9 | 6.5 | 40.7 | 3.8 | 6.0 | .0 | 16.5 | 3.0 |
| 16 | 2.5 | 14.8 | 3.6 | 12.9 | 27.8 | 25.1 | 14.0 | 11.0 | .1 | 25.1 | 10.8 | 2.3 | .0 | 3.0 | .0 |
| 17 | 2.5 | 15.1 | 3.7 | 13.2 | 28.3 | 28.2 | 16.5 | 11.1 | .5 | 28.2 | 8.9 | 2.0 | .0 | 3.0 | .0 |
| 18 | 3.7 | 23.2 | 5.1 | 18.4 | 41.6 | 23.4 | 13.8 | 9.1 | .5 | 23.4 | 19.0 | 2.0 | 4.4 | 3.0 | .0 |
| 19 | 4.3 | 25.5 | 5.6 | 19.9 | 45.5 | 22.1 | 12.5 | 9.5 | .0 | 22.1 | 10.5 | .0 | 19.6 | .0 | .0 |
| 20 | 3.1 | 18.3 | 4.2 | 14.9 | 33.3 | 26.6 | 15.9 | 10.7 | .0 | 26.6 | 10.2 | .0 | 4.2 | .0 | .0 |
| 21 | 2.5 | 15.0 | 3.4 | 12.0 | 27.0 | 35.7 | 19.2 | 16.0 | .4 | 35.7 | 5.4 | .8 | .0 | 1.5 | .0 |
| 22 | 2.0 | 11.7 | 2.9 | 10.4 | 22.1 | 27.1 | 15.4 | 8.4 | 3.3 | 27.1 | 4.7 | 4.5 | .0 | 9.0 | .0 |
| 23 | 2.9 | 17.3 | 3.9 | 14.1 | 31.4 | 24.3 | 14.3 | 9.8 | .3 | 24.3 | 13.6 | 2.2 | .0 | 3.0 | .0 |
| 24 | 1.8 | 10.8 | 2.7 | 9.6 | 20.2 | 27.0 | 12.7 | 10.5 | 3.8 | 26.9 | 5.5 | .6 | .0 | 4.5 | .0 |
| 25 | 1.7 | 10.0 | 2.5 | 9.1 | 19.1 | 22.6 | 12.2 | 9.3 | 1.1 | 22.6 | 5.1 | 5.1 | .0 | 7.5 | .0 |
| 26 | 2.4 | 14.1 | 3.4 | 12.2 | 26.3 | 21.0 | 12.2 | 8.1 | .7 | 21.0 | 11.2 | 1.8 | .0 | 3.0 | .0 |
| 27 | 3.9 | 23.3 | 5.1 | 18.1 | 41.5 | 22.6 | 12.4 | 10.2 | .0 | 22.6 | 17.9 | .0 | 7.0 | .0 | .0 |
| 28 | 2.4 | 14.1 | 3.4 | 12.3 | 26.3 | 20.0 | 11.6 | 8.4 | .0 | 20.0 | 10.7 | .0 | 1.3 | .0 | .0 |
| 29 | 4.0 | 24.2 | 5.2 | 18.6 | 42.8 | 31.4 | 17.7 | 13.8 | .0 | 31.4 | 9.2 | .0 | 13.0 | .0 | .0 |
| 30 | 3.4 | 20.6 | 4.5 | 16.2 | 36.8 | 33.2 | 18.8 | 14.4 | .0 | 33.2 | 14.1 | .0 | .0 | .0 | .0 |
| 31 | 2.7 | 16.0 | 3.5 | 12.5 | 28.5 | 36.4 | 18.5 | 13.2 | 4.6 | 36.4 | 7.3 | 1.1 | .0 | 6.0 | .0 |
| ===== | | | | | | | | | | | | | | | |
| | 84.3 | 503.8 | 116.3 | 417.1 | 920.4 | 927.8 | 502.5 | 332.0 | 86.2 | 920.8 | 272.2 | 84.8 | 60.3 | 193.5 | 7.0 |

AUG. 1958 - WILMINGTON, DELAWARE - TW

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | |
|-------|---------------|---------------|-----------------|----------------|-----|------|-----|-----|-----|-----------------|-------|-----|-----|----------------------------|-----------------------|----------------------------|----|
| | PER
SQ-M | TOTAL
SQ-M | | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | | | | |
| | | | | T-1 | T-5 | PV-1 | E-S | E-X | T-X | T-1 | PV-1 | E-X | T-X | | | | |
| 1 | 1.2 | 57.6 | 17.5 | 11.8 | 5.7 | .0 | .0 | .0 | .0 | 17.5 | 5.9 | .0 | .0 | .0 | 40.0 | .0 | .0 |
| 2 | 1.9 | 97.0 | 17.5 | 11.7 | 5.8 | .0 | .0 | .0 | .0 | 17.5 | 5.2 | .0 | .0 | .0 | 80.1 | .0 | .0 |
| 3 | 1.2 | 57.8 | 17.5 | 12.6 | 4.9 | .0 | .0 | .0 | .0 | 17.5 | 5.5 | .0 | .0 | .0 | 39.7 | .0 | .0 |
| 4 | 2.0 | 100.6 | 17.5 | 11.5 | 6.0 | .0 | .0 | .0 | .0 | 17.5 | 5.3 | .0 | .0 | .0 | 83.9 | .0 | .0 |
| 5 | 2.0 | 100.2 | 17.5 | 12.1 | 5.4 | .0 | .0 | .0 | .0 | 17.5 | 6.2 | .0 | .0 | .0 | 81.9 | .0 | .0 |
| 6 | 1.3 | 65.5 | 17.5 | 12.1 | 5.4 | .0 | .0 | .0 | .0 | 17.5 | 5.4 | .0 | .0 | .0 | 48.0 | .0 | .0 |
| 7 | 1.4 | 72.1 | 17.5 | 12.1 | 5.4 | .0 | .0 | .0 | .0 | 17.5 | 5.4 | .0 | .0 | .0 | 54.6 | .0 | .0 |
| 8 | 1.1 | 53.9 | 17.5 | 12.2 | 5.3 | .0 | .0 | .0 | .0 | 17.5 | 5.3 | .0 | .0 | .0 | 36.4 | .0 | .0 |
| 9 | 2.5 | 122.6 | 17.5 | 10.8 | 6.7 | .0 | .0 | .0 | .0 | 17.5 | 5.4 | .0 | .0 | .0 | 106.4 | .0 | .0 |
| 10 | 1.5 | 74.7 | 17.5 | 11.5 | 6.0 | .0 | .0 | .0 | .0 | 17.5 | 6.3 | .0 | .0 | .0 | 56.9 | .0 | .0 |
| 11 | .5 | 27.1 | 17.5 | 11.7 | 5.8 | .0 | .0 | .0 | .0 | 17.5 | 5.8 | .0 | .0 | .0 | 9.6 | .0 | .0 |
| 12 | .5 | 23.6 | 17.5 | 11.6 | 5.9 | .0 | .0 | .0 | .0 | 17.5 | 5.9 | .0 | .0 | .0 | 6.1 | .0 | .0 |
| 13 | .5 | 23.4 | 17.5 | 11.6 | 5.9 | .0 | .0 | .0 | .0 | 17.5 | 5.9 | .0 | .0 | .0 | 5.9 | .0 | .0 |
| 14 | .4 | 22.1 | 17.5 | 11.7 | 5.8 | .0 | .0 | .0 | .0 | 17.5 | 5.8 | .0 | .0 | .0 | 4.6 | .0 | .0 |
| 15 | 1.4 | 71.0 | 17.5 | 11.6 | 5.9 | .0 | .0 | .0 | .0 | 17.5 | 5.9 | .0 | .0 | .0 | 53.5 | .0 | .0 |
| 16 | 1.1 | 57.1 | 17.5 | 11.6 | 5.9 | .0 | .0 | .0 | .0 | 17.5 | 5.8 | .0 | .0 | .0 | 39.7 | .0 | .0 |
| 17 | 1.2 | 61.5 | 17.5 | 11.7 | 5.8 | .0 | .0 | .0 | .0 | 17.5 | 5.9 | .0 | .0 | .0 | 43.9 | .0 | .0 |
| 18 | 2.1 | 105.0 | 17.5 | 10.4 | 7.1 | .0 | .0 | .0 | .0 | 17.5 | 6.3 | .0 | .0 | .0 | 88.2 | .0 | .0 |
| 19 | 2.3 | 116.5 | 17.5 | 10.2 | 7.3 | .0 | .0 | .0 | .0 | 17.5 | 7.5 | .0 | .0 | .0 | 98.8 | .0 | .0 |
| 20 | 1.6 | 78.4 | 17.5 | 11.0 | 6.5 | .0 | .0 | .0 | .0 | 17.5 | 7.2 | .0 | .0 | .0 | 60.2 | .0 | .0 |
| 21 | 1.3 | 64.2 | 17.5 | 11.2 | 6.3 | .0 | .0 | .0 | .0 | 17.5 | 6.4 | .0 | .0 | .0 | 46.6 | .0 | .0 |
| 22 | .9 | 45.1 | 17.5 | 10.6 | 6.9 | .0 | .0 | .0 | .0 | 17.5 | 6.3 | .0 | .0 | .0 | 28.2 | .0 | .0 |
| 23 | 1.4 | 72.4 | 17.5 | 10.5 | 7.0 | .0 | .0 | .0 | .0 | 17.5 | 7.0 | .0 | .0 | .0 | 55.0 | .0 | .0 |
| 24 | .7 | 36.7 | 17.5 | 11.3 | 6.2 | .0 | .0 | .0 | .0 | 17.5 | 6.2 | .0 | .0 | .0 | 19.2 | .0 | .0 |
| 25 | .7 | 33.3 | 17.5 | 11.1 | 6.4 | .0 | .0 | .0 | .0 | 17.5 | 6.2 | .0 | .0 | .0 | 16.0 | .0 | .0 |
| 26 | 1.1 | 53.5 | 17.5 | 10.8 | 6.7 | .0 | .0 | .0 | .0 | 17.5 | 7.2 | .0 | .0 | .0 | 35.5 | .0 | .0 |
| 27 | 2.1 | 105.1 | 17.5 | 10.1 | 7.4 | .0 | .0 | .0 | .0 | 17.5 | 6.8 | .0 | .0 | .0 | 88.2 | .0 | .0 |
| 28 | 1.1 | 53.2 | 17.5 | 11.7 | 5.8 | .0 | .0 | .0 | .0 | 17.5 | 6.4 | .0 | .0 | .0 | 35.1 | .0 | .0 |
| 29 | 2.3 | 113.8 | 17.5 | 10.7 | 6.8 | .0 | .0 | .0 | .0 | 17.5 | 6.4 | .0 | .0 | .0 | 96.7 | .0 | .0 |
| 30 | 1.9 | 94.6 | 17.5 | 10.9 | 7.6 | .0 | .0 | .0 | .0 | 17.5 | 6.9 | .0 | .0 | .0 | 76.8 | .0 | .0 |
| 31 | 1.4 | 70.8 | 17.5 | 11.1 | 6.4 | .0 | .0 | .0 | .0 | 17.5 | 6.4 | .0 | .0 | .0 | 53.4 | .0 | .0 |
| ===== | | | | | | | | | | | | | | | | | |
| 42.6 | 2130.8 | 542.5 | 351.4 | 191.1 | .0 | .0 | .0 | .0 | .0 | 542.5 | 190.2 | .0 | .0 | .0 | 1589.2 | .0 | .0 |

(ALL UNITS = KN-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-1	E-2			
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-2	E-3						
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
1	3.4	20.4	4.5	16.1	30.5	25.7	15.2	9.9	.5	25.7	17.1	1.9	.0	3.0	.0
2	4.6	27.6	5.9	21.1	48.6	20.0	10.2	9.8	.0	20.0	14.1	.0	.0	.0	.0
3	3.8	22.5	4.9	17.6	40.1	21.8	11.9	9.9	.0	21.8	10.5	.0	.0	.0	.0
4	3.2	19.3	4.3	15.5	34.7	25.5	14.8	10.8	.0	25.5	10.6	.0	.0	.0	.0
5	2.5	14.8	3.4	12.1	26.9	31.7	16.0	15.7	.0	31.7	8.3	.0	.0	.0	.0
6	2.2	13.1	3.1	11.0	24.2	35.5	17.2	7.8	8.8	33.7	4.8	1.4	.0	10.5	.8
7	2.0	12.1	2.9	10.4	22.5	33.3	17.1	8.0	8.2	33.3	3.5	5.4	.0	15.0	.0
8	1.6	21.4	4.6	16.2	38.1	20.6	10.9	9.1	.6	20.6	19.5	1.9	.0	3.0	.0
9	4.0	24.0	5.2	18.6	42.6	20.7	10.7	10.8	.0	20.7	10.5	.0	.0	.0	.0
10	2.4	14.5	3.4	12.0	26.6	22.6	12.1	10.5	.0	22.6	10.3	.0	.0	.0	.0
11	3.3	19.7	4.3	15.3	35.0	19.1	9.2	9.9	.0	19.1	11.7	.0	.0	.0	.0
12	3.8	22.6	4.8	17.3	39.9	19.3	9.4	9.9	.0	19.3	10.6	.0	.0	.0	.0
13	4.5	27.0	5.7	20.3	47.3	21.5	11.2	10.3	.0	21.5	10.7	.0	.0	.0	.0
14	3.5	21.1	4.5	16.2	37.3	25.9	14.6	11.3	.0	25.9	11.0	.0	.0	.0	.0
15	3.4	20.5	4.4	15.9	36.4	28.8	15.8	13.0	.0	28.8	12.0	.0	.0	.0	.0
16	2.4	14.4	3.2	11.5	25.9	35.4	18.2	13.6	3.5	35.4	5.4	.2	.0	4.5	.0
17	1.9	11.3	2.6	9.2	20.4	34.7	16.7	8.4	9.4	34.5	2.1	6.6	.0	18.0	.2
18	2.4	14.5	3.2	11.6	26.2	25.8	13.9	9.5	.4	23.8	9.5	2.0	.0	3.0	.0
19	2.9	17.6	3.9	14.0	31.6	19.6	10.1	9.4	.1	19.6	17.7	1.1	.0	1.5	.0
20	2.2	13.4	3.1	11.3	24.7	19.1	9.3	9.8	.0	19.1	12.5	.0	.0	.0	.0
21	2.2	12.9	3.1	11.3	24.2	19.0	10.5	8.5	.0	19.0	10.2	.0	.0	.0	.0
22	3.8	22.8	4.8	17.3	40.1	24.0	13.0	11.0	.0	24.0	9.5	.0	.0	.0	.0
23	4.3	25.6	5.3	19.1	44.7	23.5	11.9	11.8	.0	23.5	12.0	.0	.0	.0	.0
24	2.9	17.2	3.7	13.3	30.2	21.6	10.8	10.7	.0	21.6	12.4	.0	.0	.0	.0
25	2.7	16.2	3.6	12.9	29.2	27.7	14.0	13.7	.0	27.7	11.1	.0	.0	.0	.0
26	2.5	14.9	3.3	11.9	26.8	37.5	16.9	16.2	4.3	37.5	7.3	2.5	.0	7.5	.0
27	1.2	7.5	1.9	7.0	14.4	26.5	11.3	10.3	4.8	26.5	1.9	9.2	.0	16.5	.0
28	3.3	19.4	4.2	14.9	34.3	19.3	9.0	9.7	.6	19.3	19.0	3.1	.0	4.5	.0
29	4.5	26.8	5.6	19.9	46.7	19.0	8.7	10.3	.0	19.0	11.1	.0	.0	.0	.0
30	2.1	12.5	2.9	10.4	22.9	19.0	8.9	10.1	.0	19.0	11.0	.0	.0	.0	.0
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	91.6	547.5	120.4	431.8	974.3	740.4	379.7	318.4	41.3	739.4	318.1	36.1	.0	87.0	1.0

SEP , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX.	THERMAL
	PER
SQ-M	TOTAL
50.0
SQ-M	LOAD	SUPPLIED FROM							SUPPLIED FROM				INPUT
WASTED	THERMAL
INPUT	LOAD
DEFICIT
				T-1	T-5	PV-1	E-5	E-X	T-X	TOTAL
OUTPUT	T-1	PV-1	E-X	T-X			
1	1.8	90.5	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	73.7	.0	.0
2	2.5	125.4	17.2	7.8	9.4	.0	.0	.0	.0	19.2	9.1	19.7	.0	.0	106.4	.0	.0
3	2.0	99.6	20.6	10.2	10.3	.0	.0	.0	.0	20.6	.0	13.9	.0	.0	89.3	.0	.0
4	1.7	83.4	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	5.9	.0	.0	72.7	.0	.0
5	1.2	61.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	49.6	.0	.0
6	1.1	53.6	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	41.9	.0	.0
7	1.0	48.2	17.5	11.7	5.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	36.6	.0	.0
8	1.9	93.7	18.0	9.7	8.3	.0	.0	.0	.0	18.0	3.0	3.1	.0	.0	81.0	.0	.0
9	2.1	107.4	22.3	10.0	12.3	.0	.0	.0	.0	22.3	9.6	17.3	.0	.0	87.7	.0	.0
10	1.2	57.6	17.5	10.3	7.2	.0	.0	.0	.0	17.5	.0	1.3	.0	.0	47.3	.0	.0
11	1.6	82.3	23.5	10.0	13.5	.0	.0	.0	.0	23.5	.6	10.5	.0	.0	71.6	.0	.0
12	2.0	97.9	25.6	11.1	14.5	.0	.0	.0	.0	25.6	4.3	16.1	.0	.0	82.6	.0	.0
13	2.5	124.1	24.3	10.5	13.8	.0	.0	.0	.0	24.3	.0	21.1	.0	.0	113.5	.0	.0
14	1.9	94.7	20.3	10.9	9.4	.0	.0	.0	.0	20.3	.0	6.0	.0	.0	83.8	.0	.0
15	1.8	91.8	17.6	10.6	7.0	.0	.0	.0	.0	17.6	.0	4.8	.0	.0	81.2	.0	.0
16	1.2	61.3	17.5	11.3	6.2	.0	.0	.0	.0	17.5	.0	.0	.0	.0	50.1	.0	.0
17	.9	45.6	17.5	11.4	6.1	.0	.0	.0	.0	17.5	.0	.0	.0	.0	34.2	.0	.0
18	1.2	58.9	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.7	.0	.0	.0	47.4	.0	.0
19	1.4	72.1	17.8	9.7	8.1	.0	.0	.0	.0	17.8	7.7	.0	.0	.0	54.7	.0	.0
20	1.0	49.9	17.8	9.7	8.1	.0	.0	.0	.0	17.8	8.1	.0	.0	.0	32.1	.0	.0
21	.9	44.6	17.5	11.4	6.1	.0	.0	.0	.0	17.5	7.1	.8	.0	.0	26.1	.0	.0
22	2.1	104.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	6.0	13.9	.0	.0	88.2	.0	.0
23	2.4	119.1	21.2	10.1	11.0	.0	.0	.0	.0	21.2	.0	16.5	.0	.0	109.0	.0	.0
24	1.4	72.2	19.4	9.7	9.7	.0	.0	.0	.0	19.4	.0	4.0	.0	.0	62.4	.0	.0
25	1.4	68.0	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	1.0	.0	.0	57.3	.0	.0
26	1.3	64.5	17.5	10.9	6.6	.0	.0	.0	.0	17.5	.0	.0	.0	.0	53.6	.0	.0
27	.5	22.7	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	6.4	.0	.0
28	1.6	82.1	20.3	10.1	10.1	.0	.0	.0	.0	20.3	9.2	2.1	.0	.0	62.8	.0	.0
29	2.4	119.5	30.5	11.2	19.3	.0	.0	.0	.0	30.5	16.2	22.6	.0	.0	92.1	.0	.0
30	.9	45.1	20.2	9.7	10.4	.0	.0	.0	.0	20.2	.0	.4	.0	.0	35.3	.0	.0
=====																	
	46.8	2341.1	583.5	316.5	267.1	.0	.0	.0	.0	583.5	93.7	183.1	.0	.0	1930.9	.0	.0

OCT. 1958 - WILMINGTON, DELAWARE - IN

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	30.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	2.4	14.5	3.4	12.1	26.6	20.0	9.7	10.3	.0	20.0	10.4	.0	.0	.0	.0
2	1.3	25.9	5.3	19.2	45.1	20.0	8.9	11.1	.0	20.0	11.9	.0	.0	.0	.0
3	2.4	14.1	3.2	11.4	25.5	20.0	8.9	11.1	.0	20.0	11.9	.0	.0	.0	.0
4	2.8	16.6	3.6	13.0	29.7	20.0	8.9	11.1	.0	20.0	11.9	.0	.0	.0	.0
5	3.4	20.4	4.3	15.4	35.8	20.6	9.4	11.2	.0	20.6	12.0	.0	.0	.0	.0
6	3.1	30.5	6.3	22.6	53.1	20.0	9.0	11.0	.0	20.0	12.2	.0	.0	.0	.0
7	4.0	24.0	5.0	17.9	41.9	20.0	8.7	11.3	.0	20.0	11.8	.0	.0	.0	.0
8	1.9	11.4	2.7	9.5	20.9	20.9	9.3	11.6	.0	20.9	9.3	.0	.0	.0	.0
9	2.5	15.2	3.3	12.0	27.2	22.6	10.6	12.0	.0	22.6	13.4	.0	.0	.0	.0
10	2.6	15.3	3.3	12.0	27.3	24.6	13.9	15.7	.0	29.6	10.5	.0	.0	.0	.0
11	4.4	26.4	5.5	19.6	46.0	20.0	8.7	10.9	.4	20.0	19.9	.9	.0	1.5	.0
12	4.8	28.4	5.9	21.0	49.4	20.0	8.7	11.3	.0	20.0	12.2	.0	.0	.0	.0
13	2.5	15.0	3.3	11.7	26.7	20.0	8.4	11.6	.0	20.0	12.2	.0	.0	.0	.0
14	2.3	13.5	3.0	10.8	24.3	20.0	8.4	11.6	.0	20.0	12.5	.0	.0	.0	.0
15	2.5	15.2	3.2	11.6	26.8	22.5	10.1	12.3	.0	22.5	12.5	.0	.0	.0	.0
16	3.2	18.9	3.9	14.2	33.1	20.0	8.2	11.8	.0	20.0	13.3	.0	.0	.0	.0
17	2.9	17.5	3.7	13.2	30.7	20.0	8.2	11.8	.0	20.0	12.6	.0	.0	.0	.0
18	3.7	22.3	4.6	16.5	38.8	20.0	8.3	11.7	.0	20.0	12.7	.0	.0	.0	.0
19	3.6	21.5	4.5	16.0	37.5	20.0	8.3	11.7	.0	20.0	12.6	.0	.0	.0	.0
20	4.3	25.7	5.3	19.0	44.7	20.0	8.4	11.6	.0	20.0	12.6	.0	.0	.0	.0
21	2.8	16.8	3.5	12.7	29.5	20.0	8.1	11.9	.0	20.0	12.5	.0	.0	.0	.0
22	1.6	9.3	2.2	8.0	17.3	20.0	8.5	11.5	.0	20.0	8.9	.0	.0	.0	.0
23	1.4	8.2	2.1	7.7	15.9	20.0	8.9	10.4	.7	20.0	5.4	.6	.0	1.5	.0
24	3.3	19.4	4.0	14.4	33.9	20.0	8.0	11.5	.4	20.0	19.7	3.2	.0	4.5	.0
25	1.6	9.4	2.2	7.9	17.2	20.0	8.0	12.0	.0	20.0	7.3	.0	.0	.0	.0
26	2.0	12.1	2.7	9.7	21.8	20.0	8.1	11.9	.0	20.0	11.1	.0	.0	.0	.0
27	2.2	13.4	2.9	10.5	23.9	20.0	8.0	11.8	.1	20.0	13.0	1.1	.0	1.5	.0
28	1.9	11.5	2.6	9.2	20.7	20.0	7.9	12.1	.0	20.0	10.4	.0	.0	.0	.0
29	3.1	18.5	3.9	14.0	32.4	20.0	8.0	11.4	.6	20.0	18.9	1.9	.0	3.0	.0
30	3.4	20.3	4.2	15.1	35.4	20.0	8.0	12.0	.0	20.0	12.9	.0	.0	.0	.0
31	3.4	20.2	4.2	15.0	35.3	20.0	8.0	12.0	.0	20.0	12.9	.0	.0	.0	.0
=====															
	92.3	551.3	117.9	422.8	974.1	636.2	272.2	361.7	2.3	636.2	379.5	7.7	.0	12.0	.0

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT		
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM				T-1	PV-1	E-X	T-X
		T-1		T-S	PV-1	E-S	E-X	T-X	T-1		PV-1	E-X	T-X					
1	1.0	51.6	23.2	12.6	10.6	.0	.0	.0	.0	23.2	.0	3.6	.0	.0	38.9	.0	.0	
2	2.3	113.6	29.1	11.9	17.7	.0	.0	.0	.0	29.1	12.5	20.0	.0	.0	89.7	.0	.0	
3	1.0	51.6	21.7	10.3	11.4	.0	.0	.0	.0	21.7	.0	1.8	.0	.0	41.3	.0	.0	
4	1.3	66.1	22.9	10.6	12.3	.0	.0	.0	.0	22.9	1.8	5.7	.0	.0	53.7	.0	.0	
5	1.8	88.5	26.9	10.3	16.6	.0	.0	.0	.0	26.9	8.2	10.8	.0	.0	70.0	.0	.0	
6	2.7	133.5	44.6	19.2	28.3	.0	.0	.0	.0	44.6	15.4	27.1	.0	.0	101.9	.0	.0	
7	2.1	104.5	34.2	11.1	23.1	.0	.0	.0	.0	34.2	.6	17.3	.0	.0	92.6	.0	.0	
8	.8	40.7	25.3	10.3	15.0	.0	.0	.0	.0	25.3	.0	.0	.0	.0	30.4	.0	.0	
9	1.2	61.7	18.1	9.7	8.4	.0	.0	.0	.0	18.1	7.7	.0	.0	.0	44.4	.0	.0	
10	1.3	66.7	17.5	9.6	7.9	.0	.0	.0	.0	17.5	7.9	.0	.0	.0	49.2	.0	.0	
11	2.4	118.0	22.6	10.1	12.5	.0	.0	.0	.0	22.6	10.1	12.3	.0	.0	97.7	.0	.0	
12	2.5	125.9	33.5	12.2	21.3	.0	.0	.0	.0	33.5	4.9	24.0	.0	.0	108.8	.0	.0	
13	1.1	55.6	33.1	11.1	22.0	.0	.0	.0	.0	33.1	.0	3.1	.0	.0	44.4	.0	.0	
14	.9	46.5	33.4	13.5	19.9	.0	.0	.0	.0	33.4	18.9	.6	.0	.0	14.1	.0	.0	
15	1.2	62.2	19.8	9.1	10.7	.0	.0	.0	.0	19.8	12.0	1.1	.0	.0	41.0	.0	.0	
16	1.7	85.2	18.5	8.9	9.6	.0	.0	.0	.0	18.5	4.3	8.0	.0	.0	68.0	.0	.0	
17	1.6	77.9	17.9	8.4	9.5	.0	.0	.0	.0	17.9	1.5	6.5	.0	.0	68.0	.0	.0	
18	2.0	97.5	23.6	9.1	14.5	.0	.0	.0	.0	23.6	4.3	13.9	.0	.0	84.1	.0	.0	
19	1.8	89.9	35.9	10.4	25.5	.0	.0	.0	.0	35.9	11.1	12.8	.0	.0	68.4	.0	.0	
20	2.3	114.5	32.6	10.0	22.6	.0	.0	.0	.0	32.6	11.4	19.4	.0	.0	93.1	.0	.0	
21	1.3	65.3	29.7	11.6	18.0	.0	.0	.0	.0	29.7	.0	5.7	.0	.0	53.7	.0	.0	
22	.6	28.4	18.7	9.2	9.6	.0	.0	.0	.0	18.7	5.6	.0	.0	.0	13.7	.0	.0	
23	.5	25.6	17.5	9.7	7.8	.0	.0	.0	.0	17.5	8.3	.0	.0	.0	7.6	.0	.0	
24	1.7	85.8	18.9	8.3	10.6	.0	.0	.0	.0	18.9	9.7	1.8	.0	.0	67.8	.0	.0	
25	.6	28.7	25.2	10.0	15.2	.0	.0	.0	.0	25.2	8.4	.0	.0	.0	10.4	.0	.0	
26	.8	38.2	48.9	17.7	31.1	.0	.0	.0	.0	48.9	20.5	.0	.0	.0	.0	.0	.0	
27	.9	46.0	46.0	14.8	31.2	.0	.0	.0	.0	46.0	31.2	.0	.0	.0	.0	.0	.0	
28	.7	37.3	42.3	14.5	27.9	.0	.0	.0	.0	42.3	22.9	.0	.0	.0	.0	.0	.0	
29	1.5	74.4	37.6	11.6	26.1	.0	.0	.0	.0	37.6	39.8	1.5	.0	.0	23.0	.0	.0	
30	1.7	84.1	38.6	10.6	28.1	.0	.0	.0	.0	38.6	28.3	10.8	.0	.0	45.2	.0	.0	
31	1.7	86.3	33.9	9.5	24.4	.0	.0	.0	.0	33.9	16.3	10.7	.0	.0	60.4	.0	.0	
=====																		
	45.0	2251.9	892.0	342.6	549.4	.0	.0	.0	.0	892.0	327.5	218.5	.0	.0	1581.8	.0	.0	

NOV , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	2.8	16.9	3.6	12.7	29.6	21.0	8.2	12.8	.0	21.0	13.2	.0	.0	.0	.0
2	1.8	10.8	2.4	8.7	19.4	21.0	7.8	13.2	.0	21.0	9.3	.0	.0	.0	.0
3	2.3	13.7	3.0	10.7	24.3	21.0	8.1	12.9	.0	21.0	13.3	.0	.0	.0	.0
4	3.0	18.1	3.8	13.6	31.8	21.0	8.3	12.7	.0	21.0	19.1	.0	.0	.0	.0
5	3.1	18.4	3.8	13.7	32.1	21.0	7.7	13.3	.0	21.0	13.7	.0	.0	.0	.0
6	3.2	19.1	3.9	14.1	33.2	21.0	7.6	13.4	.0	21.0	14.7	.0	.0	.0	.0
7	4.1	24.3	5.0	17.8	42.1	21.0	8.0	13.0	.0	21.0	14.2	.0	.0	.0	.0
8	3.0	18.1	3.8	13.6	31.7	21.0	8.2	12.8	.0	21.0	13.7	.0	.0	.0	.0
9	3.2	19.1	3.9	14.0	33.2	21.0	7.6	13.4	.0	21.0	14.3	.0	.0	.0	.0
10	2.3	14.0	3.0	10.7	24.7	21.0	7.6	13.4	.0	21.0	14.1	.0	.0	.0	.0
11	3.6	21.6	4.4	15.9	37.5	21.0	8.0	13.0	.0	21.0	14.5	.0	.0	.0	.0
12	3.5	21.0	4.3	15.4	36.4	21.0	7.7	13.3	.0	21.0	14.1	.0	.0	.0	.0
13	1.8	10.5	2.3	8.2	18.7	21.0	7.0	14.0	.0	21.0	9.5	.0	.0	.0	.0
14	2.3	13.7	2.9	10.2	23.9	21.0	7.0	13.9	.0	21.0	13.4	1.2	.0	1.5	.0
15	1.1	6.4	1.6	5.6	12.0	21.0	7.3	10.6	3.2	21.0	3.6	3.4	.0	7.5	.0
16	1.0	6.2	1.5	5.5	11.7	21.0	7.4	10.3	3.3	21.0	3.2	8.1	.0	13.5	.0
17	1.2	6.9	1.6	5.7	12.8	21.0	7.1	10.5	3.4	21.0	4.4	8.8	.0	12.0	.0
18	1.0	6.0	1.6	5.6	11.5	21.0	7.7	10.1	3.3	21.0	2.8	8.1	.0	13.5	.0
19	1.8	10.7	2.4	8.6	19.3	21.0	8.1	12.0	.8	21.0	8.9	4.1	.0	6.0	.0
20	3.5	21.1	4.3	15.5	36.5	21.0	7.6	11.6	1.6	21.0	16.9	3.5	.0	6.0	.0
21	3.1	18.5	3.8	13.8	32.3	21.0	7.6	13.4	.0	21.0	14.5	.0	.0	.0	.0
22	2.2	13.2	2.8	10.0	23.2	21.0	7.5	13.5	.0	21.0	12.8	.0	.0	.0	.0
23	3.4	20.2	4.1	14.9	35.0	21.0	7.6	13.4	.0	21.0	16.1	.0	.0	.0	.0
24	1.2	7.1	1.6	5.8	12.9	21.0	6.8	13.9	.3	21.0	4.8	1.0	.0	1.5	.0
25	3.4	20.2	4.2	14.9	35.1	21.0	7.5	12.3	1.2	21.0	19.8	2.6	.0	4.5	.0
26	1.0	6.2	1.5	5.3	11.5	21.0	6.8	13.1	1.1	21.0	3.6	1.5	.0	3.0	.0
27	3.2	19.3	4.0	14.2	33.5	21.0	7.5	12.7	.8	21.0	19.8	2.9	.0	4.5	.0
28	1.5	9.2	2.0	7.2	16.5	21.0	6.6	14.4	.0	21.0	8.0	.0	.0	.0	.0
29	3.6	21.4	4.4	15.7	37.1	21.0	7.5	12.5	1.0	21.0	19.4	1.6	.0	3.0	.0
30	3.8	22.5	4.6	16.6	39.1	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
=====															
104	76.0	454.3	96.1	344.4	798.8	630.0	227.0	382.9	20.1	630.0	366.7	44.6	.0	76.5	.0

NOV , 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

THERMAL INPUT		THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX. THERMAL	THERMAL
		LOAD	SUPPLIED FROM							SUPPLIED FROM				INPUT	INPUT	LOAD
DAY	PER	TOTAL	TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL	T-I	PV-I	E-X	T-X	WASTED	DEFICIT
	SQ-M	SQ-M								OUTPUT						
1	1.4	68.1	32.2	7.6	22.6	.0	.0	.0	.0	32.2	10.8	4.9	.0	.0	47.7	.0
2	.7	32.9	48.5	12.6	32.9	.0	.0	.0	.0	48.5	17.2	.0	.0	.0	.1	.0
3	.9	46.9	52.3	16.8	35.5	.0	.0	.0	.0	52.3	30.1	.0	.0	.0	.0	.0
4	1.5	72.6	40.8	11.0	29.8	.0	.0	.0	.0	40.8	44.9	.3	.0	.0	16.6	.0
5	1.5	75.2	38.1	10.9	27.2	.0	.0	.0	.0	38.1	27.0	7.2	.0	.0	37.2	.0
6	1.0	81.1	31.9	8.7	23.2	.0	.0	.0	.0	31.9	15.4	7.1	.0	.0	57.0	.0
7	2.1	104.2	47.2	14.0	33.2	.0	.0	.0	.0	47.2	18.8	15.6	.0	.0	71.3	.0
8	1.4	69.8	53.0	16.2	36.9	.0	.0	.0	.0	53.0	26.7	6.3	.0	.0	27.0	.0
9	1.6	80.9	35.0	7.7	25.3	.0	.0	.0	.0	35.0	19.0	7.6	.0	.0	52.2	.0
10	1.0	50.2	48.2	14.3	33.9	.0	.0	.0	.0	48.2	21.0	.0	.0	.0	14.8	.0
11	1.8	90.2	46.8	13.0	33.8	.0	.0	.0	.0	46.8	37.7	11.0	.0	.0	39.6	.0
12	1.8	91.2	37.6	9.2	28.4	.0	.0	.0	.0	37.6	17.8	10.7	.0	.0	64.1	.0
13	.7	36.7	32.8	9.5	23.3	.0	.0	.0	.0	32.8	16.1	.0	.0	.0	11.1	.0
14	1.1	53.7	32.6	9.2	23.4	.0	.0	.0	.0	32.6	25.4	.0	.0	.0	19.1	.0
15	.4	17.6	26.3	8.0	18.2	.0	.0	.0	.0	26.3	9.5	.0	.0	.0	.0	.0
16	.3	16.0	21.3	7.3	14.0	.0	.0	.0	.0	21.3	8.7	.0	.0	.0	.0	.0
17	.4	18.2	30.6	10.0	20.6	.0	.0	.0	.0	30.6	8.2	.0	.0	.0	.0	.0
18	.3	15.1	19.3	7.8	11.6	.0	.0	.0	.0	19.3	7.3	.0	.0	.0	.0	.0
19	.7	36.8	27.2	9.4	17.8	.0	.0	.0	.0	27.2	27.4	.0	.0	.0	.0	.0
20	1.8	89.4	45.8	12.2	33.6	.0	.0	.0	.0	45.8	49.4	5.7	.0	.0	27.8	.0
21	1.5	74.6	48.3	14.3	34.0	.0	.0	.0	.0	48.3	22.2	6.7	.0	.0	38.0	.0
22	.9	46.8	59.4	15.0	44.4	.0	.0	.0	.0	59.4	31.8	.0	.0	.0	.0	.0
23	1.6	81.7	58.2	16.7	41.3	.0	.0	.0	.0	58.2	50.3	7.3	.0	.0	14.5	.0
24	.4	21.3	36.3	6.7	29.5	.0	.0	.0	.0	36.3	14.6	.0	.0	.0	.0	.0
25	1.6	80.5	61.6	19.2	42.5	.0	.0	.0	.0	61.6	47.1	3.4	.0	.0	14.3	.0
26	.3	15.2	43.3	9.1	34.2	.0	.0	.0	.0	43.3	6.1	.0	.0	.0	.0	.0
27	1.5	73.1	76.0	21.9	54.1	.0	.0	.0	.0	76.0	51.2	2.1	.0	.0	.0	.0
28	.5	26.1	66.3	16.2	50.1	.0	.0	.0	.0	66.3	9.9	.0	.0	.0	.0	.0
29	1.6	82.4	73.4	24.8	45.3	.7	.0	.0	2.6	73.4	57.6	5.7	.0	.0	.0	2.6
30	1.7	83.1	103.3	31.0	72.3	.0	.0	.0	.0	103.3	52.1	13.0	.0	.0	.0	.0
=====																
34.6	1731.3	1373.8	397.5	973.0	.7	.0	.0	2.6	1373.8	781.1	114.5	.0	.0	.0	552.7	2.6

DEC. 1, 1958 - WILMINGTON, DELAWARE - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT					
	50.0	30.0	50.0	30.0			PV-1	E-5	E-X						
1	2.2	13.2	2.9	10.2	23.5	22.0	7.8	14.2	.0	22.0	12.0	.0	.0	.0	.0
2	2.9	17.1	3.5	12.7	29.8	22.0	7.8	14.2	.0	22.0	17.5	.0	.0	.0	.0
3	1.5	9.0	2.0	7.1	16.1	22.0	6.8	15.0	.2	22.0	6.9	1.0	.0	1.5	.0
4	1.1	6.6	1.5	5.4	11.9	22.0	6.4	11.4	4.2	22.0	4.1	7.4	.0	13.5	.0
5	1.0	5.9	1.4	5.0	10.9	22.0	6.4	10.5	5.0	22.0	3.3	7.9	.0	15.0	.0
6	3.1	18.4	3.4	13.7	32.1	22.0	7.8	13.0	1.2	22.0	19.8	3.8	.0	6.0	.0
7	3.2	19.1	3.9	14.1	33.1	22.0	7.3	14.7	.0	22.0	15.3	.0	.0	.0	.0
8	1.9	11.3	2.4	8.7	20.0	22.0	7.5	14.5	.0	22.0	9.4	.0	.0	.0	.0
9	3.1	18.6	3.9	13.9	32.5	22.0	7.8	13.2	1.0	22.0	19.4	1.6	.0	3.0	.0
10	3.6	21.7	4.5	16.0	37.7	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0	.0
11	1.8	10.9	2.4	8.5	19.4	22.0	7.3	14.7	.0	22.0	9.1	.0	.0	.0	.0
12	3.1	18.6	3.8	13.7	32.3	22.0	7.8	13.2	.9	22.0	19.4	1.6	.0	3.0	.0
13	3.5	20.8	4.3	15.4	36.2	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0	.0
14	1.7	9.9	2.2	7.7	17.6	22.0	7.0	15.0	.0	22.0	7.5	.0	.0	.0	.0
15	3.3	19.4	4.0	14.4	33.9	23.0	8.1	13.7	1.2	23.0	19.0	3.8	.0	6.0	.0
16	3.6	21.8	4.5	16.1	37.9	23.0	8.1	14.9	.0	23.0	16.0	.0	.0	.0	.0
17	1.7	9.9	2.2	7.7	17.7	23.0	7.3	15.7	.0	23.0	8.1	.0	.0	.0	.0
18	3.1	18.6	3.9	13.8	32.4	23.0	8.1	14.1	.8	23.0	19.5	4.1	.0	6.0	.0
19	2.7	16.3	3.4	12.1	28.3	23.0	8.0	15.0	.0	23.0	16.3	.0	.0	.0	.0
20	3.2	18.9	3.9	14.0	32.8	23.0	8.1	14.9	.0	23.0	16.2	.0	.0	.0	.0
21	2.6	15.4	3.2	11.6	27.1	23.0	8.1	14.9	.0	23.0	15.4	.0	.0	.0	.0
22	3.0	17.9	3.7	13.3	31.2	23.0	8.0	15.0	.0	23.0	16.7	.0	.0	.0	.0
23	1.5	8.9	1.9	6.9	15.8	23.0	6.8	15.5	.7	23.0	7.0	.7	.0	1.5	.0
24	1.4	8.2	1.8	6.4	14.6	23.0	6.7	10.8	5.4	23.0	6.2	6.4	.0	13.5	.0
25	3.6	21.8	4.5	16.1	37.9	23.0	8.1	13.6	1.3	23.0	19.0	3.7	.0	6.0	.0
26	3.5	21.0	4.3	15.5	36.5	23.0	8.1	14.9	.0	23.0	16.0	.0	.0	.0	.0
27	3.1	18.3	3.8	13.5	31.8	23.0	7.8	15.2	.0	23.0	16.0	.0	.0	.0	.0
28	2.1	12.7	2.6	9.4	22.1	23.0	6.9	16.1	.0	23.0	12.3	.0	.0	.0	.0
29	1.2	7.2	1.6	5.7	13.0	23.0	6.5	13.5	2.9	23.0	4.9	6.0	.0	10.5	.0
30	2.3	13.9	2.9	10.3	24.3	23.0	7.6	14.0	1.4	23.0	13.6	4.8	.0	7.5	.0
31	2.8	16.7	3.5	12.4	29.1	23.0	8.1	13.8	1.1	23.0	16.9	1.5	.0	3.0	.0
=====															
	78.3	468.0	98.0	351.5	819.5	699.0	234.2	437.5	27.4	699.0	413.0	54.3	.0	96.0	.0

DEC , 1958 - WILMINGTON, DELAWARE - IN

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL LOAD	
	PER SQ-M	TOTAL 50.0 SQ-M	TOTAL	SUPPLIED FROM							SUPPLIED FROM				T-X	THERMAL INPUT DEFICIT	THERMAL LOAD DEFICIT
				T-1	T-5	PV-1	E-S	E-X	T-X	TOTAL OUTPUT	T-1	PV-1	E-A	T-X			
1	.8	40.6	91.0	23.8	44.9	2.7	.0	.0	19.6	91.0	16.8	.0	.0	.0	.0	19.6	.0
2	1.2	62.4	81.7	21.0	31.8	2.5	.0	.0	26.4	81.7	41.3	.0	.0	.0	.0	26.4	.0
3	.5	24.1	71.8	18.7	17.0	2.2	.0	.0	37.9	73.8	7.5	.0	.0	.0	.0	37.9	.0
4	.3	16.0	51.2	11.0	5.0	.5	.0	.0	37.6	54.2	5.0	.0	.0	.0	.0	37.6	.0
5	.3	14.1	50.6	7.0	5.1	.2	.0	.0	36.6	50.8	5.1	.0	.0	.0	.0	36.6	.0
6	1.3	66.0	87.3	25.8	38.0	.5	.0	.0	23.1	87.3	40.2	.3	.0	.0	.0	23.1	.0
7	1.4	68.1	100.4	25.1	41.8	2.9	.0	.0	30.7	100.4	43.0	6.2	.0	.0	.0	30.7	.0
8	.6	31.6	92.1	20.0	21.4	2.4	.0	.0	48.3	92.1	11.6	.0	.0	.0	.0	48.3	.0
9	1.3	67.3	90.1	24.9	37.0	2.2	.0	.0	25.9	90.1	42.4	.5	.0	.0	.0	25.9	.0
10	1.6	78.4	110.1	30.4	48.8	3.2	.0	.0	27.7	110.1	48.0	9.8	.0	.0	.0	27.7	.0
11	.5	27.5	110.7	22.8	19.5	3.5	.0	.0	64.9	110.7	4.7	.0	.0	.0	.0	64.9	.0
12	1.3	66.0	97.8	25.0	36.8	1.3	.0	.0	36.7	99.8	41.0	.6	.0	.0	.0	36.7	.0
13	1.5	76.6	101.6	27.0	43.3	3.4	.0	.0	28.0	101.6	49.6	8.3	.0	.0	.0	28.0	.0
14	.5	24.4	103.5	20.2	23.6	3.5	.0	.0	56.1	103.5	4.2	.0	.0	.0	.0	56.1	.0
15	1.4	68.5	101.6	28.3	42.2	1.7	.0	.0	29.5	101.6	40.3	2.0	.0	.0	.0	29.5	.0
16	1.6	80.1	105.5	29.1	37.7	3.4	.0	.0	35.3	105.5	51.1	8.8	.0	.0	.0	35.3	.0
17	.6	28.2	82.4	17.5	32.8	.8	.0	.0	31.3	82.4	10.7	.0	.0	.0	.0	31.3	.0
18	1.4	68.4	83.0	22.9	31.5	1.7	.0	.0	26.8	83.0	45.4	.0	.0	.0	.0	26.8	.0
19	1.2	60.1	74.0	17.9	36.3	1.0	.0	.0	18.8	74.0	42.2	.2	.0	.0	.0	18.8	.0
20	1.4	68.4	85.9	24.9	59.6	.2	.0	.0	2.3	86.9	43.6	4.6	.0	.0	.0	2.3	.0
21	1.0	50.2	105.0	25.4	33.5	.8	.0	.0	45.3	105.0	24.8	.0	.0	.0	.0	45.3	.0
22	1.2	61.9	107.2	27.3	36.5	.0	.0	.0	43.4	107.2	34.6	2.7	.0	.0	.0	43.4	.0
23	.5	26.9	65.0	11.8	15.9	.8	.0	.0	36.5	65.0	15.0	.0	.0	.0	.0	36.5	.0
24	.5	22.9	63.8	12.7	10.2	.4	.0	.0	40.5	63.8	10.2	.0	.0	.0	.0	40.5	.0
25	1.6	78.8	106.1	30.5	40.6	2.4	.0	.0	32.6	106.1	48.3	5.7	.0	.0	.0	32.6	.0
26	1.6	77.6	104.0	29.3	50.0	2.6	.0	.0	25.2	104.0	51.3	7.6	.0	.0	.0	25.2	.0
27	1.3	65.8	94.7	22.9	53.7	2.4	.0	.0	15.7	94.7	42.9	3.7	.0	.0	.0	15.7	.0
28	.9	46.0	58.0	12.1	33.9	1.2	.0	.0	10.8	58.0	33.9	.0	.0	.0	.0	10.8	.0
29	.4	19.1	58.4	12.3	22.0	.4	.0	.0	23.8	58.4	6.8	.0	.0	.0	.0	23.8	.0
30	1.0	52.4	52.8	11.2	22.1	.4	.0	.0	12.1	52.8	41.1	.0	.0	.0	.0	12.1	.0
31	1.2	58.5	80.5	23.5	48.4	1.3	.0	.0	7.4	80.5	35.1	.0	.0	.0	.0	7.4	.0
=====																	
	31.9	1596.7	2676.3	654.2	1021.0	52.6	.0	.0	943.5	2676.3	937.5	61.0	.0	.0	.0	943.5	.0

1958 - WILMINGTON, DELAWARE - (W

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT					
	PER 50.0 SQ-M	PER 30.0 SQ-M	PER 50.0 SQ-M	PER 30.0 SQ-M			PV-I	E-S	E-X						
JAN	79.	473.	99.	356.	828.	682.	240.	425.	17.	682.	412.	45.	0.	73.	0.
FEB	92.	547.	115.	414.	961.	616.	253.	380.	3.	616.	380.	8.	0.	13.	0.
MAR	125.	749.	159.	569.	1319.	651.	300.	351.	0.	651.	378.	0.	0.	0.	0.
APR	116.	692.	152.	545.	1237.	600.	302.	298.	0.	600.	322.	0.	5.	0.	0.
MAY	107.	641.	147.	527.	1167.	809.	471.	309.	24.	809.	297.	23.	1.	57.	0.
JUN	95.	570.	133.	477.	1048.	946.	544.	294.	84.	922.	267.	50.	149.	147.	24.
JUL	81.	482.	116.	415.	897.	1124.	620.	308.	175.	1103.	191.	140.	6.	352.	21.
AUG	84.	504.	116.	417.	921.	928.	503.	332.	86.	921.	272.	65.	60.	193.	7.
SEP	92.	547.	120.	432.	979.	740.	380.	318.	41.	739.	318.	36.	0.	87.	1.
OCT	92.	551.	118.	423.	974.	636.	272.	362.	2.	636.	380.	8.	0.	12.	0.
NOV	76.	454.	96.	344.	799.	630.	227.	383.	20.	630.	367.	45.	0.	76.	0.
DEC	78.	468.	98.	352.	819.	699.	234.	437.	27.	699.	413.	54.	0.	96.	0.
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1958 - WILMINGTON, DELAWARE - TW

(ALL UNITS = KW-HR)

		THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT					THERMAL STORAGE				THERMAL INPUT WASTED		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
		PER SQ-M	TOTAL SQ-M	TOTAL		SUPPLIED FROM					SUPPLIED FROM							
MONTH						T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X		
JAN	32.	1622.	2542.	652.	1054.	39.	0.	0.	0.	797.	2542.	970.	67.	0.	0.	0.	797.	0.
FEB	40.	2003.	2118.	607.	1311.	20.	0.	0.	0.	120.	2118.	1147.	220.	0.	0.	169.	120.	0.
MAR	60.	3018.	1795.	632.	1163.	0.	0.	0.	0.	0.	1795.	668.	513.	0.	0.	1718.	0.	0.
APR	58.	2905.	961.	403.	558.	0.	0.	0.	0.	0.	961.	102.	491.	0.	0.	2400.	0.	0.
MAY	55.	2728.	642.	356.	286.	0.	0.	0.	0.	0.	642.	0.	288.	0.	0.	2372.	0.	0.
JUN	49.	2461.	525.	348.	177.	0.	0.	0.	0.	0.	525.	129.	0.	0.	0.	1963.	0.	0.
JUL	40.	2009.	543.	364.	158.	0.	0.	0.	0.	0.	543.	159.	0.	0.	0.	1466.	0.	0.
AUG	43.	2131.	543.	351.	191.	0.	0.	0.	0.	0.	543.	190.	0.	0.	0.	1589.	0.	0.
SEP	47.	2341.	584.	316.	267.	0.	0.	0.	0.	0.	584.	94.	183.	0.	0.	1931.	0.	0.
OCT	45.	2252.	892.	343.	549.	0.	0.	0.	0.	0.	892.	328.	218.	0.	0.	1582.	0.	0.
NOV	35.	1731.	1374.	398.	973.	1.	0.	0.	0.	3.	1374.	781.	115.	0.	0.	553.	3.	0.
DEC	32.	1597.	2676.	659.	1021.	53.	0.	0.	0.	943.	2676.	938.	61.	0.	0.	0.	943.	0.

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536. 26797. 15194. 5510. 7709. 112. 0. 0. 1863. 15194. 5505. 2157. 0. 0. 15782. 1863. 0.

BPRT, T SRPSS.VDM
FURPUR 27K2 RL1872 02/03/77 19:27:35

MCALLISTER.SRPSS(1) ELEMENT TABLE

D	NAME	VERSION	TYPE	DATE	TIME	SEQ #	SIZE-PRE,TEXT	(CYCLE WORD)	PSKMODE	LOCATION
VDM			ELI SYMB	08 DEC 76	15:21:20	105	6	5	0	1
VDM			RELOCATABLE	08 DEC 76	16:46:53	107	3	3		4256
VDM			ABSOLUTE	08 DEC 76	17:23:15	113		73		4264
NEXT AVAILABLE LOCATION-										4338
										6567

QXQT SRPSS.VDM

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION

VERSION X.1.

1962 - MADISON, WISCONSIN - (A)

WATER-COOLED COLLECTOR

AREA 80. SQ-M

TILT 44.0 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 0. SQ-M

TILT 44.0 DEGREES

EC .90

EN .16

ET .83

EP .90

ET .93

ES .85

C1 F; C2 F; C3 F; C4 F; C5 F.

HEATING SEASON: SEP -1 - MAY 31

COOLING SEASON: MAY 15 - SEP 13

ELECTRICAL STORAGE CAPACITY 20. KW-HR

THERMAL STORAGE CAPACITY 100. (180.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT ***** KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT ***** KW-HR

S/H DEMAND CURVE: INTERCEPT 13365., SLOPE -348.

A/C DEMAND CURVE: INTERCEPT -47000., SLOPE 701.

JAN 62 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-I	E-S	E-X						
1	1.4	13.2	1.7	.0	13.2	22.0	0.1	13.7	2.1	22.0	4.8	.0	.0	2.1	.0
2	2.8	26.3	3.4	.0	26.3	22.0	7.1	9.6	5.3	22.0	15.3	.0	.0	5.3	.0
3	2.3	21.8	2.8	.0	21.8	22.0	0.6	14.8	.0	22.0	12.5	.0	.0	.6	.0
4	.9	8.5	1.1	.0	8.5	22.0	4.3	4.6	12.5	22.0	2.3	.0	.0	12.5	.0
5	.9	8.6	1.1	.0	8.6	22.0	4.9	2.5	14.6	22.0	2.7	.0	.0	14.6	.0
6	.9	8.7	1.2	.0	8.7	22.0	5.0	1.7	15.3	22.0	1.3	.0	.0	15.3	.0
7	.9	8.7	1.2	.0	8.7	22.0	5.0	1.6	15.4	22.0	1.7	.0	.0	15.4	.0
8	2.9	27.4	3.5	.0	27.4	22.0	6.6	9.6	5.8	22.0	17.2	.0	.0	5.8	.0
9	3.6	34.2	4.4	.0	34.2	22.0	7.2	14.2	.0	22.0	18.1	.0	.0	.0	.0
10	3.7	35.6	4.6	.0	35.6	22.0	7.3	14.2	.0	22.0	15.3	.0	.0	.0	.0
11	3.0	28.8	3.7	.0	28.8	22.0	7.7	14.3	.0	22.0	15.3	.0	.0	.0	.0
12	1.4	13.7	1.8	.0	13.7	22.0	6.0	14.1	1.9	22.0	5.6	.0	.0	1.9	.0
13	3.1	29.5	3.8	.0	29.5	22.0	7.1	9.6	5.3	22.0	18.6	.0	.0	5.3	.0
14	1.2	11.7	1.5	.0	11.7	22.0	6.1	11.8	4.1	22.0	4.4	.0	.0	4.1	.0
15	3.7	35.3	4.6	.0	35.3	22.0	7.3	9.6	4.6	22.0	20.0	.0	.0	4.6	.0
16	3.8	36.2	4.7	.0	36.2	22.0	7.3	14.2	.0	22.0	15.3	.0	.0	.0	.0
17	3.7	35.6	4.6	.0	35.6	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0	.0
18	3.5	33.9	4.4	.0	33.9	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0	.0
19	1.1	10.8	1.4	.0	10.8	22.0	6.1	9.2	6.7	22.0	.2	.0	.0	6.7	.0
20	3.3	31.1	4.0	.0	31.1	22.0	6.7	10.7	4.6	22.0	19.1	.0	.0	4.6	.0
21	1.8	17.3	2.2	.0	17.3	22.0	6.1	15.1	.7	22.0	8.5	.0	.0	.7	.0
22	3.6	34.2	4.4	.0	34.2	22.0	7.3	9.6	4.6	22.0	20.0	.0	.0	4.6	.0
23	3.7	35.6	4.6	.0	35.6	22.0	7.3	14.2	.0	22.0	15.3	.0	.0	.0	.0
24	3.8	36.5	4.7	.0	36.5	22.0	7.8	14.2	.0	22.0	15.3	.0	.0	.0	.0
25	1.7	16.5	2.2	.0	16.5	22.0	7.2	14.8	.0	22.0	7.4	.0	.0	.0	.0
26	1.5	14.5	2.0	.0	14.5	22.0	7.3	6.4	8.3	22.0	5.6	.0	.0	8.3	.0
27	3.0	29.2	3.7	.0	29.2	22.0	6.9	10.6	4.5	22.0	18.1	.0	.0	4.5	.0
28	2.4	22.5	2.8	.0	22.5	22.0	6.2	15.8	.0	22.0	13.4	.0	.0	.0	.0
29	1.5	13.9	1.9	.0	13.9	22.0	7.4	7.4	7.3	22.0	4.7	.0	.0	7.3	.0
30	3.7	35.1	4.5	.0	35.1	22.0	3.0	9.5	4.5	22.0	20.0	.0	.0	4.5	.0
31	1.3	12.1	1.6	.0	12.1	22.0	6.3	10.6	5.1	22.0	1.6	.0	.0	5.1	.0
	76.0	726.9	94.3	.0	726.9	682.0	211.7	336.4	133.9	682.0	351.7	.0	.0	133.9	.0

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(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL 80.C SQ-M	TOTAL	SUPPLIED FROM							SUPPLIED FROM						
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X			
1	.3	26.4	125.1	13.3	60.6	3.0	.0	.0	43.2	125.1	8.1	.0	.0	.0	.0	43.2	.0
2	1.1	91.6	91.6	29.0	31.9	.0	.0	.0	31.3	91.6	63.6	.0	.0	.0	.0	31.3	.0
3	1.0	77.2	76.2	18.2	58.0	.0	.0	.0	.0	76.2	59.0	.0	.0	.0	.0	.0	.0
4	.2	17.7	77.7	14.1	36.4	.0	.0	.0	27.2	77.7	3.6	.0	.0	.0	.0	27.2	.0
5	.2	16.8	88.0	14.0	2.0	.4	.0	.0	70.8	88.0	2.0	.0	.0	.0	.0	70.8	.0
6	.2	14.6	106.9	14.0	.0	4.7	.0	.0	87.6	106.9	.0	.0	.0	.0	.0	37.6	.0
7	.2	14.9	114.1	14.9	.0	3.7	.0	.0	95.4	114.1	.0	.0	.0	.0	.0	95.4	.0
8	1.1	93.7	133.7	32.4	54.2	.0	.0	.0	47.1	133.7	56.3	.0	.0	.0	.0	47.1	.0
9	1.2	98.2	175.3	51.1	52.3	2.2	.0	.0	68.8	175.3	47.1	3.1	.0	.0	.0	68.8	.0
10	1.4	110.4	167.5	47.7	53.2	3.5	.0	.0	57.1	167.5	62.7	7.4	.0	.0	.0	57.1	.0
11	1.0	82.2	151.4	41.5	53.0	2.1	.0	.0	53.7	151.4	40.6	1.4	.0	.0	.0	53.7	.0
12	.4	33.2	112.4	19.3	15.0	2.4	.0	.0	76.8	112.4	15.0	.0	.0	.0	.0	76.3	.0
13	1.3	106.3	95.7	28.5	32.6	.0	.0	.0	34.5	95.7	77.7	.0	.0	.0	.0	34.5	.0
14	.4	28.4	87.4	17.0	55.8	.0	.0	.0	13.9	87.4	10.7	.0	.0	.0	.0	13.9	.0
15	1.5	122.1	119.5	40.1	46.9	1.3	.0	.0	31.2	119.5	81.9	2.9	.0	.0	.0	31.2	.0
16	1.5	119.0	145.1	45.1	90.1	2.6	.0	.0	7.4	145.1	73.9	7.9	.0	.0	.0	7.4	.0
17	1.3	104.4	171.0	52.1	83.1	3.4	.0	.0	26.4	171.0	52.3	7.3	.0	.0	.0	26.4	.0
18	1.2	93.4	174.7	50.2	54.1	2.5	.0	.0	68.0	174.7	48.2	5.3	.0	.0	.0	68.0	.0
19	.1	11.8	159.5	11.8	.0	12.8	.0	.0	134.9	159.5	.0	.0	.0	.0	.0	134.9	.0
20	1.2	92.8	161.7	42.9	43.9	2.8	.0	.0	66.0	161.7	49.9	.0	.0	.0	.0	66.0	.0
21	.6	48.9	121.2	23.8	25.0	2.1	.0	.0	70.3	121.2	25.0	.0	.0	.0	.0	70.3	.0
22	1.4	108.6	143.3	44.3	51.2	2.4	.0	.0	44.9	143.3	63.3	1.0	.0	.0	.0	44.9	.0
23	1.5	121.2	131.0	41.7	53.8	2.5	.0	.0	33.0	131.0	79.5	7.5	.0	.0	.0	33.0	.0
24	1.7	133.0	106.0	36.1	69.9	.0	.0	.0	.0	106.0	93.5	9.4	.0	.0	8.4	.0	.0
25	.6	45.8	87.3	25.2	62.5	.0	.0	.0	.0	87.8	20.6	.0	.0	.0	.0	.0	.0
26	.5	37.8	83.4	22.2	48.7	.0	.0	.0	12.5	83.4	15.7	.0	.0	.0	.0	12.5	.0
27	1.2	94.1	128.8	34.9	53.3	1.1	.0	.0	39.6	128.8	59.3	.0	.0	.0	.0	39.6	.0
28	.9	63.1	128.4	23.2	45.9	.0	.0	.0	54.3	128.4	39.3	.0	.0	.0	.0	54.3	.0
29	.4	31.4	96.6	24.6	6.8	.9	.0	.0	64.3	96.6	6.3	.0	.0	.0	.0	64.3	.0
30	1.4	112.5	131.3	46.4	49.0	2.7	.0	.0	33.3	131.3	66.3	1.7	.0	.0	.0	33.3	.0
31	.2	18.6	144.0	18.6	19.0	2.3	.0	.0	97.1	144.0	.0	.0	.0	.0	.0	97.1	.0
=====																	
	27.2	2175.4	3936.2	343.9	1326.1	70.2	.0	.0	1420.3	3936.2	1213.1	55.5	.0	.0	9.4	1490.9	.0

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	30-C	PER SQ-M	30-C			FV-I	E-S	E-X		PV-I	E-X			
1	3.5	33.2	4.3	.0	33.2	22.0	9.3	9.2	4.5	22.0	20.0	.0	.0	4.5	.0
2	1.3	12.5	1.0	.0	12.5	22.0	6.3	13.3	2.4	22.0	4.1	.0	.0	2.4	.0
3	1.5	13.9	1.6	.0	13.9	22.0	7.3	4.5	10.2	22.0	4.3	.0	.0	10.2	.0
4	3.1	29.5	3.8	.0	29.5	22.0	8.3	9.5	4.3	22.0	16.0	.0	.0	4.3	.0
5	3.9	37.6	4.9	.0	37.6	22.0	9.8	13.2	.0	22.0	17.6	.0	.0	.0	.0
6	4.5	43.2	5.0	.0	43.2	22.0	9.0	13.0	.0	22.0	14.1	.0	.0	.0	.0
7	3.3	31.4	4.2	.0	31.4	22.0	9.0	13.0	.0	22.0	14.0	.0	.0	.0	.0
8	2.3	21.7	2.9	.0	21.7	22.0	3.5	13.5	.0	22.0	9.1	.0	.0	.0	.0
9	1.4	13.3	1.8	.0	13.3	22.0	6.7	7.9	7.5	22.0	4.6	.0	.0	7.5	.0
10	3.1	23.5	3.8	.0	23.5	22.0	7.8	10.3	3.8	22.0	17.1	.0	.0	3.8	.0
11	1.4	13.4	1.3	.0	13.4	22.0	6.6	10.1	5.3	22.0	4.3	.0	.0	5.3	.0
12	1.6	15.6	2.1	.0	15.6	22.0	5.9	6.3	8.8	22.0	6.3	.0	.0	3.8	.0
13	1.4	13.6	1.3	.0	13.6	22.0	6.7	5.0	10.2	22.0	5.4	.0	.0	10.2	.0
14	1.4	13.7	1.8	.0	13.7	22.0	6.7	5.1	10.1	22.0	5.5	.0	.0	10.1	.0
15	1.5	14.1	1.3	.0	14.1	22.0	6.9	5.1	10.0	22.0	5.5	.0	.0	10.0	.0
16	1.5	14.8	2.0	.0	14.8	22.0	7.5	5.3	9.2	22.0	5.3	.0	.0	9.2	.0
17	3.3	31.6	4.1	.0	31.6	22.0	3.6	9.5	3.9	22.0	19.0	.0	.0	3.9	.0
18	1.6	15.0	2.0	.0	15.0	22.0	7.6	13.4	1.1	22.0	5.5	.0	.0	1.1	.0
19	2.5	23.9	3.2	.0	23.9	22.0	8.8	8.7	4.5	22.0	11.7	.0	.0	4.5	.0
20	4.3	40.7	5.3	.0	40.7	22.0	8.8	11.7	1.6	22.0	20.0	.0	.0	1.6	.0
21	1.6	15.5	2.1	.0	15.5	22.0	7.7	14.3	.0	22.0	6.1	.0	.0	.0	.0
22	3.6	34.5	4.5	.0	34.5	22.0	3.9	9.1	4.0	22.0	20.0	.0	.0	4.0	.0
23	1.7	16.2	2.2	.0	16.2	22.0	8.1	13.9	.0	22.0	5.6	.0	.0	.0	.0
24	3.0	29.0	3.8	.0	29.0	22.0	8.4	11.1	2.5	22.0	16.4	.0	.0	2.5	.0
25	1.7	16.0	2.1	.0	16.0	22.0	7.8	11.3	2.9	22.0	6.3	.0	.0	2.9	.0
26	2.5	24.3	3.3	.0	24.3	22.0	3.1	8.5	4.4	22.0	12.1	.0	.0	4.4	.0
27	1.7	16.2	2.2	.0	16.2	22.0	7.9	8.2	5.9	22.0	5.3	.0	.0	5.9	.0
28	5.0	48.2	6.2	.0	48.2	22.0	3.7	8.5	3.8	22.0	20.0	.0	.0	3.8	.0
TOTAL	69.3	662.4	87.0	.0	662.4	616.0	222.7	272.7	120.7	616.0	304.0	.0	.0	120.7	.0

FEB , 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT			THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT		THERMAL LOAD	
	PER SQ-M	TOTAL 80.0 SQ-M	THERMAL LOAD	SUPPLIED FROM							SUPPLIED FROM				WASTED	THERMAL INPUT	THERMAL INPUT	THERMAL LOAD DEFICIT
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X				
1	1.3	103.1	140.7	46.4	50.2	1.2	.0	.0	43.0	140.7	56.7	.2	.0	.0	.0	43.0	.0	
2	.3	24.7	110.2	22.7	8.7	2.6	.0	.0	76.2	110.2	2.0	.0	.0	.0	.0	76.2	.0	
3	.4	34.5	80.2	22.3	11.6	1.0	.0	.0	44.7	80.2	11.6	.0	.0	.0	.0	44.7	.0	
4	1.4	110.0	72.2	21.4	23.8	2.4	.0	.0	24.5	72.2	88.6	.0	.0	.0	.0	24.5	.0	
5	1.6	127.2	120.3	41.3	78.5	.0	.0	.0	.0	120.3	70.7	6.3	.0	.0	14.7	.0	.0	
6	1.8	140.1	160.7	53.1	107.6	.0	.0	.0	.0	160.7	84.5	15.3	.0	.0	2.5	.0	.0	
7	1.2	94.3	138.9	40.3	98.6	.0	.0	.0	.0	138.9	54.0	4.9	.0	.0	.0	.0	.0	
8	.6	51.0	135.7	33.7	34.2	0.4	.0	.0	59.6	135.7	17.3	.0	.0	.0	.0	59.6	.0	
9	.3	26.3	121.2	24.0	2.3	2.6	.0	.0	92.3	121.2	2.3	.0	.0	.0	.0	92.3	.0	
10	1.2	92.9	128.4	30.6	44.4	2.5	.0	.0	50.9	128.4	62.3	.0	.0	.0	.0	50.9	.0	
11	.4	31.3	91.6	21.6	27.6	1.5	.0	.0	41.0	91.6	9.7	.0	.0	.0	.0	41.0	.0	
12	.5	41.2	84.1	21.1	20.1	.6	.0	.0	42.3	84.1	20.1	.0	.0	.0	.0	42.3	.0	
13	.4	33.3	85.0	21.5	11.7	.6	.0	.0	51.2	85.0	11.7	.0	.0	.0	.0	51.2	.0	
14	.4	34.4	79.3	20.2	14.2	.0	.0	.0	44.9	79.3	14.2	.0	.0	.0	.0	44.9	.0	
15	.4	34.1	88.5	21.1	13.0	.6	.0	.0	53.9	88.5	13.0	.0	.0	.0	.0	53.9	.0	
16	.5	36.5	81.3	22.4	14.1	.0	.0	.0	44.8	81.3	14.1	.0	.0	.0	.0	44.8	.0	
17	1.3	105.9	107.8	34.8	38.1	.0	.0	.0	34.9	107.8	71.1	.0	.0	.0	.0	34.9	.0	
18	.4	33.1	99.2	24.2	41.9	.8	.0	.0	32.2	99.2	8.9	.0	.0	.0	.0	32.2	.0	
19	.8	66.9	112.2	32.0	34.9	2.6	.0	.0	42.7	112.2	34.9	.0	.0	.0	.0	42.7	.0	
20	1.8	143.3	118.5	40.5	36.8	.4	.0	.0	40.7	118.5	99.9	7.1	.0	.0	2.9	40.7	.0	
21	.4	34.6	103.0	24.9	78.2	.0	.0	.0	.0	103.0	9.7	.0	.0	.0	.0	.0	.0	
22	1.5	119.2	115.5	32.1	46.7	.3	.0	.0	36.4	115.5	87.1	1.2	.0	.0	.0	36.4	.0	
23	.4	32.0	131.3	26.5	48.7	2.9	.0	.0	53.2	131.3	5.5	.0	.0	.0	.0	53.2	.0	
24	1.1	89.4	116.3	32.3	41.5	2.4	.0	.0	40.1	116.3	57.1	.0	.0	.0	.0	40.1	.0	
25	.5	38.1	90.9	25.5	28.3	.5	.0	.0	36.6	90.9	12.7	.0	.0	.0	.0	36.6	.0	
26	.9	72.6	95.7	30.8	34.7	.7	.0	.0	29.5	95.7	41.9	.0	.0	.0	.0	29.5	.0	
27	.4	33.5	117.6	27.4	13.2	3.0	.0	.0	73.9	117.6	6.1	.0	.0	.0	.0	73.9	.0	
28	2.0	163.4	157.4	52.0	58.3	.6	.0	.0	46.5	157.4	98.0	13.0	.0	.0	13.4	46.5	.0	
=====																		
	24.3	1946.7	3083.0	847.7	1061.9	32.2	.0	.0	1136.1	3083.9	1065.6	49.0	.0	.0	33.4	1136.1	.0	

MAR, 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-I	E-X				
	PER SQ-M	30-C	PER SQ-M	53-M			FV-I	E-S	E-X							
1	4.3	46.3	6.1	.0	46.3	21.0	9.4	11.6	.0	21.0	13.0	.0	.0	.0	.0	
2	4.9	46.9	6.2	.0	46.9	21.0	9.5	11.5	.0	21.0	12.4	.0	.0	.0	.0	
3	4.1	39.5	5.2	.0	39.5	21.0	8.8	12.2	.0	21.0	12.4	.0	.0	.0	.0	
4	1.8	16.9	2.2	.0	16.9	21.0	7.3	13.2	.0	21.0	7.2	.0	.0	.0	.0	
5	3.9	36.9	4.6	.0	36.9	21.0	9.0	11.5	.5	21.0	20.0	.0	.0	.5	.0	
6	1.8	17.1	2.3	.0	17.1	21.0	7.9	13.1	.0	21.0	7.3	.0	.0	.0	.0	
7	2.0	19.2	2.5	.0	19.2	21.0	7.9	12.6	.5	21.0	8.3	.0	.0	.5	.0	
8	1.8	17.3	2.3	.0	17.3	21.0	7.9	6.7	6.4	21.0	7.2	.0	.0	6.4	.0	
9	1.8	17.4	2.3	.0	17.4	21.0	8.0	6.7	6.3	21.0	7.2	.0	.0	6.3	.0	
10	1.8	17.4	2.3	.0	17.4	21.0	8.0	6.7	6.3	21.0	7.2	.0	.0	6.3	.0	
11	1.9	17.7	2.4	.0	17.7	21.0	8.1	6.9	6.1	21.0	7.4	.0	.0	6.1	.0	
12	1.8	17.7	2.4	.0	17.7	21.0	8.1	6.9	6.1	21.0	7.4	.0	.0	6.1	.0	
13	1.9	17.8	2.4	.0	17.8	21.0	8.1	6.9	6.0	21.0	7.4	.0	.0	6.0	.0	
14	2.9	27.7	3.7	.0	27.7	21.0	3.7	8.4	4.0	21.0	15.4	.0	.0	4.0	.0	
15	1.9	18.0	2.4	.0	18.0	21.0	8.2	12.8	.0	21.0	7.5	.0	.0	.0	.0	
115	16	4.1	39.4	5.2	.0	39.4	21.0	9.3	7.9	3.8	21.0	20.0	.0	.0	3.9	.0
	17	4.9	46.7	6.3	.0	46.7	21.0	9.7	11.3	.0	21.0	12.1	.0	.0	.0	.0
	18	4.7	44.9	5.9	.0	44.9	21.0	8.9	12.1	.0	21.0	12.1	.0	.0	.0	.0
	19	2.5	23.7	3.3	.0	23.7	21.0	9.3	11.7	.0	21.0	11.7	.0	.0	.0	.0
	20	3.0	29.9	4.0	.0	29.9	21.0	8.8	12.2	.0	21.0	13.9	.0	.0	.0	.0
	21	3.2	30.3	4.1	.0	30.3	21.0	9.3	11.7	.0	21.0	13.6	.0	.0	.0	.0
	22	3.8	36.1	4.8	.0	36.1	21.0	9.4	11.6	.0	21.0	12.5	.0	.0	.0	.0
	23	3.1	30.0	4.1	.0	30.0	21.0	9.3	11.7	.0	21.0	12.5	.0	.0	.0	.0
	24	4.9	46.7	6.3	.0	46.7	21.0	9.8	11.2	.0	21.0	12.2	.0	.0	.0	.0
	25	4.5	42.6	5.7	.0	42.6	21.0	9.5	11.5	.0	21.0	12.4	.0	.0	.0	.0
	26	4.4	41.7	5.8	.0	41.7	21.0	9.9	11.1	.0	21.0	12.0	.0	.0	.0	.0
	27	4.9	46.8	6.3	.0	46.8	21.0	9.9	11.1	.0	21.0	11.9	.0	.0	.0	.0
	28	4.7	45.1	6.1	.0	45.1	21.0	9.9	11.1	.0	21.0	12.0	.0	.0	.0	.0
	29	2.0	19.2	2.6	.0	19.2	21.0	8.7	12.3	.0	21.0	8.3	.0	.0	.0	.0
	30	4.3	41.0	5.4	.0	41.0	21.0	9.6	11.4	.0	21.0	17.2	.0	.0	.0	.0
	31	3.4	32.1	4.4	.0	32.1	21.0	9.3	11.7	.0	21.0	11.9	.0	.0	.0	.0

MAR , 1962 - " MADISON, WISCONSIN " - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM							SUPPLIED FROM					THERMAL INPUT DEFICIT	
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X			
1	1.8	145.0	182.6	57.1	109.9	2.5	.0	.0	13.1	182.6	88.4	18.0	.0	.0	.0	13.1	.0
2	2.1	165.0	140.7	45.1	91.0	1.2	.0	.0	3.4	140.7	95.5	20.2	.0	.0	25.3	3.4	.0
3	1.8	141.3	107.6	35.4	72.2	.0	.0	.0	.0	107.6	67.3	14.3	.0	.0	30.6	.0	.0
4	.5	39.7	95.6	27.5	69.1	.0	.0	.0	.0	95.6	12.3	.0	.0	.0	.0	.0	.0
5	1.6	128.4	108.0	34.1	60.1	2.7	.0	.0	11.1	108.0	94.3	2.8	.0	.0	.0	11.1	.0
6	.5	41.4	91.0	26.7	64.8	.0	.0	.0	.0	91.5	14.7	.0	.0	.0	.0	.0	.0
7	.7	55.3	77.7	23.5	41.7	1.0	.0	.0	11.5	77.7	31.8	.0	.0	.0	.0	11.5	.0
8	.6	44.2	91.0	24.3	23.4	.9	.0	.0	32.4	81.0	19.9	.0	.0	.0	.0	32.4	.0
9	.6	45.5	76.7	24.2	21.3	1.1	.0	.0	30.2	76.7	21.3	.0	.0	.0	.0	30.2	.0
10	.6	46.3	74.5	23.5	22.8	1.1	.0	.0	27.1	74.5	22.9	.0	.0	.0	.0	27.1	.0
11	.6	47.0	75.8	23.6	23.3	1.2	.0	.0	27.7	75.8	23.3	.0	.0	.0	.0	27.7	.0
12	.6	47.1	75.2	23.6	23.5	1.2	.0	.0	27.0	75.2	23.5	.0	.0	.0	.0	27.0	.0
13	.6	47.1	75.7	24.1	23.0	1.2	.0	.0	28.4	76.7	23.0	.0	.0	.0	.0	28.4	.0
14	1.1	90.4	88.0	23.3	32.1	1.0	.0	.0	26.6	88.0	62.1	.0	.0	.0	.0	26.6	.0
15	.6	44.8	93.5	26.8	48.0	1.0	.0	.0	17.7	93.5	18.0	.0	.0	.0	.0	17.7	.0
16	1.9	151.0	79.9	30.4	23.0	.0	.0	.0	26.4	79.9	105.0	5.5	.0	.0	15.6	26.4	.0
17	2.3	184.1	81.5	31.3	50.2	.0	.0	.0	.0	81.5	42.1	20.4	.0	.0	110.7	.0	.0
18	2.2	175.6	85.8	29.7	56.1	.0	.0	.0	.0	85.8	35.5	19.5	.0	.0	110.3	.0	.0
19	.9	75.2	69.2	25.0	44.2	.0	.0	.0	.0	69.2	26.8	.0	.0	.0	23.4	.0	.0
20	1.2	97.4	77.7	27.5	50.1	.0	.0	.0	.0	77.7	46.7	2.3	.0	.0	23.2	.0	.0
21	1.3	104.9	76.6	27.9	48.7	.0	.0	.0	.0	76.6	47.3	3.3	.0	.0	29.3	.0	.0
22	1.7	133.7	80.6	23.3	52.3	.0	.0	.0	.0	80.6	48.7	10.5	.0	.0	56.7	.0	.0
23	1.3	104.5	80.2	26.1	54.2	.0	.0	.0	.0	80.2	42.9	5.0	.0	.0	36.0	.0	.0
24	2.3	187.1	77.5	23.0	49.5	.0	.0	.0	.0	77.5	46.0	20.3	.0	.0	112.2	.0	.0
25	2.1	171.5	67.4	22.7	44.7	.0	.0	.0	.0	67.4	25.5	16.5	.0	.0	123.7	.0	.0
26	2.1	165.4	65.2	23.2	42.0	.0	.0	.0	.0	65.2	27.5	15.3	.0	.0	115.7	.0	.0
27	2.5	198.9	52.9	13.4	34.5	.0	.0	.0	.0	52.9	25.3	20.5	.0	.0	155.1	.0	.0
28	2.5	205.8	31.9	12.4	19.5	.0	.0	.0	.0	31.9	3.1	19.0	.0	.0	185.3	.0	.0
29	.7	52.9	68.7	22.6	46.1	.0	.0	.0	.0	68.7	7.3	.0	.0	.0	22.6	.0	.0
30	2.0	157.1	73.9	22.0	40.6	.0	.0	.0	.0	72.6	52.3	9.0	.0	.0	75.8	.0	.0
31	1.4	110.5	78.2	27.4	50.8	.0	.0	.0	.0	78.2	41.9	7.5	.0	.0	41.7	.0	.0
=====																	
	42.5	3403.0	2598.0	353.0	1440.3	15.9	.0	.0	282.7	2598.0	1242.3	232.5	.0	.0	1301.5	282.7	.0

APR . 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM					
	PER SQ-M	80.0 SQ-M	PER SQ-M	80.0 SQ-M			FV-I	E-S	E-X		PV-I	E-X				
1	2.1	19.9	2.8	.0	19.9	20.0	9.0	11.0	.0	20.0	8.6	.0	.0	.0	.0	
2	4.4	41.8	5.7	.0	41.8	20.0	3.1	10.3	.0	20.0	15.5	.0	.0	.0	.0	
3	4.1	39.5	5.5	.0	39.5	20.0	9.5	10.5	.0	20.0	11.7	.0	.0	.0	.0	
4	2.1	19.6	2.7	.0	19.6	20.0	8.6	11.4	.0	20.0	8.3	.0	.0	.0	.0	
5	2.1	19.7	2.7	.0	19.7	20.0	8.7	11.3	.0	20.0	8.3	.0	.0	.0	.0	
6	4.9	47.2	6.4	.0	47.2	20.0	9.5	10.5	.0	20.0	19.1	.0	.0	.0	.0	
7	2.8	26.6	3.8	.0	26.6	20.0	9.3	10.7	.0	20.0	11.5	.0	.0	.0	.0	
8	3.3	31.8	4.4	.0	31.8	20.0	8.9	11.1	.0	20.0	11.3	.0	.0	.0	.0	
9	4.4	41.9	5.2	.0	41.9	20.0	3.4	10.6	.0	20.0	12.1	.0	.0	.0	.0	
10	5.2	49.3	6.7	.0	49.3	20.0	9.6	10.4	.0	20.0	11.2	.0	.0	.0	.0	
11	3.4	32.7	4.4	.0	32.7	20.0	8.9	11.1	.0	20.0	11.4	.0	.0	.0	.0	
12	2.1	20.1	2.8	.0	20.1	20.0	8.3	11.1	.0	20.0	8.3	.0	.0	.0	.0	
13	5.2	49.5	6.8	.0	49.5	20.0	9.6	10.4	.0	20.0	14.9	.0	.0	.0	.0	
14	4.8	46.3	6.3	.0	46.3	20.0	9.6	10.4	.0	20.0	11.2	.0	.0	.0	.0	
117	15	5.0	47.6	6.6	.0	47.6	20.0	9.6	10.4	.0	20.0	11.2	.0	.0	.0	.0
	16	4.8	45.8	6.3	.0	45.8	20.0	3.7	10.3	.0	20.0	11.1	.0	.0	.0	.0
	17	4.7	44.9	6.0	.0	44.9	20.0	9.5	10.5	.0	20.0	11.2	.0	.0	.0	.0
	18	4.9	46.6	6.5	.0	46.6	20.0	3.7	10.3	.0	20.0	11.1	.0	.0	.0	.0
19	5.0	48.1	6.6	.0	48.1	20.0	9.7	10.3	.0	20.0	11.0	.0	.0	.0	.0	
20	5.2	49.3	6.8	.0	49.3	20.0	9.7	10.3	.0	20.0	11.1	.0	.0	.0	.0	
21	3.6	34.7	4.6	.0	34.7	20.0	9.1	10.9	.0	20.0	11.1	.0	.0	.0	.0	
22	2.4	23.1	3.4	.0	23.1	20.0	3.6	10.4	.0	20.0	10.3	.0	.0	.0	.0	
23	5.2	49.6	6.9	.0	49.6	20.0	9.9	10.1	.0	20.0	11.3	.0	.0	.0	.0	
24	5.0	48.0	6.6	.0	48.0	20.0	3.9	10.1	.0	20.0	10.9	.0	.0	.0	.0	
25	5.2	49.4	6.8	.0	49.4	20.0	10.1	9.9	.0	20.0	10.7	.0	.0	.0	.0	
26	5.1	48.9	6.7	.0	48.9	20.0	10.0	10.0	.0	20.0	10.3	.0	.0	.0	.0	
27	4.5	42.9	5.9	.0	42.9	20.0	9.3	10.7	.0	20.0	10.8	.0	.0	.0	.0	
28	2.1	20.5	2.9	.0	20.5	20.0	9.3	10.7	.0	20.0	8.9	.0	.0	.0	.0	
29	2.2	20.6	2.9	.0	20.6	20.0	9.3	10.7	.0	20.0	9.0	.0	.0	.0	.0	
30	2.2	20.9	3.0	.0	20.9	20.0	9.3	10.7	.0	20.0	9.2	.0	.0	.0	.0	
=====																
	117.8	1126.3	155.2	.0	1126.3	600.0	282.5	317.5	.0	600.0	334.7	.0	.0	.0	.0	

APR , 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 80.C SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
				T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X			
1	.7	52.5	76.4	27.3	49.1	.0	.0	.0	.0	76.4	25.2	.0	.0	.0	.0	.0	
2	2.0	160.5	79.5	29.2	50.2	.0	.0	.0	.0	79.5	65.4	12.7	.0	.0	65.7	.0	
3	1.9	151.3	72.5	27.3	44.7	.0	.0	.0	.0	72.5	38.0	14.4	.0	.0	85.5	.0	
4	.7	55.2	63.1	22.2	41.0	.0	.0	.0	.0	63.1	25.7	.0	.0	.0	7.4	.0	
5	.7	57.6	57.4	19.5	37.9	.0	.0	.0	.0	57.4	38.1	.0	.0	.0	.0	.0	
6	2.5	202.5	51.9	16.7	35.2	.0	.0	.0	.0	51.9	41.2	14.6	.0	.0	144.6	.0	
7	1.1	90.2	58.0	22.1	35.9	.0	.0	.0	.0	58.0	18.8	2.9	.0	.0	49.3	.0	
8	1.5	123.5	56.9	16.5	40.4	.0	.0	.0	.0	56.9	31.8	8.4	.0	.0	75.2	.0	
9	2.1	166.7	68.3	23.5	44.8	.0	.0	.0	.0	68.3	38.4	16.3	.0	.0	104.9	.0	
10	2.5	202.3	68.1	26.9	41.2	.0	.0	.0	.0	68.1	26.4	24.6	.0	.0	149.0	.0	
11	1.6	124.2	59.3	17.7	41.6	.0	.0	.0	.0	59.3	17.7	9.2	.0	.0	88.3	.0	
12	.7	52.2	75.3	26.4	49.5	.0	.0	.0	.0	75.8	25.9	.0	.0	.0	.0	.0	
13	2.5	197.4	77.9	32.0	45.9	.0	.0	.0	.0	77.9	56.7	20.2	.0	.0	108.7	.0	
14	2.3	182.3	80.2	31.4	48.8	.0	.0	.0	.0	80.2	24.5	21.2	.0	.0	126.3	.0	
15	2.4	191.5	73.4	28.2	45.2	.0	.0	.0	.0	73.4	28.6	22.3	.0	.0	134.7	.0	
16	2.3	182.7	71.6	26.8	44.8	.0	.0	.0	.0	71.6	26.1	20.7	.0	.0	129.8	.0	
17	2.4	190.9	44.1	13.3	30.3	.0	.0	.0	.0	44.1	16.7	20.0	.0	.0	160.4	.0	
18	2.5	202.9	39.2	12.8	26.5	.0	.0	.0	.0	39.2	6.0	21.4	.0	.0	184.2	.0	
19	2.5	203.5	53.4	19.1	34.3	.0	.0	.0	.0	53.4	6.3	22.3	.0	.0	178.1	.0	
20	2.6	209.0	57.1	20.2	36.9	.0	.0	.0	.0	57.1	19.0	24.0	.0	.0	169.9	.0	
21	1.8	147.1	30.0	10.8	19.2	.0	.0	.0	.0	30.0	2.5	11.0	.0	.0	133.8	.0	
22	1.0	82.3	21.0	10.2	10.8	.0	.0	.0	.0	21.0	.0	.0	.0	.0	72.0	.0	
23	2.7	216.0	41.8	14.4	27.4	.0	.0	.0	.0	41.8	20.4	23.1	.0	.0	181.2	.0	
24	2.8	223.0	34.2	11.5	22.7	.0	.0	.0	.0	34.2	6.7	22.8	.0	.0	204.9	.0	
25	3.0	236.8	19.2	10.1	9.1	.0	.0	.0	.0	19.2	.0	24.2	.0	.0	226.7	.0	
26	3.0	236.4	18.4	10.2	8.2	.0	.0	.0	.0	18.4	.0	23.6	.0	.0	226.2	.0	
27	2.5	203.5	17.8	10.0	7.9	.0	.0	.0	.0	17.8	.0	18.3	.0	.0	193.6	.0	
28	.8	61.1	41.4	17.9	23.4	.0	.0	.0	.0	41.4	.0	.0	.0	.0	43.2	.0	
29	.8	64.2	40.6	14.7	25.9	.0	.0	.0	.0	40.6	.0	.0	.0	.0	49.5	.0	
30	.9	72.7	23.7	10.2	13.4	.0	.0	.0	.0	23.7	.0	.0	.0	.0	62.4	.0	

=====

55.8 4542.1 1572.2 380.0 992.3 .0 .0 .0 .0 1572.2 606.3 338.3 .0 .0 3355.9 .0 .0

(ALL UNITS = KW-HR)

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*(ALL UNITS = KW-HR)

THERMAL INPUT			THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX. THERMAL		
DAY	PER
SQ-M	TOTAL
80°C
SQ-M	LOAD	SUPPLIED FROM							TOTAL
OUTPUT	SUPPLIED FROM				INPUT
WASTED	THERMAL
INPUT	LOAD
DEFICIT
				TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X			
1	.8	66.6	27.1	11.6	15.4	.0	.0	.0	.0	27.1	10.6	.0	.0	.0	44.4	.0	.0	
2	2.5	200.2	31.6	10.9	20.7	.0	.0	.0	.0	31.6	20.6	10.5	.0	.0	168.8	.0	.0	
3	2.6	204.9	26.3	9.9	16.4	.0	.0	.0	.0	26.3	9.1	20.5	.0	.0	185.9	.0	.0	
4	2.1	166.7	23.2	10.2	13.1	.0	.0	.0	.0	23.2	.0	13.9	.0	.0	156.5	.0	.0	
5	1.3	107.3	19.4	10.4	9.0	.0	.0	.0	.0	19.4	.0	4.3	.0	.0	96.8	.0	.0	
6	2.4	194.5	25.9	10.3	15.1	.0	.0	.0	.0	25.9	.0	20.4	.0	.0	183.7	.0	.0	
7	.9	71.7	55.8	19.0	36.8	.0	.0	.0	.0	55.8	.6	1.2	.0	.0	52.0	.0	.0	
8	.8	62.3	45.3	16.4	28.9	.0	.0	.0	.0	45.3	32.0	.0	.0	.0	13.9	.0	.0	
9	1.2	99.1	50.6	16.9	33.7	.0	.0	.0	.0	50.6	33.4	2.7	.0	.0	48.8	.0	.0	
10	.7	53.9	50.8	20.3	30.5	.0	.0	.0	.0	50.8	26.7	.0	.0	.0	11.8	.0	.0	
11	1.0	83.7	31.7	11.8	19.8	.0	.0	.0	.0	31.7	27.8	.0	.0	.0	44.1	.0	.0	
12	1.5	121.7	26.1	10.8	15.3	.0	.0	.0	.0	26.1	17.8	6.7	.0	.0	93.2	.0	.0	
13	2.3	180.3	17.5	10.5	7.0	.0	.0	.0	.0	17.5	1.1	15.3	.0	.0	168.7	.0	.0	
14	2.1	169.0	17.5	10.4	7.1	.0	.0	.0	.0	17.5	.0	13.3	.0	.0	158.6	.0	.0	
15	2.8	223.2	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	13.9	.0	.0	212.4	.0	.0	
16	2.9	230.1	17.5	11.1	6.4	.0	.0	.0	.0	17.5	.0	7.8	.0	.0	219.0	.0	.0	
17	2.6	210.6	17.5	10.6	6.9	.0	.0	.0	.0	17.5	.0	6.0	.0	.0	199.9	.0	.0	
18	2.3	185.0	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	174.3	.0	.0	
19	2.9	228.6	17.5	10.9	6.6	.0	.0	.0	.0	17.5	.0	4.4	.0	.0	217.7	.0	.0	
20	2.5	199.3	17.8	10.4	7.5	.0	.0	.0	.0	17.8	.0	11.5	.0	.0	189.0	.0	.0	
21	1.0	76.5	29.2	12.2	17.0	.0	.0	.0	.0	29.2	.0	.0	.0	.0	64.3	.0	.0	
22	1.8	146.9	21.4	10.3	11.1	.0	.0	.0	.0	21.4	3.1	7.1	.0	.0	133.6	.0	.0	
23	1.2	92.2	17.5	9.8	7.7	.0	.0	.0	.0	17.5	.0	.0	.0	.0	82.3	.0	.0	
24	1.8	142.1	18.8	10.4	8.4	.0	.0	.0	.0	18.8	8.1	7.0	.0	.0	123.6	.0	.0	
25	2.4	194.2	24.7	10.4	14.3	.0	.0	.0	.0	24.7	8.0	19.9	.0	.0	175.8	.0	.0	
26	.9	71.5	26.3	12.0	14.3	.0	.0	.0	.0	26.3	.0	.0	.0	.0	59.5	.0	.0	
27	.8	67.9	27.0	10.4	16.6	.0	.0	.0	.0	27.0	9.8	.0	.0	.0	47.8	.0	.0	
28	1.3	101.4	21.0	9.9	11.2	.0	.0	.0	.0	21.0	12.1	.0	.0	.0	79.4	.0	.0	
29	1.6	129.5	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	111.2	.0	.0	
30	2.6	205.0	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.3	6.1	.0	.0	187.4	.0	.0	
31	2.5	199.6	17.8	10.1	7.7	.0	.0	.0	.0	17.8	.5	14.0	.0	.0	189.0	.0	.0	
=====																		
	5.1	4430.3	793.0	361.5	431.5	.0	.0	.0	.0	793.0	235.2	207.3	.0	.0	3893.0	.0	.0	

JUN , 1952 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	30°C PER SQ-M	AIR-COOLED PER SQ-M	30°C PER SQ-M	TOTAL INPUT	TOTAL	FV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X		
1	2.1	20.1	3.0	.0	20.1	18.0	8.8	9.2	.0	18.0	9.1	.0	.0	.0
2	2.5	23.6	3.5	.0	23.6	18.0	9.4	8.6	.0	18.0	10.5	.0	1.1	.0
3	2.6	25.2	3.6	.0	25.2	18.0	8.9	9.1	.0	18.0	9.1	.0	5.0	.0
4	2.7	25.0	3.8	.0	26.0	23.1	12.0	11.1	.0	23.1	9.9	.0	1.4	.0
5	3.7	35.0	5.0	.0	35.0	24.2	13.1	11.1	.0	24.2	11.0	.0	7.2	.0
6	2.1	20.2	3.0	.0	20.2	18.8	9.1	9.8	.0	18.3	8.2	.0	.0	.0
7	4.3	41.6	5.9	.0	41.6	22.3	13.0	9.4	.0	22.3	13.9	.0	11.3	.0
8	3.2	30.7	4.4	.0	30.7	21.6	11.0	10.6	.0	21.6	9.3	.0	7.3	.0
9	2.7	25.7	3.8	.0	25.7	24.6	13.0	11.6	.0	24.6	10.0	.0	.0	.0
10	4.2	40.2	5.6	.0	40.2	27.5	15.3	12.2	.0	27.5	14.1	.0	7.2	.0
11	2.5	23.6	3.4	.0	23.6	19.0	9.8	9.2	.0	19.0	11.1	.0	.0	.0
12	4.8	45.5	6.4	.0	45.5	18.8	10.5	8.3	.0	18.8	11.6	.0	20.7	.0
13	4.9	46.9	6.6	.0	46.9	19.8	11.1	8.6	.0	19.8	8.3	.0	24.5	.0
14	4.9	46.7	6.6	.0	46.7	23.9	13.4	10.5	.0	23.9	9.4	.0	21.3	.0
15	4.9	46.7	6.6	.0	46.7	27.8	16.1	11.7	.0	27.8	11.3	.0	16.1	.0
16	4.0	38.7	5.6	.0	38.7	32.0	17.7	14.3	.0	32.0	12.6	.0	4.8	.0
17	4.7	44.7	6.3	.0	44.7	36.8	21.8	15.0	.0	36.8	16.3	.0	2.1	.0
18	4.4	42.5	6.0	.0	42.5	28.3	17.4	11.0	.0	28.3	16.2	.0	4.8	.0
19	2.6	24.4	3.6	.0	24.4	19.7	10.2	9.5	.0	19.7	11.1	.0	.4	.0
20	3.4	32.7	4.9	.0	32.7	20.1	11.1	9.0	.0	20.1	10.1	.0	8.9	.0
21	2.9	27.5	4.1	.0	27.5	21.6	11.3	10.5	.0	21.8	9.7	.0	3.9	.0
22	3.3	31.3	4.6	.0	31.3	23.8	13.1	10.7	.0	23.8	11.2	.0	4.0	.0
23	4.4	42.5	6.0	.0	42.5	30.3	16.5	13.9	.0	30.3	11.6	.0	11.2	.0
24	4.7	45.3	6.4	.0	45.3	29.4	16.6	12.8	.0	29.4	14.8	.0	10.1	.0
25	3.6	34.4	4.9	.0	34.4	29.3	17.5	11.8	.0	29.3	13.2	.0	.0	.0
26	4.7	44.9	6.3	.0	44.9	24.2	13.7	10.5	.0	24.2	13.3	.0	14.5	.0
27	4.7	45.1	6.4	.0	45.1	29.5	15.9	13.7	.0	29.5	11.3	.0	14.8	.0
28	4.5	43.3	6.2	.0	43.3	35.3	20.1	15.2	.0	35.3	14.7	.0	4.4	.0
29	3.8	35.9	5.2	.0	35.9	36.1	20.5	15.6	.0	36.1	11.8	.0	.0	.0
30	4.3	41.2	5.8	.0	41.2	32.2	19.5	11.5	1.2	32.2	17.3	.0	.0	.0
=====														
	112.1	1072.0	153.4	.0	1072.0	754.3	417.2	335.8	1.2	754.3	354.2	.0	206.8	.0

JUN . 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL | | |
|-------|---------------|-----------------------|-----------------|----------------|---------------|-----|------|-----|-----------------|-----------------|-------|-----|------|----------------------------|------------------|----------------------------|-----|
| | PER
SQ-M | TOTAL
80-C
SQ-M | | TOTAL | SUPPLIED FROM | | | | TOTAL
OUTPUT | SUPPLIED FROM | | | | | THERMAL
INPUT | THERMAL
LOAD
DEFICIT | |
					T-I	T-S	PV-I	E-S		E-X	T-X	T-I	PV-I				E-X
1	.8	54.7	17.5	9.7	7.3	.0	.0	.0	.0	17.5	.0	.0	.0	.0	59.0	.0	.0
2	1.0	79.8	17.5	9.0	7.9	.0	.0	.0	.0	17.5	1.8	.0	.0	.0	68.3	.0	.0
3	1.2	93.0	17.5	9.7	7.3	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	75.7	.0	.0
4	1.3	104.9	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	80.4	.0	.0
5	1.9	154.4	17.5	10.1	7.4	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	137.3	.0	.0
6	.9	70.7	17.5	9.3	7.6	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	53.1	.0	.0
7	2.4	189.2	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	171.1	.0	.0
8	1.6	128.4	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	111.6	.0	.0
9	1.3	105.3	17.5	10.3	6.7	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	86.8	.0	.0
10	2.3	187.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	171.1	.0	.0
11	1.1	91.3	17.5	9.7	7.8	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	74.7	.0	.0
12	2.5	202.7	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	184.6	.0	.0
13	2.6	211.0	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	193.2	.0	.0
14	2.7	216.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	199.2	.0	.0
15	2.3	221.1	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	203.4	.0	.0
16	2.2	178.4	17.5	11.2	6.3	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	160.8	.0	.0
17	2.7	217.9	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.3	.0	.0	.0	201.4	.0	.0
18	2.5	199.5	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	181.8	.0	.0
19	1.1	91.5	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	73.9	.0	.0
20	1.7	137.3	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	120.3	.0	.0
21	1.4	110.4	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	92.6	.0	.0
22	1.7	134.0	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	116.5	.0	.0
23	2.5	199.8	17.5	10.8	6.7	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	181.8	.0	.0
24	2.7	214.4	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	196.8	.0	.0
25	1.9	154.9	17.5	10.6	6.9	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	137.7	.0	.0
26	2.6	207.4	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	189.9	.0	.0
27	2.6	212.0	17.5	10.8	6.7	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	194.1	.0	.0
28	2.6	207.2	17.5	11.3	6.2	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	189.4	.0	.0
29	2.1	167.9	17.5	10.5	7.0	.0	.0	.0	.0	17.5	5.1	.0	.0	.0	151.3	.0	.0
30	2.4	194.9	17.5	11.0	6.5	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	176.9	.0	.0
=====																	
	59.4	4748.2	525.0	313.1	211.9	.0	.0	.0	.0	525.0	199.0	.0	.0	.0	4236.1	.0	.0

JUL 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	80-C SQ-M	PER SQ-M	80-C SQ-M			FV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	3.5	33.2	4.7	.0	33.2	27.3	16.2	11.1	.0	27.3	13.4	.0	.0	.0	.0
2	2.1	20.1	3.0	.0	20.1	18.0	9.8	9.2	.0	18.0	9.0	.0	.0	.0	.0
3	2.1	20.1	3.0	.0	20.1	18.0	9.2	9.4	.0	18.6	8.6	.0	.0	.0	.0
4	3.5	33.5	4.8	.0	33.5	24.7	13.9	10.8	.0	24.7	15.9	.0	.0	.0	.0
5	2.8	26.4	3.9	.0	26.4	26.1	13.8	12.3	.0	26.1	9.8	.0	.0	.0	.0
6	4.7	45.4	6.4	.0	45.4	33.0	18.0	15.5	.0	33.6	16.5	.0	6.5	.0	.0
7	4.7	44.8	6.3	.0	44.8	40.3	21.4	18.9	.0	40.3	18.1	.0	.5	.0	.0
8	4.4	41.6	5.8	.0	41.6	27.5	15.8	11.2	.5	27.5	20.0	.0	1.1	.5	.0
9	4.8	45.8	6.4	.0	45.8	24.5	13.6	10.9	.0	24.5	10.9	.0	18.4	.0	.0
10	4.5	42.8	6.0	.0	42.8	31.2	16.9	14.3	.0	31.2	11.3	.0	10.8	.0	.0
11	4.1	39.2	5.5	.0	39.2	36.4	20.8	15.6	.0	36.4	14.3	.0	.0	.0	.0
12	4.2	39.8	5.7	.0	39.8	30.8	13.5	12.3	.0	30.8	16.9	.0	.0	.0	.0
13	2.3	21.9	3.3	.0	21.9	20.0	10.8	9.1	.0	20.0	8.7	.0	.0	.0	.0
14	2.2	21.0	3.1	.0	21.0	18.0	3.1	9.7	.0	18.8	9.5	.0	.0	.0	.0
15	2.2	20.8	3.0	.0	20.8	18.0	8.8	9.2	.0	18.0	9.6	.0	.0	.0	.0
16	2.2	21.3	3.1	.0	21.3	18.0	3.7	9.3	.0	18.0	10.1	.0	.0	.0	.0
17	4.2	39.8	5.6	.0	39.8	23.5	13.2	10.3	.0	23.5	16.4	.0	6.4	.0	.0
18	4.6	43.6	6.1	.0	43.6	27.5	13.5	12.0	.0	27.5	11.1	.0	14.0	.0	.0
19	2.5	24.3	3.6	.0	24.3	24.3	12.9	11.4	.0	24.3	8.8	.0	.0	.0	.0
20	2.5	23.7	3.5	.0	23.7	24.7	12.1	12.6	.0	24.7	9.1	.0	.0	.0	.0
21	4.3	41.5	5.7	.0	41.5	25.1	13.5	10.6	1.0	25.1	20.0	.0	3.5	1.0	.0
22	3.8	35.9	5.1	.0	35.9	25.4	15.8	9.6	.0	25.4	12.3	.0	4.4	.0	.0
23	2.4	22.7	3.4	.0	22.7	19.6	10.3	9.4	.0	19.8	9.9	.0	.0	.0	.0
24	4.6	44.4	6.2	.0	44.4	29.4	16.5	12.9	.0	29.4	10.5	.0	14.2	.0	.0
25	3.9	37.0	5.3	.0	37.0	19.0	10.5	8.6	.0	19.0	13.9	.0	9.4	.0	.0
26	4.6	44.3	6.2	.0	44.3	21.3	11.9	9.4	.0	21.3	9.2	.0	20.6	.0	.0
27	3.8	36.2	5.1	.0	36.2	21.8	11.7	10.1	.0	21.8	10.2	.0	11.6	.0	.0
28	2.1	20.1	2.9	.0	20.1	18.0	3.5	9.5	.0	18.0	9.3	.0	.0	.0	.0
29	3.2	30.3	4.3	.0	30.3	20.9	10.4	10.4	.0	20.9	12.1	.0	4.9	.0	.0
30	3.9	37.2	5.3	.0	37.2	22.7	13.8	9.0	.0	22.7	10.9	.0	9.6	.0	.0
31	5.0	47.7	6.6	.0	47.7	23.0	12.1	10.9	.0	23.0	9.6	.0	23.4	.0	.0
=====															
	109.4	1046.3	148.9	.0	1046.3	760.1	413.0	345.6	1.5	760.1	376.4	.0	159.4	1.5	.0

(ALL UNITS = KK-HR)

THERMAL INPUT			THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
DAY	PER SQ-M	TOTAL 30.0 SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM				T-T	PV-T	E-X	T-X
				T-I	T-S	PV-I	E-S	E-X	T-X		T-T	PV-T	E-X	T-X				
1	1.9	148.6	17.5	9.8	7.7	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	132.0	.0	.0	
2	.9	69.5	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	52.1	.0	.0	
3	.9	71.3	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	53.6	.0	.0	
4	1.9	147.2	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	129.6	.0	.0	
5	1.4	109.3	17.5	10.3	6.7	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	90.8	.0	.0	
6	2.7	217.0	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	199.3	.0	.0	
7	2.7	217.0	17.5	11.4	5.1	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	199.4	.0	.0	
8	2.4	193.6	17.5	10.6	6.9	.0	.0	.0	.0	17.5	6.4	.0	.0	.0	176.7	.0	.0	
9	2.7	212.3	17.5	10.0	7.0	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	194.3	.0	.0	
10	2.5	200.7	17.5	11.1	6.4	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	182.8	.0	.0	
11	2.3	186.4	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.2	.0	.0	.0	169.2	.0	.0	
12	2.3	186.2	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	168.7	.0	.0	
13	1.0	82.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	65.5	.0	.0	
14	.9	74.6	17.5	9.6	7.7	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	57.1	.0	.0	
15	.9	71.4	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	54.0	.0	.0	
16	1.0	76.9	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.9	.0	.0	.0	59.3	.0	.0	
17	2.2	179.6	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	161.7	.0	.0	
18	2.5	203.3	17.5	10.6	6.9	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	185.2	.0	.0	
19	1.2	97.4	17.5	10.0	7.5	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	80.6	.0	.0	
20	1.2	93.8	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	75.8	.0	.0	
21	2.4	192.2	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	174.8	.0	.0	
22	2.0	162.8	17.5	9.8	7.7	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	146.0	.0	.0	
23	1.1	85.1	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	67.5	.0	.0	
24	2.6	209.2	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	191.2	.0	.0	
25	2.0	160.4	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	143.5	.0	.0	
26	2.5	200.2	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	182.2	.0	.0	
27	2.0	161.2	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	144.2	.0	.0	
28	.9	69.3	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	51.8	.0	.0	
29	1.6	126.1	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	108.0	.0	.0	
30	2.1	165.7	17.5	10.0	7.6	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	149.6	.0	.0	
31	2.8	221.8	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	204.2	.0	.0	
57.4			4593.3	542.0	317.1	225.4	.0	.0	.0	.0	542.5	224.7	.0	.0	.0	4051.4	.0	.0

AUG. 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	80.0 SQ-M	PER SQ-M	80.0 SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	4.5	43.4	6.1	.0	43.4	26.7	15.3	11.0	.0	26.3	11.7	.0	13.2	.0	.0
2	4.7	44.7	6.2	.0	44.7	25.5	14.7	11.3	.0	26.5	11.3	.0	15.0	.0	.0
3	2.2	21.2	3.1	.0	21.2	25.4	12.9	12.5	.0	25.4	6.3	.0	.0	.0	.0
4	2.9	27.4	4.0	.0	27.4	22.3	11.5	10.6	.2	22.3	12.3	.0	.0	.2	.0
5	4.6	44.1	6.1	.0	44.1	27.7	14.9	12.8	.0	27.7	18.5	.0	6.3	.0	.0
6	4.4	42.4	5.9	.0	42.4	31.2	17.1	14.0	.0	31.2	13.3	.0	7.5	.0	.0
7	4.4	42.3	5.9	.0	42.3	37.7	21.2	16.5	.0	37.7	16.2	.0	.5	.0	.0
8	4.5	42.9	6.0	.0	42.9	32.5	20.0	12.5	.0	32.5	16.5	.0	2.0	.0	.0
9	4.8	45.7	6.3	.0	45.7	22.0	11.9	10.1	.0	22.0	13.4	.0	17.1	.0	.0
10	4.7	44.7	6.2	.0	44.7	25.2	14.0	11.3	.0	25.2	10.3	.0	16.9	.0	.0
11	3.8	36.3	5.0	.0	36.3	26.9	12.9	14.0	.0	26.9	12.1	.0	8.2	.0	.0
12	2.3	22.3	3.2	.0	22.3	21.5	10.8	10.8	.0	21.5	9.2	.0	.0	.0	.0
13	4.5	42.7	6.0	.0	42.7	21.6	11.9	9.7	.0	21.6	17.5	.0	9.3	.0	.0
14	5.0	47.4	6.5	.0	47.4	20.8	11.4	9.4	.0	20.8	10.3	.0	22.9	.0	.0
15	3.5	33.2	4.8	.0	33.2	24.9	12.6	12.3	.0	24.9	10.3	.0	7.6	.0	.0
16	4.9	46.4	6.4	.0	46.4	25.1	14.3	10.8	.0	25.1	13.2	.0	15.5	.0	.0
17	5.2	49.3	6.8	.0	49.3	21.9	12.1	9.8	.0	21.9	11.6	.0	22.7	.0	.0
18	5.0	48.2	6.6	.0	48.2	25.6	13.8	11.8	.0	25.6	10.5	.0	21.1	.0	.0
19	4.5	43.3	6.0	.0	43.3	33.4	18.4	14.9	.0	33.4	12.9	.0	8.3	.0	.0
20	2.5	24.2	3.4	.0	24.2	27.6	12.3	15.0	.3	27.6	9.3	.0	.0	.3	.0
21	5.0	47.9	6.6	.0	47.9	33.1	18.9	11.7	2.5	33.1	20.0	.0	4.0	2.5	.0
22	4.9	46.9	6.5	.0	46.9	36.3	20.0	15.3	.0	36.3	15.4	.0	7.2	.0	.0
23	4.6	44.4	6.1	.0	44.4	39.5	21.8	17.7	.0	39.5	17.8	.0	.0	.0	.0
24	2.6	24.8	3.4	.0	24.8	23.3	12.4	10.8	.0	23.3	9.3	.0	.0	.0	.0
25	4.8	46.0	6.3	.0	46.0	21.6	11.4	9.5	.7	21.6	20.0	.0	10.2	.7	.0
26	4.7	44.8	6.2	.0	44.8	23.1	12.4	10.7	.0	23.1	11.1	.0	18.5	.0	.0
27	5.0	48.1	6.6	.0	48.1	30.5	16.9	13.6	.0	30.5	11.5	.0	16.3	.0	.0
28	5.1	49.0	6.7	.0	49.0	34.1	19.2	14.8	.0	34.1	14.6	.0	11.1	.0	.0
29	4.6	43.6	6.0	.0	43.6	34.3	18.2	16.1	.0	34.3	16.0	.0	5.2	.0	.0
30	3.9	36.9	4.9	.0	36.9	28.3	15.3	13.0	.0	28.3	17.4	.0	.0	.0	.0
31	2.4	23.3	3.3	.0	23.3	23.1	11.4	11.7	.0	23.1	9.4	.0	.0	.0	.0

(ALL UNITS = KW-HR)

126

(ALL UNITS = KW-HR).

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(2)

(ALL UNITS = KW-HR)

57.3	4582.4	873.4	328.4	550.0	.0	.0	.0	.0	879.4	255.2	291.3	.0	.0	3998.8	.0	.0

OCT, 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		ELECTRICAL LOAD		ELECTRICAL OUTPUT		ELECTRICAL STORAGE SUPPLIED FROM		ELECTRICAL OUTPUT		ELECTRICAL STORAGE SUPPLIED FROM		PHOTOVOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	80°C SQ-M	AIR-COOLED PER SQ-M	80°C SQ-M	TOTAL INPUT	TOTAL	FV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	3.7	35.4	4.6	.0	35.4	20.0	8.6	11.4	.0	20.0	15.3	.0	.0	.0	.0
2	2.1	20.1	2.7	.0	20.1	20.0	8.1	11.9	.0	20.0	9.7	.0	.0	.0	.0
3	3.4	32.0	4.2	.0	32.0	20.0	8.3	11.7	.0	20.0	15.8	.0	.0	.0	.0
4	1.8	17.2	2.3	.0	17.2	20.0	7.7	12.3	.0	20.0	7.6	.0	.0	.0	.0
5	2.4	22.8	3.1	.0	22.8	20.0	8.5	11.5	.0	20.0	11.6	.0	.0	.0	.0
6	2.0	18.7	2.5	.0	18.7	20.0	7.6	12.4	.0	20.0	9.9	.0	.0	.0	.0
7	1.8	16.9	2.2	.0	16.9	20.0	7.6	7.6	4.8	20.0	7.5	.0	.0	4.8	.0
8	1.8	16.9	2.2	.0	16.9	20.0	7.6	6.9	5.5	20.0	7.4	.0	.0	5.5	.0
9	3.7	35.2	4.7	.0	35.2	20.0	9.1	7.5	3.4	20.0	20.0	.0	.0	3.4	.0
10	4.5	43.1	5.7	.0	43.1	20.0	9.1	10.9	.0	20.0	11.7	.0	.0	.0	.0
11	3.9	37.7	4.9	.0	37.7	20.0	8.7	11.3	.0	20.0	12.0	.0	.0	.0	.0
12	4.4	42.4	5.5	.0	42.4	20.0	8.5	11.5	.0	20.0	12.4	.0	.0	.0	.0
13	4.3	41.1	5.4	.0	41.1	20.0	9.0	11.0	.0	20.0	11.8	.0	.0	.0	.0
14	3.5	33.5	4.3	.0	33.5	20.0	8.3	11.7	.0	20.0	12.4	.0	.0	.0	.0
15	2.4	23.1	3.1	.0	23.1	20.0	8.3	11.7	.0	20.0	12.0	.0	.0	.0	.0
16	4.7	44.8	5.9	.0	44.8	20.0	9.0	11.0	.0	20.0	12.4	.0	.0	.0	.0
17	4.5	43.5	5.7	.0	43.5	20.0	8.9	11.1	.0	20.0	11.9	.0	.0	.0	.0
18	4.7	45.1	5.9	.0	45.1	20.0	9.0	11.0	.0	20.0	12.5	.0	.0	.0	.0
19	4.1	39.3	5.1	.0	39.3	20.0	8.3	11.7	.0	20.0	11.9	.0	.0	.0	.0
20	2.2	20.6	2.8	.0	20.6	20.0	8.2	11.8	.0	20.0	10.0	.0	.0	.0	.0
21	4.5	42.6	5.6	.0	42.6	20.0	8.8	11.2	.0	20.0	15.2	.0	.0	.0	.0
22	1.9	18.5	2.5	.0	18.5	20.0	7.7	12.3	.0	20.0	8.7	.0	.0	.0	.0
23	2.5	23.7	3.2	.0	23.7	20.0	8.5	11.5	.0	20.0	12.4	.0	.0	.0	.0
24	4.2	40.4	5.3	.0	40.4	20.0	8.7	11.3	.0	20.0	16.5	.0	.0	.0	.0
25	3.3	31.9	4.2	.0	31.9	20.0	8.1	11.9	.0	20.0	12.1	.0	.0	.0	.0
26	4.4	41.9	5.5	.0	41.9	20.0	8.4	11.6	.0	20.0	12.3	.0	.0	.0	.0
27	4.3	40.9	5.4	.0	40.9	20.0	8.7	11.3	.0	20.0	12.5	.0	.0	.0	.0
28	3.6	34.6	4.5	.0	34.6	20.0	8.1	11.9	.0	20.0	12.1	.0	.0	.0	.0
29	3.4	32.4	4.2	.0	32.4	20.0	7.9	12.1	.0	20.0	12.9	.0	.0	.0	.0
30	4.4	41.6	5.4	.0	41.6	20.0	8.3	11.7	.0	20.0	13.0	.0	.0	.0	.0
31	2.7	26.2	3.5	.0	26.2	20.0	7.2	12.8	.0	20.0	12.8	.0	.0	.0	.0
TOTAL	105.0	1004.2	132.2	.0	1004.2	620.0	259.0	347.3	13.7	620.0	375.1	.0	.0	13.7	.0

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL LOAD		
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM						SUPPLIED FROM				T-X	THERMAL INPUT DEFICIT	THERMAL LOAD DEFICIT	
				T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X				
1	2.0	158.0	21.9	10.1	11.8	.0	.0	.0	.0	21.9	13.2	7.5	.0	.0	134.6	.0	.0
2	.9	73.9	22.5	3.1	13.5	.0	.0	.0	.0	22.5	6.7	.0	.0	.0	58.1	.0	.0
3	1.7	138.6	19.2	8.8	10.4	.0	.0	.0	.0	19.2	10.8	4.1	.0	.0	119.1	.0	.0
4	.7	57.4	22.7	8.9	13.8	.0	.0	.0	.0	22.7	6.8	.0	.0	.0	41.7	.0	.0
5	1.1	86.0	26.7	9.8	16.9	.0	.0	.0	.0	26.7	16.0	.0	.0	.0	60.2	.0	.0
6	.8	66.1	26.7	9.8	17.9	.0	.0	.0	.0	26.7	19.7	.0	.0	.0	37.6	.0	.0
7	.7	58.1	19.1	7.9	11.2	.0	.0	.0	.0	19.1	12.6	.0	.0	.0	37.6	.0	.0
8	.7	56.9	21.4	8.3	13.1	.0	.0	.0	.0	21.4	11.4	.0	.0	.0	37.2	.0	.0
9	1.9	152.5	27.5	11.4	16.1	.0	.0	.0	.0	27.5	16.4	1.7	.0	.0	124.7	.0	.0
10	2.5	203.3	23.4	10.1	13.3	.0	.0	.0	.0	23.4	14.3	18.2	.0	.0	173.9	.0	.0
11	2.2	176.8	17.5	9.5	7.9	.0	.0	.0	.0	17.5	.0	13.2	.0	.0	167.2	.0	.0
12	2.4	191.2	23.4	8.9	14.5	.0	.0	.0	.0	23.4	.0	17.3	.0	.0	182.3	.0	.0
13	2.4	189.5	31.1	10.3	20.8	.0	.0	.0	.0	31.1	.0	16.3	.0	.0	179.2	.0	.0
14	2.0	155.8	17.5	3.8	8.8	.0	.0	.0	.0	17.5	.0	9.3	.0	.0	148.0	.0	.0
15	1.2	97.2	17.5	3.8	8.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	88.4	.0	.0
16	2.4	195.9	30.0	14.0	16.1	.0	.0	.0	.0	30.0	.0	19.0	.0	.0	182.0	.0	.0
17	2.4	194.2	31.2	11.9	19.3	.0	.0	.0	.0	31.2	2.1	18.7	.0	.0	180.2	.0	.0
18	2.5	201.8	29.3	12.3	16.9	.0	.0	.0	.0	29.3	.0	19.3	.0	.0	189.5	.0	.0
19	2.2	177.5	26.1	10.6	15.4	.0	.0	.0	.0	26.1	.0	15.2	.0	.0	166.8	.0	.0
20	.9	70.1	42.7	15.5	27.2	.0	.0	.0	.0	42.7	.0	.0	.0	.0	54.5	.0	.0
21	2.3	184.8	43.5	13.4	35.1	.0	.0	.0	.0	48.5	34.6	14.2	.0	.0	136.8	.0	.0
22	.7	60.0	44.8	13.9	30.9	.0	.0	.0	.0	44.8	11.2	.0	.0	.0	34.9	.0	.0
23	1.0	77.6	69.0	19.9	49.1	.0	.0	.0	.0	69.0	42.3	.0	.0	.0	15.4	.0	.0
24	2.0	158.9	71.6	24.5	47.1	.0	.0	.0	.0	71.6	51.0	10.3	.0	.0	83.4	.0	.0
25	1.4	111.1	88.0	30.3	57.6	.0	.0	.0	.0	88.0	36.0	8.3	.0	.0	44.8	.0	.0
26	2.0	163.0	85.6	26.7	58.9	.0	.0	.0	.0	85.6	56.4	16.5	.0	.0	79.9	.0	.0
27	2.1	171.5	50.7	16.4	34.3	.0	.0	.0	.0	50.7	34.1	15.7	.0	.0	120.9	.0	.0
28	1.8	141.9	43.8	14.7	29.1	.0	.0	.0	.0	43.8	5.1	10.9	.0	.0	122.0	.0	.0
29	1.6	126.2	54.3	17.9	36.4	.0	.0	.0	.0	54.3	28.5	8.2	.0	.0	79.8	.0	.0
30	2.2	178.6	40.9	12.8	28.1	.0	.0	.0	.0	40.9	19.0	16.2	.0	.0	146.7	.0	.0
31	1.2	94.4	67.4	19.2	48.2	.0	.0	.0	.0	67.4	22.4	3.4	.0	.0	52.8	.0	.0
=====																	
	52.1	4183.7	1162.1	413.6	743.5	.0	.0	.0	.0	1162.1	470.5	264.3	.0	.0	3285.6	.0	.0

NOV , 1952 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM				SUPPLIED FROM				
	PER SQ-M	80.C SQ-M	PER SQ-M	80.C SQ-M			FV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	1.5	14.6	1.9	.0	14.6	21.0	6.4	14.6	.0	21.0	6.5	.0	.0	.0	.0
2	1.4	13.0	1.7	.0	13.0	21.0	6.3	5.6	9.1	21.0	5.3	.0	.0	9.1	.0
3	1.4	13.0	1.7	.0	13.0	21.0	6.3	4.9	9.9	21.0	5.2	.0	.0	9.9	.0
4	1.3	12.9	1.7	.0	12.9	21.0	6.2	4.8	9.9	21.0	5.2	.0	.0	9.9	.0
5	1.3	12.8	1.7	.0	12.8	21.0	6.2	4.8	10.0	21.0	5.2	.0	.0	10.0	.0
6	3.4	32.5	4.2	.0	32.5	21.0	7.2	10.0	3.8	21.0	20.0	.0	.0	3.8	.0
7	1.3	12.6	1.6	.0	12.6	21.0	6.2	13.3	1.5	21.0	5.1	.0	.0	1.5	.0
8	1.9	17.7	2.2	.0	17.7	21.0	6.1	8.9	6.1	21.0	9.5	.0	.0	6.1	.0
9	3.0	28.4	3.7	.0	28.4	21.0	7.5	8.6	4.8	21.0	17.2	.0	.0	4.8	.0
10	4.2	39.9	5.2	.0	39.9	21.0	8.4	12.6	.0	21.0	15.2	.0	.0	.0	.0
11	1.4	13.6	1.8	.0	13.6	21.0	6.1	14.9	.0	21.0	5.9	.0	.0	.0	.0
12	2.3	21.9	2.9	.0	21.9	21.0	7.1	9.6	4.4	21.0	12.2	.0	.0	4.4	.0
13	4.0	38.4	5.0	.0	38.4	21.0	7.7	11.3	2.0	21.0	20.0	.0	.0	2.0	.0
14	3.2	31.0	4.0	.0	31.0	21.0	7.5	13.5	.0	21.0	14.4	.0	.0	.0	.0
15	1.4	13.6	1.8	.0	13.6	21.0	6.1	14.9	.0	21.0	6.0	.0	.0	.0	.0
16	1.2	11.5	1.5	.0	11.5	21.0	6.0	4.2	10.8	21.0	4.3	.0	.0	10.8	.0
17	1.2	11.4	1.5	.0	11.4	21.0	5.9	4.0	11.1	21.0	4.3	.0	.0	11.1	.0
18	1.2	11.4	1.5	.0	11.4	21.0	5.9	3.7	11.4	21.0	4.0	.0	.0	11.4	.0
19	1.3	12.2	1.6	.0	12.2	21.0	6.7	3.7	10.7	21.0	3.9	.0	.0	10.7	.0
20	1.2	11.2	1.5	.0	11.2	21.0	5.9	3.8	11.3	21.0	4.0	.0	.0	11.3	.0
21	3.3	31.4	4.1	.0	31.4	21.0	7.5	9.1	4.4	21.0	19.3	.0	.0	4.4	.0
22	3.8	36.1	4.7	.0	36.1	21.0	7.5	13.5	.0	21.0	14.7	.0	.0	.0	.0
23	1.1	10.8	1.4	.0	10.8	21.0	5.8	13.0	2.2	21.0	3.8	.0	.0	2.2	.0
24	3.2	30.4	3.9	.0	30.4	21.0	7.5	9.1	4.4	21.0	19.0	.0	.0	4.4	.0
25	3.6	34.7	4.5	.0	34.7	21.0	7.5	13.5	.0	21.0	15.5	.0	.0	.0	.0
26	3.5	33.1	4.3	.0	33.1	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
27	3.1	29.4	3.8	.0	29.4	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
28	3.5	33.8	4.4	.0	33.8	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
29	3.6	34.4	4.5	.0	34.4	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
30	3.5	33.8	4.4	.0	33.8	21.0	7.5	13.5	.0	21.0	14.5	.0	.0	.0	.0
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NOV 7 1982 - MADISON, WISCONSIN - (TA)

(ALL UNITS = KW-HR)

THERMAL INPUT		THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX. THERMAL	THERMAL
		LOAD	SUPPLIED FROM							SUPPLIED FROM				INPUT	INPUT	LOAD
DAY	PER
SQ-M	TOTAL
80-C
SQ-M	TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL
OUTPUT	T-I	PV-I	E-X	T-X	WASTED	DEFICIT
1	.5	41.7	69.9	15.6	53.0	.0	.0	.0	.0	69.6	25.2	.0	.0	.0	.0	.0
2	.4	34.1	76.4	17.7	58.7	.0	.0	.0	.0	76.4	16.4	.0	.0	.0	.0	.0
3	.4	32.3	76.2	19.3	24.0	.4	.0	.0	32.0	76.2	12.5	.0	.0	.0	.0	32.0
4	.4	32.2	75.3	19.5	12.7	.2	.0	.0	42.9	75.3	12.7	.0	.0	.0	.0	42.9
5	.4	23.1	72.3	18.0	15.1	.2	.0	.0	39.1	72.3	15.1	.0	.0	.0	.0	39.1
6	1.6	128.1	60.9	18.1	20.5	.0	.0	.0	22.4	60.9	105.0	1.1	.0	.0	5.1	22.4
7	.4	34.0	61.1	15.6	45.5	.0	.0	.0	.0	61.1	19.4	.0	.0	.0	.0	.0
8	.7	57.3	74.5	18.4	50.1	.0	.0	.0	.0	74.5	38.9	.0	.0	.0	.0	.0
9	1.3	106.4	90.8	19.3	61.5	.0	.0	.0	.0	90.8	87.2	.0	.0	.0	.0	.0
10	2.0	160.8	77.3	21.0	56.3	.0	.0	.0	.0	77.3	67.3	10.0	.0	.0	71.9	.0
11	.5	38.9	69.8	15.5	54.3	.0	.0	.0	.0	69.8	23.4	.0	.0	.0	.0	.0
12	1.0	79.1	65.5	16.2	49.3	.0	.0	.0	.0	65.5	62.9	.0	.0	.0	.0	.0
13	2.0	160.1	67.6	18.5	49.1	.0	.0	.0	.0	67.6	55.9	6.2	.0	.0	85.7	.0
14	1.6	127.3	53.1	13.6	39.5	.0	.0	.0	.0	53.1	42.3	6.5	.0	.0	71.4	.0
15	.5	39.2	63.0	15.5	47.4	.0	.0	.0	.0	63.0	23.6	.0	.0	.0	.0	.0
16	.4	29.1	63.3	16.9	46.5	.0	.0	.0	.0	63.3	12.2	.0	.0	.0	.0	.0
17	.3	26.7	77.9	18.5	43.4	.0	.0	.0	15.8	77.9	8.1	.0	.0	.0	.0	15.8
18	.3	26.2	79.0	18.7	7.5	1.2	.0	.0	51.5	79.0	7.5	.0	.0	.0	.0	51.5
19	.3	27.7	80.1	19.7	8.0	1.2	.0	.0	51.2	80.1	8.0	.0	.0	.0	.0	51.2
20	.4	29.3	58.4	14.9	14.3	.5	.0	.0	28.6	58.4	14.3	.0	.0	.0	.0	28.6
21	1.6	124.3	58.4	19.0	22.5	.0	.0	.0	16.9	58.4	105.0	.0	.0	.0	.3	16.9
22	1.7	138.4	88.9	28.9	59.9	.0	.0	.0	.0	88.9	48.9	10.0	.0	.0	60.6	.0
23	.3	25.2	80.6	17.0	63.6	.0	.0	.0	.0	80.6	8.2	.0	.0	.0	.0	.0
24	1.4	112.5	83.4	26.7	54.2	.0	.0	.0	2.5	83.4	85.8	.0	.0	.0	.0	2.5
25	1.7	136.5	82.6	24.2	59.5	.0	.0	.0	.0	82.6	78.1	7.3	.0	.0	34.3	.0
26	1.6	131.9	69.4	20.1	49.3	.0	.0	.0	.0	69.4	45.6	7.4	.0	.0	66.1	.0
27	1.4	112.4	69.4	20.8	48.5	.0	.0	.0	.0	69.4	37.1	4.0	.0	.0	54.5	.0
28	1.7	134.0	80.2	21.8	58.5	.0	.0	.0	.0	80.2	53.4	8.1	.0	.0	58.8	.0
29	1.8	143.5	67.4	15.6	51.9	.0	.0	.0	.0	67.4	48.4	8.6	.0	.0	79.6	.0
30	1.7	138.8	65.6	17.0	48.5	.0	.0	.0	.0	65.6	41.9	8.1	.0	.0	79.9	.0
=====																
30.5		2441.0	2147.8	563.1	1278.1	3.7	.0	.0	302.9	2147.8	1209.3	77.3	.0	.0	668.1	302.9
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DEC , 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTOVOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	80°C SQ-M	PER SQ-M	80°C SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	3.5	33.3	4.3	.C	23.3	22.C	7.8	14.2	.C	22.C	14.3	.C	.C	.C	.C
2	2.5	23.8	3.1	.C	23.8	22.C	6.7	15.3	.C	22.0	14.2	.C	.C	.0	.C
3	3.C	28.8	3.7	.C	28.8	22.C	6.6	15.4	.C	22.C	17.6	.C	.C	.0	.C
4	.9	8.7	1.2	.C	8.7	22.C	5.0	10.5	6.6	22.0	2.3	.C	.C	6.6	.0
5	.9	8.7	1.2	.C	8.7	22.C	5.C	2.6	14.4	22.C	2.3	.C	.C	14.4	.0
6	.9	9.C	1.2	.C	9.C	22.C	5.3	2.2	14.4	22.C	2.4	.0	.C	14.4	.C
7	1.7	16.6	2.2	.C	16.6	22.C	6.6	7.3	8.1	22.0	7.3	.C	.C	8.1	.C
8	1.8	17.1	2.2	.C	17.1	22.C	5.4	3.3	7.7	22.C	9.6	.0	.C	7.7	.0
9	2.9	28.1	3.6	.C	28.1	22.C	7.3	9.6	4.6	22.C	16.2	.C	.C	4.6	.C
10	3.0	28.7	3.7	.0	28.7	22.C	7.8	14.2	.0	22.0	17.1	.0	.C	.C	.C
11	3.0	28.9	3.8	.C	28.9	22.0	7.8	14.2	.C	22.0	16.6	.C	.C	.0	.C
12	3.6	34.2	4.5	.0	34.2	22.C	7.8	14.2	.C	22.0	16.0	.0	.0	.0	.C
13	1.3	12.6	1.7	.C	12.6	22.C	6.6	12.C	3.4	22.C	3.2	.C	.C	3.4	.C
14	3.2	30.2	3.9	.0	30.2	22.C	7.8	9.6	4.6	22.0	17.7	.C	.C	4.6	.C
15	.9	8.2	1.1	.0	8.2	23.C	5.C	9.1	8.9	23.C	2.4	.0	.C	8.9	.C
16	3.2	31.0	4.0	.0	31.0	23.C	7.4	10.C	5.6	23.C	19.5	.0	.C	5.6	.0
17	3.3	31.5	4.1	.C	31.5	23.C	8.1	14.9	.C	23.C	16.3	.C	.C	.C	.0
18	.9	8.6	1.2	.0	9.6	23.C	5.3	10.8	6.9	23.0	2.4	.C	.0	6.9	.C
19	2.1	19.6	2.8	.C	19.6	23.C	5.7	10.7	6.6	23.0	11.5	.C	.0	6.6	.0
20	2.0	18.9	2.5	.0	18.9	23.C	6.3	8.8	7.4	23.0	9.4	.C	.0	7.4	.0
21	2.6	24.5	3.2	.C	24.5	23.C	6.9	11.3	4.8	23.C	14.C	.C	.C	4.8	.C
22	.9	8.2	1.1	.C	8.2	23.C	5.0	3.3	14.1	23.C	2.3	.C	.C	14.1	.C
23	3.4	32.4	4.2	.C	32.4	23.C	8.1	10.0	4.8	23.C	20.C	.0	.0	4.8	.C
24	2.7	26.2	3.4	.C	26.2	23.C	6.3	16.7	.0	23.0	15.3	.C	.0	.0	.0
25	.9	8.6	1.2	.C	8.6	23.C	5.3	7.6	10.1	23.C	1.2	.0	.C	10.1	.C
26	3.6	34.2	4.5	.0	34.2	23.C	8.1	10.0	4.8	23.0	20.0	.0	.0	4.8	.0
27	1.2	11.8	1.6	.0	11.8	23.C	5.4	13.3	4.3	23.C	5.1	.0	.C	4.3	.0
28	3.6	34.2	4.5	.C	34.2	23.C	8.1	10.0	4.8	23.C	20.0	.C	.0	4.8	.0
29	3.6	34.2	4.5	.C	34.2	23.C	8.1	14.9	.C	23.C	16.C	.C	.0	.C	.C
30	1.5	14.7	1.5	.0	14.7	23.C	5.5	15.5	2.C	23.C	7.4	.0	.0	2.0	.0
31	1.3	12.3	1.6	.0	12.3	23.C	5.4	4.7	12.9	23.C	5.0	.0	.C	12.9	.0
	69.9	668.C	87.C	.C	668.0	699.C	204.7	332.4	101.9	699.0	347.2	.0	.C	161.9	.0

DEC, 1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL 80.0 SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
				T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X			
1	1.7	136.2	60.4	16.8	43.6	.0	.0	.0	.0	60.4	35.9	7.0	.0	.0	83.5	.0	.0
2	1.2	97.6	44.2	7.3	37.1	.0	.0	.0	.0	44.8	38.0	.0	.0	.0	51.9	.0	.0
3	1.5	117.8	49.0	14.0	35.0	.0	.0	.0	.0	49.0	29.1	.9	.0	.0	74.7	.0	.0
4	.3	21.1	58.4	9.1	49.2	.0	.0	.0	.0	58.4	11.9	.0	.0	.0	.0	.0	.0
5	.2	17.0	87.8	14.9	51.2	.0	.0	.0	21.7	87.8	2.1	.0	.0	.0	.0	21.7	.0
6	.2	15.9	101.2	15.1	.7	1.2	.0	.0	84.2	101.2	.7	.0	.0	.0	.0	34.2	.0
7	.6	48.6	94.2	22.8	25.9	1.0	.0	.0	44.6	94.2	25.9	.0	.0	.0	.0	44.6	.0
8	.7	54.7	99.7	19.3	35.4	.0	.0	.0	45.0	99.7	35.4	.0	.0	.0	.0	45.0	.0
9	1.1	90.3	117.9	33.7	46.4	2.6	.0	.0	35.2	117.9	56.6	.0	.0	.0	.0	35.2	.0
10	1.1	87.1	138.1	37.2	60.2	.5	.0	.0	40.3	138.1	50.0	.0	.0	.0	.0	40.3	.0
11	1.0	79.7	162.4	45.4	34.3	3.5	.0	.0	79.2	162.4	34.3	.0	.0	.0	.0	79.2	.0
12	1.3	106.5	159.6	44.6	54.9	3.1	.0	.0	57.1	159.6	61.9	5.5	.0	.0	.0	57.1	.0
13	.3	25.9	125.8	21.1	17.3	6.6	.0	.0	80.8	125.8	4.8	.0	.0	.0	.0	80.8	.0
14	1.2	98.9	118.5	35.6	37.3	2.8	.0	.0	42.8	118.5	63.3	.0	.0	.0	.0	42.8	.0
15	.2	16.2	88.0	14.6	27.6	.2	.0	.0	45.5	88.0	1.6	.0	.0	.0	.0	45.5	.0
16	1.5	117.0	85.4	25.8	29.2	.0	.0	.0	31.4	85.4	91.3	.0	.0	.0	.0	31.4	.0
17	1.5	122.3	72.3	21.6	50.8	.0	.0	.0	.0	72.3	65.6	3.3	.0	.0	35.2	.0	.0
18	.2	17.3	76.6	13.0	63.6	.0	.0	.0	.0	76.6	4.3	.0	.0	.0	.0	.0	.0
19	.9	71.5	73.3	14.1	52.4	.0	.0	.0	6.8	73.3	57.4	.0	.0	.0	.0	6.8	.0
20	.7	59.1	94.0	22.7	60.8	1.2	.0	.0	9.3	94.0	36.4	.0	.0	.0	.0	3.3	.0
21	1.0	81.6	96.0	27.4	38.5	2.2	.0	.0	27.9	96.0	54.2	.0	.0	.0	.0	27.9	.0
22	.2	16.4	87.8	14.1	20.5	.3	.0	.0	52.8	87.8	2.2	.0	.0	.0	.0	52.8	.0
23	1.3	105.8	131.0	37.8	51.7	.4	.0	.0	41.1	131.0	68.0	.0	.0	.0	.0	41.1	.0
24	1.0	83.7	137.8	30.6	69.4	3.0	.0	.0	34.6	137.8	53.1	.0	.0	.0	.0	34.6	.0
25	.2	13.4	118.7	13.4	.0	5.9	.0	.0	99.3	118.7	.0	.0	.0	.0	.0	99.3	.0
26	1.3	102.7	166.4	46.9	56.7	1.8	.0	.0	61.1	166.4	55.8	.3	.0	.0	.0	61.1	.0
27	.4	28.2	122.1	16.4	11.8	.0	.0	.0	94.0	122.1	11.8	.0	.0	.0	.0	94.0	.0
28	1.5	121.9	108.2	34.4	29.2	2.4	.0	.0	43.1	108.2	87.5	1.0	.0	.0	.0	43.1	.0
29	1.4	114.2	117.6	40.8	76.8	.0	.0	.0	.0	117.6	68.1	6.2	.0	.0	5.3	.0	.0
30	.4	33.9	141.8	25.7	66.0	.0	.0	.0	50.1	141.8	8.2	.0	.0	.0	.0	50.1	.0
31	.4	28.9	123.1	17.0	11.9	1.9	.0	.0	92.2	123.1	11.9	.0	.0	.0	.0	92.2	.0
=====																	
	25.6	2131.7	3257.3	754.0	1243.1	40.7	.0	.0	1220.1	3257.3	1127.2	24.3	.0	.0	250.5	1220.1	.0

1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	80°C SQ-M	AIR-COOLED PER SQ-M	°C SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X		
JAN	76.	727.	94.	C.	727.	682.	212.	336.	134.	682.	352.	C.	0.	134.
FEB	59.	662.	87.	C.	662.	616.	223.	273.	121.	616.	304.	C.	0.	121.
MAR	101.	969.	130.	C.	969.	651.	276.	329.	46.	651.	354.	C.	C.	46.
APR	118.	1126.	155.	C.	1126.	600.	283.	317.	0.	600.	335.	C.	0.	0.
MAY	110.	1052.	148.	C.	1052.	701.	365.	336.	C.	701.	370.	C.	C.	C.
JUN	112.	1072.	153.	C.	1072.	754.	417.	336.	1.	754.	354.	C.	207.	1.
JUL	109.	1046.	149.	C.	1046.	760.	413.	346.	2.	760.	376.	C.	159.	2.
AUG	131.	1248.	173.	C.	1248.	854.	462.	388.	4.	854.	412.	C.	267.	4.
SEP	111.	1058.	144.	C.	1058.	631.	301.	330.	C.	631.	357.	C.	C.	C.
OCT	105.	1004.	132.	C.	1004.	620.	259.	347.	14.	620.	375.	C.	0.	14.
NOV	71.	682.	89.	C.	682.	630.	205.	297.	128.	630.	320.	C.	C.	128.
DEC	70.	668.	87.	C.	668.	699.	205.	332.	162.	699.	347.	C.	0.	162.
=====														
	1183.	11314.	1541.	C.	11314.	8199.	3620.	3968.	611.	8199.	4256.	C.	633.	611.

1962 - MADISON, WISCONSIN - (A)

(ALL UNITS = KW-HR)

THERMAL INPUT			THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
MONTH	PER SQ-M	TOTAL 80°C SQ-M	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
		T-I		T-S	PV-I	E-S	E-X	T-X	T-I		PV-I	E-X	T-X				
JAN	27.	2175.	3036.	949.	1326.	70.	C.	C.	1491.	3336.	1218.	55.	C.	C.	8.	1491.	C.
FEB	24.	1947.	3034.	848.	1062.	38.	C.	C.	1136.	3084.	1066.	49.	C.	C.	33.	1136.	C.
MAR	43.	3403.	2598.	859.	1441.	16.	C.	C.	283.	2598.	1243.	232.	C.	C.	1302.	283.	C.
APR	57.	4542.	1572.	580.	992.	C.	C.	C.	C.	1572.	606.	399.	C.	C.	3356.	C.	C.
MAY	56.	4430.	793.	361.	432.	C.	C.	C.	C.	793.	236.	208.	C.	C.	3893.	C.	C.
JUN	59.	4748.	525.	313.	212.	C.	C.	C.	C.	525.	199.	C.	C.	C.	4236.	C.	C.
JUL	57.	4593.	543.	317.	225.	C.	C.	C.	C.	543.	225.	C.	C.	C.	4051.	C.	C.
AUG	73.	5820.	543.	312.	231.	C.	C.	C.	C.	543.	230.	C.	C.	C.	5277.	C.	C.
SEP	57.	4582.	878.	323.	550.	C.	C.	C.	C.	878.	255.	292.	C.	C.	3999.	C.	C.
OCT	52.	4170.	1162.	414.	749.	C.	C.	C.	C.	1162.	471.	265.	C.	C.	3286.	C.	C.
NOV	31.	2441.	2148.	563.	1278.	4.	C.	C.	303.	2148.	1210.	78.	C.	C.	668.	303.	C.
DEC	27.	2132.	3258.	754.	1243.	41.	C.	C.	1220.	3258.	1127.	25.	C.	C.	251.	1220.	C.
=====																	
	563.	45043.	20940.	5593.	9740.	169.	C.	C.	4433.	20940.	9035.	1602.	C.	C.	30360.	4433.	C.

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-3FIN

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION

VERSION 4.1.

1962 - CLEVELAND, OHIO - (A)

WATER-COOLED COLLECTOR

AREA 100. SQ-M

TILT 41.5 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 0. SQ-M

TILT 41.5 DEGREES

EC .90

EN .16

ET .83

EP .90

EI .93

ES .85

C1 F: C2 F: C3 F: C4 F: C5 F

HEATING SEASON: SEP -1 - JUN 15

COOLING SEASON: APR 14 - SEP 13

ELECTRICAL STORAGE CAPACITY 20. KW-HR

THERMAL STORAGE CAPACITY 105. (180.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT ***** KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT ***** KW-HR

S/H DEMAND CURVE: INTERCEPT 19865., SLOPE -348.

A/C DEMAND CURVE: INTERCEPT -47000., SLOPE 701.

JAN , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | TOTAL
INPUT | ELECTRICAL
LOAD
TOTAL | ELECTRICAL OUTPUT | | | | ELECTRICAL
STORAGE | | PHOTO-
VOLTAIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT |
|-------|--------------------|-------------|-------------|-------------|----------------|-----------------------------|-------------------|-------|-------|-----------------|-----------------------|-----|--------------------------------------|-------------------------|---------------------------|
| | WATER-COOLED | | AIR-COOLED | | | | SUPPLIED FROM | | | SUPPLIED FROM | | | | | |
| | PER
SQ-M | PER
SQ-M | PER
SQ-M | PER
SQ-M | | | PV-1 | E-S | E-X | TOTAL
OUTPUT | PV-1 | E-X | | | |
| 1 | 2.6 | 30.6 | 3.1 | .0 | 30.6 | 22.0 | 6.4 | 15.6 | .0 | 22.0 | 16.7 | .0 | .0 | .0 | .0 |
| 2 | 1.1 | 12.7 | 1.3 | .0 | 12.7 | 22.0 | 6.4 | 13.8 | 1.8 | 22.0 | 4.9 | .0 | .0 | 1.8 | .0 |
| 3 | 1.1 | 12.7 | 1.3 | .0 | 12.7 | 22.0 | 6.4 | 4.3 | 11.2 | 22.0 | 4.6 | .0 | .0 | 11.2 | .0 |
| 4 | 1.5 | 17.5 | 1.9 | .0 | 17.5 | 22.0 | 7.4 | 7.4 | 7.3 | 22.0 | 7.9 | .0 | .0 | 7.3 | .0 |
| 5 | 1.3 | 15.8 | 1.7 | .0 | 15.8 | 22.0 | 6.5 | 6.9 | 8.6 | 22.0 | 7.4 | .0 | .0 | 8.6 | .0 |
| 6 | 1.1 | 12.9 | 1.4 | .0 | 12.9 | 22.0 | 6.5 | 4.6 | 10.9 | 22.0 | 4.9 | .0 | .0 | 10.9 | .0 |
| 7 | 1.1 | 12.9 | 1.4 | .0 | 12.9 | 22.0 | 6.5 | 4.3 | 11.2 | 22.0 | 4.7 | .0 | .0 | 11.2 | .0 |
| 8 | 1.4 | 16.4 | 1.8 | .0 | 16.4 | 22.0 | 7.2 | 6.7 | 8.1 | 22.0 | 7.2 | .0 | .0 | 8.1 | .0 |
| 9 | 2.9 | 34.1 | 3.6 | .0 | 34.1 | 22.0 | 8.3 | 8.3 | 5.4 | 22.0 | 20.0 | .0 | .0 | 5.4 | .0 |
| 10 | 3.7 | 44.7 | 4.7 | .0 | 44.7 | 22.0 | 8.3 | 13.7 | .0 | 22.0 | 14.7 | .0 | .0 | .0 | .0 |
| 11 | 3.8 | 45.3 | 4.7 | .0 | 45.3 | 22.0 | 8.3 | 13.7 | .0 | 22.0 | 14.7 | .0 | .0 | .0 | .0 |
| 12 | 3.3 | 39.4 | 4.1 | .0 | 39.4 | 22.0 | 8.3 | 13.7 | .0 | 22.0 | 14.7 | .0 | .0 | .0 | .0 |
| 13 | .4 | 4.8 | .6 | .0 | 4.8 | 22.0 | 4.5 | 10.3 | 7.2 | 22.0 | .0 | .0 | .0 | 7.2 | .0 |
| 14 | 3.2 | 38.7 | 4.0 | .0 | 38.7 | 22.0 | 8.3 | 8.3 | 5.4 | 22.0 | 20.0 | .0 | .0 | 5.4 | .0 |
| 15 | .1 | .7 | .1 | .0 | .7 | 22.0 | .6 | 10.3 | 11.1 | 22.0 | .0 | .0 | .0 | 11.1 | .0 |
| 16 | 2.8 | 34.0 | 3.5 | .0 | 34.0 | 22.0 | 7.6 | 8.3 | 6.1 | 22.0 | 20.0 | .0 | .0 | 6.1 | .0 |
| 17 | 2.4 | 29.2 | 3.1 | .0 | 29.2 | 22.0 | 8.3 | 13.7 | .0 | 22.0 | 14.7 | .0 | .0 | .0 | .0 |
| 18 | 2.5 | 30.3 | 3.2 | .0 | 30.3 | 22.0 | 8.3 | 13.7 | .0 | 22.0 | 14.7 | .0 | .0 | .0 | .0 |
| 19 | .3 | 3.2 | .4 | .0 | 3.2 | 22.0 | 2.9 | 10.3 | 8.7 | 22.0 | .0 | .0 | .0 | 8.7 | .0 |
| 20 | 1.6 | 19.3 | 2.0 | .0 | 19.3 | 22.0 | 6.7 | 9.0 | 6.3 | 22.0 | 9.6 | .0 | .0 | 6.3 | .0 |
| 21 | .7 | 8.3 | 1.0 | .0 | 8.3 | 22.0 | 5.6 | 1.8 | 14.6 | 22.0 | 1.9 | .0 | .0 | 14.6 | .0 |
| 22 | .1 | 1.6 | .2 | .0 | 1.6 | 22.0 | 1.5 | .0 | 20.5 | 22.0 | .0 | .0 | .0 | 20.5 | .0 |
| 23 | 3.7 | 44.1 | 4.6 | .0 | 44.1 | 22.0 | 8.5 | 8.2 | 5.4 | 22.0 | 20.0 | .0 | .0 | 5.4 | .0 |
| 24 | 3.7 | 44.0 | 4.6 | .0 | 44.0 | 22.0 | 8.4 | 13.6 | .0 | 22.0 | 14.6 | .0 | .0 | .0 | .0 |
| 25 | 3.5 | 41.8 | 4.4 | .0 | 41.8 | 22.0 | 8.5 | 13.5 | .0 | 22.0 | 14.5 | .0 | .0 | .0 | .0 |
| 26 | .1 | .8 | .1 | .0 | .8 | 22.0 | .7 | 10.4 | 10.9 | 22.0 | .0 | .0 | .0 | 10.9 | .0 |
| 27 | 3.1 | 37.2 | 3.9 | .0 | 37.2 | 22.0 | 8.7 | 7.9 | 5.4 | 22.0 | 20.0 | .0 | .0 | 5.4 | .0 |
| 28 | 1.6 | 19.5 | 2.0 | .0 | 19.5 | 22.0 | 6.9 | 15.1 | .0 | 22.0 | 10.3 | .0 | .0 | .0 | .0 |
| 29 | .5 | 5.7 | .8 | .0 | 5.7 | 22.0 | 5.3 | 5.1 | 11.5 | 22.0 | .0 | .0 | .0 | 11.5 | .0 |
| 30 | 1.9 | 22.4 | 2.4 | .0 | 22.4 | 22.0 | 8.3 | 8.3 | 5.4 | 22.0 | 11.3 | .0 | .0 | 5.4 | .0 |
| 31 | 2.1 | 25.6 | 2.7 | .0 | 25.6 | 22.0 | 7.9 | 10.9 | 3.2 | 22.0 | 14.5 | .0 | .0 | 3.2 | .0 |
| ===== | | | | | | | | | | | | | | | |
| | 59.1 | 706.1 | 74.5 | .0 | 706.1 | 682.0 | 204.2 | 291.6 | 186.2 | 682.0 | 308.8 | .0 | .0 | 186.2 | .0 |

JAN , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT |
|-------|---------------|---------------|-----------------|----------------|--------|------|-----|-----|-------|-----------------|--------|-------|-----|----------------------------|-----------------------|----------------------------|
| | PER
SQ-M | TOTAL
SQ-M | | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | | | |
| | | | | T-1 | T-5 | PV-1 | E-S | E-X | T-X | TOTAL
OUTPUT | T-1 | PV-1 | E-X | | | |
| 1 | 1.1 | 108.5 | 95.1 | 24.1 | 71.0 | .0 | .0 | .0 | .0 | 95.1 | 84.5 | 3.9 | .0 | .0 | .0 | .0 |
| 2 | .2 | 23.6 | 100.3 | 20.2 | 73.2 | .0 | .0 | .0 | 6.9 | 100.3 | 3.4 | .0 | .0 | .0 | .0 | 6.9 |
| 3 | .3 | 29.0 | 72.9 | 17.0 | 12.0 | 1.2 | .0 | .0 | 42.7 | 72.9 | 12.0 | .0 | .0 | .0 | .0 | 42.7 |
| 4 | .5 | 45.7 | 74.2 | 20.7 | 25.0 | 1.2 | .0 | .0 | 27.3 | 74.2 | 25.0 | .0 | .0 | .0 | .0 | 27.3 |
| 5 | .5 | 47.3 | 57.1 | 12.9 | 18.6 | .0 | .0 | .0 | 25.4 | 57.1 | 34.5 | .0 | .0 | .0 | .0 | 25.4 |
| 6 | .3 | 30.0 | 59.1 | 17.0 | 28.6 | .3 | .0 | .0 | 13.2 | 59.1 | 13.0 | .0 | .0 | .0 | .0 | 13.2 |
| 7 | .3 | 26.2 | 84.8 | 19.3 | 6.9 | 1.3 | .0 | .0 | 57.4 | 84.8 | 6.8 | .0 | .0 | .0 | .0 | 57.4 |
| 8 | .3 | 33.6 | 100.6 | 25.0 | 8.6 | .8 | .0 | .0 | 66.3 | 100.6 | 8.6 | .0 | .0 | .0 | .0 | 66.3 |
| 9 | 1.0 | 98.6 | 140.7 | 40.0 | 52.2 | 2.0 | .0 | .0 | 46.5 | 140.7 | 58.6 | .8 | .0 | .0 | .0 | 46.5 |
| 10 | 1.4 | 143.0 | 155.2 | 47.1 | 52.3 | 2.8 | .0 | .0 | 52.5 | 155.2 | 92.9 | 16.3 | .0 | .0 | 3.0 | 52.5 |
| 11 | 1.5 | 154.8 | 136.3 | 43.9 | 92.4 | .0 | .0 | .0 | .0 | 136.3 | 86.3 | 17.7 | .0 | .0 | 24.6 | .0 |
| 12 | 1.3 | 130.2 | 125.8 | 40.0 | 85.8 | .0 | .0 | .0 | .0 | 125.8 | 75.8 | 12.2 | .0 | .0 | 14.4 | .0 |
| 13 | .0 | .0 | 96.6 | .0 | 77.4 | .0 | .0 | .0 | 19.2 | 96.6 | .0 | .0 | .0 | .0 | .0 | 19.2 |
| 14 | 1.5 | 148.7 | 73.1 | 22.3 | 21.7 | .0 | .0 | .0 | 29.0 | 73.1 | 105.0 | 5.8 | .0 | .0 | 21.3 | 29.0 |
| 15 | .0 | .0 | 71.4 | .0 | 71.4 | .0 | .0 | .0 | .0 | 71.4 | .0 | .0 | .0 | .0 | .0 | .0 |
| 16 | 1.2 | 119.7 | 91.8 | 27.4 | 46.9 | .0 | .0 | .0 | 17.5 | 91.8 | 92.3 | 2.1 | .0 | .0 | .0 | 17.5 |
| 17 | .8 | 82.0 | 119.8 | 38.5 | 81.2 | .0 | .0 | .0 | .0 | 119.8 | 43.5 | 2.7 | .0 | .0 | .0 | .0 |
| 18 | .9 | 87.5 | 123.1 | 36.5 | 66.9 | 1.7 | .0 | .0 | 18.1 | 123.1 | 51.0 | 3.3 | .0 | .0 | .0 | 18.1 |
| 19 | .0 | .0 | 118.5 | .0 | 17.4 | .0 | .0 | .0 | 101.1 | 118.5 | .0 | .0 | .0 | .0 | .0 | 101.1 |
| 20 | .5 | 49.3 | 111.9 | 23.7 | 25.5 | 2.7 | .0 | .0 | 59.9 | 111.9 | 25.5 | .0 | .0 | .0 | .0 | 59.9 |
| 21 | .1 | 10.5 | 86.9 | 7.7 | 2.9 | .0 | .0 | .0 | 76.3 | 86.9 | 2.9 | .0 | .0 | .0 | .0 | 76.3 |
| 22 | .0 | .0 | 77.5 | .0 | .0 | .0 | .0 | .0 | 77.5 | 77.5 | .0 | .0 | .0 | .0 | .0 | 77.5 |
| 23 | 1.6 | 157.8 | 107.6 | 35.9 | 32.2 | .0 | .0 | .0 | 39.5 | 107.6 | 101.5 | 10.6 | .0 | .0 | 20.3 | 39.5 |
| 24 | 1.7 | 174.7 | 78.6 | 22.9 | 55.7 | .0 | .0 | .0 | .0 | 78.6 | 58.5 | 16.6 | .0 | .0 | 93.3 | .0 |
| 25 | 1.6 | 160.0 | 74.5 | 24.5 | 50.0 | .0 | .0 | .0 | .0 | 74.5 | 32.0 | 14.5 | .0 | .0 | 103.5 | .0 |
| 26 | .0 | .0 | 61.1 | .0 | 61.1 | .0 | .0 | .0 | .0 | 61.1 | .0 | .0 | .0 | .0 | .0 | .0 |
| 27 | 1.3 | 127.1 | 90.3 | 32.4 | 58.0 | .0 | .0 | .0 | .0 | 90.3 | 93.3 | 4.0 | .0 | .0 | 1.4 | .0 |
| 28 | .5 | 49.3 | 107.3 | 25.5 | 81.8 | .0 | .0 | .0 | .0 | 107.3 | 23.9 | .0 | .0 | .0 | .0 | .0 |
| 29 | .0 | .4 | 95.9 | .4 | 16.0 | .0 | .0 | .0 | 79.4 | 95.9 | .0 | .0 | .0 | .0 | .0 | 79.4 |
| 30 | .5 | 52.6 | 106.5 | 32.4 | 20.2 | .8 | .0 | .0 | 53.1 | 106.5 | 20.2 | .0 | .0 | .0 | .0 | 53.1 |
| 31 | .7 | 68.6 | 127.7 | 30.7 | 38.0 | .0 | .0 | .0 | 59.0 | 127.7 | 38.0 | .0 | .0 | .0 | .0 | 59.0 |
| ----- | | | | | | | | | | | | | | | | |
| | 21.6 | 2158.6 | 3022.1 | 688.0 | 1351.6 | 14.6 | .0 | .0 | 967.8 | 3022.1 | 1188.6 | 110.5 | .0 | .0 | 281.9 | 967.8 |

FEB , 1962. - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	2.2	26.6	2.8	.0	26.6	22.0	8.3	12.6	1.1	22.0	14.2	.0	.0	1.1	.0
2	2.6	31.1	3.2	.0	31.1	22.0	7.8	13.8	.4	22.0	18.3	.0	.0	.4	.0
3	1.0	12.4	1.4	.0	12.4	22.0	6.5	13.0	2.5	22.0	4.6	.0	.0	2.5	.0
4	3.5	41.7	4.4	.0	41.7	22.0	9.3	7.7	5.0	22.0	20.0	.0	.0	5.0	.0
5	.2	2.0	.3	.0	2.0	22.0	1.9	10.9	9.2	22.0	.0	.0	.0	9.2	.0
6	2.0	24.1	2.6	.0	24.1	22.0	7.6	9.6	4.8	22.0	13.3	.0	.0	4.8	.0
7	3.3	39.4	4.1	.0	39.4	22.0	8.2	11.9	1.9	22.0	20.0	.0	.0	1.9	.0
8	2.3	27.0	2.8	.0	27.0	22.0	8.4	13.6	.0	22.0	15.3	.0	.0	.0	.0
9	.3	4.1	.5	.0	4.1	22.0	3.8	10.1	8.1	22.0	.0	.0	.0	8.1	.0
10	3.7	43.7	4.7	.0	43.7	22.0	9.9	7.5	4.6	22.0	20.0	.0	.0	4.6	.0
11	.4	4.6	.6	.0	4.6	22.0	4.3	11.1	6.6	22.0	.0	.0	.0	6.6	.0
12	2.6	30.9	3.3	.0	30.9	22.0	9.4	7.2	5.3	22.0	17.4	.0	.0	5.3	.0
13	.9	10.3	1.2	.0	10.3	22.0	6.8	11.2	3.9	22.0	2.4	.0	.0	3.9	.0
14	1.3	15.2	1.7	.0	15.2	22.0	6.6	6.3	9.1	22.0	6.8	.0	.0	9.1	.0
15	2.0	24.1	2.5	.0	24.1	22.0	8.3	8.0	5.7	22.0	12.8	.0	.0	5.7	.0
16	.8	9.7	1.1	.0	9.7	22.0	5.9	6.5	9.6	22.0	2.8	.0	.0	9.6	.0
17	2.8	33.4	3.5	.0	33.4	22.0	8.7	8.0	5.3	22.0	20.0	.0	.0	5.3	.0
18	1.6	19.2	2.0	.0	19.2	22.0	6.9	15.1	.0	22.0	10.0	.0	.0	.0	.0
19	.3	3.2	.4	.0	3.2	22.0	3.0	4.9	14.1	22.0	.0	.0	.0	14.1	.0
20	2.0	23.5	2.6	.0	23.5	22.0	9.2	7.5	5.3	22.0	11.2	.0	.0	5.3	.0
21	1.7	19.8	2.1	.0	19.8	22.0	8.5	11.1	2.3	22.0	8.8	.0	.0	2.3	.0
22	1.7	20.3	2.2	.0	20.3	22.0	9.0	7.8	5.2	22.0	8.9	.0	.0	5.2	.0
23	1.7	20.7	2.2	.0	20.7	22.0	9.2	8.6	4.3	22.0	8.9	.0	.0	4.3	.0
24	2.5	30.1	3.1	.0	30.1	22.0	9.0	8.1	4.9	22.0	16.9	.0	.0	4.9	.0
25	3.7	44.8	4.6	.0	44.8	22.0	9.3	12.7	.0	22.0	17.2	.0	.0	.0	.0
26	.6	7.4	.9	.0	7.4	22.0	5.8	12.0	4.2	22.0	.9	.0	.0	4.2	.0
27	.4	4.7	.6	.0	4.7	22.0	4.4	.0	17.6	22.0	.0	.0	.0	17.6	.0
28	.6	6.6	.9	.0	6.6	22.0	6.2	.0	15.8	22.0	.0	.0	.0	15.8	.0
=====															
	48.6	580.8	62.3	.0	580.8	616.0	202.3	256.8	156.9	616.0	270.9	.0	.0	156.9	.0

FEB , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL	THERMAL OUTPUT							THERMAL STORAGE				THERMAL	AUX. THERMAL	
	PER
SQ-M	TOTAL
SQ-M	LOAD	SUPPLIED FROM							SUPPLIED FROM				INPUT
WASTED	INPUT	LOAD
DEFICIT
				T-1	T-S	PV-1	E-S	E-X	T-X	TOTAL
OUTPUT	T-1	PV-1	E-X	T-X			
1	.8	75.3	121.8	25.0	45.6	3.2	.0	.0	48.0	121.8	50.3	.0	.0	.0	.0	48.0	.0
2	1.0	99.6	122.0	28.6	33.8	3.6	.0	.0	56.0	122.0	70.9	.0	.0	.0	.0	56.0	.0
3	.2	24.1	78.4	14.0	52.0	.0	.0	.0	12.5	78.4	10.1	.0	.0	.0	.0	12.5	.0
4	1.7	166.8	50.7	15.6	9.0	.0	.0	.0	26.1	50.7	105.0	7.6	.0	.0	46.3	26.1	.0
5	.0	.0	67.9	.0	67.9	.0	.0	.0	.0	67.9	.0	.0	.0	.0	.0	.0	.0
6	.6	62.1	123.6	26.2	71.5	.8	.0	.0	25.1	123.6	35.9	.0	.0	.0	.0	25.1	.0
7	1.3	125.9	133.5	37.3	40.3	3.0	.0	.0	52.9	133.5	88.6	5.3	.0	.0	.0	52.9	.0
8	.8	82.4	94.9	28.9	66.0	.0	.0	.0	.0	94.9	53.5	.0	.0	.0	.0	.0	.0
9	.0	.0	97.3	.0	41.0	.0	.0	.0	56.3	97.3	.0	.0	.0	.0	.0	56.3	.0
10	1.4	135.0	132.6	46.2	41.4	.5	.0	.0	44.5	132.6	88.8	6.7	.0	.0	.0	44.5	.0
11	.0	.0	124.9	.0	56.1	.0	.0	.0	68.8	124.9	.0	.0	.0	.0	.0	68.8	.0
12	.9	92.8	101.9	31.1	32.5	.7	.0	.0	37.6	101.9	61.7	.0	.0	.0	.0	37.6	.0
13	.1	13.3	95.1	9.2	33.3	.5	.0	.0	52.1	95.1	4.1	.0	.0	.0	.0	52.1	.0
14	.4	37.1	79.7	8.9	28.2	.4	.0	.0	42.2	79.7	28.2	.0	.0	.0	.0	42.2	.0
15	.7	70.1	84.1	25.3	25.4	.6	.0	.0	32.7	84.1	44.8	.0	.0	.0	.0	32.7	.0
16	.2	16.4	79.5	4.5	31.3	.0	.0	.0	43.7	79.5	11.9	.0	.0	.0	.0	43.7	.0
17	1.1	114.5	84.7	26.6	28.9	.4	.0	.0	28.7	84.7	87.8	.4	.0	.0	.0	28.7	.0
18	.5	54.1	89.8	12.1	77.7	.0	.0	.0	.0	89.8	42.0	.0	.0	.0	.0	.0	.0
19	.0	.0	69.0	.0	23.7	.0	.0	.0	45.4	69.0	.0	.0	.0	.0	.0	45.4	.0
20	.6	61.0	90.5	29.6	27.6	1.2	.0	.0	32.1	90.5	31.3	.0	.0	.0	.0	32.1	.0
21	.5	49.7	81.5	23.3	29.5	.7	.0	.0	27.9	81.5	26.4	.0	.0	.0	.0	27.9	.0
22	.5	53.4	69.0	21.3	26.7	.9	.0	.0	20.0	69.0	32.0	.0	.0	.0	.0	20.0	.0
23	.5	48.1	91.1	26.2	27.7	.9	.0	.0	36.3	91.1	21.8	.0	.0	.0	.0	36.3	.0
24	.9	89.2	98.6	32.9	31.5	1.4	.0	.0	32.9	98.6	56.3	.0	.0	.0	.0	32.9	.0
25	1.7	171.5	77.9	22.8	44.8	.5	.0	.0	9.8	77.9	102.0	13.3	.0	.0	46.7	9.8	.0
26	.1	9.2	54.7	5.3	49.4	.0	.0	.0	.0	54.7	3.9	.0	.0	.0	.0	.0	.0
27	.0	.0	78.2	.0	49.8	.0	.0	.0	28.4	78.2	.0	.0	.0	.0	.0	28.4	.0
28	.0	.9	86.1	.9	.0	.0	.0	.0	85.2	86.1	.0	.0	.0	.0	.0	85.2	.0
=====																	
	16.5	1652.4	2559.2	501.9	1092.8	19.2	.0	.0	945.3	2559.2	1057.5	35.3	.0	.0	93.0	945.3	.0

MAR , 1962. - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | TOTAL
INPUT | ELECTRICAL
LOAD
TOTAL | ELECTRICAL OUTPUT | | | TOTAL
OUTPUT | ELECTRICAL
STORAGE
SUPPLIED FROM | | PHOTO-
VOLTATIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT | |
|-------|--------------------|-------------|-------------|-------------|----------------|-----------------------------|-------------------|-------|-------|-----------------|--|-----|---------------------------------------|-------------------------|---------------------------|-----|
| | WATER-COOLED | | AIR-COOLED | | | | SUPPLIED FROM | | | | PV-I | E-S | | | | E-X |
| | PER
SQ-M | PER
SQ-M | PER
SQ-M | PER
SQ-M | | | PV-I | E-S | E-X | | | | | | | |
| 1 | 3.9 | 47.0 | 5.1 | .0 | 47.0 | 21.0 | 10.0 | 6.6 | 4.4 | 21.0 | 20.0 | .0 | .0 | 4.4 | .0 | |
| 2 | 4.1 | 49.5 | 5.2 | .0 | 49.5 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.8 | .0 | .0 | .0 | .0 | |
| 3 | 4.3 | 50.8 | 5.4 | .0 | 50.8 | 21.0 | 10.0 | 11.0 | .0 | 21.0 | 11.8 | .0 | .0 | .0 | .0 | |
| 4 | 4.2 | 49.7 | 5.3 | .0 | 49.7 | 21.0 | 9.8 | 11.2 | .0 | 21.0 | 11.8 | .0 | .0 | .0 | .0 | |
| 5 | .6 | 6.7 | .9 | .0 | 6.7 | 21.0 | 6.2 | 11.8 | 3.0 | 21.0 | .1 | .0 | .0 | 3.0 | .0 | |
| 6 | .6 | 6.8 | .9 | .0 | 6.8 | 21.0 | 6.3 | .0 | 14.7 | 21.0 | .0 | .0 | .0 | 14.7 | .0 | |
| 7 | 3.4 | 40.9 | 4.2 | .0 | 40.9 | 21.0 | 8.8 | 7.5 | 4.7 | 21.0 | 20.0 | .0 | .0 | 4.7 | .0 | |
| 8 | 3.8 | 45.2 | 4.8 | .0 | 45.2 | 21.0 | 9.9 | 11.1 | .0 | 21.0 | 12.7 | .0 | .0 | .0 | .0 | |
| 9 | .7 | 8.0 | 1.1 | .0 | 8.0 | 21.0 | 6.9 | 12.3 | 1.8 | 21.0 | .5 | .0 | .0 | 1.8 | .0 | |
| 10 | .7 | 8.8 | 1.2 | .0 | 8.8 | 21.0 | 7.2 | .0 | 13.8 | 21.0 | .0 | .0 | .0 | 13.8 | .0 | |
| 11 | 2.0 | 24.0 | 2.6 | .0 | 24.0 | 21.0 | 9.2 | 7.4 | 4.4 | 21.0 | 12.0 | .0 | .0 | 4.4 | .0 | |
| 12 | 2.3 | 27.4 | 2.9 | .0 | 27.4 | 21.0 | 8.7 | 11.3 | 1.0 | 21.0 | 15.3 | .0 | .0 | 1.0 | .0 | |
| 13 | .4 | 4.8 | .6 | .0 | 4.8 | 21.0 | 4.5 | 6.7 | 9.8 | 21.0 | .0 | .0 | .0 | 9.8 | .0 | |
| 14 | .4 | 5.0 | .7 | .0 | 5.0 | 21.0 | 4.6 | .0 | 16.4 | 21.0 | .0 | .0 | .0 | 16.4 | .0 | |
| 15 | .6 | 7.8 | 1.0 | .0 | 7.8 | 21.0 | 6.9 | .0 | 14.1 | 21.0 | .0 | .0 | .0 | 14.1 | .0 | |
| 16 | 1.6 | 18.8 | 2.1 | .0 | 18.8 | 21.0 | 8.6 | 7.6 | 4.8 | 21.0 | 8.2 | .0 | .0 | 4.8 | .0 | |
| 17 | 4.6 | 55.4 | 5.9 | .0 | 55.4 | 21.0 | 10.2 | 6.5 | 4.2 | 21.0 | 20.0 | .0 | .0 | 4.2 | .0 | |
| 18 | 4.6 | 55.2 | 6.0 | .0 | 55.2 | 21.0 | 10.3 | 10.7 | .0 | 21.0 | 11.5 | .0 | .0 | .0 | .0 | |
| 19 | .3 | 3.2 | .4 | .0 | 3.2 | 21.0 | 3.0 | 12.1 | 5.9 | 21.0 | .0 | .0 | .0 | 5.9 | .0 | |
| 20 | 1.4 | 16.3 | 2.0 | .0 | 16.3 | 21.0 | 9.3 | 5.0 | 6.7 | 21.0 | 5.4 | .0 | .0 | 6.7 | .0 | |
| 21 | .5 | 6.3 | .8 | .0 | 6.3 | 21.0 | 5.9 | .0 | 15.1 | 21.0 | .0 | .0 | .0 | 15.1 | .0 | |
| 22 | .9 | 10.7 | 1.4 | .0 | 10.7 | 21.0 | 6.0 | .6 | 12.4 | 21.0 | .6 | .0 | .0 | 12.4 | .0 | |
| 23 | 2.1 | 24.9 | 2.7 | .0 | 24.9 | 21.0 | 9.4 | 7.2 | 4.5 | 21.0 | 12.6 | .0 | .0 | 4.5 | .0 | |
| 24 | 4.9 | 58.2 | 6.1 | .0 | 58.2 | 21.0 | 10.1 | 10.9 | .0 | 21.0 | 19.9 | .0 | .0 | .0 | .0 | |
| 25 | 4.1 | 49.3 | 5.4 | .0 | 49.3 | 21.0 | 10.3 | 10.7 | .0 | 21.0 | 11.4 | .0 | .0 | .0 | .0 | |
| 26 | 4.5 | 53.9 | 5.8 | .0 | 53.9 | 21.0 | 10.4 | 10.6 | .0 | 21.0 | 11.5 | .0 | .0 | .0 | .0 | |
| 27 | 4.7 | 56.4 | 6.1 | .0 | 56.4 | 21.0 | 10.4 | 10.6 | .0 | 21.0 | 11.4 | .0 | .0 | .0 | .0 | |
| 28 | 4.4 | 52.0 | 5.6 | .0 | 52.0 | 21.0 | 10.3 | 10.7 | .0 | 21.0 | 11.4 | .0 | .0 | .0 | .0 | |
| 29 | 4.2 | 50.4 | 5.5 | .0 | 50.4 | 21.0 | 10.4 | 10.6 | .0 | 21.0 | 11.5 | .0 | .0 | .0 | .0 | |
| 30 | .4 | 4.8 | .6 | .0 | 4.8 | 21.0 | 4.5 | 12.2 | 4.4 | 21.0 | .0 | .0 | .0 | 4.4 | .0 | |
| 31 | 1.9 | 22.4 | 2.5 | .0 | 22.4 | 21.0 | 9.5 | 7.1 | 4.4 | 21.0 | 10.3 | .0 | .0 | 4.4 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 77.0 | 920.6 | 100.8 | .0 | 920.6 | 651.0 | 259.4 | 241.0 | 150.5 | 651.0 | 261.9 | .0 | .0 | 150.5 | .0 | |

MAR , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M	TOTAL	T-I	T-S	SUPPLIED FROM				TOTAL OUTPUT	SUPPLIED FROM				WASTED	THERMAL INPUT	THERMAL LOAD	DEFICIT
						PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X				
1	1.5	147.3	129.1	47.1	38.8	1.8	.0	.0	41.4	129.1	96.2	11.2	.0	.0	4.0	41.4	.0	.0
2	1.7	168.6	121.0	40.8	80.2	.0	.0	.0	.0	121.0	76.3	23.1	.0	.0	51.5	.0	.0	.0
3	1.8	183.8	108.7	35.4	73.3	.0	.0	.0	.0	108.7	59.5	24.3	.0	.0	88.8	.0	.0	.0
4	1.8	181.5	102.3	32.9	69.4	.0	.0	.0	.0	102.3	48.1	23.5	.0	.0	100.4	.0	.0	.0
5	.0	.6	88.7	.6	88.1	.0	.0	.0	.0	88.7	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	1.2	80.6	1.2	12.4	.2	.0	.0	66.7	80.6	.0	.0	.0	.0	.0	66.7	.0	.0
7	1.5	148.6	83.7	27.4	26.9	1.4	.0	.0	28.1	83.7	105.0	7.0	.0	.0	16.2	28.1	.0	.0
8	1.7	168.3	81.9	26.9	55.0	.0	.0	.0	.0	81.9	54.3	18.2	.0	.0	87.1	.0	.0	.0
9	.0	3.8	75.8	3.8	72.1	.0	.0	.0	.0	75.8	.0	.0	.0	.0	.0	.0	.0	.0
10	.1	5.7	77.9	5.7	30.5	3.7	.0	.0	38.0	77.9	.0	.0	.0	.0	.0	38.0	.0	.0
11	.7	73.5	60.2	18.1	18.2	.0	.0	.0	23.8	60.2	55.4	.0	.0	.0	.0	23.8	.0	.0
12	1.0	95.3	54.7	16.1	38.6	.0	.0	.0	.0	54.7	79.2	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	74.0	.0	74.0	.0	.0	.0	.0	74.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	78.8	.0	3.7	.0	.0	.0	75.1	78.8	.0	.0	.0	.0	.0	75.1	.0	.0
15	.0	2.3	85.0	2.3	.0	1.2	.0	.0	81.5	85.0	.0	.0	.0	.0	.0	81.5	.0	.0
16	.4	41.4	83.7	24.0	17.4	.0	.0	.0	42.4	83.7	17.4	.0	.0	.0	.0	42.4	.0	.0
17	2.2	217.5	75.6	30.8	20.8	.8	.0	.0	23.3	75.6	105.0	19.1	.0	.0	81.7	23.3	.0	.0
18	2.2	219.7	77.1	28.1	49.0	.0	.0	.0	.0	77.1	29.8	28.4	.0	.0	161.7	.0	.0	.0
19	.0	.0	74.2	.0	74.2	.0	.0	.0	.0	74.2	.0	.0	.0	.0	.0	.0	.0	.0
20	.4	36.3	65.2	18.0	47.1	.0	.0	.0	.0	65.2	18.3	.0	.0	.0	.0	.0	.0	.0
21	.0	.3	74.4	.3	9.6	.0	.0	.0	64.4	74.4	.0	.0	.0	.0	.0	64.4	.0	.0
22	.1	10.9	75.3	10.9	.0	5.0	.0	.0	59.4	75.3	.0	.0	.0	.0	.0	59.4	.0	.0
23	.7	72.3	70.9	23.1	22.1	.1	.0	.0	25.5	70.9	49.2	.0	.0	.0	.0	25.5	.0	.0
24	2.4	236.7	72.9	26.9	45.9	.0	.0	.0	.0	72.9	103.5	22.2	.0	.0	106.2	.0	.0	.0
25	1.9	194.7	69.4	23.5	45.9	.0	.0	.0	.0	69.4	27.0	23.0	.0	.0	144.2	.0	.0	.0
26	2.2	217.1	65.9	24.8	41.1	.0	.0	.0	.0	65.9	16.8	27.3	.0	.0	175.6	.0	.0	.0
27	2.3	233.2	63.0	21.7	41.2	.0	.0	.0	.0	63.0	16.7	29.5	.0	.0	194.7	.0	.0	.0
28	2.3	226.8	42.2	13.0	29.2	.0	.0	.0	.0	42.2	8.5	25.6	.0	.0	205.3	.0	.0	.0
29	2.3	231.4	21.2	10.1	11.1	.0	.0	.0	.0	21.2	.0	23.9	.0	.0	221.3	.0	.0	.0
30	.0	.0	50.2	.0	50.2	.0	.0	.0	.0	50.2	.0	.0	.0	.0	.0	.0	.0	.0
31	.6	55.4	77.5	26.0	51.5	.0	.0	.0	.0	77.5	29.5	.0	.0	.0	.0	.0	.0	.0

	31.7	3174.1	2361.0	539.6	1237.6	14.2	.0	.0	569.7	2361.0	995.5	306.4	.0	.0	1638.9	569.7	.0	.0

(ALL UNITS = KW-HR)

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(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | TOTAL
OUTPUT | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT |
|-------|---------------|---------------|-----------------|----------------|-------|---------------|-----|-----|-------|--------|-----------------|-----------------|-----|-----|--------|----------------------------|-----------------------|----------------------------|
| | PER
SQ-M | TOTAL
SQ-M | | T-I | T-S | SUPPLIED FROM | | | T-X | T-I | | PV-I | E-X | T-X | | | | |
| | | | | | | PV-I | E-S | E-X | | | | | | | | | | |
| 1 | .1 | 12.2 | 77.9 | 12.2 | 64.3 | .0 | .0 | .0 | 1.3 | 77.9 | .0 | .0 | .0 | .0 | .0 | 1.3 | .0 | |
| 2 | 2.1 | 205.5 | 81.3 | 30.0 | 21.3 | 2.2 | .0 | .0 | 27.9 | 81.3 | 105.0 | 16.8 | .0 | .0 | 70.5 | 27.9 | .0 | |
| 3 | 2.0 | 198.6 | 76.7 | 29.5 | 47.3 | .0 | .0 | .0 | .0 | 76.7 | 32.1 | 26.3 | .0 | .0 | 137.0 | .0 | .0 | |
| 4 | 1.4 | 144.7 | 62.6 | 24.2 | 40.4 | .0 | .0 | .0 | .0 | 62.6 | 18.3 | 14.7 | .0 | .0 | 104.2 | .0 | .0 | |
| 5 | .8 | 75.2 | 42.1 | 12.5 | 29.6 | .0 | .0 | .0 | .0 | 42.1 | 18.2 | .4 | .0 | .0 | 44.5 | .0 | .0 | |
| 6 | 1.2 | 115.5 | 37.5 | 12.4 | 25.0 | .0 | .0 | .0 | .0 | 37.5 | 25.4 | 6.5 | .0 | .0 | 77.7 | .0 | .0 | |
| 7 | .7 | 74.2 | 41.5 | 13.4 | 28.0 | .0 | .0 | .0 | .0 | 41.5 | 19.5 | .0 | .0 | .0 | 41.3 | .0 | .0 | |
| 8 | 2.2 | 217.0 | 59.1 | 22.6 | 36.5 | .0 | .0 | .0 | .0 | 59.1 | 36.0 | 27.6 | .0 | .0 | 158.4 | .0 | .0 | |
| 9 | .3 | 32.0 | 48.6 | 19.0 | 29.6 | .0 | .0 | .0 | .0 | 48.6 | 1.4 | .0 | .0 | .0 | 11.6 | .0 | .0 | |
| 10 | 1.8 | 176.1 | 46.1 | 14.9 | 31.2 | .0 | .0 | .0 | .0 | 46.1 | 32.8 | 11.8 | .0 | .0 | 128.4 | .0 | .0 | |
| 11 | .4 | 38.4 | 57.8 | 17.8 | 40.0 | .0 | .0 | .0 | .0 | 57.8 | 20.1 | .0 | .0 | .0 | .5 | .0 | .0 | |
| 12 | .1 | 8.4 | 63.7 | 8.4 | 55.3 | .0 | .0 | .0 | .0 | 63.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 13 | .0 | .7 | 68.1 | .7 | 28.7 | .0 | .0 | .0 | 38.7 | 68.1 | .0 | .0 | .0 | .0 | .0 | 38.7 | .0 | |
| 14 | 1.2 | 116.8 | 66.8 | 22.6 | 22.6 | .7 | .0 | .0 | 20.9 | 66.8 | 94.2 | .2 | .0 | .0 | .0 | 20.9 | .0 | |
| 15 | .1 | 5.9 | 81.0 | 5.9 | 71.8 | .0 | .0 | .0 | 3.3 | 81.0 | .0 | .0 | .0 | .0 | .0 | 3.3 | .0 | |
| 16 | 2.1 | 213.4 | 75.5 | 31.8 | 21.0 | .0 | .0 | .0 | 22.7 | 75.5 | 105.0 | 19.2 | .0 | .0 | 76.7 | 22.7 | .0 | |
| 17 | 1.4 | 142.7 | 69.0 | 25.2 | 43.8 | .0 | .0 | .0 | .0 | 69.0 | 29.6 | 15.2 | .0 | .0 | 87.9 | .0 | .0 | |
| 18 | 2.4 | 236.4 | 50.1 | 14.9 | 35.2 | .0 | .0 | .0 | .0 | 50.1 | 21.8 | 30.2 | .0 | .0 | 194.7 | .0 | .0 | |
| 19 | 2.1 | 213.6 | 59.1 | 19.7 | 39.4 | .0 | .0 | .0 | .0 | 59.1 | 1.9 | 27.8 | .0 | .0 | 192.0 | .0 | .0 | |
| 20 | 2.1 | 207.7 | 57.8 | 20.4 | 37.5 | .0 | .0 | .0 | .0 | 57.8 | 16.8 | 25.7 | .0 | .0 | 170.6 | .0 | .0 | |
| 21 | 2.4 | 241.7 | 39.9 | 12.1 | 27.8 | .0 | .0 | .0 | .0 | 39.9 | 10.7 | 29.6 | .0 | .0 | 218.9 | .0 | .0 | |
| 22 | 1.9 | 193.3 | 18.2 | 9.7 | 8.4 | .0 | .0 | .0 | .0 | 18.2 | .0 | 13.2 | .0 | .0 | 183.5 | .0 | .0 | |
| 23 | 1.5 | 152.6 | 40.2 | 16.5 | 23.7 | .0 | .0 | .0 | .0 | 40.2 | .0 | 14.4 | .0 | .0 | 136.1 | .0 | .0 | |
| 24 | 2.6 | 255.1 | 37.6 | 12.0 | 25.5 | .0 | .0 | .0 | .0 | 37.6 | .0 | 32.5 | .0 | .0 | 243.1 | .0 | .0 | |
| 25 | 2.6 | 260.3 | 19.7 | 10.1 | 9.7 | .0 | .0 | .0 | .0 | 19.7 | .0 | 25.0 | .0 | .0 | 250.2 | .0 | .0 | |
| 26 | 2.8 | 283.2 | 18.4 | 10.4 | 7.9 | .0 | .0 | .0 | .0 | 18.4 | .0 | 24.0 | .0 | .0 | 272.8 | .0 | .0 | |
| 27 | 2.1 | 213.1 | 17.5 | 10.0 | 7.5 | .0 | .0 | .0 | .0 | 17.5 | .0 | 9.5 | .0 | .0 | 203.1 | .0 | .0 | |
| 28 | .7 | 73.5 | 17.5 | 9.9 | 7.6 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 63.6 | .0 | .0 | |
| 29 | .9 | 87.5 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 77.8 | .0 | .0 | |
| 30 | 2.4 | 237.3 | 18.2 | 10.6 | 7.6 | .0 | .0 | .0 | .0 | 18.2 | .0 | 6.8 | .0 | .0 | 226.7 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | | | |
| | 44.3 | 4432.5 | 1466.7 | 466.9 | 882.2 | 2.9 | .0 | .0 | 114.7 | 1466.7 | 588.8 | 377.4 | .0 | .0 | 3376.8 | 114.7 | .0 | |

MAY, 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-1	E-S				E-X
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X							
1	2.2	26.9	3.0	.0	26.9	21.3	11.7	9.5	.0	21.3	12.1	.0	.0	.0	.0	
2	2.1	25.4	2.9	.0	25.4	19.0	9.6	9.4	.0	19.0	11.4	.0	.0	.0	.0	
3	2.2	26.2	3.0	.0	26.2	19.0	9.5	9.5	.0	19.0	10.1	.0	.0	.0	.0	
4	5.0	59.4	6.6	.0	59.4	20.1	11.5	8.7	.0	20.1	9.8	.0	.0	.0	.0	
5	4.6	54.6	6.1	.0	54.6	25.0	15.4	9.6	.0	25.0	9.4	.0	.0	.0	.0	
6	1.3	15.8	2.1	.0	15.8	19.1	10.0	9.1	.0	19.1	4.3	.0	.0	.0	.0	
7	4.6	54.6	6.1	.0	54.6	19.0	10.2	8.8	.0	19.0	15.8	.0	.0	.0	.0	
8	1.9	23.0	2.6	.0	23.0	19.0	10.1	8.9	.0	19.0	9.6	.0	.0	.0	.0	
9	4.8	56.9	6.3	.0	56.9	19.0	10.3	8.7	.0	19.0	9.5	.0	.0	.0	.0	
10	2.0	24.0	2.8	.0	24.0	19.0	10.1	8.9	.0	19.0	9.4	.0	.0	.0	.0	
11	4.2	50.4	5.5	.0	50.4	19.0	10.4	8.6	.0	19.0	9.5	.0	.0	.0	.0	
12	1.6	18.8	2.4	.0	18.8	19.0	9.8	9.2	.0	19.0	7.0	.0	.0	.0	.0	
13	3.8	45.7	5.2	.0	45.7	29.2	16.5	12.7	.0	29.2	12.4	.0	.0	.0	.0	
14	4.5	54.0	6.0	.0	54.0	40.0	25.2	14.8	.0	40.0	13.7	.0	.0	.0	.0	
15	3.7	44.6	5.0	.0	44.6	38.3	23.2	15.2	.0	38.3	15.9	.0	.0	.0	.0	
16	4.2	50.6	5.7	.0	50.6	37.6	22.8	14.8	.0	37.6	16.4	.0	.0	.0	.0	
17	4.3	51.0	5.7	.0	51.0	39.0	24.3	14.6	.0	39.0	15.4	.0	.0	.0	.0	
18	4.3	50.8	5.7	.0	50.8	41.1	26.4	14.7	.0	41.1	15.6	.0	.0	.0	.0	
19	3.1	37.6	4.3	.0	37.6	32.0	19.1	13.0	.0	32.0	14.5	.0	.0	.0	.0	
20	3.7	44.6	5.0	.0	44.6	39.4	23.9	15.5	.0	39.4	16.0	.0	.0	.0	.0	
21	2.3	27.4	3.3	.0	27.4	19.0	10.7	8.3	.0	19.0	13.5	.0	.0	.0	.0	
22	4.6	54.7	6.1	.0	54.7	21.7	13.0	8.7	.0	21.7	11.3	.0	.0	.0	.0	
23	2.7	32.8	3.8	.0	32.8	31.2	19.9	11.4	.0	31.2	9.7	.0	.0	.0	.0	
24	3.9	46.3	5.2	.0	46.3	22.8	14.5	8.3	.0	22.8	11.8	.0	.0	.0	.0	
25	2.7	32.2	3.7	.0	32.2	21.7	13.0	8.8	.0	21.7	9.0	.0	.0	.0	.0	
26	2.4	29.2	3.3	.0	29.2	19.0	10.2	8.8	.0	19.0	9.5	.0	.0	.0	.0	
27	4.2	50.1	5.6	.0	50.1	19.3	10.3	9.0	.0	19.3	9.5	.0	.0	.0	.0	
28	3.3	39.5	4.6	.0	39.5	21.3	12.8	8.5	.0	21.3	9.6	.0	.0	.0	.0	
29	4.3	51.1	5.8	.0	51.1	34.6	19.5	15.0	.0	34.6	9.3	.0	.0	.0	.0	
30	2.3	27.6	3.2	.0	27.6	26.3	15.9	10.4	.0	26.3	9.0	.0	.0	.0	.0	
31	3.4	40.6	4.6	.0	40.6	29.2	17.5	11.7	.0	29.2	18.6	.0	.0	.0	.0	
=====																
	104.3	1246.6	141.3	.0	1246.6	800.3	467.1	333.2	.0	800.3	358.6	.0	.0	.0	.0	

MAY, 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT							THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL SQ-M	TOTAL	SUPPLIED FROM							TOTAL OUTPUT	SUPPLIED FROM					
				T-I	T-S	PV-I	E-S	E-X	T-X	T-I		PV-I	E-X	T-X			
1	1.1	106.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	96.2	.0	.0
2	.9	86.0	25.6	11.1	14.4	.0	.0	.0	.0	25.6	.0	1.5	.0	.0	74.9	.0	.0
3	.9	92.7	27.0	10.4	16.6	.0	.0	.0	.0	27.0	.0	3.8	.0	.0	82.2	.0	.0
4	2.7	271.1	24.9	10.2	14.7	.0	.0	.0	.0	24.9	.0	33.1	.0	.0	261.0	.0	.0
5	2.5	254.6	21.6	10.0	11.6	.0	.0	.0	.0	21.6	.0	25.1	.0	.0	244.6	.0	.0
6	.4	43.1	19.3	9.7	9.6	.0	.0	.0	.0	19.3	.0	.0	.0	.0	33.4	.0	.0
7	2.2	221.2	47.9	20.7	27.2	.0	.0	.0	.0	47.9	.0	23.3	.0	.0	200.5	.0	.0
8	.7	71.1	38.0	12.5	25.6	.0	.0	.0	.0	38.0	.0	.8	.0	.0	58.6	.0	.0
9	2.4	236.3	48.6	18.8	29.3	.0	.0	.0	.0	48.6	12.6	32.2	.0	.0	205.0	.0	.0
10	.7	73.2	36.5	13.1	23.4	.0	.0	.0	.0	36.5	.0	2.0	.0	.0	60.1	.0	.0
11	2.2	215.6	24.6	9.9	14.7	.0	.0	.0	.0	24.6	9.4	26.1	.0	.0	196.3	.0	.0
12	.5	54.4	25.2	9.7	15.5	.0	.0	.0	.0	25.2	.0	.0	.0	.0	44.6	.0	.0
13	2.1	209.8	17.5	10.3	7.2	.0	.0	.0	.0	17.5	.0	12.5	.0	.0	199.5	.0	.0
14	2.6	264.1	17.5	11.2	6.3	.0	.0	.0	.0	17.5	.0	10.0	.0	.0	252.9	.0	.0
15	2.1	209.9	17.5	10.7	6.8	.0	.0	.0	.0	17.5	.0	.9	.0	.0	199.2	.0	.0
16	2.4	242.4	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	6.4	.0	.0	231.4	.0	.0
17	2.5	246.4	17.5	10.9	6.6	.0	.0	.0	.0	17.5	.0	6.3	.0	.0	235.6	.0	.0
18	2.5	246.2	17.5	11.2	6.3	.0	.0	.0	.0	17.5	.0	3.8	.0	.0	235.0	.0	.0
19	1.7	167.6	17.5	11.0	6.5	.0	.0	.0	.0	17.5	.0	.0	.0	.0	156.6	.0	.0
20	2.1	212.0	17.5	10.4	7.1	.0	.0	.0	.0	17.5	5.8	.0	.0	.0	195.8	.0	.0
21	.9	93.8	18.5	10.5	8.0	.0	.0	.0	.0	18.5	6.9	.0	.0	.0	76.5	.0	.0
22	2.5	248.9	20.3	10.0	10.2	.0	.0	.0	.0	20.3	11.2	25.5	.0	.0	227.7	.0	.0
23	1.4	141.2	17.5	10.5	7.0	.0	.0	.0	.0	17.5	.0	.1	.0	.0	130.6	.0	.0
24	2.1	205.2	17.5	10.1	7.4	.0	.0	.0	.0	17.5	.0	15.6	.0	.0	195.0	.0	.0
25	1.3	127.4	22.9	11.2	11.7	.0	.0	.0	.0	22.9	.0	7.1	.0	.0	116.2	.0	.0
26	1.0	104.4	20.0	10.7	9.3	.0	.0	.0	.0	20.0	.0	6.6	.0	.0	93.7	.0	.0
27	2.2	221.2	19.5	9.7	9.8	.0	.0	.0	.0	19.5	.0	25.9	.0	.0	211.4	.0	.0
28	1.7	166.5	18.0	10.8	7.2	.0	.0	.0	.0	18.0	.0	13.4	.0	.0	155.7	.0	.0
29	2.4	240.5	18.0	10.9	7.1	.0	.0	.0	.0	18.0	.0	17.9	.0	.0	229.6	.0	.0
30	1.1	110.4	17.5	10.6	6.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	99.8	.0	.0
31	1.8	182.1	17.5	10.5	7.0	.0	.0	.0	.0	17.5	.0	.0	.0	.0	171.6	.0	.0
=====																	
	53.7	5365.2	703.8	348.0	355.9	.0	.0	.0	.0	703.8	45.9	299.9	.0	.0	4971.3	.0	.0

JUN , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	3.2	38.4	4.5	.0	38.4	18.7	10.9	7.8	.0	18.7	12.2	.0	.0	.0	.0
2	3.4	40.1	4.6	.0	40.1	18.0	10.1	7.9	.0	18.0	8.6	.0	.0	.0	.0
3	4.5	53.7	6.1	.0	53.7	18.2	10.5	7.7	.0	18.2	8.1	.0	.0	.0	.0
4	2.1	24.5	3.0	.0	24.5	23.7	13.5	10.1	.0	23.7	8.5	.0	.0	.0	.0
5	1.1	13.1	1.7	.0	13.1	18.7	9.6	9.1	.0	18.7	2.4	.0	.0	.0	.0
6	4.6	54.8	6.1	.0	54.8	19.7	11.3	8.4	.0	19.7	18.4	.0	.0	.0	.0
7	4.4	53.2	6.0	.0	53.2	22.1	13.9	8.2	.0	22.1	8.7	.0	3.6	.0	.0
8	4.4	52.2	5.9	.0	52.2	25.3	16.4	8.9	.0	25.3	8.8	.0	15.9	.0	.0
9	3.9	46.8	5.3	.0	46.8	33.0	20.6	12.4	.0	33.0	9.7	.0	5.9	.0	.0
10	3.2	38.5	4.3	.0	38.5	33.9	20.2	13.8	.0	33.9	14.3	.0	.0	.0	.0
11	3.0	35.6	4.1	.0	35.6	27.7	16.2	11.5	.0	27.7	14.2	.0	.0	.0	.0
12	1.2	14.0	1.8	.0	14.0	18.0	9.5	8.5	.0	18.0	3.2	.0	.0	.0	.0
13	.3	3.5	.5	.0	3.5	18.0	3.2	4.9	9.9	18.0	.0	.0	.0	9.9	.0
14	.8	9.8	1.3	.0	9.8	18.0	8.3	.7	9.0	18.0	.8	.0	.0	9.0	.0
15	4.3	51.3	5.7	.0	51.3	21.5	12.6	5.8	3.1	21.5	20.0	.0	.0	3.1	.0
16	4.2	49.9	5.7	.0	49.9	28.6	18.1	10.5	.0	28.6	9.3	.0	19.5	.0	.0
17	4.3	51.5	5.8	.0	51.5	35.2	21.6	13.6	.0	35.2	11.3	.0	15.0	.0	.0
18	4.2	49.8	5.7	.0	49.8	41.6	24.5	17.2	.0	41.6	14.9	.0	5.9	.0	.0
19	3.8	45.3	5.1	.0	45.3	23.7	12.6	9.5	1.6	23.7	20.0	.0	8.3	1.6	.0
20	2.7	32.2	3.8	.0	32.2	18.0	10.0	8.0	.0	18.0	8.7	.0	11.3	.0	.0
21	3.8	45.9	5.2	.0	45.9	22.0	13.8	8.2	.0	22.0	8.3	.0	21.4	.0	.0
22	3.5	41.5	4.7	.0	41.5	33.5	19.8	13.7	.0	33.5	8.8	.0	10.0	.0	.0
23	3.1	37.5	4.2	.0	37.5	27.0	17.7	9.3	.0	27.0	15.1	.0	.8	.0	.0
24	4.4	52.2	5.9	.0	52.2	26.4	16.9	9.5	.0	26.4	9.9	.0	22.4	.0	.0
25	4.6	54.5	6.2	.0	54.5	28.2	17.7	10.5	.0	28.2	10.0	.0	23.7	.0	.0
26	4.5	53.4	6.0	.0	53.4	22.3	13.9	8.4	.0	22.3	11.4	.0	25.1	.0	.0
27	4.6	54.9	6.2	.0	54.9	22.4	14.0	8.4	.0	22.4	9.0	.0	29.3	.0	.0
28	4.0	47.3	5.4	.0	47.3	32.7	20.2	12.6	.0	32.7	9.1	.0	14.9	.0	.0
29	3.6	43.5	5.0	.0	43.5	35.5	21.7	13.8	.0	35.5	13.9	.0	3.8	.0	.0
30	3.5	41.8	4.8	.0	41.8	33.2	20.9	12.3	.0	33.2	14.8	.0	1.9	.0	.0
=====															
	103.0	1230.9	140.6	.0	1230.9	764.9	450.2	291.1	23.6	764.9	312.4	.0	238.5	23.6	.0

JUN , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL | | |
|-------|---------------|---------------|-----------------|----------------|---------------|-----|------|-----|-----|-----------------|-----------------|-------|------|----------------------------|-----------------------------|------|-----|
| | PER
SQ-M | TOTAL
SQ-M | | TOTAL | SUPPLIED FROM | | | | | | SUPPLIED FROM | | | | THERMAL
INPUT
DEFICIT | LOAD | |
| | | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | | | | E-X |
1	1.6	158.9	17.8	10.2	7.7	.0	.0	.0	.0	17.6	.0	11.5	.0	.0	148.8	.0	.0
2	1.6	155.8	22.7	10.4	12.3	.0	.0	.0	.0	22.7	.0	17.7	.0	.0	145.4	.0	.0
3	2.4	236.3	22.3	10.0	12.3	.0	.0	.0	.0	22.3	.0	30.5	.0	.0	226.3	.0	.0
4	.9	92.1	17.5	9.9	7.6	.0	.0	.0	.0	17.5	.0	.0	.0	.0	82.1	.0	.0
5	.3	31.7	17.5	9.7	7.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	22.0	.0	.0
6	2.5	247.6	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	19.5	.0	.0	236.9	.0	.0
7	2.4	243.1	21.4	10.1	11.3	.0	.0	.0	.0	21.4	.0	22.7	.0	.0	233.0	.0	.0
8	2.4	241.8	18.0	10.5	7.5	.0	.0	.0	.0	18.0	.0	7.7	.0	.0	231.2	.0	.0
9	2.2	218.9	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	6.9	.0	.0	208.1	.0	.0
10	1.7	173.8	17.5	10.7	6.9	.0	.0	.0	.0	17.5	.0	.0	.0	.0	163.1	.0	.0
11	1.6	156.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	.0	1.3	.0	.0	145.9	.0	.0
12	.3	30.4	17.5	9.7	7.8	.0	.0	.0	.0	17.5	.0	.0	.0	.0	20.7	.0	.0
13	.0	.0	18.6	.0	18.6	.0	.0	.0	.0	18.6	.0	.0	.0	.0	.0	.0	.0
14	.1	14.0	17.8	8.2	9.6	.0	.0	.0	.0	17.8	.0	.0	.0	.0	5.8	.0	.0
15	2.3	231.8	20.8	10.5	10.3	.0	.0	.0	.0	20.8	.0	13.2	.0	.0	221.3	.0	.0
16	2.3	231.5	17.5	10.9	6.6	.0	.0	.0	.0	17.5	.0	.0	.0	.0	220.6	.0	.0
17	2.5	245.4	17.5	11.4	6.1	.0	.0	.0	.0	17.5	.0	.0	.0	.0	233.9	.0	.0
18	2.4	239.3	17.5	10.8	6.7	.0	.0	.0	.0	17.5	.0	.0	.0	.0	228.5	.0	.0
19	2.0	198.7	17.5	10.5	7.0	.0	.0	.0	.0	17.5	.0	.0	.0	.0	188.2	.0	.0
20	1.2	122.6	17.5	9.8	7.7	.0	.0	.0	.0	17.5	4.4	.0	.0	.0	108.4	.0	.0
21	2.0	200.7	17.5	11.6	5.9	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	181.4	.0	.0
22	1.9	189.8	17.5	11.4	6.1	.0	.0	.0	.0	17.5	4.9	.0	.0	.0	173.4	.0	.0
23	1.7	165.2	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	148.2	.0	.0
24	2.4	242.6	17.5	11.0	6.5	.0	.0	.0	.0	17.5	7.2	.0	.0	.0	224.4	.0	.0
25	2.6	256.2	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.6	.0	.0	.0	238.8	.0	.0
26	2.4	244.2	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	226.9	.0	.0
27	2.5	252.5	17.5	10.7	6.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	235.0	.0	.0
28	2.2	220.7	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	203.0	.0	.0
29	2.0	202.4	17.5	10.8	6.7	.0	.0	.0	.0	17.5	6.7	.0	.0	.0	184.9	.0	.0
30	1.9	192.7	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	175.6	.0	.0

54.4	5436.6	544.6	303.6	241.0	.0	.0	.0	.0	.0	544.6	71.4	131.0	.0	.0	5061.6	.0	.0

JUL , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	3.1	37.2	4.3	.0	37.2	22.9	13.5	9.4	.0	22.9	13.0	.0	7.5	.0	.0
2	1.7	20.2	2.4	.0	20.2	20.4	11.9	8.5	.0	20.4	6.2	.0	.0	.0	.0
3	1.8	21.7	2.6	.0	21.7	18.8	10.7	8.1	.0	18.8	8.6	.0	.0	.0	.0
4	3.5	41.3	4.7	.0	41.3	23.0	14.1	8.9	.0	23.0	13.1	.0	10.7	.0	.0
5	4.5	53.4	6.0	.0	53.4	29.2	19.0	10.2	.0	29.2	9.4	.0	21.9	.0	.0
6	3.7	44.2	5.0	.0	44.2	32.3	19.6	12.7	.0	32.3	10.9	.0	10.3	.0	.0
7	3.8	45.9	5.2	.0	45.9	37.2	22.7	14.4	.0	37.2	14.3	.0	4.6	.0	.0
8	3.1	37.3	4.2	.0	37.3	36.7	22.7	14.0	.0	36.7	10.9	.0	.0	.0	.0
9	1.4	17.0	2.3	.0	17.0	18.5	10.0	8.6	.0	18.5	5.3	.0	.0	.0	.0
10	4.5	53.9	6.1	.0	53.9	23.3	14.1	6.6	2.6	23.3	20.0	.0	15.2	2.6	.0
11	4.0	47.7	5.3	.0	47.7	34.9	20.5	14.5	.0	34.9	10.0	.0	13.9	.0	.0
12	3.7	43.9	5.0	.0	43.9	26.9	17.6	9.3	.0	26.9	15.5	.0	6.7	.0	.0
13	4.2	49.8	5.6	.0	49.8	25.9	15.1	10.8	.0	25.9	10.3	.0	21.4	.0	.0
14	.7	8.7	1.1	.0	8.7	18.8	7.6	11.2	.0	18.8	.4	.0	.0	.0	.0
15	3.3	39.2	4.5	.0	39.2	21.5	12.5	6.1	2.9	21.5	20.0	.0	2.2	2.9	.0
16	3.6	43.0	4.7	.0	43.0	23.8	15.0	8.8	.0	23.8	9.4	.0	15.8	.0	.0
17	4.0	48.2	5.4	.0	48.2	25.5	16.1	9.5	.0	25.5	9.6	.0	19.6	.0	.0
18	4.4	52.6	5.8	.0	52.6	24.3	14.9	9.5	.0	24.3	10.1	.0	24.7	.0	.0
19	4.3	51.9	5.9	.0	51.9	26.4	16.4	10.0	.0	26.4	10.1	.0	22.5	.0	.0
20	2.5	29.9	3.4	.0	29.9	30.0	19.0	11.0	.0	30.0	8.0	.0	.0	.0	.0
21	3.5	41.8	4.7	.0	41.8	26.7	16.2	10.4	.0	26.7	14.8	.0	6.9	.0	.0
22	3.3	39.6	4.5	.0	39.6	24.2	14.7	9.5	.0	24.2	11.2	.0	10.5	.0	.0
23	3.1	37.1	4.3	.0	37.1	20.8	12.4	8.3	.0	20.8	10.4	.0	11.5	.0	.0
24	4.0	47.6	5.3	.0	47.6	21.9	12.5	9.3	.0	21.9	8.7	.0	24.0	.0	.0
25	3.1	36.9	4.1	.0	36.9	25.4	16.9	8.5	.0	25.4	10.1	.0	6.9	.0	.0
26	2.5	29.7	3.4	.0	29.7	18.0	9.5	8.5	.0	18.0	9.3	.0	8.5	.0	.0
27	4.7	56.0	6.3	.0	56.0	19.7	11.5	8.2	.0	19.7	8.8	.0	33.3	.0	.0
28	3.6	42.7	4.7	.0	42.7	22.9	13.6	9.3	.0	22.9	9.0	.0	17.5	.0	.0
29	3.4	40.1	4.4	.0	40.1	28.8	16.4	12.4	.0	28.8	9.9	.0	10.8	.0	.0
30	3.4	40.8	4.6	.0	40.8	25.6	15.5	10.1	.0	25.6	14.5	.0	7.1	.0	.0
31	2.8	34.0	4.0	.0	34.0	20.8	12.6	8.2	.0	20.8	9.7	.0	9.1	.0	.0
=====															
	3.2	1233.1	139.9	.0	1233.1	775.1	464.8	304.7	5.5	775.1	331.7	.0	343.1	5.5	.0

JUL , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KB-HR)

THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT SUPPLIED FROM						THERMAL STORAGE SUPPLIED FROM				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
DAY	PER SQ-M	TOTAL SQ-M	TOTAL	T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X	T-X		
1	1.6	158.8	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	141.6	.0
2	.7	67.2	17.5	10.6	6.9	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	49.0	.0
3	.7	72.3	17.5	11.6	5.9	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	54.7	.0
4	1.8	180.7	17.5	10.4	7.1	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	163.4	.0
5	2.5	253.2	17.5	10.6	6.9	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	235.7	.0
6	2.0	204.1	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	186.4	.0
7	2.2	215.5	17.5	11.4	6.1	.0	.0	.0	.0	17.5	6.5	.0	.0	.0	197.6	.0
8	1.7	169.6	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.0	.0	.0	.0	153.3	.0
9	.5	47.1	17.5	9.7	7.0	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	29.9	.0
10	2.5	246.2	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	227.9	.0
11	2.3	225.7	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	208.5	.0
12	2.0	196.5	17.5	11.6	5.9	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	177.8	.0
13	2.3	229.9	17.5	10.1	7.4	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	213.7	.0
14	.1	14.4	17.5	8.3	9.2	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	.0	.0
15	1.7	168.9	17.5	9.7	7.8	.0	.0	.0	.0	17.5	10.5	.0	.0	.0	148.7	.0
16	1.9	192.4	17.5	11.0	6.5	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	174.6	.0
17	2.2	220.2	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	202.6	.0
18	2.4	242.0	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	224.3	.0
19	2.4	240.6	17.5	10.3	7.2	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	223.3	.0
20	1.3	128.5	17.5	10.5	7.0	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	110.8	.0
21	1.9	187.4	17.5	10.4	7.1	.0	.0	.0	.0	17.5	6.9	.0	.0	.0	170.1	.0
22	1.7	172.8	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	155.6	.0
23	1.6	156.2	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	138.9	.0
24	2.1	211.0	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	193.1	.0
25	1.6	161.3	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	143.8	.0
26	1.1	109.6	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	92.5	.0
27	2.5	253.6	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	235.6	.0
28	1.9	190.6	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	172.6	.0
29	1.8	180.4	17.5	10.9	6.6	.0	.0	.0	.0	17.5	6.1	.0	.0	.0	163.4	.0
30	1.8	181.1	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	163.7	.0
31	1.4	138.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	120.5	.0
54.2		5415.9	542.5	321.0	221.5	.0	.0	.0	.0	542.5	221.3	.0	.0	.0	4873.6	.0

AUG , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | TOTAL
INPUT | ELECTRICAL
LOAD
TOTAL | ELECTRICAL OUTPUT | | | | ELECTRICAL
STORAGE
SUPPLIED FROM | | PHOTO-
VOLTAIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT |
|-------|--------------------|-------------|-------------|-------------|----------------|-----------------------------|-------------------|-------|------|-----------------|--|-----|--------------------------------------|-------------------------|---------------------------|
| | WATER-COOLED | | AIR-COOLED | | | | SUPPLIED FROM | | | TOTAL
OUTPUT | PV-1 | E-X | | | |
| | PER
SQ-M | PER
SQ-M | PER
SQ-M | PER
SQ-M | | | PV-1 | E-S | E-X | | | | | | |
| 1 | 4.4 | 52.7 | 5.9 | .0 | 52.7 | 24.0 | 15.3 | 8.7 | .0 | 24.0 | 8.8 | .0 | 25.9 | .0 | .0 |
| 2 | 4.6 | 54.6 | 6.1 | .0 | 54.6 | 23.0 | 14.4 | 8.6 | .0 | 23.0 | 9.4 | .0 | 28.1 | .0 | .0 |
| 3 | 4.3 | 51.1 | 5.7 | .0 | 51.1 | 31.6 | 19.7 | 11.9 | .0 | 31.6 | 9.2 | .0 | 19.1 | .0 | .0 |
| 4 | 3.2 | 38.2 | 4.2 | .0 | 38.2 | 34.6 | 20.7 | 13.8 | .0 | 34.6 | 13.0 | .0 | .7 | .0 | .0 |
| 5 | 2.2 | 26.6 | 3.0 | .0 | 26.6 | 22.1 | 12.6 | 9.5 | .0 | 22.1 | 11.1 | .0 | .0 | .0 | .0 |
| 6 | 1.4 | 16.7 | 2.1 | .0 | 16.7 | 27.3 | 13.9 | 10.1 | 3.2 | 27.3 | 1.5 | .0 | .0 | 3.2 | .0 |
| 7 | 4.3 | 51.1 | 5.7 | .0 | 51.1 | 31.9 | 17.5 | 10.1 | 4.3 | 31.9 | 20.0 | .0 | 8.7 | 4.3 | .0 |
| 8 | 4.1 | 49.1 | 5.5 | .0 | 49.1 | 28.9 | 16.4 | 12.5 | .0 | 28.9 | 16.0 | .0 | 12.6 | .0 | .0 |
| 9 | 4.5 | 53.9 | 5.9 | .0 | 53.9 | 21.5 | 12.9 | 8.6 | .0 | 21.5 | 11.6 | .0 | 26.3 | .0 | .0 |
| 10 | 3.5 | 42.1 | 4.7 | .0 | 42.1 | 19.7 | 11.2 | 8.5 | .0 | 19.7 | 9.3 | .0 | 19.1 | .0 | .0 |
| 11 | 4.2 | 49.8 | 5.5 | .0 | 49.8 | 22.5 | 13.6 | 8.9 | .0 | 22.5 | 9.2 | .0 | 24.4 | .0 | .0 |
| 12 | 3.8 | 45.7 | 5.0 | .0 | 45.7 | 30.1 | 17.2 | 12.9 | .0 | 30.1 | 9.6 | .0 | 16.0 | .0 | .0 |
| 13 | 2.6 | 31.3 | 3.5 | .0 | 31.3 | 22.4 | 12.4 | 10.1 | .0 | 22.4 | 15.0 | .0 | .4 | .0 | .0 |
| 14 | 2.2 | 26.8 | 3.1 | .0 | 26.8 | 18.0 | 9.6 | 8.4 | .0 | 18.0 | 9.9 | .0 | 4.9 | .0 | .0 |
| 15 | 4.7 | 56.2 | 6.2 | .0 | 56.2 | 20.5 | 12.0 | 8.5 | .0 | 20.5 | 9.0 | .0 | 32.7 | .0 | .0 |
| 16 | 3.2 | 38.3 | 4.3 | .0 | 38.3 | 27.0 | 15.2 | 11.7 | .0 | 27.0 | 9.2 | .0 | 11.0 | .0 | .0 |
| 17 | 4.8 | 57.4 | 6.4 | .0 | 57.4 | 18.7 | 10.2 | 8.5 | .0 | 18.7 | 12.7 | .0 | 31.5 | .0 | .0 |
| 18 | 4.6 | 54.8 | 6.1 | .0 | 54.8 | 20.9 | 12.0 | 8.8 | .0 | 20.9 | 9.0 | .0 | 31.3 | .0 | .0 |
| 19 | 3.2 | 38.6 | 4.4 | .0 | 38.6 | 32.8 | 19.1 | 13.7 | .0 | 32.8 | 9.6 | .0 | 6.8 | .0 | .0 |
| 20 | 3.3 | 39.6 | 4.5 | .0 | 39.6 | 40.1 | 21.6 | 18.4 | .0 | 40.1 | 13.9 | .0 | .0 | .0 | .0 |
| 21 | 4.6 | 54.5 | 6.0 | .0 | 54.5 | 30.2 | 18.4 | 10.5 | 1.3 | 30.2 | 20.0 | .0 | 11.2 | 1.3 | .0 |
| 22 | 4.6 | 55.2 | 6.1 | .0 | 55.2 | 23.0 | 13.7 | 9.3 | .0 | 23.0 | 12.0 | .0 | 26.3 | .0 | .0 |
| 23 | 4.3 | 51.9 | 5.8 | .0 | 51.9 | 32.9 | 21.2 | 11.7 | .0 | 32.9 | 10.0 | .0 | 17.4 | .0 | .0 |
| 24 | 3.9 | 46.9 | 5.2 | .0 | 46.9 | 40.8 | 23.0 | 17.8 | .0 | 40.8 | 13.5 | .0 | 6.2 | .0 | .0 |
| 25 | 4.0 | 47.8 | 5.3 | .0 | 47.8 | 42.1 | 22.6 | 18.0 | 1.4 | 42.1 | 20.0 | .0 | .0 | 1.4 | .0 |
| 26 | 3.4 | 40.2 | 4.4 | .0 | 40.2 | 25.9 | 14.7 | 11.2 | .0 | 25.9 | 19.2 | .0 | 1.8 | .0 | .0 |
| 27 | 3.8 | 45.4 | 5.0 | .0 | 45.4 | 21.2 | 12.1 | 9.2 | .0 | 21.2 | 10.5 | .0 | 20.0 | .0 | .0 |
| 28 | 4.4 | 52.4 | 5.8 | .0 | 52.4 | 25.1 | 15.1 | 10.0 | .0 | 25.1 | 9.8 | .0 | 24.7 | .0 | .0 |
| 29 | 4.4 | 52.3 | 5.8 | .0 | 52.3 | 30.5 | 18.3 | 12.2 | .0 | 30.5 | 10.8 | .0 | 19.9 | .0 | .0 |
| 30 | 4.2 | 50.2 | 5.5 | .0 | 50.2 | 34.4 | 21.1 | 13.3 | .0 | 34.4 | 13.1 | .0 | 12.0 | .0 | .0 |
| 31 | 1.6 | 19.1 | 2.5 | .0 | 19.1 | 35.3 | 15.9 | 10.3 | 9.1 | 35.3 | 1.7 | .0 | .0 | 9.1 | .0 |
| ===== | | | | | | | | | | | | | | | |
| | 116.3 | 1390.5 | 155.1 | .0 | 1390.5 | 858.9 | 493.7 | 345.9 | 19.4 | 858.9 | 357.6 | .0 | 439.0 | 19.4 | .0 |

AUG. 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT WASTED	AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL	TOTAL	SUPPLIED FROM						TOTAL OUTPUT	SUPPLIED FROM						
		0000 SQ-M		T-I	T-S	PV-I	E-S	E-X	T-X		T-I	PV-I	E-X	T-X			
1	2.4	242.8	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	225.1	.0	.0
2	2.5	253.9	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	236.7	.0	.0
3	2.4	242.6	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	224.8	.0	.0
4	1.8	176.7	17.5	10.7	6.8	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	158.7	.0	.0
5	1.0	104.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	6.8	.0	.0	.0	87.4	.0	.0
6	.6	56.0	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	38.4	.0	.0
7	2.4	241.4	17.5	10.4	7.1	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	223.2	.0	.0
8	2.3	230.2	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.1	.0	.0	.0	213.2	.0	.0
9	2.5	248.0	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	230.4	.0	.0
10	1.8	181.7	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	164.5	.0	.0
11	2.3	227.8	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	210.3	.0	.0
12	2.1	214.7	17.5	10.2	7.3	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	196.7	.0	.0
13	1.3	130.1	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.0	.0	.0	.0	113.1	.0	.0
14	1.0	97.3	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	79.8	.0	.0
15	2.6	259.5	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	241.9	.0	.0
16	1.7	169.8	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	152.1	.0	.0
17	2.6	264.1	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	246.8	.0	.0
18	2.5	252.0	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	234.3	.0	.0
19	1.8	176.3	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	158.7	.0	.0
20	1.9	185.0	17.5	10.3	7.2	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	167.3	.0	.0
21	2.6	263.7	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.3	.0	.0	.0	246.3	.0	.0
22	2.6	259.6	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	242.4	.0	.0
23	2.5	252.2	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	234.5	.0	.0
24	2.3	227.9	17.5	10.0	7.5	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	210.4	.0	.0
25	2.3	232.5	17.5	10.1	7.4	.0	.0	.0	.0	17.5	7.5	.0	.0	.0	214.9	.0	.0
26	1.8	181.5	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.4	.0	.0	.0	164.3	.0	.0
27	2.1	205.0	17.5	9.7	7.8	.0	.0	.0	.0	17.5	7.7	.0	.0	.0	187.6	.0	.0
28	2.5	246.8	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.8	.0	.0	.0	229.1	.0	.0
29	2.5	252.4	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	234.9	.0	.0
30	2.4	244.0	17.5	9.9	7.6	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	226.5	.0	.0
31	.7	72.2	17.5	9.8	7.7	.0	.0	.0	.0	17.5	7.6	.0	.0	.0	54.8	.0	.0
=====																	
	63.9	6391.3	542.5	309.8	232.7	.0	.0	.0	.0	542.5	232.5	.0	.0	.0	5849.0	.0	.0

SEP , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | | | TOTAL
INPUT | TOTAL
LOAD | ELECTRICAL OUTPUT | | | TOTAL
OUTPUT | ELECTRICAL
STORAGE
SUPPLIED FROM | | PHOTO-
VOLTAIC
INPUT
WASTED | AUX.
ELECT.
INPUT | ELECT.
LOAD
DEFICIT |
|-------|--------------------|-------------|-------------|-------------|----------------|---------------|-------------------|-------|------|-----------------|--|----|--------------------------------------|-------------------------|---------------------------|
| | WATER-COOLED | | AIR-COOLED | | | | SUPPLIED FROM | | | | | | | | |
| | PER
SQ-M | PER
SQ-M | PER
SQ-M | PER
SQ-M | | | PV-1 | E-S | E-X | | | | | | |
| 1 | .7 | 8.8 | 1.2 | .0 | 8.8 | 29.8 | 8.2 | .0 | 21.6 | 29.8 | .0 | .0 | .0 | 21.6 | .0 |
| 2 | 4.3 | 51.9 | 5.5 | .0 | 51.9 | 26.0 | 15.6 | 6.5 | 3.9 | 26.0 | 20.0 | .0 | .0 | 3.9 | .0 |
| 3 | 3.7 | 44.1 | 4.7 | .0 | 44.1 | 29.9 | 15.8 | 14.1 | .0 | 29.9 | 10.9 | .0 | .0 | .0 | .0 |
| 4 | .9 | 11.0 | 1.4 | .0 | 11.0 | 23.3 | 9.3 | 9.0 | 5.0 | 23.3 | .9 | .0 | .0 | 5.0 | .0 |
| 5 | 1.7 | 20.8 | 2.4 | .0 | 20.8 | 19.1 | 9.3 | 5.9 | 3.9 | 19.1 | 9.2 | .0 | .0 | 3.9 | .0 |
| 6 | 4.9 | 59.0 | 6.4 | .0 | 59.0 | 19.0 | 9.7 | 8.3 | 1.0 | 19.0 | 20.0 | .0 | .0 | 1.0 | .0 |
| 7 | 4.6 | 55.4 | 6.0 | .0 | 55.4 | 19.5 | 10.1 | 9.4 | .0 | 19.5 | 10.1 | .0 | .0 | .0 | .0 |
| 8 | 3.5 | 41.9 | 4.6 | .0 | 41.9 | 24.7 | 14.1 | 10.6 | .0 | 24.7 | 10.1 | .0 | .0 | .0 | .0 |
| 9 | 2.5 | 30.4 | 3.3 | .0 | 30.4 | 30.4 | 15.4 | 14.9 | .0 | 30.4 | 11.8 | .0 | .0 | .0 | .0 |
| 10 | 2.3 | 27.1 | 3.1 | .0 | 27.1 | 31.4 | 16.6 | 14.8 | .0 | 31.4 | 7.9 | .0 | .0 | .0 | .0 |
| 11 | 3.9 | 47.0 | 5.2 | .0 | 47.0 | 20.1 | 10.7 | 5.9 | 3.5 | 20.1 | 20.0 | .0 | .0 | 3.5 | .0 |
| 12 | 4.4 | 52.9 | 5.7 | .0 | 52.9 | 30.4 | 17.9 | 12.4 | .0 | 30.4 | 10.1 | .0 | .0 | .0 | .0 |
| 13 | 3.9 | 46.2 | 5.0 | .0 | 46.2 | 37.2 | 23.2 | 13.9 | .0 | 37.2 | 13.5 | .0 | .0 | .0 | .0 |
| 14 | 1.8 | 21.7 | 2.6 | .0 | 21.7 | 20.6 | 10.4 | 10.2 | .0 | 20.6 | 9.0 | .0 | .0 | .0 | .0 |
| 15 | 3.1 | 36.8 | 4.0 | .0 | 36.8 | 21.0 | 11.0 | 10.0 | .0 | 21.0 | 16.9 | .0 | .0 | .0 | .0 |
| 16 | 4.9 | 58.1 | 6.2 | .0 | 58.1 | 19.0 | 9.6 | 9.4 | .0 | 19.0 | 10.7 | .0 | .0 | .0 | .0 |
| 17 | 2.6 | 31.6 | 3.4 | .0 | 31.6 | 19.0 | 9.3 | 9.7 | .0 | 19.0 | 10.4 | .0 | .0 | .0 | .0 |
| 18 | 3.6 | 42.9 | 4.6 | .0 | 42.9 | 19.0 | 9.4 | 9.6 | .0 | 19.0 | 10.3 | .0 | .0 | .0 | .0 |
| 19 | 1.8 | 21.7 | 2.4 | .0 | 21.7 | 19.0 | 8.2 | 10.8 | .0 | 19.0 | 10.7 | .0 | .0 | .0 | .0 |
| 20 | 2.2 | 25.8 | 2.8 | .0 | 25.8 | 19.0 | 8.5 | 10.5 | .0 | 19.0 | 11.1 | .0 | .0 | .0 | .0 |
| 21 | 3.4 | 40.4 | 4.3 | .0 | 40.4 | 19.0 | 9.1 | 9.9 | .0 | 19.0 | 11.7 | .0 | .0 | .0 | .0 |
| 22 | 2.5 | 29.3 | 3.2 | .0 | 29.3 | 19.0 | 9.1 | 9.9 | .0 | 19.0 | 10.7 | .0 | .0 | .0 | .0 |
| 23 | 3.6 | 42.9 | 4.6 | .0 | 42.9 | 19.0 | 9.3 | 9.7 | .0 | 19.0 | 10.3 | .0 | .0 | .0 | .0 |
| 24 | 3.9 | 46.4 | 5.0 | .0 | 46.4 | 19.0 | 9.4 | 9.6 | .0 | 19.0 | 10.4 | .0 | .0 | .0 | .0 |
| 25 | .5 | 5.8 | .8 | .0 | 5.8 | 19.0 | 5.4 | 12.7 | .9 | 19.0 | .0 | .0 | .0 | .9 | .0 |
| 26 | 1.5 | 17.5 | 1.9 | .0 | 17.5 | 19.0 | 7.9 | 6.9 | 4.2 | 19.0 | 7.6 | .0 | .0 | 4.2 | .0 |
| 27 | 1.5 | 18.1 | 2.1 | .0 | 18.1 | 19.0 | 7.9 | 7.4 | 3.7 | 19.0 | 8.1 | .0 | .0 | 3.7 | .0 |
| 28 | .2 | 2.8 | .4 | .0 | 2.8 | 19.0 | 2.6 | .4 | 16.0 | 19.0 | .0 | .0 | .0 | 16.0 | .0 |
| 29 | 1.7 | 20.4 | 2.3 | .0 | 20.4 | 19.0 | 8.5 | 6.0 | 4.4 | 19.0 | 9.6 | .0 | .0 | 4.4 | .0 |
| 30 | 4.4 | 52.3 | 5.6 | .0 | 52.3 | 19.0 | 9.3 | 8.8 | .9 | 19.0 | 20.0 | .0 | .0 | .9 | .0 |
| ===== | | | | | | | | | | | | | | | |
| | 84.6 | 1011.1 | 110.8 | .0 | 1011.1 | 667.4 | 320.8 | 277.5 | 69.1 | 667.4 | 312.0 | .0 | .0 | 69.1 | .0 |

SEP , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT |
|-------|---------------|---------------|-----------------|----------------|-------|------|-----|-----|-----|-----------------|-----------------|-------|-----|-----|----------------------------|-----------------------|----------------------------|
| | PER
SQ-M | TOTAL
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-X | T-X | | | |
| 1 | .2 | 21.1 | 17.5 | 8.5 | 9.0 | .0 | .0 | .0 | .0 | 17.5 | 8.3 | .0 | .0 | .0 | 4.3 | .0 | .0 |
| 2 | 2.5 | 247.4 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | 8.4 | 10.8 | .0 | .0 | 229.3 | .0 | .0 |
| 3 | 2.1 | 205.6 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | 13.3 | .0 | .0 | 195.9 | .0 | .0 |
| 4 | .3 | 30.1 | 17.5 | 8.9 | 8.6 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 21.2 | .0 | .0 |
| 5 | .7 | 65.7 | 19.2 | 10.2 | 9.0 | .0 | .0 | .0 | .0 | 19.2 | .8 | .0 | .0 | .0 | 54.7 | .0 | .0 |
| 6 | 2.7 | 265.1 | 27.9 | 10.3 | 17.6 | .0 | .0 | .0 | .0 | 27.9 | 16.2 | 23.3 | .0 | .0 | 238.7 | .0 | .0 |
| 7 | 2.5 | 253.6 | 28.7 | 10.1 | 18.6 | .0 | .0 | .0 | .0 | 28.7 | .0 | 30.3 | .0 | .0 | 243.5 | .0 | .0 |
| 8 | 1.9 | 188.5 | 24.1 | 9.7 | 14.4 | .0 | .0 | .0 | .0 | 24.1 | .0 | 13.8 | .0 | .0 | 178.7 | .0 | .0 |
| 9 | 1.3 | 132.1 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 122.4 | .0 | .0 |
| 10 | 1.2 | 115.6 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 105.9 | .0 | .0 |
| 11 | 2.1 | 208.8 | 19.7 | 9.7 | 10.0 | .0 | .0 | .0 | .0 | 19.7 | .0 | 11.2 | .0 | .0 | 199.1 | .0 | .0 |
| 12 | 2.5 | 254.8 | 22.7 | 9.7 | 12.9 | .0 | .0 | .0 | .0 | 22.7 | .0 | 20.2 | .0 | .0 | 245.1 | .0 | .0 |
| 13 | 2.2 | 224.7 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | 5.0 | .0 | .0 | 215.0 | .0 | .0 |
| 14 | .8 | 81.3 | 17.8 | 9.2 | 8.6 | .0 | .0 | .0 | .0 | 17.8 | .0 | .0 | .0 | .0 | 72.1 | .0 | .0 |
| 15 | 1.6 | 158.8 | 21.9 | 9.4 | 12.5 | .0 | .0 | .0 | .0 | 21.9 | .0 | 4.7 | .0 | .0 | 149.4 | .0 | .0 |
| 16 | 2.8 | 277.4 | 18.0 | 9.7 | 8.3 | .0 | .0 | .0 | .0 | 18.0 | 2.2 | 32.7 | .0 | .0 | 265.5 | .0 | .0 |
| 17 | 1.3 | 131.4 | 17.5 | 9.2 | 8.3 | .0 | .0 | .0 | .0 | 17.5 | .0 | 8.8 | .0 | .0 | 122.1 | .0 | .0 |
| 18 | 1.8 | 183.9 | 20.7 | 10.3 | 10.4 | .0 | .0 | .0 | .0 | 20.7 | .0 | 19.2 | .0 | .0 | 173.7 | .0 | .0 |
| 19 | .7 | 73.8 | 24.5 | 8.8 | 15.7 | .0 | .0 | .0 | .0 | 24.5 | .0 | .3 | .0 | .0 | 65.0 | .0 | .0 |
| 20 | .9 | 85.6 | 37.4 | 14.6 | 22.8 | .0 | .0 | .0 | .0 | 37.4 | .0 | 3.3 | .0 | .0 | 71.1 | .0 | .0 |
| 21 | 1.7 | 166.5 | 35.7 | 11.1 | 24.6 | .0 | .0 | .0 | .0 | 35.7 | 13.3 | 15.7 | .0 | .0 | 142.1 | .0 | .0 |
| 22 | 1.1 | 113.9 | 25.3 | 9.3 | 16.1 | .0 | .0 | .0 | .0 | 25.3 | 4.4 | 6.5 | .0 | .0 | 100.3 | .0 | .0 |
| 23 | 1.8 | 183.5 | 24.6 | 10.1 | 14.5 | .0 | .0 | .0 | .0 | 24.6 | 7.4 | 19.2 | .0 | .0 | 166.0 | .0 | .0 |
| 24 | 2.1 | 206.1 | 26.4 | 10.1 | 16.4 | .0 | .0 | .0 | .0 | 26.4 | .0 | 22.5 | .0 | .0 | 196.0 | .0 | .0 |
| 25 | .1 | 5.4 | 20.6 | 4.8 | 15.8 | .0 | .0 | .0 | .0 | 20.6 | .0 | .0 | .0 | .0 | .6 | .0 | .0 |
| 26 | .5 | 53.1 | 21.6 | 7.8 | 13.8 | .0 | .0 | .0 | .0 | 21.6 | 2.3 | .0 | .0 | .0 | 43.0 | .0 | .0 |
| 27 | .6 | 56.9 | 27.4 | 8.9 | 18.5 | .0 | .0 | .0 | .0 | 27.4 | 17.7 | .0 | .0 | .0 | 30.2 | .0 | .0 |
| 28 | .0 | .0 | 35.8 | .0 | 35.8 | .0 | .0 | .0 | .0 | 35.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| 29 | .7 | 66.3 | 34.4 | 9.8 | 24.6 | .0 | .0 | .0 | .0 | 34.4 | 56.6 | .0 | .0 | .0 | .0 | .0 | .0 |
| 30 | 2.3 | 232.6 | 33.6 | 11.2 | 22.4 | .0 | .0 | .0 | .0 | 33.6 | 29.1 | 17.5 | .0 | .0 | 192.4 | .0 | .0 |
| ===== | | | | | | | | | | | | | | | | | |
| | 42.9 | 4289.5 | 708.1 | 279.8 | 428.3 | .0 | .0 | .0 | .0 | 708.1 | 166.6 | 278.1 | .0 | .0 | 3843.2 | .0 | .0 |

OCT , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-A						
1	3.9	46.8	5.0	.0	46.8	20.0	9.7	10.3	.0	20.0	10.7	.0	.0	.0	.0
2	2.2	26.4	2.8	.0	26.4	20.0	8.8	11.2	.0	20.0	11.2	.0	.0	.0	.0
3	.4	4.8	.6	.0	4.8	20.0	4.4	11.5	4.1	20.0	.0	.0	.0	4.1	.0
4	2.3	26.9	2.8	.0	26.9	20.0	8.0	7.9	4.2	20.0	15.6	.0	.0	4.2	.0
5	2.6	31.0	3.4	.0	31.0	20.0	9.4	10.6	.0	20.0	17.4	.0	.0	.0	.0
6	3.5	41.6	4.4	.0	41.6	20.0	9.4	10.6	.0	20.0	11.3	.0	.0	.0	.0
7	2.4	28.7	3.1	.0	28.7	20.0	8.3	11.7	.0	20.0	11.3	.0	.0	.0	.0
8	1.2	14.2	1.7	.0	14.2	20.0	7.6	12.4	.0	20.0	5.1	.0	.0	.0	.0
9	.7	7.8	1.0	.0	7.8	20.0	6.6	4.0	9.4	20.0	.5	.0	.0	9.4	.0
10	3.7	44.6	4.7	.0	44.6	20.0	9.3	6.5	4.1	20.0	20.0	.0	.0	4.1	.0
11	3.8	45.5	4.8	.0	45.5	20.0	9.5	10.5	.0	20.0	11.5	.0	.0	.0	.0
12	.7	8.0	1.0	.0	8.0	20.0	6.7	12.9	.4	20.0	.7	.0	.0	.4	.0
13	3.9	46.7	5.0	.0	46.7	20.0	9.4	6.4	4.1	20.0	20.0	.0	.0	4.1	.0
14	3.0	35.3	3.7	.0	35.3	20.0	8.9	11.1	.0	20.0	11.8	.0	.0	.0	.0
15	1.3	15.9	2.0	.0	15.9	20.0	8.1	11.9	.0	20.0	6.1	.0	.0	.0	.0
16	2.7	31.8	3.4	.0	31.8	20.0	8.5	11.5	.0	20.0	18.2	.0	.0	.0	.0
17	4.0	47.8	5.1	.0	47.8	20.0	9.5	10.5	.0	20.0	12.3	.0	.0	.0	.0
18	3.6	43.0	4.5	.0	43.0	20.0	8.9	11.1	.0	20.0	11.8	.0	.0	.0	.0
19	3.8	45.5	4.8	.0	45.5	20.0	9.4	10.6	.0	20.0	11.3	.0	.0	.0	.0
20	.9	10.2	1.2	.0	10.2	20.0	6.1	13.9	.0	20.0	3.1	.0	.0	.0	.0
21	2.1	24.5	2.6	.0	24.5	20.0	8.4	7.8	3.8	20.0	13.2	.0	.0	3.8	.0
22	2.7	32.6	3.5	.0	32.6	20.0	8.5	11.5	.0	20.0	18.4	.0	.0	.0	.0
23	1.8	21.1	2.3	.0	21.1	20.0	7.6	12.4	.0	20.0	11.0	.0	.0	.0	.0
24	1.7	20.5	2.2	.0	20.5	20.0	7.7	12.3	.0	20.0	10.4	.0	.0	.0	.0
25	1.2	14.0	1.7	.0	14.0	20.0	7.1	11.6	1.4	20.0	5.5	.0	.0	1.4	.0
26	1.2	14.2	1.5	.0	14.2	20.0	6.6	5.7	7.8	20.0	6.1	.0	.0	7.8	.0
27	3.0	35.4	3.9	.0	35.4	20.0	9.3	6.5	4.1	20.0	20.0	.0	.0	4.1	.0
28	2.0	23.6	2.5	.0	23.6	20.0	7.8	12.2	.0	20.0	12.1	.0	.0	.0	.0
29	1.9	22.8	2.5	.0	22.8	20.0	7.9	12.1	.0	20.0	12.2	.0	.0	.0	.0
30	.1	1.7	.2	.0	1.7	20.0	1.6	10.3	8.1	20.0	.0	.0	.0	8.1	.0
31	.4	4.4	.6	.0	4.4	20.0	4.1	.0	15.9	20.0	.0	.0	.0	15.9	.0
=====															
	68.4	817.5	88.5	.0	817.5	620.0	243.2	309.3	67.5	620.0	318.9	.0	.0	67.5	.0

OCI, 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| DAY | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT | |
|-------|---------------|---------------|-----------------|----------------|-------|------|-----|-----|------|--------|-----------------|---------------|-----|-----|----------------------------|-----------------------|----------------------------|--|
| | PER
SQ-M | TOTAL
SQ-M | | SUPPLIED FROM | | | | | | | TOTAL
OUTPUT | SUPPLIED FROM | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | T-I | | PV-I | E-X | T-X | | | | |
| 1 | 2.1 | 208.5 | 25.9 | 10.3 | 15.6 | .0 | .0 | .0 | .0 | 25.9 | .0 | 22.2 | .0 | .0 | 198.3 | .0 | .0 | |
| 2 | 1.0 | 104.8 | 21.5 | 9.1 | 12.4 | .0 | .0 | .0 | .0 | 21.5 | .0 | 3.6 | .0 | .0 | 95.7 | .0 | .0 | |
| 3 | .0 | 3.7 | 17.5 | 3.7 | 13.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 4 | 1.1 | 109.8 | 17.8 | 8.8 | 9.1 | .0 | .0 | .0 | .0 | 17.8 | 7.6 | .0 | .0 | .0 | 93.4 | .0 | .0 | |
| 5 | 1.2 | 124.5 | 20.8 | 9.9 | 10.9 | .0 | .0 | .0 | .0 | 20.8 | 11.0 | .4 | .0 | .0 | 103.7 | .0 | .0 | |
| 6 | 1.8 | 179.7 | 24.6 | 10.1 | 14.5 | .0 | .0 | .0 | .0 | 24.6 | 14.3 | 16.8 | .0 | .0 | 155.3 | .0 | .0 | |
| 7 | 1.2 | 115.6 | 24.1 | 9.8 | 14.3 | .0 | .0 | .0 | .0 | 24.1 | .0 | 5.9 | .0 | .0 | 105.8 | .0 | .0 | |
| 8 | .4 | 43.3 | 17.5 | 8.3 | 9.2 | .0 | .0 | .0 | .0 | 17.5 | .2 | .0 | .0 | .0 | 34.8 | .0 | .0 | |
| 9 | .1 | 12.5 | 19.6 | 6.4 | 13.2 | .0 | .0 | .0 | .0 | 19.6 | 6.2 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 10 | 2.0 | 197.8 | 25.0 | 10.3 | 14.8 | .0 | .0 | .0 | .0 | 25.0 | 23.3 | 10.3 | .0 | .0 | 164.2 | .0 | .0 | |
| 11 | 2.1 | 215.0 | 17.5 | 9.7 | 7.8 | .0 | .0 | .0 | .0 | 17.5 | .0 | 20.2 | .0 | .0 | 205.2 | .0 | .0 | |
| 12 | .2 | 17.3 | 18.4 | 7.1 | 11.3 | .0 | .0 | .0 | .0 | 18.4 | .0 | .0 | .0 | .0 | 10.3 | .0 | .0 | |
| 13 | 2.0 | 204.8 | 28.6 | 10.6 | 18.0 | .0 | .0 | .0 | .0 | 28.6 | 4.4 | 12.1 | .0 | .0 | 189.8 | .0 | .0 | |
| 14 | 1.6 | 156.6 | 19.4 | 8.8 | 10.7 | .0 | .0 | .0 | .0 | 19.4 | .7 | 11.1 | .0 | .0 | 147.2 | .0 | .0 | |
| 15 | .6 | 56.6 | 17.5 | 8.9 | 8.6 | .0 | .0 | .0 | .0 | 17.5 | .0 | .0 | .0 | .0 | 47.7 | .0 | .0 | |
| 16 | 1.4 | 142.5 | 18.0 | 8.8 | 9.3 | .0 | .0 | .0 | .0 | 18.0 | 5.3 | 1.0 | .0 | .0 | 128.5 | .0 | .0 | |
| 17 | 2.0 | 203.6 | 31.5 | 11.5 | 19.9 | .0 | .0 | .0 | .0 | 31.5 | 14.8 | 21.4 | .0 | .0 | 177.3 | .0 | .0 | |
| 18 | 1.9 | 188.1 | 33.4 | 8.4 | 25.0 | .0 | .0 | .0 | .0 | 33.4 | 7.4 | 18.1 | .0 | .0 | 172.3 | .0 | .0 | |
| 19 | 2.0 | 203.3 | 26.5 | 10.3 | 16.2 | .0 | .0 | .0 | .0 | 26.5 | .0 | 20.5 | .0 | .0 | 193.0 | .0 | .0 | |
| 20 | .3 | 26.5 | 18.5 | 5.7 | 12.8 | .0 | .0 | .0 | .0 | 18.5 | .0 | .0 | .0 | .0 | 20.8 | .0 | .0 | |
| 21 | .9 | 85.5 | 34.5 | 11.3 | 23.2 | .0 | .0 | .0 | .0 | 34.5 | 6.0 | .0 | .0 | .0 | 68.2 | .0 | .0 | |
| 22 | 1.3 | 128.6 | 36.3 | 10.7 | 25.5 | .0 | .0 | .0 | .0 | 36.3 | 32.0 | 1.7 | .0 | .0 | 85.9 | .0 | .0 | |
| 23 | .7 | 65.6 | 49.7 | 13.4 | 36.3 | .0 | .0 | .0 | .0 | 49.7 | 20.8 | .0 | .0 | .0 | 31.3 | .0 | .0 | |
| 24 | .6 | 58.1 | 69.2 | 16.5 | 52.7 | .0 | .0 | .0 | .0 | 69.2 | 41.5 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 25 | .3 | 29.6 | 75.6 | 12.1 | 63.5 | .0 | .0 | .0 | .0 | 75.6 | 17.5 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 26 | .3 | 29.3 | 81.0 | 18.5 | 36.2 | .0 | .0 | .0 | 26.3 | 81.0 | 10.8 | .0 | .0 | .0 | .0 | 26.3 | .0 | |
| 27 | 1.2 | 122.2 | 70.7 | 24.5 | 16.8 | .7 | .0 | .0 | 28.8 | 70.7 | 97.7 | 1.5 | .0 | .0 | .0 | 28.8 | .0 | |
| 28 | .9 | 90.2 | 34.5 | 7.9 | 26.5 | .0 | .0 | .0 | .0 | 34.5 | 36.9 | 1.0 | .0 | .0 | 45.4 | .0 | .0 | |
| 29 | .7 | 73.2 | 54.3 | 13.5 | 40.8 | .0 | .0 | .0 | .0 | 54.3 | 32.5 | .0 | .0 | .0 | 27.1 | .0 | .0 | |
| 30 | .0 | .0 | 51.9 | .0 | 51.9 | .0 | .0 | .0 | .0 | 51.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 31 | .0 | .1 | 57.4 | .1 | 33.5 | .0 | .0 | .0 | 23.9 | 57.4 | .0 | .0 | .0 | .0 | .0 | 23.9 | .0 | |
| ===== | | | | | | | | | | | | | | | | | | |
| | 32.0 | 3197.0 | 1058.7 | 304.8 | 674.3 | .7 | .0 | .0 | 79.0 | 1058.7 | 390.8 | 167.8 | .0 | .0 | 2501.3 | 79.0 | .0 | |

NOV , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-A		PV-1	E-A			
1	1.0	11.5	1.3	.0	11.5	21.0	7.0	3.1	10.9	21.0	3.4	.0	.0	10.9	.0
2	1.8	20.9	2.2	.0	20.9	21.0	7.8	8.5	4.7	21.0	10.7	.0	.0	4.7	.0
3	.6	6.7	.9	.0	6.7	21.0	6.0	1.6	13.4	21.0	.2	.0	.0	13.4	.0
4	.6	7.0	.9	.0	7.0	21.0	6.4	.0	14.6	21.0	.0	.0	.0	14.6	.0
5	.5	6.5	.8	.0	6.5	21.0	5.0	.9	15.1	21.0	.9	.0	.0	15.1	.0
6	3.1	36.7	3.9	.0	36.7	21.0	9.0	7.3	4.7	21.0	20.0	.0	.0	4.7	.0
7	.3	3.1	.4	.0	3.1	21.0	2.9	11.3	6.8	21.0	.0	.0	.0	6.8	.0
8	.6	6.8	.9	.0	6.8	21.0	5.8	.4	14.8	21.0	.4	.0	.0	14.8	.0
9	.2	2.9	.4	.0	2.9	21.0	2.7	.0	18.3	21.0	.0	.0	.0	18.3	.0
10	.1	.8	.1	.0	.8	21.0	.8	.0	20.2	21.0	.0	.0	.0	20.2	.0
11	.3	3.2	.4	.0	3.2	21.0	3.0	.0	18.0	21.0	.0	.0	.0	18.0	.0
12	1.1	13.6	1.4	.0	13.6	21.0	5.1	6.4	9.5	21.0	6.9	.0	.0	9.5	.0
13	1.1	13.6	1.5	.0	13.6	21.0	6.3	5.4	9.3	21.0	5.8	.0	.0	9.3	.0
14	2.6	31.5	3.3	.0	31.5	21.0	8.2	7.8	5.1	21.0	19.2	.0	.0	5.1	.0
15	2.4	28.4	2.9	.0	28.4	21.0	7.2	13.8	.0	21.0	14.7	.0	.0	.0	.0
16	.1	1.2	.2	.0	1.2	21.0	1.1	9.9	10.0	21.0	.0	.0	.0	10.0	.0
17	.1	.7	.1	.0	.7	21.0	.7	.0	20.3	21.0	.0	.0	.0	20.3	.0
18	.1	1.3	.2	.0	1.3	21.0	1.2	.0	19.8	21.0	.0	.0	.0	19.8	.0
19	1.9	22.7	2.4	.0	22.7	21.0	7.4	7.8	5.7	21.0	12.4	.0	.0	5.7	.0
20	.4	4.7	.6	.0	4.7	21.0	4.2	3.9	12.9	21.0	.2	.0	.0	12.9	.0
21	.1	1.0	.1	.0	1.0	21.0	.9	.0	20.1	21.0	.0	.0	.0	20.1	.0
22	.4	4.8	.6	.0	4.8	21.0	4.3	.0	16.7	21.0	.0	.0	.0	16.7	.0
23	2.0	23.7	2.5	.0	23.7	21.0	6.3	9.5	5.1	21.0	14.4	.0	.0	5.1	.0
24	1.0	12.5	1.4	.0	12.5	21.0	6.6	8.2	6.2	21.0	4.7	.0	.0	6.2	.0
25	2.7	31.7	3.3	.0	31.7	21.0	8.0	7.9	5.2	21.0	19.6	.0	.0	5.2	.0
26	3.1	36.6	3.8	.0	36.6	21.0	8.0	13.0	.0	21.0	14.4	.0	.0	.0	.0
27	3.0	35.7	3.7	.0	35.7	21.0	8.0	13.0	.0	21.0	14.0	.0	.0	.0	.0
28	2.8	33.6	3.5	.0	33.6	21.0	8.0	13.0	.0	21.0	14.0	.0	.0	.0	.0
29	2.5	30.2	3.2	.0	30.2	21.0	7.9	13.1	.0	21.0	14.0	.0	.0	.0	.0
30	2.8	33.0	3.5	.0	33.0	21.0	7.9	13.1	.0	21.0	14.0	.0	.0	.0	.0
=====															
	39.0	466.7	50.5	.0	466.7	630.0	163.7	178.9	287.4	630.0	203.9	.0	.0	287.4	.0

NOV , 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD	THERMAL OUTPUT						THERMAL STORAGE				THERMAL INPUT	AUX. THERMAL	THERMAL LOAD	
	PER SQ-M	TOTAL	TOTAL	SUPPLIED FROM						SUPPLIED FROM				WASTED	INPUT	LOAD	
		SQ-M		T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL OUTPUT	T-I	PV-I	E-X				T-X
1	.2	24.5	61.1	10.0	14.5	.0	.0	.0	36.6	61.1	14.5	.0	.0	.0	.0	36.6	.0
2	.6	64.5	56.9	15.1	17.2	.0	.0	.0	24.6	56.9	49.4	.0	.0	.0	.0	24.6	.0
3	.1	5.7	50.3	5.7	32.2	.0	.0	.0	12.3	50.3	.0	.0	.0	.0	.0	12.3	.0
4	.1	5.8	56.5	5.8	.0	.5	.0	.0	50.2	56.5	.0	.0	.0	.0	.0	50.2	.0
5	.1	5.8	59.1	2.5	3.3	.0	.0	.0	53.3	59.1	3.3	.0	.0	.0	.0	53.3	.0
6	1.3	133.8	69.8	20.7	21.0	.0	.0	.0	28.1	69.8	105.0	3.2	.0	.0	8.1	28.1	.0
7	.0	.0	55.4	.0	55.4	.0	.0	.0	.0	55.4	.0	.0	.0	.0	.0	.0	.0
8	.1	7.1	49.4	7.1	31.8	.0	.0	.0	10.4	49.4	.0	.0	.0	.0	.0	10.4	.0
9	.0	.0	45.9	.0	.0	.0	.0	.0	45.9	45.9	.0	.0	.0	.0	.0	45.9	.0
10	.0	.0	43.5	.0	.0	.0	.0	.0	43.5	43.5	.0	.0	.0	.0	.0	43.5	.0
11	.0	.0	51.4	.0	.0	.0	.0	.0	51.4	51.4	.0	.0	.0	.0	.0	51.4	.0
12	.4	39.9	56.0	7.2	23.9	.0	.0	.0	24.9	56.0	32.7	.0	.0	.0	.0	24.9	.0
13	.4	36.2	54.0	12.2	29.4	.0	.0	.0	12.4	54.0	24.0	.0	.0	.0	.0	12.4	.0
14	1.2	116.4	56.2	16.3	22.2	.6	.0	.0	17.1	56.2	100.1	.0	.0	.0	.0	17.1	.0
15	1.1	110.3	41.5	9.8	31.7	.0	.0	.0	.0	41.5	41.9	3.2	.0	.0	58.6	.0	.0
16	.0	.0	40.2	.0	40.2	.0	.0	.0	.0	40.2	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	53.8	.0	53.8	.0	.0	.0	.0	53.8	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	63.9	.0	.7	.0	.0	.0	63.2	63.9	.0	.0	.0	.0	.0	63.2	.0
19	.7	72.5	71.1	19.6	22.8	.3	.0	.0	28.3	71.1	52.9	.0	.0	.0	.0	28.3	.0
20	.0	1.2	65.2	1.2	30.1	.0	.0	.0	33.9	65.2	.0	.0	.0	.0	.0	33.9	.0
21	.0	.0	45.1	.0	.0	.0	.0	.0	45.1	45.1	.0	.0	.0	.0	.0	45.1	.0
22	.0	1.5	65.9	1.5	.0	.3	.0	.0	64.1	65.9	.0	.0	.0	.0	.0	64.1	.0
23	.8	80.1	66.6	15.9	25.4	.0	.0	.0	25.3	66.6	64.2	.0	.0	.0	.0	25.3	.0
24	.3	29.5	67.2	11.6	55.6	.0	.0	.0	.0	67.2	17.9	.0	.0	.0	.0	.0	.0
25	1.2	115.3	68.8	21.0	23.4	.0	.0	.0	24.4	68.8	94.3	.0	.0	.0	.0	24.4	.0
26	1.4	140.8	72.2	19.9	52.2	.0	.0	.0	.0	72.2	62.6	10.4	.0	.0	58.3	.0	.0
27	1.4	140.3	59.7	16.1	43.6	.0	.0	.0	.0	59.7	39.3	9.9	.0	.0	84.9	.0	.0
28	1.3	134.8	45.0	11.7	33.3	.0	.0	.0	.0	45.0	28.2	8.0	.0	.0	94.9	.0	.0
29	1.2	118.4	49.6	11.9	37.7	.0	.0	.0	.0	49.6	23.1	4.8	.0	.0	83.3	.0	.0
30	1.4	135.6	48.6	9.6	39.0	.0	.0	.0	.0	48.6	34.7	7.4	.0	.0	91.3	.0	.0

	15.2	1520.0	1689.6	252.5	740.3	1.7	.0	.0	695.1	1689.6	788.0	46.8	.0	.0	479.5	695.1	.0

DEC. 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	AIR-COOLED PER SQ-M	AIR-COOLED PER SQ-M	AIR-COOLED PER SQ-M	TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	2.5	30.1	3.2	.0	30.1	22.0	8.3	13.7	.0	22.0	14.3	.0	.0	.0	.0
2	2.7	32.0	3.4	.0	32.0	22.0	8.3	13.7	.0	22.0	14.7	.0	.0	.0	.0
3	1.8	21.7	2.3	.0	21.7	22.0	8.2	13.8	.0	22.0	11.0	.0	.0	.0	.0
4	2.3	27.0	2.8	.0	27.0	22.0	8.3	13.7	.0	22.0	15.4	.0	.0	.0	.0
5	.1	.6	.1	.0	.6	22.0	.6	7.3	14.1	22.0	.0	.0	.0	14.1	.0
6	.1	1.2	.2	.0	1.2	22.0	1.1	.0	20.9	22.0	.0	.0	.0	20.9	.0
7	.4	5.1	.7	.0	5.1	22.0	4.7	.0	17.3	22.0	.0	.0	.0	17.3	.0
8	1.7	19.8	2.0	.0	19.8	22.0	6.6	9.3	6.1	22.0	10.7	.0	.0	6.1	.0
9	2.5	29.4	3.0	.0	29.4	22.0	7.2	10.0	4.8	22.0	18.2	.0	.0	4.8	.0
10	1.7	20.6	2.2	.0	20.6	22.0	7.6	14.4	.0	22.0	10.5	.0	.0	.0	.0
11	1.3	15.2	1.6	.0	15.2	22.0	7.2	7.5	7.3	22.0	4.9	.0	.0	7.3	.0
12	2.1	25.3	2.7	.0	25.3	22.0	7.6	8.3	6.1	22.0	13.6	.0	.0	6.1	.0
13	.9	10.6	1.1	.0	10.6	22.0	5.4	5.3	11.3	22.0	1.0	.0	.0	11.3	.0
14	2.2	26.1	2.8	.0	26.1	22.0	8.3	8.3	5.4	22.0	14.3	.0	.0	5.4	.0
15	.2	2.0	.3	.0	2.0	23.0	1.9	5.0	16.1	23.0	.0	.0	.0	16.1	.0
16	1.1	13.3	1.4	.0	13.3	23.0	6.7	4.5	11.8	23.0	4.9	.0	.0	11.8	.0
17	.3	3.5	.5	.0	3.5	23.0	3.3	.0	19.7	23.0	.0	.0	.0	19.7	.0
18	2.1	24.7	2.6	.0	24.7	23.0	7.6	8.9	6.5	23.0	14.1	.0	.0	6.5	.0
19	.3	3.4	.4	.0	3.4	23.0	3.2	4.2	15.6	23.0	.0	.0	.0	15.6	.0
20	1.1	12.8	1.4	.0	12.8	23.0	5.6	5.4	12.1	23.0	5.8	.0	.0	12.1	.0
21	.2	2.3	.3	.0	2.3	23.0	2.1	.0	20.9	23.0	.0	.0	.0	20.9	.0
22	1.3	15.9	1.7	.0	15.9	23.0	6.8	6.7	9.6	23.0	7.2	.0	.0	9.6	.0
23	1.3	15.3	1.7	.0	15.3	23.0	7.8	5.2	10.0	23.0	5.6	.0	.0	10.0	.0
24	1.9	22.9	2.4	.0	22.9	23.0	5.6	10.9	6.5	23.0	14.4	.0	.0	6.5	.0
25	1.6	19.5	2.0	.0	19.5	23.0	5.5	13.1	4.5	23.0	11.6	.0	.0	4.5	.0
26	2.6	30.7	3.2	.0	30.7	23.0	7.9	8.8	6.3	23.0	18.9	.0	.0	6.3	.0
27	2.7	32.1	3.4	.0	32.1	23.0	8.6	14.4	.0	23.0	16.5	.0	.0	.0	.0
28	2.5	30.3	3.1	.0	30.3	23.0	7.4	15.6	.0	23.0	16.8	.0	.0	.0	.0
29	.2	2.6	.3	.0	2.6	23.0	2.4	9.9	10.6	23.0	.0	.0	.0	10.6	.0
30	2.2	26.9	2.8	.0	26.9	23.0	8.4	8.9	5.7	23.0	14.7	.0	.0	5.7	.0
31	1.7	20.6	2.1	.0	20.6	23.0	6.8	14.6	1.6	23.0	11.0	.0	.0	1.6	.0
=====															
	45.5	543.8	57.7	.0	543.8	699.0	186.7	261.5	250.8	699.0	270.1	.0	.0	250.8	.0

DEC, 1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

DAY	THERMAL INPUT		THERMAL LOAD		THERMAL OUTPUT					THERMAL STORAGE				THERMAL INPUT WASTED		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL	TOTAL	TOTAL	SUPPLIED FROM					SUPPLIED FROM							
		****
SQ-M			T-I	T-S	PV-I	E-S	E-X	T-X	TOTAL
OUTPUT	T-I	PV-I	E-X	T-X		
1	1.1	114.0	62.8	14.6	48.2	.0	.0	.0	.0	.0	62.8	38.8	4.0	.0	.0	60.7	.0
2	1.3	125.6	61.6	13.4	48.2	.0	.0	.0	.0	.0	61.6	45.8	5.4	.0	.0	66.4	.0
3	.8	75.1	52.0	11.0	41.0	.0	.0	.0	.0	.0	52.0	38.8	.0	.0	.0	25.3	.0
4	1.0	103.7	42.8	9.9	32.9	.0	.0	.0	.0	.0	42.8	33.5	.0	.0	.0	60.3	.0
5	.0	.0	61.9	.0	61.9	.0	.0	.0	.0	.0	61.9	.0	.0	.0	.0	.0	.0
6	.0	.0	76.7	.0	28.6	.0	.0	.0	.0	48.2	76.7	.0	.0	.0	.0	.0	48.2
7	.0	.4	82.1	.4	.0	.0	.0	.0	.0	81.7	82.1	.0	.0	.0	.0	.0	81.7
8	.6	58.0	87.2	22.0	31.0	.4	.0	.0	.0	33.8	87.2	36.0	.0	.0	.0	.0	33.8
9	.9	93.1	108.2	28.0	41.8	.6	.0	.0	.0	37.7	108.2	65.1	.0	.0	.0	.0	37.7
10	.5	50.7	111.1	29.6	49.4	.4	.0	.0	.0	31.7	111.1	21.1	.0	.0	.0	.0	31.7
11	.2	24.2	128.0	23.0	1.2	5.3	.0	.0	.0	98.5	128.0	1.2	.0	.0	.0	.0	98.5
12	.7	67.0	139.8	31.9	35.0	3.0	.0	.0	.0	69.8	139.8	35.0	.0	.0	.0	.0	69.8
13	.1	13.2	143.5	13.2	.0	10.2	.0	.0	.0	120.1	143.5	.0	.0	.0	.0	.0	120.1
14	.7	72.8	112.6	32.8	36.1	.7	.0	.0	.0	43.0	112.6	40.0	.0	.0	.0	.0	43.0
15	.0	.0	99.0	.0	3.9	.0	.0	.0	.0	95.1	99.0	.0	.0	.0	.0	.0	95.1
16	.3	29.5	86.5	19.2	10.3	1.4	.0	.0	.0	55.6	86.5	10.3	.0	.0	.0	.0	55.6
17	.0	.0	78.4	.0	.0	.0	.0	.0	.0	78.4	78.4	.0	.0	.0	.0	.0	78.4
18	.8	82.9	75.5	18.7	27.4	.0	.0	.0	.0	29.4	75.5	64.3	.0	.0	.0	.0	29.4
19	.0	.0	63.3	.0	36.9	.0	.0	.0	.0	26.4	63.3	.0	.0	.0	.0	.0	26.4
20	.3	28.4	92.7	16.3	12.1	.0	.0	.0	.0	64.4	92.7	12.1	.0	.0	.0	.0	64.4
21	.0	.0	92.2	.0	.0	.0	.0	.0	.0	92.2	92.2	.0	.0	.0	.0	.0	92.2
22	.4	40.0	82.8	21.2	18.8	.6	.0	.0	.0	42.3	82.8	18.8	.0	.0	.0	.0	42.3
23	.3	31.3	93.3	24.4	6.9	1.2	.0	.0	.0	60.8	93.3	6.9	.0	.0	.0	.0	60.8
24	.7	70.5	117.9	21.3	49.3	.0	.0	.0	.0	47.4	117.9	49.3	.0	.0	.0	.0	47.4
25	.6	63.9	90.0	14.1	29.7	.0	.0	.0	.0	46.2	90.0	49.8	.0	.0	.0	.0	46.2
26	1.0	102.2	98.6	29.5	57.5	.0	.0	.0	.0	11.7	98.6	72.8	.0	.0	.0	.0	11.7
27	1.0	102.9	110.4	33.1	61.2	1.6	.0	.0	.0	14.6	110.4	69.8	2.7	.0	.0	.0	14.6
28	1.1	107.4	90.0	22.3	67.7	.0	.0	.0	.0	.0	90.0	85.2	2.4	.0	.0	.0	.0
29	.0	.0	77.7	.0	66.6	.0	.0	.0	.0	11.0	77.7	.0	.0	.0	.0	.0	11.0
30	.7	73.5	115.3	32.1	41.2	1.7	.0	.0	.0	40.3	115.3	41.5	.0	.0	.0	.0	40.3
31	.5	53.1	116.3	29.0	24.4	1.2	.0	.0	.0	61.7	116.3	24.1	.0	.0	.0	.0	61.7
=====																	
		15.8	1583.4	2850.1	510.7	969.1	28.3	.0	.0	1342.0	2850.1	860.0	14.6	.0	.0	212.7	1342.0
=====																	

1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-I	E-S	E-X		PV-I	E-X			
JAN	59.	706.	74.	0.	706.	682.	204.	292.	186.	682.	309.	0.	0.	186.	0.
FEB	49.	581.	62.	0.	581.	616.	202.	257.	157.	616.	271.	0.	0.	157.	0.
MAR	77.	921.	101.	0.	921.	651.	259.	241.	151.	651.	262.	0.	0.	151.	0.
APR	95.	1130.	126.	0.	1130.	653.	331.	283.	38.	653.	313.	0.	0.	38.	0.
MAY	104.	1247.	141.	0.	1247.	800.	467.	333.	0.	800.	359.	0.	0.	0.	0.
JUN	103.	1231.	141.	0.	1231.	765.	450.	291.	24.	765.	312.	0.	238.	24.	0.
JUL	103.	1233.	140.	0.	1233.	775.	465.	305.	6.	775.	332.	0.	343.	6.	0.
AUG	116.	1390.	155.	0.	1390.	859.	494.	346.	19.	859.	358.	0.	439.	19.	0.
SEP	85.	1011.	111.	0.	1011.	667.	321.	277.	69.	667.	312.	0.	0.	69.	0.
OCT	68.	817.	89.	0.	817.	620.	243.	309.	67.	620.	319.	0.	0.	67.	0.
NOV	39.	467.	51.	0.	467.	630.	164.	179.	287.	630.	264.	0.	0.	287.	0.
DEC	45.	544.	58.	0.	544.	699.	187.	262.	251.	699.	270.	0.	0.	251.	0.
=====															
	944.	11278.	1248.	0.	11278.	8417.	3787.	3375.	1255.	8417.	3619.	0.	1021.	1255.	0.

1962 - CLEVELAND, OHIO - (A)

(ALL UNITS = KW-HR)

| MONTH | THERMAL INPUT | | THERMAL
LOAD | THERMAL OUTPUT | | | | | | | THERMAL STORAGE | | | | THERMAL
INPUT
WASTED | AUX. THERMAL
INPUT | THERMAL
LOAD
DEFICIT |
|-------|---------------|---------------|-----------------|----------------|-------|------|-----|-----|-------|-----------------|-----------------|------|-----|-----|----------------------------|-----------------------|----------------------------|
| | PER
SQ-M | TOTAL
SQ-M | | SUPPLIED FROM | | | | | | | SUPPLIED FROM | | | | | | |
| | | | | T-I | T-S | PV-I | E-S | E-X | T-X | TOTAL
OUTPUT | T-I | PV-I | E-X | T-X | | | |
| JAN | 22. | 2159. | 3022. | 688. | 1352. | 15. | 0. | 0. | 968. | 3022. | 1189. | 110. | 0. | 0. | 282. | 968. | 0. |
| FEB | 17. | 1652. | 2559. | 502. | 1093. | 19. | 0. | 0. | 945. | 2559. | 1058. | 35. | 0. | 0. | 93. | 945. | 0. |
| MAR | 32. | 3174. | 2361. | 540. | 1238. | 14. | 0. | 0. | 570. | 2361. | 996. | 306. | 0. | 0. | 1639. | 570. | 0. |
| APR | 44. | 4433. | 1467. | 467. | 882. | 3. | 0. | 0. | 115. | 1467. | 589. | 377. | 0. | 0. | 3377. | 115. | 0. |
| MAY | 54. | 5365. | 704. | 348. | 356. | 0. | 0. | 0. | 0. | 704. | 46. | 300. | 0. | 0. | 4971. | 0. | 0. |
| JUN | 54. | 5437. | 545. | 304. | 241. | 0. | 0. | 0. | 0. | 545. | 71. | 131. | 0. | 0. | 5062. | 0. | 0. |
| JUL | 54. | 5416. | 543. | 321. | 221. | 0. | 0. | 0. | 0. | 543. | 221. | 0. | 0. | 0. | 4874. | 0. | 0. |
| AUG | 64. | 6391. | 543. | 310. | 233. | 0. | 0. | 0. | 0. | 543. | 233. | 0. | 0. | 0. | 5849. | 0. | 0. |
| SEP | 43. | 4290. | 708. | 280. | 428. | 0. | 0. | 0. | 0. | 708. | 167. | 278. | 0. | 0. | 3843. | 0. | 0. |
| OCT | 32. | 3197. | 1059. | 305. | 674. | 1. | 0. | 0. | 79. | 1059. | 391. | 168. | 0. | 0. | 2501. | 79. | 0. |
| NOV | 15. | 1520. | 1690. | 253. | 740. | 2. | 0. | 0. | 695. | 1690. | 788. | 47. | 0. | 0. | 479. | 695. | 0. |
| DEC | 16. | 1583. | 2850. | 511. | 969. | 28. | 0. | 0. | 1342. | 2850. | 860. | 15. | 0. | 0. | 213. | 1342. | 0. |

446. 44617. 18049. 4826. 8427. 82. 0. 0. 4714. 18049. 6607. 1708. 0. 0. 33183. 4714. 0.

9FIN

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION

VERSION X.1.

1962 - PHOENIX, ARIZONA - (A)

WATER-COOLED COLLECTOR

AREA 0. SQ-M

TILT .0 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 70. SQ-M

TILT 33.4 DEGREES

EC .90

EN .16

ET .83

EP .90

EI .93

ES .85

C1 F; C2 F; C3 T; C4 T; C5 F

HEATING SEASON: OCT 15 - APR 15

COOLING SEASON: MAR 15 - NOV 15

ELECTRICAL STORAGE CAPACITY 25. KW-HR

THERMAL STORAGE CAPACITY 0. (0.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT ***** KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT .0 KW-HR

S/H DEMAND CURVE: INTERCEPT 19560. SLOPE -337.

A/C DEMAND CURVE: INTERCEPT -18950. SLOPE 338.

JAN , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	70.0 SQ-M	PER SQ-M	70.0 SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	.8	.0	1.7	14.5	14.5	22.0	7.6	14.4	.0	22.0	5.4	.0	.0	.0	.0
2	1.9	.0	5.4	45.5	45.5	22.0	9.9	9.4	2.7	22.0	25.0	.0	5.2	3.8	.0
3	1.9	.0	5.6	46.7	46.7	22.0	10.2	11.8	.0	22.0	17.2	.0	15.0	.0	.0
4	1.9	.0	5.6	46.5	46.5	22.0	10.3	11.7	.0	22.0	20.6	.0	10.0	.0	.0
5	2.0	.0	5.7	47.4	47.4	22.0	10.2	11.8	.0	22.0	17.9	.0	14.0	.0	.0
6	1.9	.0	5.6	46.7	46.7	22.0	10.3	11.7	.0	22.0	21.3	.0	8.5	.0	.0
7	1.9	.0	5.4	45.3	45.3	22.0	10.4	11.6	.0	22.0	20.4	.0	9.1	.0	.0
8	2.0	.0	5.5	46.4	46.4	22.0	10.4	11.6	.0	22.0	18.6	.0	12.4	.0	.0
9	2.0	.0	5.5	45.7	45.7	22.0	10.1	11.9	.0	22.0	18.6	.0	12.3	.0	.0
10	1.7	.0	4.8	39.9	39.9	22.0	9.7	12.3	.0	22.0	18.1	.0	6.0	.0	.0
11	2.2	.0	6.2	51.9	51.9	22.0	10.4	11.1	.5	22.0	25.0	.0	4.7	2.5	.0
12	2.1	.0	6.0	50.1	50.1	22.0	10.4	10.7	.8	22.0	25.0	.0	5.1	3.8	.0
13	1.0	.0	2.7	22.5	22.5	22.0	9.0	10.5	2.5	22.0	7.3	.0	.0	5.6	.0
14	2.2	.0	6.2	51.5	51.5	22.0	10.4	7.0	4.6	22.0	25.0	.0	6.3	11.0	.0
15	2.2	.0	6.0	50.4	50.4	22.0	10.3	11.7	.0	22.0	25.0	.0	6.6	.2	.0
16	1.6	.0	4.1	34.2	34.2	22.0	9.1	12.9	.0	22.0	19.2	.0	.0	.0	.0
17	1.3	.0	2.8	23.8	23.8	22.0	7.8	14.1	.1	22.0	12.7	.0	.0	.5	.0
18	2.2	.0	5.8	48.4	48.4	22.0	10.4	7.9	3.7	22.0	25.0	.0	5.7	9.5	.0
19	2.2	.0	5.8	48.6	48.6	22.0	10.2	11.8	.0	22.0	21.1	.0	8.5	.0	.0
20	2.4	.0	6.3	52.8	52.8	22.0	10.4	11.6	.0	22.0	18.6	.0	18.4	.0	.0
21	.5	.0	.9	7.3	7.3	22.0	5.7	12.2	4.1	22.0	.4	.0	.0	5.7	.0
22	2.1	.0	5.3	44.0	44.0	22.0	9.7	7.0	5.3	22.0	25.0	.0	2.5	9.1	.0
23	2.0	.0	4.7	39.1	39.1	22.0	8.4	13.6	.0	22.0	19.9	.0	5.8	.0	.0
24	1.2	.0	2.8	23.8	23.8	22.0	6.7	15.3	.0	22.0	14.0	.0	.0	.0	.0
25	.7	.0	1.4	11.5	11.5	22.0	6.2	6.0	9.8	22.0	2.4	.0	.0	14.0	.0
26	2.3	.0	5.5	46.4	46.4	22.0	9.9	7.0	5.2	22.0	25.0	.0	3.0	9.8	.0
27	2.1	.0	5.4	45.0	45.0	22.0	10.2	11.8	.0	22.0	19.7	.0	9.3	.0	.0
28	2.6	.0	6.6	55.3	55.3	22.0	10.4	11.6	.0	22.0	16.1	.0	24.3	.0	.0
29	2.6	.0	6.6	55.1	55.1	22.0	10.4	11.6	.0	22.0	12.6	.0	29.0	.0	.0
30	2.6	.0	6.5	54.4	54.4	22.0	10.4	11.6	.0	22.0	13.1	.0	27.2	.0	.0
31	2.7	.0	6.5	54.4	54.4	22.0	10.4	11.6	.0	22.0	14.8	.0	25.0	.0	.0
=====															
	58.8	.0	154.8	1295.3	1295.3	682.0	296.2	346.5	39.3	682.0	550.1	.0	273.8	75.4	.0

JAN. 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-------|--------------------|-----------------|-----------------------|----------------|--------|---------------|-------|-------|-------|--------------|----|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL 7C.C SQ-M | | PV-I E | PV-I T | SUPPLIED FROM | | E-X E | E-X T | TOTAL OUTPUT | E | | T | | | |
| | | | | | | E-S E | E-S T | | | | | | | | | |
| 1 | 1.7 | 14.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 2 | 5.4 | 45.5 | 4.7 | .2 | .6 | .4 | 1.0 | 1.0 | 3.1 | 4.7 | .0 | .0 | .0 | .0 | .0 | |
| 3 | 5.6 | 46.7 | 15.9 | .5 | 1.5 | 5.2 | 14.4 | .0 | .0 | 15.9 | .0 | .0 | .0 | .0 | .0 | |
| 4 | 5.6 | 46.5 | 20.5 | 1.3 | 3.5 | 6.4 | 17.0 | .0 | .0 | 20.5 | .0 | .0 | .0 | .0 | .0 | |
| 5 | 5.7 | 47.4 | 21.2 | 1.3 | 3.5 | 6.5 | 17.7 | .0 | .0 | 21.2 | .0 | .0 | .0 | .0 | .0 | |
| 6 | 5.6 | 46.7 | 26.0 | 1.9 | 5.2 | 7.8 | 20.8 | .0 | .0 | 26.0 | .0 | .0 | .0 | .0 | .0 | |
| 7 | 5.4 | 45.3 | 19.9 | .9 | 2.6 | 6.4 | 17.3 | .0 | .0 | 19.9 | .0 | .0 | .0 | .0 | .0 | |
| 8 | 5.5 | 46.4 | 18.0 | .8 | 2.3 | 5.8 | 15.8 | .0 | .0 | 18.0 | .0 | .0 | .0 | .0 | .0 | |
| 9 | 5.5 | 45.7 | 16.6 | .6 | 1.7 | 5.5 | 14.9 | .0 | .0 | 16.6 | .0 | .0 | .0 | .0 | .0 | |
| 10 | 4.8 | 39.9 | 27.4 | 2.1 | 5.9 | 7.9 | 21.6 | .0 | .0 | 27.4 | .0 | .0 | .0 | .0 | .0 | |
| 11 | 6.2 | 51.9 | 54.8 | 6.1 | 15.9 | 13.1 | 33.8 | 2.0 | 5.1 | 54.8 | .0 | .0 | .0 | .0 | .0 | |
| 12 | 6.0 | 50.1 | 47.0 | 4.0 | 11.4 | 10.6 | 27.8 | 3.0 | 7.8 | 47.0 | .0 | .0 | .0 | .0 | .0 | |
| 13 | 2.7 | 22.5 | 42.7 | 3.9 | 10.7 | 9.0 | 24.2 | 3.0 | 7.8 | 42.7 | .0 | .0 | .0 | .0 | .0 | |
| 14 | 6.2 | 51.5 | 38.1 | 4.2 | 11.4 | 3.7 | 9.9 | 6.4 | 16.8 | 38.1 | .0 | .0 | .0 | .0 | .0 | |
| 15 | 6.0 | 50.4 | 38.6 | 3.1 | 8.6 | 11.0 | 29.6 | .2 | .5 | 38.6 | .0 | .0 | .0 | .0 | .0 | |
| 16 | 4.1 | 34.2 | 27.9 | 1.7 | 4.6 | 8.8 | 23.2 | .0 | .0 | 27.9 | .0 | .0 | .0 | .0 | .0 | |
| 17 | 2.8 | 23.8 | 16.7 | .5 | 1.3 | 5.1 | 14.2 | .4 | 1.1 | 16.7 | .0 | .0 | .0 | .0 | .0 | |
| 18 | 5.8 | 48.4 | 28.3 | 1.9 | 5.2 | 2.9 | 8.1 | 5.8 | 15.0 | 28.3 | .0 | .0 | .0 | .0 | .0 | |
| 19 | 5.8 | 48.6 | 29.3 | 3.9 | 9.1 | 7.6 | 20.2 | .0 | .0 | 29.3 | .0 | .0 | .0 | .0 | .0 | |
| 20 | 6.3 | 52.8 | 14.5 | 1.2 | 3.4 | 4.2 | 11.2 | .0 | .0 | 14.5 | .0 | .0 | .0 | .0 | .0 | |
| 21 | .9 | 7.3 | 19.0 | .6 | 1.7 | 4.5 | 12.7 | 1.6 | 4.6 | 19.0 | .0 | .0 | .0 | .0 | .0 | |
| 22 | 5.3 | 44.0 | 21.0 | 1.6 | 4.5 | 2.0 | 5.7 | 3.8 | 10.9 | 21.0 | .0 | .0 | .0 | .0 | .0 | |
| 23 | 4.7 | 39.1 | 15.6 | .8 | 2.3 | 4.7 | 13.3 | .0 | .0 | 15.6 | .0 | .0 | .0 | .0 | .0 | |
| 24 | 2.8 | 23.8 | 14.0 | .2 | .5 | 4.7 | 13.5 | .0 | .0 | 14.0 | .0 | .0 | .0 | .0 | .0 | |
| 25 | 1.4 | 11.5 | 27.9 | 1.8 | 5.1 | 3.8 | 10.8 | 4.3 | 12.0 | 27.9 | .0 | .0 | .0 | .0 | .0 | |
| 26 | 5.5 | 46.4 | 27.1 | 3.2 | 8.5 | 2.0 | 5.7 | 4.7 | 12.8 | 27.1 | .0 | .0 | .0 | .0 | .0 | |
| 27 | 5.4 | 45.0 | 19.1 | 1.5 | 4.1 | 5.5 | 15.0 | .0 | .0 | 19.1 | .0 | .0 | .0 | .0 | .0 | |
| 28 | 6.6 | 55.3 | 8.8 | .9 | 2.5 | 2.3 | 6.4 | .0 | .0 | 8.8 | .0 | .0 | .0 | .0 | .0 | |
| 29 | 6.6 | 55.1 | .5 | .0 | .1 | .2 | .4 | .0 | .0 | .5 | .0 | .0 | .0 | .0 | .0 | |
| 30 | 6.5 | 54.4 | 3.6 | .4 | 1.2 | .8 | 2.4 | .0 | .0 | 3.6 | .0 | .0 | .0 | .0 | .0 | |
| 31 | 6.5 | 54.4 | 8.5 | .7 | 2.0 | 2.3 | 6.4 | .0 | .0 | 8.5 | .0 | .0 | .0 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 154.8 | 1295.3 | 673.3 | 51.9 | 140.8 | 160.6 | 435.0 | 36.1 | 97.4 | 673.3 | .0 | .0 | .0 | .0 | .0 | |

FEB , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED
PER
SQ-M	PER
SQ-M	AIR-COOLED
PER
SQ-M	PER
SQ-M	TOTAL
INPUT	TOTAL	PV-I	E-S	E-X	TOTAL
OUTPUT	PV-I	E-X		
1	2.7	.0	6.5	54.0	54.0	22.0	10.4	11.6	.0	22.0	16.5	.0	22.2	.0
2	2.6	.0	6.4	53.2	53.2	22.0	10.4	11.6	.0	22.0	16.9	.0	21.0	.0
3	2.7	.0	6.4	53.2	53.2	22.0	10.4	11.6	.0	22.0	16.8	.0	21.3	.0
4	2.7	.0	6.4	53.4	53.4	22.0	10.4	11.6	.0	22.0	16.7	.0	21.4	.0
5	2.7	.0	6.4	53.2	53.2	22.0	10.5	11.5	.0	22.0	16.7	.0	21.4	.0
6	2.5	.0	5.6	47.0	47.0	22.0	9.5	12.5	.0	22.0	15.8	.0	17.1	.0
7	1.6	.0	3.4	28.7	28.7	22.0	8.9	13.1	.0	22.0	15.9	.0	.0	.0
8	1.2	.0	2.5	20.7	20.7	22.0	8.9	13.1	.0	22.0	8.8	.0	.0	.0
9	2.8	.0	6.3	52.3	52.3	22.0	10.5	11.5	.0	22.0	24.4	.0	11.8	.0
10	2.9	.0	6.4	53.8	53.8	22.0	10.5	11.5	.0	22.0	14.6	.0	25.0	.0
11	.3	.0	.4	3.5	3.5	22.0	3.2	16.3	2.5	22.0	.0	.0	.0	2.5
12	.5	.0	.7	6.2	6.2	22.0	5.3	.4	16.3	22.0	.4	.0	.0	17.2
13	2.6	.0	5.2	43.8	43.8	22.0	9.9	6.9	5.2	22.0	25.0	.0	3.5	6.3
14	2.1	.0	4.6	38.7	38.7	22.0	10.5	11.5	.0	22.0	14.2	.0	10.1	.0
15	3.0	.0	6.4	53.4	53.4	22.0	10.5	11.5	.0	22.0	15.1	.0	23.8	.0
16	2.8	.0	5.7	48.0	48.0	22.0	10.5	11.5	.0	22.0	14.9	.0	18.6	.0
17	3.2	.0	6.8	56.7	56.7	22.0	10.5	11.5	.0	22.0	16.4	.0	24.7	.0
18	3.3	.0	6.9	57.4	57.4	22.0	10.6	11.4	.0	22.0	18.3	.0	23.1	.0
19	3.2	.0	6.5	54.4	54.4	22.0	10.5	11.5	.0	22.0	17.6	.0	21.3	.0
20	2.0	.0	3.9	32.9	32.9	22.0	9.7	12.3	.0	22.0	16.0	.0	2.3	.0
21	2.5	.0	5.1	42.4	42.4	22.0	8.8	13.2	.0	22.0	19.4	.0	8.3	.0
22	2.7	.0	5.5	46.2	46.2	22.0	11.0	11.0	.0	22.0	21.8	.0	6.2	.0
23	3.1	.0	6.1	51.2	51.2	22.0	10.2	11.8	.0	22.0	18.8	.0	16.0	.0
24	2.2	.0	4.3	35.7	35.7	22.0	9.7	12.3	.0	22.0	17.9	.0	2.4	.0
25	3.6	.0	6.7	56.3	56.3	22.0	10.1	11.9	.0	22.0	17.2	.0	23.3	.0
26	2.7	.0	5.2	43.4	43.4	22.0	10.4	11.6	.0	22.0	18.5	.0	8.8	.0
27	3.0	.0	5.7	47.3	47.3	22.0	10.0	12.0	.0	22.0	20.1	.0	9.7	.0
28	3.5	.0	6.6	55.5	55.5	22.0	10.5	11.5	.0	22.0	23.2	.0	13.2	.0
	70.6	.0	148.5	1242.5	1242.5	616.0	272.5	319.5	24.0	616.0	457.8	.0	376.4	25.9

MAR , 1962 -- PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-I	E-S	E-X		PV-I	E-X			
1	3.4	.0	6.4	53.8	53.8	21.0	10.6	10.4	.0	21.0	19.4	.0	17.8	.0	.0
2	3.4	.0	6.4	53.9	53.9	21.0	10.6	10.4	.0	21.0	18.5	.0	19.0	.0	.0
3	3.7	.0	6.9	57.6	57.6	21.0	10.1	10.9	.0	21.0	17.9	.0	24.1	.0	.0
4	3.9	.0	7.0	58.7	58.7	21.0	10.4	10.6	.0	21.0	17.8	.0	25.3	.0	.0
5	2.7	.0	4.9	40.7	40.7	21.0	9.2	11.8	.0	21.0	16.1	.0	11.3	.0	.0
6	3.3	.0	5.8	48.5	48.5	21.0	9.1	11.9	.0	21.0	14.9	.0	20.7	.0	.0
7	.7	.0	1.1	9.5	9.5	21.0	6.3	14.7	.0	21.0	2.3	.0	.0	.0	.0
8	3.4	.0	5.9	49.3	49.3	21.0	10.3	8.1	2.6	21.0	25.0	.0	8.1	5.1	.0
9	3.3	.0	5.7	47.4	47.4	21.0	9.2	11.8	.0	21.0	17.0	.0	16.6	.0	.0
10	3.8	.0	6.6	55.3	55.3	21.0	10.5	10.5	.0	21.0	17.0	.0	21.2	.0	.0
11	4.1	.0	7.1	59.2	59.2	21.0	10.3	10.7	.0	21.0	19.4	.0	23.2	.0	.0
12	4.2	.0	7.2	60.3	60.3	21.0	10.6	10.4	.0	21.0	19.9	.0	23.7	.0	.0
13	4.4	.0	7.5	62.9	62.9	21.0	10.7	10.3	.0	21.0	16.9	.0	29.6	.0	.0
14	4.5	.0	7.6	63.8	63.8	21.0	10.7	10.3	.0	21.0	17.2	.0	30.4	.0	.0
15	4.5	.0	7.5	63.0	63.0	23.3	12.5	10.9	.0	23.3	19.0	.0	26.2	.0	.0
16	4.0	.0	5.7	56.5	56.5	24.9	13.8	11.1	.0	24.9	18.0	.0	19.6	.0	.0
17	4.6	.0	7.6	63.4	63.4	25.0	13.6	11.4	.0	25.0	16.9	.0	28.0	.0	.0
18	4.6	.0	7.6	63.2	63.2	26.5	14.6	11.9	.0	26.5	16.6	.0	27.3	.0	.0
19	3.3	.0	5.3	44.6	44.6	23.4	11.0	12.4	.0	23.4	17.2	.0	11.9	.0	.0
20	1.8	.0	3.0	25.0	25.0	21.6	10.1	11.4	.0	21.6	11.4	.0	.0	.0	.0
21	2.8	.0	4.5	37.3	37.3	21.9	11.5	10.4	.0	21.9	20.9	.0	.0	.0	.0
22	3.4	.0	5.5	46.1	46.1	22.8	12.3	10.4	.0	22.8	16.5	.0	12.6	.0	.0
23	3.4	.0	5.7	47.4	47.4	22.3	11.9	10.4	.0	22.3	13.8	.0	17.8	.0	.0
24	4.2	.0	6.8	56.7	56.7	23.5	13.2	10.3	.0	23.5	16.0	.0	22.6	.0	.0
25	4.3	.0	6.8	56.6	56.6	28.5	16.5	12.0	.0	28.5	15.9	.0	19.5	.0	.0
26	4.3	.0	6.8	57.0	57.0	34.2	20.8	13.4	.0	34.2	15.3	.0	16.6	.0	.0
27	3.6	.0	5.7	47.6	47.6	32.6	19.7	12.9	.0	32.6	16.4	.0	7.0	.0	.0
28	4.3	.0	6.8	56.6	56.6	31.3	18.7	12.6	.0	31.3	15.9	.0	17.7	.0	.0
29	3.0	.0	4.9	40.6	40.6	28.8	16.6	12.2	.0	28.8	15.7	.0	4.3	.0	.0
30	4.3	.0	6.5	54.1	54.1	26.7	15.1	11.6	.0	26.7	15.2	.0	19.8	.0	.0
31	4.4	.0	6.8	56.9	56.9	29.0	17.3	11.6	.0	29.0	14.3	.0	21.4	.0	.0
=====															
	113.5	.0	190.5	1593.9	1593.9	740.2	387.7	349.9	2.6	740.2	514.3	.0	543.6	5.1	.0

MAR , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|---|--------------------|-----------------|-----------------------|----------------|--------|---------------|-------|-------|-------|--------------|------|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL 70.0 SQ-M | | PV-I E | PV-I T | SUPPLIED FROM | | E-X E | E-X T | TOTAL OUTPUT | E | | T | | | |
| | | | | | | E-S E | E-S T | | | | | | | | | |
| 1 | 6.4 | 53.8 | 22.0 | 1.7 | 4.5 | 6.5 | 17.5 | .0 | .0 | 22.0 | .0 | .0 | .0 | .0 | | |
| 2 | 6.4 | 53.9 | 22.0 | 1.6 | 4.3 | 6.6 | 17.7 | .0 | .0 | 22.0 | .0 | .0 | .0 | .0 | | |
| 3 | 6.9 | 57.6 | 19.2 | 1.4 | 4.0 | 5.7 | 15.2 | .0 | .0 | 19.2 | .0 | .0 | .0 | .0 | | |
| 4 | 7.0 | 58.7 | 18.2 | 1.1 | 2.9 | 5.7 | 15.3 | .0 | .0 | 18.2 | .0 | .0 | .0 | .0 | | |
| 5 | 4.9 | 40.7 | 12.0 | .6 | 1.6 | 3.9 | 10.4 | .0 | .0 | 12.0 | .0 | .0 | .0 | .0 | | |
| 6 | 5.8 | 48.5 | 6.9 | .4 | 1.1 | 2.0 | 5.8 | .0 | .0 | 6.9 | .0 | .0 | .0 | .0 | | |
| 7 | 1.1 | 9.5 | 1.7 | .1 | .2 | .6 | 1.6 | .0 | .0 | 1.7 | .0 | .0 | .0 | .0 | | |
| 8 | 5.9 | 49.3 | 13.8 | .7 | 2.1 | 1.7 | 4.8 | 2.5 | 6.8 | 13.8 | .0 | .0 | .0 | .0 | | |
| 9 | 5.7 | 47.4 | 14.3 | .8 | 2.3 | 4.4 | 12.0 | .0 | .0 | 14.3 | .0 | .0 | .0 | .0 | | |
| 10 | 6.6 | 55.3 | 23.0 | 2.5 | 7.0 | 5.9 | 16.0 | .0 | .0 | 23.0 | .0 | .0 | .0 | .0 | | |
| 11 | 7.1 | 59.2 | 25.1 | 1.9 | 5.3 | 7.5 | 19.8 | .0 | .0 | 25.1 | .0 | .0 | .0 | .0 | | |
| 12 | 7.2 | 60.3 | 22.8 | 1.7 | 4.8 | 6.9 | 18.1 | .0 | .0 | 22.8 | .0 | .0 | .0 | .0 | | |
| 13 | 7.5 | 62.9 | 19.5 | 1.7 | 4.8 | 5.4 | 14.8 | .0 | .0 | 19.5 | .0 | .0 | .0 | .0 | | |
| 14 | 7.6 | 63.8 | 20.7 | 1.6 | 4.4 | 6.1 | 16.3 | .0 | .0 | 20.7 | .0 | .0 | .0 | .0 | | |
| 15 | 7.5 | 63.0 | 21.2 | 1.0 | 2.6 | 6.9 | 18.6 | .0 | .0 | 21.2 | 7.3 | 2.3 | 7.3 | .0 | | |
| 16 | 6.7 | 56.5 | 17.0 | .8 | 2.0 | 5.6 | 15.0 | .0 | .0 | 17.0 | 11.2 | 3.9 | 11.2 | .0 | | |
| 17 | 7.6 | 63.4 | 13.9 | .9 | 2.4 | 4.3 | 11.5 | .0 | .0 | 13.9 | 11.6 | 4.0 | 11.6 | .0 | | |
| 18 | 7.6 | 63.2 | 12.8 | .6 | 1.8 | 4.0 | 11.1 | .0 | .0 | 12.8 | 15.5 | 5.5 | 15.5 | .0 | | |
| 19 | 5.3 | 44.6 | 16.5 | .6 | 1.6 | 5.3 | 14.9 | .0 | .0 | 16.5 | 7.2 | 2.4 | 7.2 | .0 | | |
| 20 | 3.0 | 25.0 | 10.8 | .6 | 1.8 | 3.2 | 9.1 | .0 | .0 | 10.8 | 1.9 | .6 | 1.9 | .0 | | |
| 21 | 4.5 | 37.3 | 10.8 | .4 | 1.2 | 3.4 | 9.6 | .0 | .0 | 10.8 | 2.9 | .9 | 2.9 | .0 | | |
| 22 | 5.5 | 46.1 | 13.3 | .8 | 2.3 | 4.0 | 11.0 | .0 | .0 | 13.3 | 5.8 | 1.8 | 5.8 | .0 | | |
| 23 | 5.7 | 47.4 | 8.2 | .7 | 1.9 | 2.2 | 6.2 | .0 | .0 | 8.2 | 4.3 | 1.3 | 4.3 | .0 | | |
| 24 | 6.8 | 56.7 | 15.6 | .9 | 2.6 | 4.8 | 13.0 | .0 | .0 | 15.6 | 7.7 | 2.5 | 7.7 | .0 | | |
| 25 | 6.8 | 56.6 | 12.8 | .6 | 1.8 | 4.0 | 11.1 | .0 | .0 | 12.8 | 19.6 | 7.5 | 19.6 | .0 | | |
| 26 | 6.8 | 57.0 | 6.1 | .1 | .3 | 2.1 | 5.8 | .0 | .0 | 6.1 | 31.3 | 13.2 | 31.3 | .0 | | |
| 27 | 5.7 | 47.6 | 5.4 | .0 | .1 | 1.9 | 5.3 | .0 | .0 | 5.4 | 28.7 | 11.6 | 28.7 | .0 | | |
| 28 | 6.8 | 56.6 | 5.4 | .1 | .3 | 1.8 | 5.1 | .0 | .0 | 5.4 | 26.0 | 10.3 | 26.0 | .0 | | |
| 29 | 4.9 | 40.6 | 5.3 | .1 | .3 | 1.8 | 5.0 | .0 | .0 | 5.3 | 21.2 | 7.8 | 21.2 | .0 | | |
| 30 | 6.5 | 54.1 | 5.6 | .2 | .6 | 1.8 | 5.1 | .0 | .0 | 5.6 | 16.2 | 5.7 | 16.2 | .0 | | |
| 31 | 6.8 | 56.9 | 5.8 | .1 | .3 | 1.9 | 5.5 | .0 | .0 | 5.8 | 21.1 | 8.0 | 21.1 | .0 | | |
| ===== | | | | | | | | | | | | | | | | |
| 190.5 1593.9 427.8 26.4 72.8 127.8 348.1 2.5 6.8 427.8 239.7 89.2 239.7 .0 .0 | | | | | | | | | | | | | | | | |

APR , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	70.0 SQ-M	PER SQ-M	70.0 SQ-M			PV-I	E-S	E-X		PV-I	E-X			
1	4.4	.0	6.7	56.1	56.1	29.9	18.0	11.9	.0	29.9	15.1	.0	18.7	.0	.0
2	4.5	.0	6.8	56.9	56.9	30.1	18.5	11.6	.0	30.1	15.0	.0	19.3	.0	.0
3	3.8	.0	5.7	48.0	48.0	30.0	17.5	12.5	.0	30.0	14.4	.0	12.1	.0	.0
4	4.6	.0	6.8	57.3	57.3	30.8	18.2	12.6	.0	30.8	15.3	.0	19.6	.0	.0
5	4.6	.0	6.8	57.0	57.0	34.2	20.0	14.2	.0	34.2	14.4	.0	18.5	.0	.0
6	5.0	.0	7.2	60.0	60.0	36.6	19.9	16.7	.0	36.6	18.9	.0	16.3	.0	.0
7	4.8	.0	6.9	57.5	57.5	34.5	19.4	15.1	.0	34.5	15.9	.0	17.9	.0	.0
8	4.8	.0	6.7	56.3	56.3	36.2	20.2	16.0	.0	36.2	16.9	.0	14.7	.0	.0
9	4.9	.0	7.0	58.4	58.4	36.8	21.3	15.5	.0	36.8	17.2	.0	15.3	.0	.0
10	4.9	.0	6.9	58.0	58.0	34.9	20.2	14.7	.0	34.9	17.2	.0	16.0	.0	.0
11	5.1	.0	7.2	59.8	59.8	34.9	20.7	14.1	.0	34.9	15.9	.0	18.8	.0	.0
12	5.2	.0	7.3	61.0	61.0	39.3	23.7	15.5	.0	39.3	15.2	.0	17.6	.0	.0
13	5.1	.0	7.1	59.4	59.4	44.0	26.1	17.9	.0	44.0	17.7	.0	10.6	.0	.0
14	4.9	.0	6.8	57.0	57.0	42.8	25.3	17.4	.0	42.8	19.6	.0	6.7	.0	.0
15	5.0	.0	6.8	57.2	57.2	44.8	25.2	19.6	.0	44.8	19.8	.0	6.8	.0	.0
16	4.0	.0	5.6	46.5	46.5	45.8	25.2	20.7	.0	45.8	16.6	.0	.0	.0	.0
17	4.8	.0	6.5	54.5	54.5	44.5	25.2	16.5	2.8	44.5	23.4	.0	.0	2.8	.0
18	4.5	.0	6.1	51.0	51.0	42.9	24.6	18.3	.0	42.9	20.4	.0	.5	.0	.0
19	4.3	.0	5.7	47.5	47.5	42.1	22.4	19.8	.0	42.1	19.4	.0	.7	.0	.0
20	5.2	.0	7.0	58.2	58.2	34.9	19.8	15.1	.0	34.9	22.6	.0	10.3	.0	.0
21	5.2	.0	6.9	57.9	57.9	33.2	19.7	13.5	.0	33.2	14.2	.0	20.0	.0	.0
22	5.2	.0	6.8	57.2	57.2	36.5	21.6	14.9	.0	36.5	14.4	.0	17.1	.0	.0
23	5.2	.0	6.8	56.8	56.8	42.4	24.9	17.5	.0	42.4	17.4	.0	9.5	.0	.0
24	5.1	.0	6.6	55.3	55.3	44.7	24.6	20.1	.0	44.7	20.7	.0	4.6	.0	.0
25	4.8	.0	6.3	52.6	52.6	39.1	21.7	17.4	.0	39.1	21.5	.0	3.9	.0	.0
26	4.7	.0	6.0	50.6	50.6	32.9	16.4	16.5	.0	32.9	18.4	.0	11.3	.0	.0
27	4.9	.0	6.3	52.8	52.8	34.2	18.5	15.6	.0	34.2	15.5	.0	14.7	.0	.0
28	4.5	.0	5.9	49.0	49.0	36.5	20.2	16.3	.0	36.5	17.2	.0	7.0	.0	.0
29	5.4	.0	6.9	58.1	58.1	32.9	18.0	14.9	.0	32.9	19.2	.0	16.2	.0	.0
30	5.6	.0	7.1	59.5	59.5	33.0	19.2	13.8	.0	33.0	13.7	.0	22.7	.0	.0
=====															
	145.0	.0	199.3	1667.4	1667.4	1115.3	636.1	476.4	2.8	1115.3	523.0	.0	367.3	2.8	.0

APR , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-------|--------------------|-----------|-----------------------|----------------|--------|-------|-------|--------------|----|------|--------|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | 70.0 SQ-M | | SUPPLIED FROM | | | | TOTAL OUTPUT | E | T | | | | | | |
| | | | | PV-I E | PV-I T | E-S E | E-S T | | | | E-X E | | E-X T | | | |
| 1 | 6.7 | 56.1 | 8.1 | .2 | .6 | 2.6 | 7.5 | .0 | .0 | 8.1 | 24.9 | 9.9 | 24.9 | .0 | .0 | |
| 2 | 6.8 | 56.9 | 6.3 | .2 | .4 | 2.1 | 5.9 | .0 | .0 | 6.3 | 25.1 | 10.1 | 25.1 | .0 | .0 | |
| 3 | 5.7 | 48.0 | 5.4 | .2 | .6 | 1.7 | 4.8 | .0 | .0 | 5.4 | 25.6 | 10.0 | 25.6 | .0 | .0 | |
| 4 | 6.8 | 57.3 | 3.5 | .1 | .3 | 1.1 | 3.2 | .0 | .0 | 3.5 | 27.7 | 10.8 | 27.7 | .0 | .0 | |
| 5 | 6.8 | 57.0 | 4.1 | .1 | .3 | 1.3 | 3.8 | .0 | .0 | 4.1 | 34.1 | 14.2 | 34.1 | .0 | .0 | |
| 6 | 7.2 | 60.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 42.4 | 16.6 | 42.4 | .0 | .0 | |
| 7 | 6.9 | 57.5 | 2.3 | .0 | .0 | .8 | 2.3 | .0 | .0 | 2.3 | 35.1 | 14.5 | 35.1 | .0 | .0 | |
| 8 | 6.7 | 56.3 | .6 | .0 | .0 | .2 | .6 | .0 | .0 | .6 | 39.2 | 16.2 | 39.2 | .0 | .0 | |
| 9 | 7.0 | 58.4 | .3 | .0 | .0 | .1 | .3 | .0 | .0 | .3 | 40.2 | 16.8 | 40.2 | .0 | .0 | |
| 10 | 6.9 | 58.0 | .5 | .0 | .0 | .2 | .5 | .0 | .0 | .5 | 37.2 | 14.9 | 37.2 | .0 | .0 | |
| 11 | 7.2 | 59.8 | 1.9 | .0 | .1 | .6 | 1.8 | .0 | .0 | 1.9 | 36.1 | 14.9 | 36.1 | .0 | .0 | |
| 12 | 7.3 | 61.0 | 1.2 | .0 | .0 | .4 | 1.2 | .0 | .0 | 1.2 | 43.6 | 15.3 | 43.6 | .0 | .0 | |
| 13 | 7.1 | 59.4 | .9 | .0 | .0 | .3 | .9 | .0 | .0 | .9 | 51.7 | 24.0 | 51.7 | .0 | .0 | |
| 14 | 6.8 | 57.0 | .5 | .0 | .0 | .2 | .5 | .0 | .0 | .5 | 50.0 | 22.8 | 50.0 | .0 | .0 | |
| 15 | 6.8 | 57.2 | .1 | .0 | .0 | .0 | .1 | .0 | .0 | .1 | 54.7 | 24.8 | 54.7 | .0 | .0 | |
| 16 | 5.6 | 46.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 57.2 | 25.8 | 57.2 | .0 | .0 | |
| 17 | 6.5 | 54.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 54.7 | 24.5 | 54.7 | .0 | .0 | |
| 18 | 6.1 | 51.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 50.5 | 22.9 | 50.5 | .0 | .0 | |
| 19 | 5.7 | 47.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 49.5 | 22.1 | 49.5 | .0 | .0 | |
| 20 | 7.0 | 58.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 38.3 | 14.9 | 38.3 | .0 | .0 | |
| 21 | 6.9 | 57.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 32.6 | 13.2 | 32.6 | .0 | .0 | |
| 22 | 6.8 | 57.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 38.9 | 16.5 | 38.9 | .0 | .0 | |
| 23 | 6.8 | 56.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 51.2 | 22.4 | 51.2 | .0 | .0 | |
| 24 | 6.6 | 55.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 56.9 | 24.7 | 56.9 | .0 | .0 | |
| 25 | 6.3 | 52.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 46.7 | 19.1 | 46.7 | .0 | .0 | |
| 26 | 6.0 | 50.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 34.4 | 12.9 | 34.4 | .0 | .0 | |
| 27 | 6.3 | 52.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 35.0 | 14.2 | 35.0 | .0 | .0 | |
| 28 | 5.9 | 49.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 40.5 | 16.5 | 40.5 | .0 | .0 | |
| 29 | 6.9 | 58.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 34.2 | 12.9 | 34.2 | .0 | .0 | |
| 30 | 7.1 | 59.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 33.0 | 13.0 | 33.0 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 199.3 | 1667.4 | 35.7 | .8 | 2.3 | 11.7 | 33.4 | .0 | .0 | 35.7 | 1221.7 | 515.3 | 1221.7 | .0 | .0 | |

MAY, 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	70.0 SQ-M	PER SQ-M	70.0 SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	5.2	.0	6.5	54.8	54.8	35.5	20.5	15.0	.0	35.5	14.4	.0	15.9	.0	.0
2	5.5	.0	7.0	58.3	58.3	39.7	23.8	16.0	.0	39.7	16.3	.0	13.6	.0	.0
3	5.5	.0	6.9	57.4	57.4	45.0	27.0	18.1	.0	45.0	18.0	.0	7.3	.0	.0
4	5.6	.0	7.0	58.5	58.5	45.9	26.0	19.9	.0	45.9	20.4	.0	6.6	.0	.0
5	5.5	.0	6.9	57.6	57.6	45.4	25.7	19.7	.0	45.4	22.5	.0	3.6	.0	.0
6	5.2	.0	6.5	54.1	54.1	47.1	27.2	20.0	.0	47.1	20.2	.0	1.2	.0	.0
7	5.0	.0	6.1	51.1	51.1	48.2	25.3	22.9	.0	48.2	20.3	.0	.0	.0	.0
8	5.5	.0	6.7	56.4	56.4	48.4	27.0	19.4	2.1	48.4	23.3	.0	.0	2.1	.0
9	5.5	.0	6.7	56.2	56.2	49.2	26.9	22.3	.0	49.2	23.2	.0	.0	.0	.0
10	5.5	.0	6.6	55.4	55.4	48.7	26.5	20.4	1.8	48.7	22.9	.0	.0	1.8	.0
11	5.7	.0	6.9	57.5	57.5	44.9	26.0	18.9	.0	44.9	23.1	.0	2.3	.0	.0
12	5.7	.0	6.9	57.3	57.3	36.9	19.8	17.0	.0	36.9	23.5	.0	8.4	.0	.0
13	5.7	.0	6.9	57.7	57.7	32.2	18.6	13.6	.0	32.2	13.6	.0	21.8	.0	.0
14	5.8	.0	7.0	58.2	58.2	30.7	17.0	13.8	.0	30.7	16.7	.0	20.3	.0	.0
15	5.7	.0	6.8	56.7	56.7	27.4	15.2	12.2	.0	27.4	13.1	.0	24.9	.0	.0
16	3.9	.0	4.7	39.3	39.3	29.0	15.2	13.8	.0	29.0	13.6	.0	7.0	.0	.0
17	5.3	.0	6.2	52.1	52.1	27.1	15.1	12.0	.0	27.1	14.6	.0	18.7	.0	.0
18	5.7	.0	6.7	56.4	56.4	35.1	20.9	14.2	.0	35.1	11.8	.0	20.0	.0	.0
19	5.4	.0	6.3	52.7	52.7	38.3	21.4	16.8	.0	38.3	15.8	.0	11.0	.0	.0
20	5.8	.0	6.8	56.9	56.9	36.1	21.4	14.7	.0	36.1	18.6	.0	12.1	.0	.0
21	5.8	.0	6.8	57.2	57.2	33.0	18.8	14.2	.0	33.0	17.2	.0	16.8	.0	.0
22	5.9	.0	6.8	57.3	57.3	33.6	20.1	13.5	.0	33.6	13.0	.0	20.3	.0	.0
23	6.1	.0	7.1	59.3	59.3	40.1	23.7	16.5	.0	40.1	14.6	.0	16.6	.0	.0
24	6.2	.0	7.1	59.6	59.6	40.2	22.9	17.3	.0	40.2	19.3	.0	12.3	.0	.0
25	6.1	.0	7.1	59.0	59.0	37.0	20.4	16.6	.0	37.0	19.9	.0	13.6	.0	.0
26	6.0	.0	7.0	58.2	58.2	34.8	21.0	13.8	.0	34.8	15.5	.0	17.4	.0	.0
27	4.0	.0	4.7	39.3	39.3	27.6	15.7	11.9	.0	27.6	14.9	.0	4.9	.0	.0
28	6.0	.0	6.8	57.1	57.1	29.8	16.3	13.0	.0	29.8	12.8	.0	23.9	.0	.0
29	5.9	.0	6.8	56.5	56.5	35.4	20.8	14.6	.0	35.4	13.4	.0	18.4	.0	.0
30	5.3	.0	6.1	50.9	50.9	40.3	23.1	17.2	.0	40.3	17.2	.0	5.8	.0	.0
31	5.9	.0	6.7	55.9	55.9	42.2	23.9	18.3	.0	42.2	18.1	.0	8.9	.0	.0
=====															
	172.0	.0	205.0	1715.2	1715.2	1184.8	673.3	507.6	3.8	1184.8	541.9	.0	353.6	3.8	.0

MAY, 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL 70.0 SQ-M		PV-I E	PV-I T	SUPPLIED FROM		E-X E	E-X T	TOTAL OUTPUT	E		T			
						E-S E	E-S T									
1	6.5	54.8	.0	.0	.0	.0	.0	.0	.0	.0	39.0	16.5	39.0	.0	.0	
2	7.0	58.3	.0	.0	.0	.0	.0	.0	.0	.0	46.4	20.7	46.4	.0	.0	
3	6.9	57.4	.0	.0	.0	.0	.0	.0	.0	.0	56.3	26.0	56.3	.0	.0	
4	7.0	58.5	.0	.0	.0	.0	.0	.0	.0	.0	58.3	26.9	58.3	.0	.0	
5	6.9	57.6	.0	.0	.0	.0	.0	.0	.0	.0	58.7	26.4	58.7	.0	.0	
6	6.5	54.1	.0	.0	.0	.0	.0	.0	.0	.0	61.0	28.1	61.0	.0	.0	
7	6.1	51.1	.0	.0	.0	.0	.0	.0	.0	.0	63.5	29.2	63.5	.0	.0	
8	6.7	56.4	.0	.0	.0	.0	.0	.0	.0	.0	63.8	29.4	63.8	.0	.0	
9	6.7	56.2	.0	.0	.0	.0	.0	.0	.0	.0	65.6	30.2	65.6	.0	.0	
10	6.6	55.4	.0	.0	.0	.0	.0	.0	.0	.0	64.9	29.7	64.9	.0	.0	
11	6.9	57.5	.0	.0	.0	.0	.0	.0	.0	.0	57.4	25.9	57.4	.0	.0	
12	6.9	57.3	.0	.0	.0	.0	.0	.0	.0	.0	45.3	17.9	45.3	.0	.0	
13	6.9	57.7	.0	.0	.0	.0	.0	.0	.0	.0	33.2	13.2	33.2	.0	.0	
14	7.0	58.2	.0	.0	.0	.0	.0	.0	.0	.0	32.1	11.7	32.1	.0	.0	
15	6.8	56.7	.0	.0	.0	.0	.0	.0	.0	.0	24.0	8.4	24.0	.0	.0	
16	4.7	39.3	.0	.0	.0	.0	.0	.0	.0	.0	28.2	10.0	28.2	.0	.0	
17	6.2	52.1	.0	.0	.0	.0	.0	.0	.0	.0	23.0	8.1	23.0	.0	.0	
18	6.7	56.4	.0	.0	.0	.0	.0	.0	.0	.0	38.3	16.1	38.3	.0	.0	
19	6.3	52.7	.0	.0	.0	.0	.0	.0	.0	.0	44.6	19.3	44.6	.0	.0	
20	6.8	56.9	.0	.0	.0	.0	.0	.0	.0	.0	41.6	17.1	41.6	.0	.0	
21	6.8	57.2	.0	.0	.0	.0	.0	.0	.0	.0	36.4	14.0	36.4	.0	.0	
22	6.8	57.3	.0	.0	.0	.0	.0	.0	.0	.0	35.1	14.6	35.1	.0	.0	
23	7.1	59.3	.0	.0	.0	.0	.0	.0	.0	.0	47.5	21.1	47.5	.0	.0	
24	7.1	59.6	.0	.0	.0	.0	.0	.0	.0	.0	49.0	21.2	49.0	.0	.0	
25	7.1	59.0	.0	.0	.0	.0	.0	.0	.0	.0	44.9	18.0	44.9	.0	.0	
26	7.0	58.2	.0	.0	.0	.0	.0	.0	.0	.0	39.1	15.8	39.1	.0	.0	
27	4.7	39.3	.0	.0	.0	.0	.0	.0	.0	.0	24.4	8.6	24.4	.0	.0	
28	6.8	57.1	.0	.0	.0	.0	.0	.0	.0	.0	29.1	10.8	29.1	.0	.0	
29	6.8	56.5	.0	.0	.0	.0	.0	.0	.0	.0	39.5	16.4	39.5	.0	.0	
30	6.1	50.9	.0	.0	.0	.0	.0	.0	.0	.0	49.4	21.3	49.4	.0	.0	
31	6.7	55.9	.0	.0	.0	.0	.0	.0	.0	.0	52.8	23.2	52.8	.0	.0	
=====																
	205.0	1715.2	.0	.0	.0	.0	.0	.0	.0	.0	1392.4	595.8	1392.4	.0	.0	

JUN , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	PER SQ-M	AIR-COOLED PER SQ-M	70.0 PER SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	4.8	.0	5.5	46.4	46.4	46.4	25.4	21.0	.0	46.4	16.2	.0	.0	.0	.0
2	4.9	.0	5.6	46.7	46.7	50.3	26.4	18.3	5.6	50.3	15.6	.0	.0	5.6	.0
3	3.8	.0	4.4	37.0	37.0	48.6	24.4	8.5	15.7	48.6	9.1	.0	.0	15.7	.0
4	4.7	.0	5.4	45.3	45.3	42.5	23.8	12.5	6.3	42.5	16.7	.0	.0	6.3	.0
5	4.7	.0	5.4	45.3	45.3	41.2	22.6	15.9	2.7	41.2	17.8	.0	.0	2.7	.0
6	4.9	.0	5.5	46.3	46.3	40.3	22.5	16.0	1.9	40.3	18.8	.0	.0	1.9	.0
7	4.8	.0	5.5	45.7	45.7	41.4	23.1	18.3	.0	41.4	17.7	.0	.0	.0	.0
8	4.8	.0	5.4	45.3	45.3	45.1	25.0	17.5	2.6	45.1	15.7	.0	.0	2.6	.0
9	4.9	.0	5.5	46.3	46.3	47.4	26.1	15.0	6.4	47.4	15.5	.0	.0	6.4	.0
10	5.0	.0	5.6	47.0	47.0	49.3	26.3	14.8	8.2	49.3	15.9	.0	.0	8.2	.0
11	5.1	.0	5.7	47.8	47.8	44.4	25.0	13.3	6.1	44.4	17.8	.0	.0	6.1	.0
12	5.0	.0	5.7	47.4	47.4	45.5	26.4	17.5	1.6	45.5	16.2	.0	.0	1.6	.0
13	5.0	.0	5.6	46.8	46.8	47.0	25.6	16.0	5.4	47.0	16.4	.0	.0	5.4	.0
14	5.4	.0	6.0	50.3	50.3	41.8	23.8	11.2	6.8	41.8	21.0	.0	.0	6.8	.0
15	5.4	.0	6.0	50.2	50.2	30.7	16.8	13.9	.0	30.7	21.4	.0	7.0	.0	.0
16	5.2	.0	5.8	48.7	48.7	33.9	19.0	14.9	.0	33.9	14.6	.0	11.1	.0	.0
17	5.2	.0	5.9	49.0	49.0	42.2	24.0	18.3	.0	42.2	16.1	.0	4.3	.0	.0
18	5.9	.0	6.5	54.6	54.6	51.4	29.2	22.2	.0	51.4	19.7	.0	.0	.0	.0
19	6.0	.0	6.6	55.4	55.4	54.1	30.1	23.0	1.0	54.1	19.5	.0	.0	1.0	.0
20	5.9	.0	6.6	55.2	55.2	56.1	31.1	17.7	7.3	56.1	18.6	.0	.0	7.3	.0
21	6.0	.0	6.7	55.6	55.6	55.4	31.2	17.7	6.5	55.4	18.8	.0	.0	6.5	.0
22	6.3	.0	6.9	58.1	58.1	59.2	32.5	18.7	8.0	59.2	19.7	.0	.0	8.0	.0
23	6.2	.0	6.9	58.0	58.0	61.3	32.1	18.5	10.7	61.3	19.9	.0	.0	10.7	.0
24	6.2	.0	6.9	57.7	57.7	63.6	34.0	16.7	12.8	63.6	17.9	.0	.0	12.8	.0
25	5.8	.0	6.5	54.2	54.2	62.0	32.2	15.5	14.4	62.0	16.6	.0	.0	14.4	.0
26	5.2	.0	5.8	48.7	48.7	59.8	31.8	11.4	16.6	59.8	12.3	.0	.0	16.6	.0
27	5.6	.0	6.3	52.4	52.4	56.9	29.6	16.1	11.2	56.9	17.5	.0	.0	11.2	.0
28	5.2	.0	5.9	49.3	49.3	48.7	25.5	14.8	8.4	48.7	18.5	.0	.0	8.4	.0
29	5.7	.0	6.4	53.4	53.4	55.0	28.1	18.7	8.2	55.0	19.7	.0	.0	8.2	.0
30	5.9	.0	6.6	55.2	55.2	54.7	29.8	17.5	7.4	54.7	19.7	.0	.0	7.4	.0
=====															
	159.6	.0	179.2	1499.3	1499.3	1476.4	803.5	491.3	181.6	1476.4	521.0	.0	22.3	181.6	.0

JUN , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-----|--------------------|-----------------|-----------------------|----------------|--------|-------|-------|-------|-------|--------------|------|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL 70°C SQ-M | | SUPPLIED FROM | | | | | | | | | E | T | | |
| | | | | PV-I E | PV-I T | E-S E | E-S T | E-X E | E-X T | TOTAL OUTPUT | | | | | | |
| 1 | 5.5 | 46.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 61.7 | 28.4 | 61.7 | .0 | .0 | |
| 2 | 5.6 | 46.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 69.4 | 32.3 | 69.4 | .0 | .0 | |
| 3 | 4.4 | 37.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 66.9 | 30.6 | 66.9 | .0 | .0 | |
| 4 | 5.4 | 45.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 56.9 | 24.5 | 56.9 | .0 | .0 | |
| 5 | 5.4 | 45.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 53.7 | 23.2 | 53.7 | .0 | .0 | |
| 6 | 5.5 | 46.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 51.9 | 22.3 | 51.9 | .0 | .0 | |
| 7 | 5.5 | 45.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 53.9 | 23.4 | 53.9 | .0 | .0 | |
| 8 | 5.4 | 45.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 59.9 | 27.1 | 59.9 | .0 | .0 | |
| 9 | 5.5 | 46.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 63.3 | 29.4 | 63.3 | .0 | .0 | |
| 10 | 5.6 | 47.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 68.1 | 31.3 | 68.1 | .0 | .0 | |
| 11 | 5.7 | 47.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 58.8 | 26.4 | 58.8 | .0 | .0 | |
| 12 | 5.7 | 47.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 59.6 | 27.5 | 59.6 | .0 | .0 | |
| 13 | 5.6 | 46.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 63.1 | 29.0 | 63.1 | .0 | .0 | |
| 14 | 6.0 | 50.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 55.5 | 23.8 | 55.5 | .0 | .0 | |
| 15 | 6.0 | 50.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 33.4 | 12.7 | 33.4 | .0 | .0 | |
| 16 | 5.9 | 48.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 39.7 | 15.9 | 39.7 | .0 | .0 | |
| 17 | 5.9 | 49.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 54.7 | 24.2 | 54.7 | .0 | .0 | |
| 18 | 6.5 | 54.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 70.4 | 33.4 | 70.4 | .0 | .0 | |
| 19 | 6.6 | 55.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 74.2 | 36.1 | 74.2 | .0 | .0 | |
| 20 | 6.6 | 55.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 78.3 | 38.1 | 78.3 | .0 | .0 | |
| 21 | 6.7 | 55.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 76.5 | 37.4 | 76.5 | .0 | .0 | |
| 22 | 6.9 | 58.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 82.9 | 41.2 | 82.9 | .0 | .0 | |
| 23 | 6.9 | 58.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 86.5 | 43.3 | 86.5 | .0 | .0 | |
| 24 | 6.9 | 57.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 99.7 | 45.6 | 99.7 | .0 | .0 | |
| 25 | 6.5 | 54.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 87.4 | 44.0 | 87.4 | .0 | .0 | |
| 26 | 5.8 | 48.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 84.3 | 41.8 | 84.3 | .0 | .0 | |
| 27 | 6.3 | 52.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 81.5 | 38.9 | 81.5 | .0 | .0 | |
| 28 | 5.9 | 49.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 67.8 | 30.7 | 67.8 | .0 | .0 | |
| 29 | 6.4 | 53.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 78.5 | 37.0 | 78.5 | .0 | .0 | |
| 30 | 6.6 | 55.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 77.9 | 36.7 | 77.9 | .0 | .0 | |

179.2	1499.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	2006.3	936.4	2006.3	.0	.0

JUL , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	PER SQ-M	AIR-COOLED PER SQ-M	PER SQ-M	TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
							PV-I	E-S	E-X		PV-I	E-X			
1	6.0	.0	6.7	55.9	55.9	55.5	30.7	20.3	4.5	55.5	19.5	.0	.0	4.5	.0
2	5.0	.0	5.6	46.9	46.9	56.3	28.5	13.7	14.2	56.3	13.8	.0	.0	14.2	.0
3	3.7	.0	4.3	35.6	35.6	53.7	23.5	8.2	22.0	53.7	8.8	.0	.0	22.0	.0
4	5.5	.0	6.2	52.0	52.0	50.7	23.6	14.7	12.4	50.7	22.7	.0	.0	12.4	.0
5	5.7	.0	6.4	53.3	53.3	56.7	29.3	23.6	3.8	56.7	18.5	.0	.0	3.8	.0
6	5.8	.0	6.6	54.8	54.8	58.1	30.2	17.3	10.7	58.1	19.0	.0	.0	10.7	.0
7	5.9	.0	6.6	55.6	55.6	60.7	32.1	17.1	11.5	60.7	18.0	.0	.0	11.5	.0
8	5.9	.0	6.6	55.3	55.3	61.1	30.7	17.6	12.8	61.1	18.9	.0	.0	12.8	.0
9	5.5	.0	6.3	52.4	52.4	61.2	30.1	15.8	15.3	61.2	17.0	.0	.0	15.3	.0
10	5.6	.0	6.4	53.2	53.2	61.8	32.0	14.9	15.0	61.8	16.0	.0	.0	15.0	.0
11	5.0	.0	5.7	47.7	47.7	64.7	31.3	11.1	22.3	64.7	11.9	.0	.0	22.3	.0
12	5.8	.0	6.5	54.7	54.7	59.0	30.1	16.5	12.4	59.0	19.0	.0	.0	12.4	.0
13	6.0	.0	6.8	56.8	56.8	49.7	25.3	14.6	9.8	49.7	25.0	.0	.2	9.8	.0
14	5.9	.0	6.7	55.9	55.9	48.8	26.8	22.0	.0	48.8	22.2	.0	1.0	.0	.0
15	5.9	.0	6.7	56.3	56.3	53.5	28.5	24.9	.0	53.5	21.8	.0	.0	.0	.0
16	5.9	.0	6.7	56.2	56.2	56.2	29.3	21.2	5.7	56.2	21.0	.0	.0	5.7	.0
17	5.7	.0	6.6	55.0	55.0	58.9	30.3	19.8	8.8	58.9	19.1	.0	.0	8.8	.0
18	5.5	.0	6.3	52.7	52.7	58.8	28.9	17.2	12.8	58.8	18.5	.0	.0	12.8	.0
19	5.5	.0	6.3	52.7	52.7	57.3	28.0	17.9	11.4	57.3	19.2	.0	.0	11.4	.0
20	5.4	.0	6.3	52.6	52.6	59.4	30.7	15.5	13.2	59.4	16.7	.0	.0	13.2	.0
21	3.5	.0	4.2	35.5	35.5	50.0	23.1	8.4	18.4	50.0	9.1	.0	.0	18.4	.0
22	5.4	.0	6.3	52.6	52.6	57.9	29.4	16.6	11.9	57.9	17.8	.0	.0	11.9	.0
23	5.5	.0	6.4	53.5	53.5	61.7	30.8	16.1	14.9	61.7	17.3	.0	.0	14.9	.0
24	5.5	.0	6.4	53.8	53.8	61.5	30.2	16.9	14.4	61.5	18.1	.0	.0	14.4	.0
25	5.5	.0	6.4	53.9	53.9	62.1	30.9	16.4	14.8	62.1	17.6	.0	.0	14.8	.0
26	5.3	.0	6.3	52.5	52.5	58.0	29.2	16.3	12.4	58.0	17.9	.0	.0	12.4	.0
27	5.0	.0	6.0	50.1	50.1	56.7	27.5	16.6	12.6	56.7	17.5	.0	.0	12.6	.0
28	5.5	.0	6.5	54.6	54.6	57.1	28.5	17.4	11.1	57.1	20.3	.0	.0	11.1	.0
29	5.4	.0	6.5	54.2	54.2	57.1	30.1	17.2	9.8	57.1	18.5	.0	.0	9.8	.0
30	5.1	.0	6.1	51.2	51.2	55.8	28.1	18.0	9.7	55.8	17.9	.0	.0	9.7	.0
31	5.3	.0	6.4	53.5	53.5	61.3	30.7	16.2	14.3	61.3	17.4	.0	.0	14.3	.0
	168.0	.0	193.8	1621.1	1621.1	1781.1	898.2	520.1	362.8	1781.1	556.1	.0	1.1	362.8	.0

JUL , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-----|--------------------|-----------------|-----------------------|----------------|--------|---------------|-------|-------|-------|--------------|------|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL 70.0 SQ-M | | PV-I E | PV-I T | SUPPLIED FROM | | E-X E | E-X T | TOTAL OUTPUT | E | | T | | | |
| | | | | | | E-S E | E-S T | | | | | | | | | |
| 1 | 6.7 | 55.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 76.9 | 37.5 | 76.9 | .0 | .0 | |
| 2 | 5.6 | 46.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 80.4 | 38.3 | 80.4 | .0 | .0 | |
| 3 | 4.3 | 35.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 76.9 | 35.7 | 76.9 | .0 | .0 | |
| 4 | 6.2 | 52.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 72.2 | 32.7 | 72.2 | .0 | .0 | |
| 5 | 6.4 | 53.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 80.8 | 38.7 | 80.8 | .0 | .0 | |
| 6 | 6.6 | 54.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 82.7 | 40.1 | 82.7 | .0 | .0 | |
| 7 | 6.6 | 55.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 85.9 | 42.7 | 85.9 | .0 | .0 | |
| 8 | 6.6 | 55.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 86.8 | 43.1 | 86.8 | .0 | .0 | |
| 9 | 6.3 | 52.4 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 87.9 | 43.2 | 87.9 | .0 | .0 | |
| 10 | 6.4 | 53.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 87.9 | 43.8 | 87.9 | .0 | .0 | |
| 11 | 5.7 | 47.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 92.9 | 46.7 | 92.9 | .0 | .0 | |
| 12 | 6.5 | 54.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 84.5 | 41.0 | 84.5 | .0 | .0 | |
| 13 | 6.8 | 56.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 70.6 | 31.7 | 70.6 | .0 | .0 | |
| 14 | 6.7 | 55.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 66.9 | 30.8 | 66.9 | .0 | .0 | |
| 15 | 6.7 | 56.3 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 74.5 | 35.5 | 74.5 | .0 | .0 | |
| 16 | 6.7 | 56.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 79.5 | 38.2 | 79.5 | .0 | .0 | |
| 17 | 6.6 | 55.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 83.4 | 40.9 | 83.4 | .0 | .0 | |
| 18 | 6.3 | 52.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 84.2 | 40.8 | 84.2 | .0 | .0 | |
| 19 | 6.3 | 52.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 81.8 | 39.3 | 81.8 | .0 | .0 | |
| 20 | 6.3 | 52.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 84.3 | 41.4 | 84.3 | .0 | .0 | |
| 21 | 4.2 | 35.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 69.7 | 32.0 | 69.7 | .0 | .0 | |
| 22 | 6.3 | 52.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 82.7 | 39.9 | 82.7 | .0 | .0 | |
| 23 | 6.4 | 53.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 88.8 | 43.7 | 88.8 | .0 | .0 | |
| 24 | 6.4 | 53.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 88.4 | 43.5 | 88.4 | .0 | .0 | |
| 25 | 6.4 | 53.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 89.2 | 44.1 | 89.2 | .0 | .0 | |
| 26 | 6.3 | 52.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 83.8 | 40.0 | 83.8 | .0 | .0 | |
| 27 | 6.0 | 50.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 81.3 | 39.7 | 81.3 | .0 | .0 | |
| 28 | 6.5 | 54.6 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 82.2 | 39.1 | 82.2 | .0 | .0 | |
| 29 | 6.5 | 54.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 81.1 | 39.1 | 81.1 | .0 | .0 | |
| 30 | 6.1 | 51.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 79.2 | 37.6 | 79.2 | .0 | .0 | |
| 31 | 6.4 | 53.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 88.1 | 43.3 | 88.1 | .0 | .0 | |

13.8 1621.1 .0 .0 .0 .0 .0 .0 .0 .0 2535.8 1223.12535.8 .0 .0

(ALL UNITS = KW-HR)

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(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD TOTAL	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-H	TOTAL SQ-H		SUPPLIED FROM									TOTAL OUTPUT	E			T
				PV-I E	PV-I T	E-S E	E-S T	E-X E	E-X T								
1	6.4	53.7	.0	.0	.0	.0	.0	.0	.0	.0	83.3	39.9	83.3	.0	.0		
2	5.2	43.1	.0	.0	.0	.0	.0	.0	.0	.0	82.4	39.5	82.4	.0	.0		
3	6.6	55.1	.0	.0	.0	.0	.0	.0	.0	.0	81.3	39.0	81.3	.0	.0		
4	6.7	55.9	.0	.0	.0	.0	.0	.0	.0	.0	76.7	36.7	76.7	.0	.0		
5	6.6	55.2	.0	.0	.0	.0	.0	.0	.0	.0	81.5	39.2	81.5	.0	.0		
6	6.7	55.8	.0	.0	.0	.0	.0	.0	.0	.0	80.4	38.7	80.4	.0	.0		
7	6.6	55.3	.0	.0	.0	.0	.0	.0	.0	.0	82.7	40.7	82.7	.0	.0		
8	6.2	51.5	.0	.0	.0	.0	.0	.0	.0	.0	84.3	40.7	84.3	.0	.0		
9	6.0	50.3	.0	.0	.0	.0	.0	.0	.0	.0	87.7	43.5	87.7	.0	.0		
10	5.8	48.5	.0	.0	.0	.0	.0	.0	.0	.0	88.3	44.0	88.3	.0	.0		
11	6.5	54.2	.0	.0	.0	.0	.0	.0	.0	.0	89.3	45.0	89.3	.0	.0		
12	6.2	52.2	.0	.0	.0	.0	.0	.0	.0	.0	91.6	46.0	91.6	.0	.0		
13	6.5	54.2	.0	.0	.0	.0	.0	.0	.0	.0	96.8	50.4	96.8	.0	.0		
14	6.4	53.3	.0	.0	.0	.0	.0	.0	.0	.0	97.9	50.3	97.9	.0	.0		
15	6.4	53.4	.0	.0	.0	.0	.0	.0	.0	.0	100.2	51.4	100.2	.0	.0		
16	6.3	53.1	.0	.0	.0	.0	.0	.0	.0	.0	98.2	49.8	98.2	.0	.0		
17	5.8	48.2	.0	.0	.0	.0	.0	.0	.0	.0	91.3	45.2	91.3	.0	.0		
18	6.5	54.4	.0	.0	.0	.0	.0	.0	.0	.0	86.5	42.0	86.5	.0	.0		
19	5.5	46.1	.0	.0	.0	.0	.0	.0	.0	.0	82.6	39.7	82.6	.0	.0		
20	6.3	52.7	.0	.0	.0	.0	.0	.0	.0	.0	83.8	40.3	83.8	.0	.0		
21	6.1	50.7	.0	.0	.0	.0	.0	.0	.0	.0	87.5	42.8	87.5	.0	.0		
22	6.7	55.8	.0	.0	.0	.0	.0	.0	.0	.0	79.5	37.7	79.5	.0	.0		
23	6.6	55.1	.0	.0	.0	.0	.0	.0	.0	.0	77.2	35.9	77.2	.0	.0		
24	6.7	56.1	.0	.0	.0	.0	.0	.0	.0	.0	80.8	39.4	80.8	.0	.0		
25	5.6	47.0	.0	.0	.0	.0	.0	.0	.0	.0	79.5	39.0	79.5	.0	.0		
26	6.4	53.3	.0	.0	.0	.0	.0	.0	.0	.0	85.2	40.9	85.2	.0	.0		
27	6.5	54.2	.0	.0	.0	.0	.0	.0	.0	.0	87.7	43.5	87.7	.0	.0		
28	6.5	54.8	.0	.0	.0	.0	.0	.0	.0	.0	89.7	44.5	89.7	.0	.0		
29	6.6	54.9	.0	.0	.0	.0	.0	.0	.0	.0	81.5	39.5	81.5	.0	.0		
30	7.0	58.6	.0	.0	.0	.0	.0	.0	.0	.0	74.2	34.9	74.2	.0	.0		
31	7.0	58.8	.0	.0	.0	.0	.0	.0	.0	.0	62.8	29.3	62.8	.0	.0		
=====																	
	196.7	1645.5	.0	.0	.0	.0	.0	.0	.0	.0	2632.6	1289.4	2632.6	.0	.0		

SEP , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	70.0 SQ-M	PER SQ-M	70.0 SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	4.9	.0	6.9	57.9	57.9	50.1	28.3	21.8	.0	50.1	22.1	.0	1.5	.0	.C
2	4.7	.0	6.6	55.2	55.2	54.8	29.8	24.6	.4	54.8	19.7	.0	.C	.4	.C
3	4.7	.0	6.7	55.8	55.8	54.2	27.4	18.7	8.1	54.2	22.4	.0	.0	8.1	.C
4	4.5	.0	6.5	54.1	54.1	54.8	25.8	19.9	9.1	54.8	22.5	.0	.C	9.1	.C
5	4.3	.0	6.2	51.7	51.7	53.8	24.8	22.1	6.9	53.8	21.3	.0	.0	6.9	.C
6	4.3	.0	6.3	52.7	52.7	49.9	25.2	16.1	8.6	49.9	21.8	.0	.0	8.6	.C
7	4.5	.0	6.6	55.1	55.1	50.7	25.8	22.7	2.1	50.7	23.2	.0	.0	2.1	.C
8	4.5	.0	6.7	56.2	56.2	49.9	25.6	19.2	5.0	49.9	24.3	.0	.C	5.0	.C
9	4.5	.0	6.7	56.3	56.3	45.4	23.7	21.7	.0	45.4	24.2	.0	2.3	.0	.C
10	4.5	.0	6.7	55.7	55.7	48.8	26.8	22.0	.0	48.8	22.6	.0	.3	.C	.C
11	4.4	.0	6.6	55.3	55.3	50.8	26.8	24.0	.0	50.8	22.5	.0	.C	.C	.C
12	3.6	.0	5.4	45.5	45.5	51.9	25.4	19.7	6.9	51.9	15.5	.0	.C	6.9	.C
13	2.8	.0	4.3	36.0	36.0	48.8	20.1	11.4	17.3	48.8	12.3	.C	.0	17.3	.C
14	4.2	.0	6.4	53.6	53.6	51.3	26.4	15.8	9.1	51.3	21.5	.0	.C	9.1	.C
15	4.1	.0	6.3	52.9	52.9	55.1	27.8	21.5	5.8	55.1	19.5	.0	.C	5.8	.C
16	4.0	.0	6.2	51.8	51.8	58.2	28.9	17.3	12.0	58.2	17.7	.0	.C	12.0	.C
17	3.9	.0	6.2	51.8	51.8	61.1	30.0	15.4	15.6	61.1	16.6	.0	.C	15.6	.C
18	3.9	.0	6.1	50.9	50.9	59.1	28.3	16.2	14.7	59.1	17.4	.0	.C	14.7	.C
19	3.1	.0	4.9	41.2	41.2	60.5	27.9	8.8	23.8	60.5	9.5	.0	.C	23.8	.C
20	3.8	.0	6.1	51.2	51.2	56.4	27.3	17.3	11.8	56.4	18.6	.0	.C	11.8	.C
21	4.0	.0	6.4	53.8	53.8	56.1	27.7	16.7	11.7	56.1	20.4	.0	.C	11.7	.C
22	1.6	.C	2.4	20.0	20.0	44.0	12.9	7.1	24.0	44.0	5.2	.0	.C	24.0	.C
23	.8	.0	1.3	10.6	10.6	35.7	9.3	.5	26.0	35.7	.5	.0	.C	26.0	.C
24	2.7	.0	4.4	36.5	36.5	40.6	18.1	13.0	9.4	40.6	14.5	.0	.C	9.4	.C
25	.9	.0	1.5	12.2	12.2	35.3	10.3	1.3	23.6	35.3	.9	.0	.C	23.6	.C
26	3.0	.0	4.9	41.0	41.0	36.0	18.5	9.8	7.7	36.0	17.9	.0	.C	7.7	.C
27	3.3	.0	5.5	45.9	45.9	41.0	20.1	20.1	.7	41.0	20.6	.0	.C	.7	.C
28	2.9	.0	5.0	42.2	42.2	38.7	20.1	16.8	1.8	38.7	17.5	.0	.C	1.8	.C
29	3.8	.0	6.6	55.4	55.4	39.3	21.6	17.0	.7	39.3	25.0	.0	2.8	.7	.C
30	3.8	.0	6.6	55.3	55.3	39.9	22.0	17.9	.0	39.9	18.2	.0	10.3	.0	.C
=====															
	110.0	.0	169.0	1413.9	1413.9	1472.1	712.6	496.5	263.1	1472.1	535.9	.0	17.2	263.1	.C

(ALL UNITS = KW-HR)

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OCT , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	70.0 SQ-M	PER SQ-M	70.0 SQ-M			PV-I	E-S	E-X		PV-I	E-X			
1	3.8	.0	6.7	56.2	56.2	45.1	25.4	19.7	.0	45.1	20.2	.0	5.1	.0	.0
2	3.8	.0	6.6	55.5	55.5	44.3	24.5	19.8	.0	44.3	21.1	.0	4.3	.0	.0
3	3.7	.0	6.5	54.8	54.8	45.2	24.0	21.2	.0	45.2	22.1	.0	2.9	.0	.0
4	3.7	.0	6.7	55.7	55.7	43.4	23.6	19.8	.0	43.4	22.5	.0	3.9	.0	.0
5	3.7	.0	6.7	55.9	55.9	30.6	16.5	14.1	.0	30.6	20.2	.0	14.3	.0	.0
6	3.7	.0	6.8	56.5	56.5	30.6	17.8	12.8	.0	30.6	13.1	.0	21.9	.0	.0
7	3.7	.0	6.8	56.9	56.9	32.3	19.0	13.3	.0	32.3	13.5	.0	20.5	.0	.0
8	3.6	.0	6.7	56.0	56.0	33.1	19.7	13.4	.0	33.1	14.3	.0	18.0	.0	.0
9	3.6	.0	6.7	55.9	55.9	34.9	20.5	14.4	.0	34.9	14.7	.0	16.5	.0	.0
10	3.5	.0	6.6	55.2	55.2	36.2	20.9	15.3	.0	36.2	15.4	.0	14.7	.0	.0
11	3.5	.0	6.7	55.8	55.8	36.1	20.4	15.7	.0	36.1	18.0	.0	12.7	.0	.0
12	3.5	.0	6.7	55.7	55.7	35.5	20.5	14.9	.0	35.5	15.9	.0	14.9	.0	.0
13	3.4	.0	6.6	55.0	55.0	37.4	21.3	16.1	.0	37.4	16.2	.0	12.9	.0	.0
14	3.3	.0	6.4	53.7	53.7	39.2	21.5	17.7	.0	39.2	18.4	.0	8.9	.0	.0
15	2.8	.0	5.5	45.9	45.9	35.6	18.4	17.2	.0	35.6	19.2	.0	3.5	.0	.0
16	3.1	.0	6.1	50.7	50.7	34.9	19.1	15.8	.0	34.9	18.6	.0	8.2	.0	.0
17	2.7	.0	5.5	45.8	45.8	31.6	16.6	14.9	.0	31.6	16.8	.0	8.2	.0	.0
18	2.2	.0	4.5	37.2	37.2	29.5	14.6	15.0	.0	29.5	16.1	.0	2.6	.0	.0
19	2.4	.0	4.7	39.2	39.2	26.4	14.2	12.2	.0	26.4	15.9	.0	5.3	.0	.0
20	3.1	.0	6.2	52.1	52.1	28.2	15.0	13.2	.0	28.2	13.8	.0	19.6	.0	.0
21	3.1	.0	6.4	53.5	53.5	33.3	18.6	14.7	.0	33.3	15.4	.0	15.3	.0	.0
22	3.1	.0	6.3	52.8	52.8	34.8	19.6	15.1	.0	34.8	16.7	.0	12.1	.0	.0
23	2.7	.0	5.4	45.5	45.5	34.1	18.6	15.5	.0	34.1	16.8	.0	5.7	.0	.0
24	2.9	.0	6.0	50.5	50.5	32.6	18.5	14.1	.0	32.6	17.6	.0	9.9	.0	.0
25	2.8	.0	5.9	49.2	49.2	32.1	17.5	14.6	.0	32.1	16.0	.0	11.5	.0	.0
26	2.7	.0	5.7	47.9	47.9	32.3	17.4	14.9	.0	32.3	16.6	.0	9.7	.0	.0
27	2.8	.0	6.0	49.8	49.8	32.1	17.6	14.5	.0	32.1	16.6	.0	11.2	.0	.0
28	2.8	.0	6.1	51.0	51.0	33.0	17.9	15.0	.0	33.0	15.9	.0	12.9	.0	.0
29	2.7	.0	5.8	48.1	48.1	34.5	17.1	17.3	.0	34.5	17.4	.0	6.6	.0	.0
30	2.4	.0	5.3	44.1	44.1	38.0	19.6	18.5	.0	38.0	19.5	.0	.1	.0	.0
31	2.7	.0	5.9	49.5	49.5	36.0	20.0	16.1	.0	36.0	18.9	.0	5.8	.0	.0
=====															
	97.3	.0	190.2	1591.5	1591.5	1082.9	596.0	486.9	.0	1082.9	533.5	.0	319.9	.0	.0

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-------|--------------------|-----------------|-----------------------|----------------|--------|-------|-------|--------------|----|------|--------|----------|------------|-------|--------------------|----------------------|
| | PER SQ-M | TOTAL 70.0 SQ-M | | SUPPLIED FROM | | | | TOTAL OUTPUT | | E | T | | | | | |
| | | | | PV-I E | PV-I T | E-S E | E-S T | | | | | | E-X E | E-X T | | |
| 1 | 6.7 | 56.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 56.4 | 25.1 | 56.4 | .0 | .0 | |
| 2 | 6.6 | 55.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 55.6 | 24.3 | 55.6 | .0 | .0 | |
| 3 | 6.5 | 54.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 57.2 | 25.2 | 57.2 | .0 | .0 | |
| 4 | 6.7 | 55.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 54.2 | 23.4 | 54.2 | .0 | .0 | |
| 5 | 6.7 | 55.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 28.9 | 10.6 | 28.9 | .0 | .0 | |
| 6 | 6.8 | 56.5 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 26.9 | 10.6 | 26.9 | .0 | .0 | |
| 7 | 6.8 | 56.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 30.4 | 12.3 | 30.4 | .0 | .0 | |
| 8 | 6.7 | 56.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 31.3 | 13.1 | 31.3 | .0 | .0 | |
| 9 | 6.7 | 55.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 35.5 | 14.9 | 35.5 | .0 | .0 | |
| 10 | 6.6 | 55.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 38.3 | 16.2 | 38.3 | .0 | .0 | |
| 11 | 6.7 | 55.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 39.6 | 16.1 | 39.6 | .0 | .0 | |
| 12 | 6.7 | 55.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 37.3 | 15.5 | 37.3 | .0 | .0 | |
| 13 | 6.6 | 55.0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 41.3 | 17.4 | 41.3 | .0 | .0 | |
| 14 | 6.4 | 53.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 46.2 | 19.2 | 46.2 | .0 | .0 | |
| 15 | 5.5 | 45.9 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 39.6 | 15.6 | 39.6 | .0 | .0 | |
| 16 | 6.1 | 50.7 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 38.5 | 14.9 | 38.5 | .0 | .0 | |
| 17 | 5.5 | 45.8 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 31.4 | 11.6 | 31.4 | .0 | .0 | |
| 18 | 4.5 | 37.2 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 26.9 | 9.5 | 26.9 | .0 | .0 | |
| 19 | 4.7 | 39.2 | .5 | .0 | .0 | .2 | .5 | .0 | .0 | .5 | 19.2 | 6.4 | 19.2 | .0 | .0 | |
| 20 | 6.2 | 52.1 | 5.7 | .2 | .4 | 1.8 | 5.3 | .0 | .0 | 5.7 | 21.7 | 8.2 | 21.7 | .0 | .0 | |
| 21 | 6.4 | 53.5 | 2.5 | .0 | .1 | .9 | 2.5 | .0 | .0 | 2.5 | 32.3 | 13.3 | 32.3 | .0 | .0 | |
| 22 | 6.3 | 52.8 | 1.5 | .0 | .0 | .5 | 1.5 | .0 | .0 | 1.5 | 35.8 | 14.8 | 35.8 | .0 | .0 | |
| 23 | 5.4 | 45.5 | 2.2 | .0 | .0 | .8 | 2.2 | .0 | .0 | 2.2 | 34.0 | 14.1 | 34.0 | .0 | .0 | |
| 24 | 6.0 | 50.5 | 1.9 | .0 | .0 | .7 | 1.9 | .0 | .0 | 1.9 | 30.9 | 12.6 | 30.9 | .0 | .0 | |
| 25 | 5.9 | 49.2 | 2.8 | .1 | .3 | .9 | 2.5 | .0 | .0 | 2.8 | 29.7 | 12.1 | 29.7 | .0 | .0 | |
| 26 | 5.7 | 47.9 | 1.7 | .0 | .0 | .6 | 1.7 | .0 | .0 | 1.7 | 31.2 | 12.3 | 31.2 | .0 | .0 | |
| 27 | 6.0 | 49.8 | .9 | .0 | .1 | .3 | .9 | .0 | .0 | .9 | 30.8 | 12.1 | 30.8 | .0 | .0 | |
| 28 | 6.1 | 51.0 | 2.5 | .1 | .3 | .8 | 2.3 | .0 | .0 | 2.5 | 31.8 | 13.0 | 31.8 | .0 | .0 | |
| 29 | 5.8 | 48.1 | 5.2 | 2.5 | 4.9 | .1 | .3 | .0 | .0 | 5.2 | 36.0 | 14.5 | 36.0 | .0 | .0 | |
| 30 | 5.3 | 44.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 43.9 | 18.0 | 43.9 | .0 | .0 | |
| 31 | 5.9 | 49.5 | .5 | .0 | .0 | .2 | .5 | .0 | .0 | .5 | 38.2 | 16.0 | 38.2 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 190.2 | 1591.5 | 28.0 | 2.9 | 6.0 | 7.7 | 22.0 | .0 | .0 | 28.0 | 1131.0 | 462.9 | 1131.0 | .0 | .0 | |

NOV , 1962 - PHOENIX, ARIZONA - (4)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED
PER
SQ-M	PER
SQ-M	AIR-COOLED
PER
SQ-M	PER
SQ-M	TOTAL
INPUT	TOTAL	PV-I	E-S	E-X	TOTAL
OUTPUT	PV-I	E-X		
1	2.3	.0	5.0	42.2	42.2	31.6	17.2	14.4	.0	31.6	17.5	.0	3.0	.0
2	2.7	.0	6.0	50.5	50.5	32.8	17.9	15.0	.0	32.8	16.6	.0	11.6	.0
3	2.6	.0	5.9	49.8	49.8	31.7	17.4	14.3	.0	31.7	17.2	.0	10.7	.0
4	2.3	.0	5.1	43.0	43.0	31.1	17.0	14.2	.0	31.1	15.9	.0	5.9	.0
5	2.5	.0	5.9	49.5	49.5	30.3	16.6	13.7	.0	30.3	16.5	.0	12.0	.0
6	2.5	.0	5.9	49.5	49.5	29.6	16.1	13.6	.0	29.6	16.8	.0	12.3	.0
7	2.5	.0	6.0	50.5	50.5	30.3	16.4	13.9	.0	30.3	17.0	.0	12.3	.0
8	2.5	.0	6.0	50.4	50.4	32.5	18.2	14.3	.0	32.5	16.6	.0	11.1	.0
9	2.3	.0	5.7	47.8	47.8	30.3	16.8	13.4	.0	30.3	17.1	.0	9.4	.0
10	2.4	.0	5.8	48.4	48.4	29.9	16.2	13.7	.0	29.9	16.5	.0	11.4	.0
11	2.4	.0	5.9	49.4	49.4	30.3	16.8	13.4	.0	30.3	17.1	.0	11.0	.0
12	2.3	.0	5.7	47.9	47.9	33.2	18.0	15.3	.0	33.2	16.6	.0	8.8	.0
13	1.8	.0	4.3	35.7	35.7	31.7	14.2	17.5	.0	31.7	17.3	.0	.1	.0
14	.5	.0	.7	5.9	5.9	27.7	5.5	10.5	11.8	27.7	.0	.0	.0	11.8
15	2.2	.0	5.5	46.1	46.1	25.0	12.5	7.6	4.9	25.0	25.0	.0	3.1	5.1
16	2.2	.0	5.6	47.1	47.1	21.0	10.0	11.0	.0	21.0	16.0	.0	16.9	.0
17	2.3	.0	5.9	49.2	49.2	21.0	10.0	11.0	.0	21.0	14.1	.0	21.1	.0
18	2.3	.0	6.0	50.3	50.3	21.0	10.0	11.0	.0	21.0	18.4	.0	16.3	.0
19	2.2	.0	5.8	48.4	48.4	21.0	9.8	11.2	.0	21.0	16.6	.0	17.0	.0
20	2.1	.0	5.6	47.2	47.2	21.0	10.0	11.0	.0	21.0	18.7	.0	12.7	.0
21	2.1	.0	5.7	47.9	47.9	21.0	10.0	11.0	.0	21.0	18.6	.0	13.9	.0
22	2.0	.0	5.3	44.1	44.1	21.0	10.0	11.0	.0	21.0	17.3	.0	12.5	.0
23	.9	.0	2.1	17.7	17.7	21.0	8.1	12.9	.0	21.0	7.5	.0	.0	.0
24	1.6	.0	4.1	34.3	34.3	21.0	9.8	11.2	.0	21.0	20.1	.0	.0	.0
25	1.9	.0	5.0	41.6	41.6	21.0	10.0	11.0	.0	21.0	16.0	.0	12.0	.0
26	2.0	.0	5.3	44.7	44.7	21.0	10.0	11.0	.0	21.0	14.6	.0	16.0	.0
27	2.0	.0	5.5	45.6	45.6	21.0	10.0	11.0	.0	21.0	15.6	.0	15.7	.0
28	1.9	.0	5.4	45.1	45.1	21.0	10.0	11.0	.0	21.0	16.7	.0	13.9	.0
29	1.2	.0	2.9	24.1	24.1	21.0	7.6	13.4	.0	21.0	13.4	.0	.0	.0
30	.4	.0	.8	6.3	6.3	21.0	5.8	12.0	3.1	21.0	.0	.0	.0	4.2
	61.0	.0	150.6	1260.0	1260.0	773.0	377.8	375.5	19.8	773.0	467.1	.0	290.7	21.1

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT | |
|-------|--------------------|-----------------------|-----------------------|----------------|-----------|----------|----------|--------------|-----|----------|------------|----------|--------------------|----------------------|----------|
| | PER SQ-M | TOTAL
70.0
SQ-M | | SUPPLIED FROM | | | | TOTAL OUTPUT | E | | T | | | | |
| | | | | PV-I
E | PV-I
T | E-S
E | E-S
T | | | | | E-X
E | | | E-X
T |
1	5.0	42.2	2.3	.1	.3	.7	2.0	.0	.0	2.3	26.3	10.6	26.3	.0	.0
2	6.0	50.5	3.9	.1	.3	1.3	3.7	.0	.0	3.9	28.7	11.8	28.7	.0	.0
3	5.9	49.8	2.7	.1	.3	.9	2.5	.0	.0	2.7	26.7	10.7	26.7	.0	.0
4	5.1	43.0	1.7	.1	.3	.5	1.5	.0	.0	1.7	26.0	10.1	26.0	.0	.0
5	5.9	49.5	4.7	.2	.6	1.4	4.1	.0	.0	4.7	23.7	9.3	23.7	.0	.0
6	5.9	49.5	6.0	.2	.6	1.9	5.4	.0	.0	6.0	22.0	8.6	22.0	.0	.0
7	6.0	50.5	7.6	.5	1.2	2.2	6.4	.0	.0	7.6	23.1	9.3	23.1	.0	.0
8	6.0	50.4	4.9	.2	.6	1.5	4.3	.0	.0	4.9	28.3	11.5	28.3	.0	.0
9	5.7	47.8	5.5	.2	.4	1.8	5.0	.0	.0	5.5	23.5	9.3	23.5	.0	.0
10	5.8	48.4	5.9	.2	.4	1.9	5.5	.0	.0	5.9	22.6	8.9	22.6	.0	.0
11	5.9	49.4	6.6	.2	.6	2.1	6.0	.0	.0	6.6	23.3	9.3	23.3	.0	.0
12	5.7	47.9	6.1	.2	.6	1.9	5.5	.0	.0	6.1	29.1	12.2	29.1	.0	.0
13	4.3	35.7	1.5	.0	.1	.5	1.4	.0	.0	1.5	27.6	10.7	27.6	.0	.0
14	.7	5.9	.0	.0	.0	.0	.0	.0	.0	.0	20.9	6.7	20.9	.0	.0
15	5.5	46.1	1.5	.1	.3	.2	.7	.2	.6	1.5	12.4	4.0	12.4	.0	.0
16	5.6	47.1	9.0	.6	1.5	2.7	7.5	.0	.0	9.0	.0	.0	.0	.0	.0
17	5.9	49.2	11.7	.8	2.3	3.3	9.4	.0	.0	11.7	.0	.0	.0	.0	.0
18	6.0	50.3	18.1	1.5	4.1	5.3	14.1	.0	.0	18.1	.0	.0	.0	.0	.0
19	5.8	48.4	16.5	1.2	3.4	4.8	13.2	.0	.0	16.5	.0	.0	.0	.0	.0
20	5.6	47.2	22.5	1.6	4.5	6.6	18.0	.0	.0	22.5	.0	.0	.0	.0	.0
21	5.7	47.9	19.4	1.3	3.5	5.9	15.8	.0	.0	19.4	.0	.0	.0	.0	.0
22	5.3	44.1	14.1	.5	1.5	4.6	12.7	.0	.0	14.1	.0	.0	.0	.0	.0
23	2.1	17.7	9.8	.2	.5	3.3	9.3	.0	.0	9.8	.0	.0	.0	.0	.0
24	4.1	34.3	.8	.1	.3	.2	.5	.0	.0	.8	.0	.0	.0	.0	.0
25	5.0	41.6	4.5	.0	.1	1.5	4.4	.0	.0	4.5	.0	.0	.0	.0	.0
26	5.3	44.7	9.9	.7	1.9	2.8	7.9	.0	.0	9.9	.0	.0	.0	.0	.0
27	5.5	45.6	12.6	.8	2.1	3.7	10.5	.0	.0	12.6	.0	.0	.0	.0	.0
28	5.4	45.1	14.8	.9	2.4	4.5	12.4	.0	.0	14.8	.0	.0	.0	.0	.0
29	2.9	24.1	6.2	.2	.5	2.0	5.7	.0	.0	6.2	.0	.0	.0	.0	.0
30	.8	6.3	6.3	.0	.1	1.1	3.0	1.1	3.2	6.3	.0	.0	.0	.0	.0
=====															
	150.6	1260.0	237.1	12.6	35.2	71.2	198.1	1.3	3.8	237.1	364.1	143.0	364.1	.0	.0

DEC , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	PER SQ-M	AIR-COOLED PER SQ-M	PER SQ-M	TOTAL INPUT	TOTAL	PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	1.5	.0	3.8	31.6	31.6	22.0	9.4	7.4	5.3	22.0	17.0	.0	.0	10.5	.0
2	1.8	.0	5.1	42.4	42.4	22.0	10.4	10.7	.8	22.0	25.0	.0	.7	2.0	.0
3	1.8	.0	5.2	43.3	43.3	22.0	10.4	11.6	.0	22.0	18.0	.0	9.7	.0	.0
4	1.9	.0	5.2	43.7	43.7	22.0	10.4	11.6	.0	22.0	17.5	.0	10.9	.0	.0
5	1.9	.0	5.4	45.0	45.0	22.0	10.4	11.6	.0	22.0	17.7	.0	12.3	.0	.0
6	1.8	.0	5.3	44.2	44.2	22.0	10.3	11.7	.0	22.0	16.4	.0	13.0	.0	.0
7	1.8	.0	5.3	44.5	44.5	22.0	10.2	11.8	.0	22.0	18.4	.0	10.8	.0	.0
8	1.8	.0	5.4	45.3	45.3	22.0	10.4	11.6	.0	22.0	18.3	.0	11.4	.0	.0
9	1.8	.0	5.4	45.4	45.4	22.0	10.3	11.7	.0	22.0	17.5	.0	12.7	.0	.0
10	1.8	.0	5.1	42.4	42.4	22.0	9.8	12.2	.0	22.0	15.2	.0	13.3	.0	.0
11	.8	.0	1.8	14.7	14.7	22.0	7.8	14.2	.0	22.0	5.3	.0	.0	.0	.0
12	1.4	.0	3.8	32.0	32.0	22.0	9.1	10.3	2.6	22.0	18.8	.0	.0	3.4	.0
13	1.8	.0	5.2	43.8	43.8	22.0	10.4	11.6	.0	22.0	24.0	.0	4.0	.0	.0
14	1.8	.0	5.3	44.0	44.0	22.0	10.4	11.6	.0	22.0	17.8	.0	11.1	.0	.0
15	1.8	.0	5.3	44.6	44.6	23.0	10.8	12.2	.0	23.0	19.3	.0	9.6	.0	.0
16	1.3	.0	3.9	32.7	32.7	23.0	10.5	12.5	.0	23.0	17.9	.0	.0	.0	.0
17	1.0	.0	2.8	23.1	23.1	23.0	7.1	15.9	.0	23.0	13.1	.0	.0	.0	.0
18	.7	.0	1.8	15.4	15.4	23.0	8.3	12.8	1.4	23.0	4.8	.0	.0	1.6	.0
19	1.1	.0	2.9	23.9	23.9	23.0	9.1	8.7	5.1	23.0	11.9	.0	.0	6.2	.0
20	1.7	.0	5.0	42.0	42.0	23.0	10.9	8.6	3.7	23.0	24.8	.0	.0	6.2	.0
21	1.8	.0	5.3	44.5	44.5	23.0	10.9	12.1	.0	23.0	18.2	.0	10.4	.0	.0
22	1.8	.0	5.5	46.0	46.0	23.0	10.7	12.3	.0	23.0	19.3	.0	10.2	.0	.0
23	1.8	.0	5.5	45.9	45.9	23.0	10.7	12.3	.0	23.0	20.8	.0	8.1	.0	.0
24	.8	.0	1.9	14.8	14.8	23.0	7.2	15.3	.5	23.0	5.8	.0	.0	.9	.0
25	1.9	.0	5.5	46.2	46.2	23.0	10.9	7.3	4.8	23.0	25.0	.0	1.9	9.0	.0
26	1.1	.0	3.0	25.1	25.1	23.0	9.4	13.6	.0	23.0	11.2	.0	.0	.0	.0
27	1.5	.0	4.4	36.8	36.8	23.0	10.6	9.2	3.2	23.0	20.6	.0	.0	6.1	.0
28	1.8	.0	5.2	43.6	43.6	23.0	10.7	12.3	.0	23.0	22.8	.0	2.9	.0	.0
29	1.9	.0	5.7	47.7	47.7	23.0	10.9	12.1	.0	23.0	22.9	.0	6.8	.0	.0
30	1.9	.0	5.7	47.3	47.3	23.0	10.9	12.1	.0	23.0	20.0	.0	11.3	.0	.0
31	1.9	.0	5.6	46.7	46.7	23.0	10.9	12.1	.0	23.0	19.1	.0	11.2	.0	.0
	49.4	.0	142.1	1188.5	1188.5	699.0	310.6	360.9	27.4	699.0	544.3	.0	182.3	45.8	.0

DEC , 1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-------|--------------------|-----------------|-----------------------|----------------|--------|---------------|-------|-------|-------|--------------|----|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL 70.0 SQ-M | | PV-I E | PV-I T | SUPPLIED FROM | | E-X E | E-X T | TOTAL OUTPUT | E | | T | | | |
| | | | | | | E-S E | E-S T | | | | | | | | | |
| 1 | 3.8 | 31.6 | 21.9 | 1.5 | 4.0 | 1.3 | 3.7 | 5.3 | 14.2 | 21.9 | .0 | .0 | .0 | .0 | .0 | |
| 2 | 5.1 | 42.4 | 17.8 | .9 | 2.6 | 4.3 | 11.9 | 1.2 | 3.2 | 17.8 | .0 | .0 | .0 | .0 | .0 | |
| 3 | 5.2 | 43.3 | 16.8 | 1.1 | 3.0 | 5.0 | 13.8 | .0 | .0 | 16.8 | .0 | .0 | .0 | .0 | .0 | |
| 4 | 5.2 | 43.7 | 15.4 | 1.0 | 2.7 | 4.6 | 12.7 | .0 | .0 | 15.4 | .0 | .0 | .0 | .0 | .0 | |
| 5 | 5.4 | 45.0 | 13.8 | .6 | 1.6 | 4.5 | 12.2 | .0 | .0 | 13.8 | .0 | .0 | .0 | .0 | .0 | |
| 6 | 5.3 | 44.2 | 13.7 | .8 | 2.1 | 4.3 | 11.6 | .0 | .0 | 13.7 | .0 | .0 | .0 | .0 | .0 | |
| 7 | 5.3 | 44.5 | 17.2 | 1.0 | 2.8 | 5.2 | 14.4 | .0 | .0 | 17.2 | .0 | .0 | .0 | .0 | .0 | |
| 8 | 5.4 | 45.3 | 17.4 | 1.1 | 3.1 | 5.3 | 14.4 | .0 | .0 | 17.4 | .0 | .0 | .0 | .0 | .0 | |
| 9 | 5.4 | 45.4 | 13.4 | 1.0 | 2.6 | 4.0 | 10.8 | .0 | .0 | 13.4 | .0 | .0 | .0 | .0 | .0 | |
| 10 | 5.1 | 42.4 | 9.1 | .6 | 1.8 | 2.6 | 7.3 | .0 | .0 | 9.1 | .0 | .0 | .0 | .0 | .0 | |
| 11 | 1.8 | 14.7 | 8.5 | .1 | .2 | 2.9 | 8.3 | .0 | .0 | 8.5 | .0 | .0 | .0 | .0 | .0 | |
| 12 | 3.8 | 32.0 | 5.4 | .2 | .4 | 1.0 | 2.9 | .7 | 2.1 | 5.4 | .0 | .0 | .0 | .0 | .0 | |
| 13 | 5.2 | 43.8 | 14.1 | .4 | 1.2 | 4.7 | 13.0 | .0 | .0 | 14.1 | .0 | .0 | .0 | .0 | .0 | |
| 14 | 5.3 | 44.0 | 15.7 | .6 | 1.8 | 5.1 | 13.9 | .0 | .0 | 15.7 | .0 | .0 | .0 | .0 | .0 | |
| 15 | 5.3 | 44.6 | 19.6 | .7 | 2.1 | 6.5 | 17.6 | .0 | .0 | 19.6 | .0 | .0 | .0 | .0 | .0 | |
| 16 | 3.9 | 32.7 | 13.3 | .2 | .7 | 4.7 | 12.6 | .0 | .0 | 13.3 | .0 | .0 | .0 | .0 | .0 | |
| 17 | 2.8 | 23.1 | 3.0 | .0 | .1 | 1.0 | 2.9 | .0 | .0 | 3.0 | .0 | .0 | .0 | .0 | .0 | |
| 18 | 1.8 | 15.4 | 3.9 | .2 | .6 | 1.0 | 2.8 | .2 | .5 | 3.9 | .0 | .0 | .0 | .0 | .0 | |
| 19 | 2.9 | 23.9 | 5.5 | .1 | .4 | .7 | 2.0 | 1.1 | 3.1 | 5.5 | .0 | .0 | .0 | .0 | .0 | |
| 20 | 5.0 | 42.0 | 13.6 | 1.2 | 3.3 | 1.1 | 3.3 | 2.5 | 7.0 | 13.6 | .0 | .0 | .0 | .0 | .0 | |
| 21 | 5.3 | 44.5 | 15.6 | 1.0 | 2.7 | 4.7 | 12.9 | .0 | .0 | 15.6 | .0 | .0 | .0 | .0 | .0 | |
| 22 | 5.5 | 46.0 | 21.7 | 1.4 | 3.9 | 6.5 | 17.7 | .0 | .0 | 21.7 | .0 | .0 | .0 | .0 | .0 | |
| 23 | 5.5 | 45.9 | 22.6 | 1.6 | 4.3 | 6.8 | 18.3 | .0 | .0 | 22.6 | .0 | .0 | .0 | .0 | .0 | |
| 24 | 1.8 | 14.8 | 15.1 | .2 | .6 | 4.7 | 13.2 | .4 | 1.2 | 15.1 | .0 | .0 | .0 | .0 | .0 | |
| 25 | 5.5 | 46.2 | 28.1 | 3.0 | 8.5 | 3.1 | 8.3 | 4.2 | 11.3 | 28.1 | .0 | .0 | .0 | .0 | .0 | |
| 26 | 3.0 | 25.1 | 23.5 | 1.8 | 4.9 | 6.9 | 18.6 | .0 | .0 | 23.5 | .0 | .0 | .0 | .0 | .0 | |
| 27 | 4.4 | 36.8 | 17.6 | 1.0 | 2.8 | 2.4 | 6.7 | 2.9 | 8.0 | 17.6 | .0 | .0 | .0 | .0 | .0 | |
| 28 | 5.2 | 43.6 | 21.9 | 2.2 | 6.2 | 5.7 | 15.7 | .0 | .0 | 21.9 | .0 | .0 | .0 | .0 | .0 | |
| 29 | 5.7 | 47.7 | 27.6 | 2.2 | 5.8 | 8.3 | 21.8 | .0 | .0 | 27.6 | .0 | .0 | .0 | .0 | .0 | |
| 30 | 5.7 | 47.3 | 18.0 | .7 | 1.9 | 5.9 | 16.2 | .0 | .0 | 18.0 | .0 | .0 | .0 | .0 | .0 | |
| 31 | 5.6 | 46.7 | 19.9 | 1.3 | 3.5 | 5.9 | 16.4 | .0 | .0 | 19.9 | .0 | .0 | .0 | .0 | .0 | |
| ===== | | | | | | | | | | | | | | | | |
| | 142.1 | 1188.5 | 490.9 | 29.6 | 82.3 | 130.6 | 357.9 | 18.4 | 50.7 | 490.9 | .0 | .0 | .0 | .0 | .0 | |

1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	PV-I	E-X			
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-I	E-S	E-X						
JAN	59.	0.	155.	1295.	1295.	682.	296.	347.	39.	682.	550.	0.	274.	75.	C.
FEB	71.	0.	149.	1243.	1243.	616.	272.	320.	24.	616.	458.	0.	376.	26.	C.
MAR	113.	0.	191.	1594.	1594.	740.	388.	350.	3.	740.	514.	0.	544.	5.	C.
APR	145.	0.	199.	1667.	1667.	1115.	636.	475.	3.	1115.	523.	0.	367.	3.	C.
MAY	172.	0.	205.	1715.	1715.	1185.	673.	508.	4.	1185.	542.	0.	354.	4.	C.
JUN	160.	0.	179.	1499.	1499.	1476.	804.	491.	182.	1476.	521.	0.	22.	182.	C.
JUL	168.	0.	194.	1621.	1621.	1781.	898.	520.	363.	1781.	556.	0.	1.	363.	C.
AUG	152.	0.	197.	1646.	1646.	1847.	918.	509.	420.	1847.	557.	0.	3.	420.	C.
SEP	110.	0.	169.	1414.	1414.	1472.	713.	496.	263.	1472.	536.	0.	17.	263.	C.
OCT	97.	0.	190.	1592.	1592.	1083.	596.	487.	0.	1083.	534.	0.	320.	C.	C.
NOV	61.	0.	151.	1260.	1260.	773.	378.	375.	20.	773.	467.	0.	291.	21.	C.
DEC	49.	0.	142.	1189.	1189.	699.	311.	361.	27.	699.	544.	0.	182.	46.	C.
	1357.	0.	2120.	17734.	17734.	13470.	6882.	5240.	1348.	13470.	6302.	0.	2752.	1408.	C.

1962 - PHOENIX, ARIZONA - (A)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT		THERMAL LOAD TOTAL	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT
	PER SQ-M	TOTAL 70.0 SQ-M		PV-I		SUPPLIED FROM		E-X		TOTAL OUTPUT	E T					
				E	T	E-S	E-S	E-X	E-X		E		T			
JAN	155.	1295.	673.	52.	141.	161.	435.	36.	97.	673.	0.	0.	0.	0.	C.	
FEB	149.	1243.	392.	32.	89.	108.	298.	2.	5.	392.	0.	0.	C.	C.	C.	
MAR	191.	1594.	428.	26.	73.	128.	348.	3.	7.	428.	240.	89.	240.	C.	C.	
APR	199.	1667.	36.	1.	2.	12.	33.	0.	0.	36.	1222.	515.	1222.	C.	C.	
MAY	205.	1715.	0.	0.	0.	0.	0.	0.	0.	0.	1392.	596.	1392.	0.	0.	
JUN	179.	1499.	0.	0.	0.	0.	0.	0.	0.	0.	2006.	936.	2006.	C.	C.	
JUL	194.	1621.	0.	0.	0.	0.	0.	0.	0.	0.	2536.	1223.	2536.	0.	C.	
AUG	197.	1646.	0.	0.	0.	0.	0.	0.	0.	0.	2633.	1289.	2633.	C.	C.	
SEP	169.	1414.	0.	0.	0.	0.	0.	0.	0.	0.	1985.	902.	1985.	0.	C.	
OCT	190.	1592.	28.	3.	6.	8.	22.	0.	0.	28.	1131.	463.	1131.	C.	C.	
NOV	151.	1260.	237.	13.	35.	71.	198.	1.	4.	237.	364.	143.	364.	0.	C.	
DEC	142.	1189.	491.	30.	82.	131.	358.	18.	51.	491.	0.	C.	C.	C.	C.	
=====																
	2120.	17734.	2284.	156.	428.	617.	1692.	60.	164.	2284.	13509.	6157.	13509.	0.	C.	

AXQT SRPSS.TDME

SOLAR RESIDENTIAL POWER SYSTEM SIMULATION
=====

VERSION X.1.

1963 - MOBILE, ALABAMA - (#)

WATER-COOLED COLLECTOR

AREA 0. SQ-M

TILT 31.0 DEGREES

EN .16

ET .83

EP .90

AIR-COOLED COLLECTOR

AREA 120. SQ-M

TILT 31.0 DEGREES

EC .90

EN .16

ET .83

EP .90

EI .93

ES .85

C1 F: C2 F: C3 T: C4 T: C5 F

HEATING SEASON: OCT 15 - APR 15

COOLING SEASON: MAR 1 - NOV 1

ELECTRICAL STORAGE CAPACITY 25. KW-HR

THERMAL STORAGE CAPACITY 0. (0.) KW-HR

MAXIMUM HOURLY ELECTRICAL AUXILIARY OUTPUT ***** KW-HR

MAXIMUM HOURLY THERMAL AUXILIARY OUTPUT .0 KW-HR

S/H DEMAND CURVE: INTERCEPT 19560., SLOPE -337.

A/C DEMAND CURVE: INTERCEPT -18950., SLOPE 338.

JAN , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1				E-X
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M											
1	3.3	.0	4.2	60.8	60.8	22.0	8.9	13.1	.0	22.0	23.0	.0	22.3	.0	.0
2	2.2	.0	2.9	42.0	42.0	22.0	8.2	13.8	.0	22.0	23.6	.0	2.4	.0	.0
3	3.9	.0	4.9	69.9	69.9	22.0	8.7	13.3	.0	22.0	23.6	.0	31.4	.0	.0
4	2.5	.0	3.1	44.5	44.5	22.0	8.3	13.7	.0	22.0	22.9	.0	7.6	.0	.0
5	1.6	.0	2.2	31.4	31.4	22.0	8.4	13.6	.0	22.0	17.8	.0	.0	.0	.0
6	1.5	.0	2.1	30.7	30.7	22.0	8.6	13.4	.0	22.0	16.7	.0	.0	.0	.0
7	1.9	.0	2.5	36.4	36.4	22.0	8.3	13.7	.0	22.0	21.0	.0	.0	.0	.0
8	3.8	.0	4.8	68.4	68.4	22.0	9.0	12.9	.1	22.0	25.0	.0	27.1	1.3	.0
9	2.0	.0	2.6	36.8	36.8	22.0	8.7	13.3	.0	22.0	20.9	.0	2.2	.0	.0
10	1.4	.0	2.0	28.1	28.1	22.0	9.4	12.6	.0	22.0	14.3	.0	1.2	.0	.0
11	1.3	.0	2.1	30.1	30.1	22.0	9.8	12.2	.0	22.0	13.5	.0	3.6	.0	.0
12	1.4	.0	2.0	28.2	28.2	22.0	9.0	13.0	.0	22.0	13.1	.0	2.8	.0	.0
13	2.4	.0	3.2	45.4	45.4	22.0	8.9	12.7	.3	22.0	22.1	.0	.0	2.2	.0
14	2.6	.0	3.4	48.2	48.2	22.0	9.4	9.2	3.4	22.0	23.9	.0	.0	13.4	.0
15	2.5	.0	3.3	47.1	47.1	22.0	9.3	10.4	2.3	22.0	25.0	.0	1.4	7.0	.0
16	4.1	.0	5.2	73.9	73.9	22.0	10.0	11.2	.8	22.0	25.0	.0	30.1	3.4	.0
17	2.1	.0	2.7	39.4	39.4	22.0	8.7	13.3	.0	22.0	23.0	.0	.0	.0	.0
18	1.5	.0	2.1	30.3	30.3	22.0	9.5	12.5	.0	22.0	16.7	.0	.0	.0	.0
19	1.3	.0	2.0	29.1	29.1	22.0	9.9	12.1	.0	22.0	15.7	.0	.0	.0	.0
20	1.6	.0	2.3	32.6	32.6	22.0	9.2	12.8	.0	22.0	14.8	.0	3.9	.0	.0
21	4.6	.0	5.8	82.9	82.9	22.0	10.0	11.2	.8	22.0	25.0	.0	35.5	3.0	.0
22	2.7	.0	3.5	50.0	50.0	22.0	9.2	12.8	.0	22.0	25.0	.0	8.3	.3	.0
23	1.6	.0	2.2	32.0	32.0	22.0	9.7	12.3	.0	22.0	15.9	.0	1.6	.0	.0
24	4.8	.0	6.0	86.5	86.5	22.0	10.0	9.1	2.9	22.0	25.0	.0	30.1	15.5	.0
25	3.2	.0	4.2	60.0	60.0	22.0	9.8	9.7	2.5	22.0	25.0	.0	11.2	10.8	.0
26	1.8	.0	2.5	35.4	35.4	22.0	9.6	12.4	.0	22.0	20.5	.0	.0	.0	.0
27	4.3	.0	5.4	77.6	77.6	22.0	10.0	12.0	.0	22.0	21.3	.0	33.3	.0	.0
28	3.1	.0	4.1	58.6	58.6	22.0	10.0	10.4	1.7	22.0	25.0	.0	10.8	5.1	.0
29	2.3	.0	3.0	43.1	43.1	22.0	9.6	12.4	.0	22.0	25.0	.0	.3	1.3	.0
30	1.5	.0	2.3	32.5	32.5	22.0	9.9	12.1	.0	22.0	16.7	.0	2.1	.0	.0
31	1.9	.0	2.6	37.8	37.8	22.0	9.7	12.3	.0	22.0	13.0	.0	11.5	.0	.0
=====															
	76.8	.0	101.1	1450.0	1450.0	682.0	287.7	379.5	14.8	682.0	638.9	.0	280.7	63.4	.0

JAN 13 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

| DAY | PHOTOVOLTAIC INPUT | | THERMAL LOAD
TOTAL | THERMAL OUTPUT | | | | | | | | A/C LOAD | A/C OUTPUT | | AUX. THERMAL INPUT | THERMAL LOAD DEFICIT |
|-----|--------------------|---------------|-----------------------|----------------|-----------|---------------|----------|----------|----------|--------------|----|----------|------------|----|--------------------|----------------------|
| | PER SQ-M | TOTAL
SQ-M | | PV-1
E | PV-1
T | SUPPLIED FROM | | E-X
E | E-X
T | TOTAL OUTPUT | E | | T | | | |
| | | | | | | E-S
E | E-S
T | | | | | | | | | |
| 1 | 4.2 | 60.8 | 23.1 | 1.8 | 9.9 | 8.6 | 23.3 | .0 | .0 | 28.1 | .0 | .0 | .0 | .0 | | |
| 2 | 2.9 | 42.0 | 31.7 | 2.8 | 8.0 | 8.8 | 23.7 | .0 | .0 | 31.7 | .0 | .0 | .0 | .0 | | |
| 3 | 4.9 | 69.9 | 25.9 | 1.3 | 3.5 | 8.1 | 22.5 | .0 | .0 | 25.9 | .0 | .0 | .0 | .0 | | |
| 4 | 3.1 | 44.5 | 20.6 | .9 | 2.6 | 6.5 | 18.0 | .0 | .0 | 20.6 | .0 | .0 | .0 | .0 | | |
| 5 | 2.2 | 31.4 | 13.9 | 1.3 | 4.0 | 3.5 | 9.9 | .0 | .0 | 13.9 | .0 | .0 | .0 | .0 | | |
| 6 | 2.1 | 30.7 | 15.8 | 1.7 | 5.1 | 3.7 | 10.7 | .0 | .0 | 15.8 | .0 | .0 | .0 | .0 | | |
| 7 | 2.5 | 36.4 | 26.2 | 2.5 | 7.1 | 7.0 | 19.0 | .0 | .0 | 26.2 | .0 | .0 | .0 | .0 | | |
| 8 | 4.8 | 68.4 | 28.7 | 2.0 | 5.5 | 7.4 | 19.9 | 1.3 | 3.3 | 28.7 | .0 | .0 | .0 | .0 | | |
| 9 | 2.6 | 36.8 | 14.0 | .7 | 1.9 | 4.3 | 12.1 | .0 | .0 | 14.0 | .0 | .0 | .0 | .0 | | |
| 10 | 2.0 | 28.1 | .1 | .0 | .0 | .0 | .1 | .0 | .0 | .1 | .0 | .0 | .0 | .0 | | |
| 11 | 2.1 | 30.1 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | | |
| 12 | 2.0 | 28.2 | 13.3 | .3 | 1.0 | 4.5 | 12.3 | .0 | .0 | 13.3 | .0 | .0 | .0 | .0 | | |
| 13 | 3.2 | 45.4 | 68.2 | 9.1 | 23.3 | 15.7 | 40.0 | 1.9 | 4.9 | 68.2 | .0 | .0 | .0 | .0 | | |
| 14 | 3.4 | 48.2 | 72.3 | 9.2 | 23.9 | 9.1 | 24.5 | 10.0 | 23.8 | 72.3 | .0 | .0 | .0 | .0 | | |
| 15 | 3.3 | 47.1 | 54.3 | 5.8 | 15.8 | 10.0 | 26.5 | 4.7 | 11.9 | 54.3 | .0 | .0 | .0 | .0 | | |
| 16 | 5.2 | 73.9 | 42.1 | 3.4 | 9.3 | 9.6 | 26.4 | 2.6 | 6.4 | 42.1 | .0 | .0 | .0 | .0 | | |
| 17 | 2.7 | 39.4 | 29.8 | 2.8 | 8.1 | 7.8 | 21.7 | .0 | .0 | 29.8 | .0 | .0 | .0 | .0 | | |
| 18 | 2.1 | 30.3 | 8.6 | .4 | 1.2 | 2.6 | 7.4 | .0 | .0 | 8.6 | .0 | .0 | .0 | .0 | | |
| 19 | 2.0 | 29.1 | 2.8 | .0 | .1 | 1.0 | 2.7 | .0 | .0 | 2.8 | .0 | .0 | .0 | .0 | | |
| 20 | 2.3 | 32.6 | 17.7 | 1.3 | 3.6 | 5.2 | 14.2 | .0 | .0 | 17.7 | .0 | .0 | .0 | .0 | | |
| 21 | 5.8 | 82.9 | 51.8 | 6.8 | 17.7 | 10.6 | 28.2 | 2.2 | 6.0 | 51.8 | .0 | .0 | .0 | .0 | | |
| 22 | 3.5 | 50.0 | 28.7 | 2.2 | 5.9 | 8.0 | 21.9 | .3 | 1.0 | 28.7 | .0 | .0 | .0 | .0 | | |
| 23 | 2.2 | 32.0 | 31.0 | 1.1 | 3.1 | 11.3 | 27.9 | .0 | .0 | 31.0 | .0 | .0 | .0 | .0 | | |
| 24 | 6.0 | 86.5 | 93.6 | 15.1 | 34.8 | 13.4 | 32.1 | 12.5 | 26.7 | 93.6 | .0 | .0 | .0 | .0 | | |
| 25 | 4.2 | 60.0 | 64.3 | 8.2 | 21.1 | 8.2 | 22.2 | 8.3 | 20.9 | 64.3 | .0 | .0 | .0 | .0 | | |
| 26 | 2.5 | 35.4 | 14.0 | .8 | 2.4 | 4.3 | 11.6 | .0 | .0 | 14.0 | .0 | .0 | .0 | .0 | | |
| 27 | 5.4 | 77.6 | 54.5 | 8.1 | 21.4 | 12.6 | 33.1 | .0 | .0 | 54.5 | .0 | .0 | .0 | .0 | | |
| 28 | 4.1 | 58.6 | 57.0 | 7.1 | 19.0 | 11.1 | 29.3 | 3.4 | 8.7 | 57.0 | .0 | .0 | .0 | .0 | | |
| 29 | 3.0 | 43.1 | 31.4 | 2.8 | 7.8 | 7.4 | 20.1 | 1.3 | 3.6 | 31.4 | .0 | .0 | .0 | .0 | | |
| 30 | 2.3 | 32.5 | 5.2 | .2 | .5 | 1.6 | 4.7 | .0 | .0 | 5.2 | .0 | .0 | .0 | .0 | | |
| 31 | 2.6 | 37.8 | 2.3 | .6 | 1.7 | .2 | .6 | .0 | .0 | 2.3 | .0 | .0 | .0 | .0 | | |

101.1 1450.0 948.0 100.6 264.2 211.9 566.6 48.6 117.2 948.0 .0 .0 .0 .0 .0 .0

(ALL UNITS IN KW-HR)

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(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT TOTAL		THERMAL LOAD TOTAL	THERMAL OUTPUT SUPPLIED FROM						A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD		
	PER SQ-M	SQ-M		PV-1 E	PV-1 T	E-S E	E-S T	E-X E	E-X T		TOTAL OUTPUT	E	T	THERMAL INPUT	DEFICIT
1	2.2	31.9	.2	.0	.0	.1	.2	.0	.0	.2	.0	.0	.0	.0	.0
2	2.3	32.7	1.4	.0	.0	.5	1.4	.0	.0	1.4	.0	.0	.0	.0	.0
3	6.0	86.5	36.3	5.2	14.4	7.9	22.0	.0	.0	36.3	.0	.0	.0	.0	.0
4	5.5	78.6	33.8	3.9	10.7	8.6	23.1	.0	.0	33.8	.0	.0	.0	.0	.0
5	4.7	67.5	17.3	1.5	4.2	4.7	13.2	.0	.0	17.3	.0	.0	.0	.0	.0
6	5.9	84.9	17.0	1.5	3.9	4.7	13.1	.0	.0	17.0	.0	.0	.0	.0	.0
7	4.8	69.1	11.5	.6	1.6	3.5	9.9	.0	.0	11.5	.0	.0	.0	.0	.0
8	3.4	48.8	36.5	4.6	13.0	8.6	23.5	.0	.0	36.5	.0	.0	.0	.0	.0
9	5.4	77.6	33.5	3.2	9.1	9.0	24.3	.0	.0	33.5	.0	.0	.0	.0	.0
10	2.7	38.9	15.6	.8	2.5	4.8	13.2	.0	.0	15.6	.0	.0	.0	.0	.0
11	3.1	43.8	22.5	3.0	8.3	5.2	14.1	.0	.0	22.5	.0	.0	.0	.0	.0
12	5.8	83.4	51.7	7.0	19.1	11.4	30.5	.8	2.2	51.7	.0	.0	.0	.0	.0
13	6.3	90.8	48.7	6.0	16.0	11.2	29.0	1.5	3.7	48.7	.0	.0	.0	.0	.0
14	6.3	89.9	30.9	2.7	7.1	8.5	23.8	.0	.0	30.9	.0	.0	.0	.0	.0
15	5.2	75.0	39.7	4.9	13.8	9.7	25.9	.0	.0	39.7	.0	.0	.0	.0	.0
16	5.7	96.1	45.1	6.0	15.8	10.9	29.1	.1	.2	45.1	.0	.0	.0	.0	.0
17	3.7	53.6	32.2	3.3	9.0	8.9	23.2	.0	.0	32.2	.0	.0	.0	.0	.0
18	3.6	52.0	22.1	2.3	6.6	5.5	15.6	.0	.0	22.1	.0	.0	.0	.0	.0
19	3.8	54.0	31.7	4.0	11.5	7.3	20.2	.0	.0	31.7	.0	.0	.0	.0	.0
20	4.9	70.8	21.1	1.5	4.3	6.0	16.8	.0	.0	21.1	.0	.0	.0	.0	.0
21	4.6	66.6	24.3	1.3	3.7	7.6	20.6	.0	.0	24.3	.0	.0	.0	.0	.0
22	6.2	89.0	56.6	8.5	22.7	12.1	30.9	1.1	3.1	56.6	.0	.0	.0	.0	.0
23	4.1	59.2	39.2	5.0	13.5	8.5	23.4	.8	2.3	39.2	.0	.0	.0	.0	.0
24	5.2	74.9	18.7	1.8	5.0	4.9	13.8	.0	.0	18.7	.0	.0	.0	.0	.0
25	3.7	53.3	17.2	1.2	3.5	5.0	13.7	.0	.0	17.2	.0	.0	.0	.0	.0
26	4.7	67.4	25.8	3.2	8.7	6.1	17.0	.0	.0	25.8	.0	.0	.0	.0	.0
27	6.9	98.8	43.9	5.1	14.3	9.9	26.6	1.2	3.1	43.9	.0	.0	.0	.0	.0
28	3.7	53.6	12.0	1.0	2.9	3.3	9.1	.0	.0	12.0	.0	.0	.0	.0	.0
=====															
	131.7	1888.8	786.7	89.4	245.0	194.3	527.2	5.5	14.5	786.7	.0	.0	.0	.0	.0

MAR, 1963 - MOBILE, ALABAMA - (A)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1				E-X
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M											
1	2.1	.0	3.0	42.7	42.7	24.6	12.2	12.4	.0	24.6	13.8	.0	13.2	.0	.0
2	3.3	.0	4.2	60.0	60.0	22.3	10.8	11.5	.0	22.3	17.7	.0	26.0	.0	.0
3	2.8	.0	3.6	52.0	52.0	24.9	11.8	13.1	.0	24.9	16.3	.0	19.3	.0	.0
4	2.0	.0	2.9	41.6	41.6	28.6	14.9	13.7	.0	28.6	15.4	.0	7.5	.0	.0
5	1.9	.0	2.9	40.9	40.9	30.6	18.1	12.4	.0	30.6	15.2	.0	3.5	.0	.0
6	5.3	.0	6.5	93.3	93.3	21.4	9.8	11.6	.0	21.4	16.0	.0	61.3	.0	.0
7	5.2	.0	6.4	92.4	92.4	23.6	11.5	12.1	.0	23.6	18.2	.0	57.6	.0	.0
8	4.3	.0	5.4	77.8	77.8	23.3	11.6	11.6	.0	23.3	17.2	.0	44.2	.0	.0
9	2.4	.0	3.3	46.7	46.7	23.5	11.4	12.1	.0	23.5	14.8	.0	16.8	.0	.0
10	2.8	.0	3.6	52.2	52.2	26.5	13.7	12.7	.0	26.5	13.2	.0	21.8	.0	.0
11	1.3	.0	2.0	28.6	28.6	33.9	16.4	17.5	.0	33.9	9.3	.0	.0	.0	.0
12	1.6	.0	2.3	33.4	33.4	36.6	19.4	15.2	2.0	36.6	10.6	.0	.0	2.0	.0
13	1.7	.0	2.6	36.9	36.9	33.8	18.0	9.9	5.9	33.8	15.0	.0	.0	5.9	.0
14	2.2	.0	3.1	44.6	44.6	29.8	16.7	11.7	1.4	29.8	22.6	.0	.0	1.4	.0
15	2.7	.0	3.7	53.3	53.3	26.3	13.5	12.6	.0	26.3	16.7	.0	18.6	.0	.0
16	1.9	.0	2.8	40.2	40.2	31.3	17.0	14.3	.0	31.3	14.8	.0	4.5	.0	.0
17	2.2	.0	3.1	44.3	44.3	36.8	22.7	16.1	.0	36.8	16.5	.0	.5	.0	.0
18	2.2	.0	3.1	44.6	44.6	37.1	21.0	16.1	.0	37.1	17.5	.0	1.5	.0	.0
19	1.8	.0	2.6	37.7	37.7	37.8	20.3	17.5	.0	37.8	13.5	.0	.0	.0	.0
20	4.7	.0	5.8	83.4	83.4	27.6	13.7	14.0	.0	27.6	22.1	.0	42.7	.0	.0
21	5.5	.0	6.8	98.2	98.2	23.3	12.1	11.2	.0	23.3	15.8	.0	65.9	.0	.0
22	4.8	.0	6.1	87.7	87.7	23.0	11.9	11.1	.0	23.0	17.4	.0	52.9	.0	.0
23	5.6	.0	7.0	100.1	100.1	24.4	13.0	11.4	.0	24.4	17.1	.0	65.3	.0	.0
24	3.7	.0	4.7	67.1	67.1	25.0	13.1	11.9	.0	25.0	16.4	.0	33.2	.0	.0
25	2.6	.0	3.6	51.9	51.9	27.7	15.8	11.9	.0	27.7	12.9	.0	19.8	.0	.0
26	3.5	.0	4.6	66.2	66.2	33.2	17.9	15.3	.0	33.2	14.6	.0	29.7	.0	.0
27	5.2	.0	6.5	93.7	93.7	26.8	15.1	11.7	.0	26.8	15.6	.0	58.9	.0	.0
28	3.7	.0	4.8	68.2	68.2	27.5	15.5	12.0	.0	27.5	14.2	.0	34.7	.0	.0
29	5.3	.0	6.6	94.1	94.1	30.4	17.8	12.6	.0	30.4	15.2	.0	56.9	.0	.0
30	5.4	.0	6.7	96.0	96.0	31.9	18.4	13.5	.0	31.9	15.2	.0	58.2	.0	.0
31	4.8	.0	6.1	87.3	87.3	32.7	19.2	13.5	.0	32.7	15.3	.0	48.7	.0	.0
=====															
	104.2	.0	136.5	1957.2	1957.2	888.5	474.4	404.7	9.3	888.5	486.4	.0	863.5	9.3	.0

MAR , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD TOTAL	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		SUPPLIED FROM									E	T	THERMAL INPUT	DEFICIT
				PV-1 E	PV-1 T	E-S E	E-S T	E-X E	E-X T	TOTAL OUTPUT						

1	3.0	42.7	4.0	.0	.0	1.4	4.0	.0	.0	4.0	11.6	3.6	11.6	.0	.0	
2	4.2	60.0	17.5	1.5	9.3	9.7	13.2	.0	.0	17.5	4.1	1.3	4.1	.0	.0	
3	3.6	52.0	9.0	.8	2.3	2.9	6.7	.0	.0	9.0	12.1	3.9	12.1	.0	.0	
4	2.9	41.6	.0	.0	.0	.0	.0	.0	.0	.0	23.0	7.6	23.0	.0	.0	
5	2.9	40.9	2.3	.0	.0	.8	2.3	.0	.0	2.3	26.7	9.6	26.7	.0	.0	
6	6.5	93.3	20.2	2.4	6.6	4.9	13.6	.0	.0	20.2	1.4	.4	1.4	.0	.0	
7	6.4	92.4	15.0	.8	2.3	4.6	12.7	.0	.0	15.0	8.1	2.6	8.1	.0	.0	
8	5.4	77.8	13.5	.7	2.0	4.1	11.5	.0	.0	13.5	7.1	2.3	7.1	.0	.0	
9	3.3	46.7	4.1	.1	.4	1.3	3.7	.0	.0	4.1	8.2	2.5	8.2	.0	.0	
10	3.6	52.2	.0	.0	.0	.0	.0	.0	.0	.0	16.5	5.5	16.5	.0	.0	
11	2.0	28.6	.0	.0	.0	.0	.0	.0	.0	.0	34.6	12.9	34.6	.0	.0	
12	2.3	33.4	.0	.0	.0	.0	.0	.0	.0	.0	40.8	15.6	40.8	.0	.0	
13	2.6	36.9	.0	.0	.0	.0	.0	.0	.0	.0	34.9	12.8	34.9	.0	.0	
14	3.1	44.6	2.4	.0	.0	.9	2.4	.0	.0	2.4	24.0	8.8	24.0	.0	.0	
15	3.7	53.3	4.9	.4	1.1	1.3	3.8	.0	.0	4.9	15.6	5.3	15.6	.0	.0	
16	2.8	40.2	.0	.0	.0	.0	.0	.0	.0	.0	29.3	10.3	29.3	.0	.0	
17	3.1	44.3	.0	.0	.0	.0	.0	.0	.0	.0	44.3	17.8	44.3	.0	.0	
18	3.1	44.8	.0	.0	.0	.0	.0	.0	.0	.0	41.8	16.1	41.8	.0	.0	
19	2.6	37.7	.0	.0	.0	.0	.0	.0	.0	.0	43.2	16.8	43.2	.0	.0	
20	5.8	83.4	.8	.0	.1	.2	.7	.0	.0	.8	19.1	6.6	19.1	.0	.0	
21	6.8	98.2	11.4	.6	1.7	3.4	9.7	.0	.0	11.4	7.0	2.3	7.0	.0	.0	
22	6.1	87.7	17.9	1.4	4.0	5.1	14.0	.0	.0	17.9	6.3	2.0	6.3	.0	.0	
23	7.0	100.1	14.6	.7	2.1	4.5	12.5	.0	.0	14.6	9.8	3.4	9.8	.0	.0	
24	9.7	127.1	9.7	.5	1.3	3.0	8.4	.0	.0	9.7	12.0	4.0	12.0	.0	.0	
25	3.6	51.9	1.2	.0	.0	.4	1.2	.0	.0	1.2	19.5	6.7	19.5	.0	.0	
26	4.6	66.2	.0	.0	.0	.0	.0	.0	.0	.0	32.8	12.2	32.8	.0	.0	
27	6.5	93.7	3.1	.1	.4	.9	2.7	.0	.0	3.1	16.0	5.8	16.0	.0	.0	
28	4.8	68.2	4.7	.1	.9	1.5	4.3	.0	.0	4.7	17.4	6.5	17.4	.0	.0	
29	6.6	94.1	6.0	.2	.5	1.9	5.5	.0	.0	6.0	24.0	9.4	24.0	.0	.0	
30	6.7	96.0	4.8	.1	.2	1.4	4.6	.0	.0	4.8	27.1	10.9	27.1	.0	.0	
31	6.1	87.3	2.1	.0	.0	.7	2.1	.0	.0	2.1	29.0	11.7	29.0	.0	.0	

136.5 1957.2 169.1 10.6 29.6 49.6 139.5 .0 .0 169.1 647.4 237.5 647.4 .0 .0																

APR , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-A	TOTAL OUTPUT	PV-1	E-A			
1	4.0	.0	5.2	74.1	74.1	29.1	16.9	12.2	.0	29.1	15.1	.0	38.0	.0	.0
2	2.8	.0	3.8	54.7	54.7	30.6	18.0	12.6	.0	30.6	13.4	.0	19.5	.0	.0
3	2.6	.0	3.6	51.4	51.4	31.0	17.5	13.5	.0	31.0	14.5	.0	15.6	.0	.0
4	2.4	.0	3.4	49.4	49.4	35.0	19.2	15.9	.0	35.0	15.7	.0	10.3	.0	.0
5	4.1	.0	5.2	75.2	75.2	30.9	17.0	13.9	.0	30.9	15.8	.0	38.2	.0	.0
6	2.4	.0	3.4	49.4	49.4	27.0	14.3	12.8	.0	27.0	15.9	.0	15.4	.0	.0
7	2.7	.0	3.7	53.1	53.1	22.0	11.4	10.5	.0	22.0	12.4	.0	25.9	.0	.0
8	3.3	.0	4.4	63.6	63.6	26.4	15.2	11.2	.0	26.4	12.2	.0	32.6	.0	.0
9	2.5	.0	3.6	50.9	50.9	31.0	18.0	13.0	.0	31.0	12.9	.0	16.3	.0	.0
10	2.2	.0	3.2	46.1	46.1	34.8	20.4	14.4	.0	34.8	15.7	.0	5.7	.0	.0
11	3.5	.0	4.6	66.1	66.1	37.1	22.2	14.9	.0	37.1	14.9	.0	24.7	.0	.0
12	2.3	.0	3.3	46.9	46.9	32.9	18.6	14.3	.0	32.9	16.8	.0	7.1	.0	.0
13	5.3	.0	6.8	96.8	96.8	28.4	16.0	12.4	.0	28.4	13.3	.0	63.8	.0	.0
14	5.3	.0	6.7	96.3	96.3	26.2	14.6	11.6	.0	26.2	14.0	.0	63.7	.0	.0
15	4.5	.0	5.8	82.6	82.6	27.6	15.9	11.7	.0	27.6	12.9	.0	50.1	.0	.0
16	3.5	.0	4.6	66.1	66.1	31.8	18.6	13.2	.0	31.8	13.3	.0	30.4	.0	.0
17	3.3	.0	4.3	62.0	62.0	33.1	18.8	14.3	.0	33.1	14.9	.0	24.1	.0	.0
18	2.5	.0	3.5	49.6	49.6	35.4	20.6	14.8	.0	35.4	16.2	.0	8.4	.0	.0
19	2.4	.0	3.6	51.1	51.1	36.0	21.0	15.0	.0	36.0	16.4	.0	9.2	.0	.0
20	2.9	.0	3.9	56.6	56.6	38.2	22.6	15.6	.0	38.2	16.0	.0	13.6	.0	.0
21	2.2	.0	3.2	45.5	45.5	38.4	22.3	16.1	.0	38.4	17.3	.0	1.2	.0	.0
22	2.6	.0	3.6	51.5	51.5	39.9	23.2	16.7	.0	39.9	17.1	.0	6.4	.0	.0
23	2.2	.0	3.2	45.4	45.4	38.4	22.5	15.9	.0	38.4	18.0	.0	.0	.0	.0
24	3.2	.0	4.4	62.4	62.4	29.2	16.0	13.3	.0	29.2	15.1	.0	27.5	.0	.0
25	3.1	.0	4.2	59.9	59.9	30.8	18.6	12.3	.0	30.8	13.7	.0	23.8	.0	.0
26	2.7	.0	3.9	55.4	55.4	30.7	18.6	12.1	.0	30.7	13.4	.0	19.6	.0	.0
27	3.1	.0	4.1	59.2	59.2	34.8	20.9	13.9	.0	34.8	13.3	.0	21.0	.0	.0
28	1.7	.0	2.4	34.4	34.4	36.8	21.1	15.6	.0	36.8	10.0	.0	.0	.0	.0
29	1.5	.0	2.2	30.9	30.9	38.6	21.5	12.8	4.3	38.6	6.6	.0	.0	4.3	.0
30	2.2	.0	3.1	45.1	45.1	39.3	21.4	11.4	6.4	39.3	18.7	.0	.0	6.4	.0
=====															
89.1	.0	120.8	1732.0	1732.0	981.4	563.0	407.7	10.8	981.4	435.7	.0	612.4	10.8	.0	.0

(ALL UNITS = KW-HR)

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MAY, 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	4.0	.0	5.3	75.9	75.9	24.6	13.0	11.5	.0	24.6	21.7	.0	36.4	.0	.0
2	2.7	.0	3.8	54.6	54.6	26.3	15.8	10.6	.0	26.3	11.9	.0	23.6	.0	.0
3	3.0	.0	4.2	59.9	59.9	29.1	17.6	11.4	.0	29.1	12.1	.0	26.7	.0	.0
4	2.8	.0	3.9	56.3	56.3	30.0	18.7	11.3	.0	30.0	12.0	.0	22.1	.0	.0
5	3.1	.0	4.1	59.1	59.1	33.7	20.5	13.2	.0	33.7	12.2	.0	22.6	.0	.0
6	3.3	.0	4.4	63.7	63.7	35.2	21.4	13.8	.0	35.2	14.9	.0	23.3	.0	.0
7	3.2	.0	4.3	62.0	62.0	34.5	20.5	14.1	.0	34.5	14.7	.0	22.7	.0	.0
8	3.3	.0	4.5	64.4	64.4	36.3	22.2	14.2	.0	36.3	15.3	.0	22.5	.0	.0
9	3.6	.0	4.8	69.1	69.1	38.0	23.4	14.6	.0	38.0	15.4	.0	25.9	.0	.0
10	3.0	.0	4.2	59.6	59.6	39.7	23.9	15.7	.0	39.7	16.2	.0	14.8	.0	.0
11	2.9	.0	3.9	56.4	56.4	40.1	23.8	16.3	.0	40.1	17.4	.0	10.4	.0	.0
12	3.1	.0	4.3	62.3	62.3	42.2	25.8	16.5	.0	42.2	17.3	.0	14.2	.0	.0
13	2.2	.0	3.1	44.9	44.9	39.7	24.3	15.4	.0	39.7	15.9	.0	.0	.0	.0
14	1.7	.0	2.5	36.2	36.2	39.2	23.9	15.3	.0	39.2	9.0	.0	.0	.0	.0
15	3.1	.0	4.3	61.8	61.8	41.6	25.1	15.5	1.0	41.6	25.0	.0	5.3	1.0	.0
16	2.3	.0	3.3	47.9	47.9	41.4	24.9	16.5	.0	41.4	17.9	.0	.1	.0	.0
17	2.6	.0	3.7	52.9	52.9	41.9	25.5	16.5	.0	41.9	17.5	.0	4.9	.0	.0
18	1.7	.0	2.6	37.1	37.1	37.7	21.8	15.9	.0	37.7	11.7	.0	.0	.0	.0
19	1.9	.0	2.8	40.0	40.0	32.1	18.7	13.3	.0	32.1	16.9	.0	.0	.0	.0
20	2.1	.0	3.2	45.4	45.4	37.0	22.9	14.1	.0	37.0	17.6	.0	.0	.0	.0
21	2.6	.0	3.7	53.4	53.4	38.8	23.7	15.1	.0	38.8	17.7	.0	7.1	.0	.0
22	3.0	.0	4.3	61.2	61.2	37.0	23.2	13.8	.0	37.0	16.7	.0	16.6	.0	.0
23	3.7	.0	5.0	71.4	71.4	32.4	18.5	13.9	.0	32.4	13.8	.0	35.3	.0	.0
24	2.2	.0	3.3	47.8	47.8	34.9	20.1	14.8	.0	34.9	14.9	.0	8.7	.0	.0
25	2.0	.0	3.0	43.1	43.1	36.0	22.3	15.7	.0	36.0	16.2	.0	.0	.0	.0
26	2.4	.0	3.6	51.3	51.3	41.8	27.4	14.5	.0	41.8	17.3	.0	1.5	.0	.0
27	2.3	.0	3.3	47.7	47.7	43.0	27.8	15.1	.0	43.0	15.1	.0	.0	.0	.0
28	2.2	.0	3.2	46.5	46.5	41.3	26.7	14.6	.0	41.3	15.1	.0	.0	.0	.0
29	3.0	.0	4.3	61.2	61.2	41.4	26.1	15.3	.0	41.4	17.9	.0	12.1	.0	.0
30	3.9	.0	5.3	76.5	76.5	38.5	23.2	15.3	.0	38.5	15.6	.0	33.1	.0	.0
31	3.4	.0	4.7	67.9	67.9	39.0	22.9	16.1	.0	39.0	15.8	.0	24.6	.0	.0
=====															
	86.6	.0	121.2	1737.6	1737.6	1146.6	695.7	449.9	1.0	1146.6	488.8	.0	414.5	1.0	.0

MAY 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		SUPPLIED FROM									E	T	THERMAL INPUT	LOAD DEFICIT
				PV-I E	PV-I T	E-S E	E-S T	E-X E	E-X T	TOTAL OUTPUT						
=====																
1	5.3	75.9	.0	.0	.0	.0	.0	.0	.0	.0	16.4	5.6	16.4	.0	.0	
2	3.8	54.6	.0	.0	.0	.0	.0	.0	.0	.0	20.8	7.3	20.8	.0	.0	
3	4.2	59.9	.0	.0	.0	.0	.0	.0	.0	.0	27.7	10.1	27.7	.0	.0	
4	3.9	56.3	.0	.0	.0	.0	.0	.0	.0	.0	29.7	11.0	29.7	.0	.0	
5	4.1	59.1	.0	.0	.0	.0	.0	.0	.0	.0	37.0	14.7	37.0	.0	.0	
6	4.4	63.7	.0	.0	.0	.0	.0	.0	.0	.0	40.5	16.2	40.5	.0	.0	
7	4.3	62.0	.0	.0	.0	.0	.0	.0	.0	.0	39.7	15.5	39.7	.0	.0	
8	4.5	64.4	.0	.0	.0	.0	.0	.0	.0	.0	43.5	17.3	43.5	.0	.0	
9	4.8	69.1	.0	.0	.0	.0	.0	.0	.0	.0	46.5	19.0	46.5	.0	.0	
10	4.2	59.6	.0	.0	.0	.0	.0	.0	.0	.0	49.8	20.7	49.8	.0	.0	
11	3.9	56.4	.0	.0	.0	.0	.0	.0	.0	.0	50.6	21.1	50.6	.0	.0	
12	4.3	62.3	.0	.0	.0	.0	.0	.0	.0	.0	54.5	23.2	54.5	.0	.0	
13	3.1	44.9	.0	.0	.0	.0	.0	.0	.0	.0	50.3	20.7	50.3	.0	.0	
14	2.5	36.2	.0	.0	.0	.0	.0	.0	.0	.0	49.2	20.2	49.2	.0	.0	
15	9.3	61.8	.0	.0	.0	.0	.0	.0	.0	.0	53.6	22.6	53.6	.0	.0	
16	3.3	47.9	.0	.0	.0	.0	.0	.0	.0	.0	53.6	22.4	53.6	.0	.0	
17	3.7	52.9	.0	.0	.0	.0	.0	.0	.0	.0	54.0	22.9	54.0	.0	.0	
18	2.6	37.1	.0	.0	.0	.0	.0	.0	.0	.0	46.8	18.7	46.8	.0	.0	
19	2.8	40.0	.0	.0	.0	.0	.0	.0	.0	.0	35.6	13.1	35.6	.0	.0	
20	3.2	45.4	.0	.0	.0	.0	.0	.0	.0	.0	45.4	18.0	45.4	.0	.0	
21	3.7	53.4	.0	.0	.0	.0	.0	.0	.0	.0	48.6	19.8	48.6	.0	.0	
22	4.3	61.2	.0	.0	.0	.0	.0	.0	.0	.0	45.0	18.0	45.0	.0	.0	
23	5.0	71.4	.0	.0	.0	.0	.0	.0	.0	.0	35.3	13.4	35.3	.0	.0	
24	3.3	47.8	.0	.0	.0	.0	.0	.0	.0	.0	40.4	15.9	40.4	.0	.0	
25	3.0	43.1	.0	.0	.0	.0	.0	.0	.0	.0	47.1	19.0	47.1	.0	.0	
26	3.6	51.3	.0	.0	.0	.0	.0	.0	.0	.0	53.9	22.8	53.9	.0	.0	
27	3.3	47.7	.0	.0	.0	.0	.0	.0	.0	.0	56.0	24.0	56.0	.0	.0	
28	3.2	46.5	.0	.0	.0	.0	.0	.0	.0	.0	53.1	22.3	53.1	.0	.0	
29	4.3	61.2	.0	.0	.0	.0	.0	.0	.0	.0	53.3	22.4	53.3	.0	.0	
30	5.3	76.5	.0	.0	.0	.0	.0	.0	.0	.0	47.4	19.5	47.4	.0	.0	
31	4.7	67.9	.0	.0	.0	.0	.0	.0	.0	.0	48.0	20.0	48.0	.0	.0	
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JUN , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-I	E-S	E-X	TOTAL OUTPUT	PV-I	E-X			
1	3.1	.0	4.3	61.2	61.2	37.8	25.2	12.6	.0	37.8	17.7	.0	13.3	.0	.0
2	3.1	.0	4.3	62.3	62.3	35.7	21.8	13.9	.0	35.7	13.3	.0	23.3	.0	.0
3	3.6	.0	4.9	70.5	70.5	37.1	24.0	13.1	.0	37.1	14.6	.0	27.5	.0	.0
4	3.5	.0	4.8	68.4	68.4	39.1	24.9	14.2	.0	39.1	14.1	.0	24.9	.0	.0
5	3.2	.0	4.4	63.5	63.5	39.3	25.4	14.0	.0	39.3	15.6	.0	17.9	.0	.0
6	2.6	.0	3.7	52.9	52.9	39.4	24.9	14.5	.0	39.4	15.6	.0	7.7	.0	.0
7	2.6	.0	3.7	53.0	53.0	42.3	26.7	15.6	.0	42.3	15.9	.0	5.5	.0	.0
8	2.9	.0	4.0	57.0	57.0	46.8	28.8	18.0	.0	46.8	17.1	.0	5.9	.0	.0
9	2.8	.0	3.8	54.5	54.5	46.3	28.4	17.9	.0	46.3	20.4	.0	.0	.0	.0
10	3.2	.0	4.4	63.2	63.2	47.9	30.4	17.5	.0	47.9	18.9	.0	8.2	.0	.0
11	3.3	.0	4.6	65.3	65.3	48.1	30.3	17.8	.0	48.1	19.0	.0	10.3	.0	.0
12	2.4	.0	3.3	47.9	47.9	41.6	26.5	15.0	.0	41.6	16.4	.0	.0	.0	.0
13	2.6	.0	3.7	52.7	52.7	44.6	28.4	16.1	.0	44.6	17.7	.0	1.3	.0	.0
14	2.8	.0	3.9	55.3	55.3	49.6	31.3	18.4	.0	49.6	18.4	.0	.0	.0	.0
15	2.7	.0	3.7	52.6	52.6	48.4	30.2	18.2	.0	48.4	17.1	.0	.0	.0	.0
16	2.0	.0	3.0	42.6	42.6	46.6	28.8	17.3	.5	46.6	9.8	.0	.0	.5	.0
17	1.3	.0	2.1	29.4	29.4	39.0	23.9	3.0	12.2	39.0	3.2	.0	.0	12.2	.0
18	1.5	.0	2.2	31.9	31.9	36.0	21.7	6.7	7.5	36.0	7.2	.0	.0	7.5	.0
19	1.5	.0	2.3	33.7	33.7	38.1	23.4	6.8	8.0	38.1	7.3	.0	.0	8.0	.0
20	1.5	.0	2.3	33.5	33.5	33.1	20.1	8.1	4.9	33.1	10.1	.0	.0	4.9	.0
21	1.8	.0	2.6	37.6	37.6	36.8	23.7	10.3	2.8	36.8	10.3	.0	.0	2.8	.0
22	1.6	.0	2.4	34.0	34.0	36.6	22.5	8.2	5.8	36.6	8.3	.0	.0	5.8	.0
23	1.6	.0	2.4	34.0	34.0	36.6	22.5	7.7	6.4	36.6	8.3	.0	.0	6.4	.0
24	1.5	.0	2.4	33.8	33.8	35.9	23.3	6.9	5.7	35.9	7.4	.0	.0	5.7	.0
25	2.0	.0	2.9	41.9	41.9	36.6	23.7	8.8	4.1	36.6	14.0	.0	.0	4.1	.0
26	2.3	.0	3.3	47.2	47.2	35.6	22.5	13.1	.0	35.6	19.6	.0	.0	.0	.0
27	1.9	.0	2.8	39.9	39.9	35.1	22.2	12.9	.0	35.1	13.6	.0	.0	.0	.0
28	2.2	.0	3.2	45.8	45.8	38.6	24.6	14.0	.0	38.6	16.4	.0	.0	.0	.0
29	1.7	.0	2.6	36.9	36.9	41.6	25.6	16.0	.0	41.6	8.0	.0	.0	.0	.0
30	1.7	.0	2.6	36.9	36.9	41.6	25.6	9.1	6.9	41.6	8.0	.0	.0	6.9	.0

70.4 .0 100.3 1439.0 1439.0 1212.1 761.6 385.7 64.9 1212.1 403.2 .0 145.8 64.9 .0

JUN , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		SUPPLIED FROM									E	T	THERMAL INPUT	DEFICIT
				PV-I E	PV-I T	E-S E	E-S T	E-X E	E-X T	TOTAL OUTPUT						
=====																
1	4.3	61.2	.0	.0	.0	.0	.0	.0	.0	.0	48.1	19.8	48.1	.0	.0	
2	4.3	62.3	.0	.0	.0	.0	.0	.0	.0	.0	43.8	17.7	43.8	.0	.0	
3	4.9	70.5	.0	.0	.0	.0	.0	.0	.0	.0	46.2	19.1	46.2	.0	.0	
4	4.8	68.4	.0	.0	.0	.0	.0	.0	.0	.0	50.2	21.1	50.2	.0	.0	
5	4.4	63.5	.0	.0	.0	.0	.0	.0	.0	.0	50.3	21.3	50.3	.0	.0	
6	3.7	52.9	.0	.0	.0	.0	.0	.0	.0	.0	51.4	21.4	51.4	.0	.0	
7	3.7	53.0	.0	.0	.0	.0	.0	.0	.0	.0	56.6	24.3	56.6	.0	.0	
8	4.0	57.0	.0	.0	.0	.0	.0	.0	.0	.0	64.1	28.8	64.1	.0	.0	
9	3.8	54.5	.0	.0	.0	.0	.0	.0	.0	.0	63.5	28.3	63.5	.0	.0	
10	4.4	63.2	.0	.0	.0	.0	.0	.0	.0	.0	65.9	29.4	65.9	.0	.0	
11	4.6	65.3	.0	.0	.0	.0	.0	.0	.0	.0	66.9	30.1	66.9	.0	.0	
12	3.3	47.9	.0	.0	.0	.0	.0	.0	.0	.0	55.8	23.6	55.8	.0	.0	
13	3.7	52.7	.0	.0	.0	.0	.0	.0	.0	.0	60.8	26.6	60.8	.0	.0	
14	3.9	55.3	.0	.0	.0	.0	.0	.0	.0	.0	69.5	31.6	69.5	.0	.0	
15	3.7	52.6	.0	.0	.0	.0	.0	.0	.0	.0	67.6	30.4	67.6	.0	.0	
16	3.0	42.6	.0	.0	.0	.0	.0	.0	.0	.0	64.2	28.6	64.2	.0	.0	
17	2.1	29.4	.0	.0	.0	.0	.0	.0	.0	.0	51.1	21.0	51.1	.0	.0	
18	2.2	31.9	.0	.0	.0	.0	.0	.0	.0	.0	45.4	18.0	45.4	.0	.0	
19	2.3	33.7	.0	.0	.0	.0	.0	.0	.0	.0	49.5	20.1	49.5	.0	.0	
20	2.3	33.5	.0	.0	.0	.0	.0	.0	.0	.0	39.9	15.1	39.9	.0	.0	
21	2.6	37.6	.0	.0	.0	.0	.0	.0	.0	.0	46.7	18.8	46.7	.0	.0	
22	2.4	34.0	.0	.0	.0	.0	.0	.0	.0	.0	46.8	18.6	46.8	.0	.0	
23	2.4	34.0	.0	.0	.0	.0	.0	.0	.0	.0	46.8	18.6	46.8	.0	.0	
24	2.4	33.8	.0	.0	.0	.0	.0	.0	.0	.0	45.1	17.9	45.1	.0	.0	
25	2.9	41.9	.0	.0	.0	.0	.0	.0	.0	.0	46.3	18.6	46.3	.0	.0	
26	3.3	47.2	.0	.0	.0	.0	.0	.0	.0	.0	44.5	17.6	44.5	.0	.0	
27	2.8	39.9	.0	.0	.0	.0	.0	.0	.0	.0	43.6	17.1	43.6	.0	.0	
28	3.2	45.8	.0	.0	.0	.0	.0	.0	.0	.0	50.3	20.6	50.3	.0	.0	
29	2.6	36.9	.0	.0	.0	.0	.0	.0	.0	.0	55.8	23.6	55.8	.0	.0	
30	2.6	36.9	.0	.0	.0	.0	.0	.0	.0	.0	55.8	23.6	55.8	.0	.0	
=====																
100.3 1439.0			.0	.0	.0	.0	.0	.0	.0	.0	1592.3	672.1	1592.3	.0	.0	

JUL , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-A		PV-1	E-A			
1	2.0	.0	2.8	39.5	39.5	45.2	24.6	10.2	10.3	45.2	11.0	.0	.0	10.3	.0
2	1.7	.0	2.3	33.1	33.1	44.2	22.9	6.7	14.6	44.2	7.2	.0	.0	14.6	.0
3	1.8	.0	2.5	36.1	36.1	45.4	23.5	8.6	13.4	45.4	9.3	.0	.0	13.4	.0
4	1.8	.0	2.5	35.3	35.3	49.3	24.0	7.4	17.8	49.3	8.0	.0	.0	17.8	.0
5	1.8	.0	2.4	34.6	34.6	46.8	23.8	7.1	15.9	46.8	7.7	.0	.0	15.9	.0
6	1.3	.0	1.9	27.3	27.3	45.6	21.7	3.1	20.8	45.6	3.3	.0	.0	20.8	.0
7	.9	.0	1.4	20.1	20.1	39.9	17.2	1.3	21.5	39.9	1.4	.0	.0	21.5	.0
8	2.0	.0	2.8	40.1	40.1	47.4	25.0	10.4	11.9	47.4	11.2	.0	.0	11.9	.0
9	2.1	.0	2.9	41.9	41.9	48.1	26.0	11.1	11.1	48.1	11.9	.0	.0	11.1	.0
10	3.3	.0	4.6	65.3	65.3	49.4	27.1	15.3	7.0	49.4	25.0	.0	6.7	7.0	.0
11	3.5	.0	4.7	67.4	67.4	48.0	28.4	19.6	.0	48.0	23.9	.0	8.8	.0	.0
12	2.7	.0	3.7	52.4	52.4	45.0	26.5	18.5	.0	45.0	20.3	.0	.0	.0	.0
13	2.5	.0	3.5	50.2	50.2	47.1	25.8	21.2	.0	47.1	19.1	.0	.0	.0	.0
14	2.5	.0	3.5	50.2	50.2	47.1	25.8	21.2	.0	47.1	19.1	.0	.0	.0	.0
15	1.8	.0	2.6	36.6	36.6	44.1	25.9	10.9	7.3	44.1	7.5	.0	.0	7.3	.0
16	1.3	.0	2.0	28.3	28.3	41.7	22.7	3.1	15.9	41.7	3.4	.0	.0	15.9	.0
17	2.2	.0	3.1	44.6	44.6	43.0	25.1	10.6	7.2	43.0	15.0	.0	.0	7.2	.0
18	2.1	.0	3.0	42.7	42.7	39.6	23.3	12.6	3.8	39.6	15.0	.0	.0	3.8	.0
19	2.7	.0	3.8	54.4	54.4	45.9	27.6	16.2	2.1	45.9	21.1	.0	.0	2.1	.0
20	3.6	.0	4.8	69.3	69.3	46.4	27.7	18.7	.0	46.4	23.6	.0	11.8	.0	.0
21	2.9	.0	3.9	55.9	55.9	47.7	26.9	20.8	.0	47.7	21.1	.0	2.1	.0	.0
22	2.1	.0	3.0	42.5	42.5	45.6	25.9	19.8	.0	45.6	12.4	.0	.0	.0	.0
23	2.0	.0	2.9	41.6	41.6	47.2	27.1	11.8	8.3	47.2	10.6	.0	.0	8.3	.0
24	1.3	.0	2.0	28.3	28.3	45.7	24.4	1.6	19.7	45.7	1.7	.0	.0	19.7	.0
25	1.8	.0	2.5	36.4	36.4	43.9	24.4	8.0	11.5	43.9	8.6	.0	.0	11.5	.0
26	1.3	.0	2.0	28.5	28.5	38.3	21.5	4.3	12.5	38.3	4.6	.0	.0	12.5	.0
27	2.2	.0	3.1	44.4	44.4	42.1	23.3	12.9	5.9	42.1	16.5	.0	.0	5.9	.0
28	1.4	.0	2.1	30.7	30.7	42.2	23.1	7.1	12.0	42.2	5.0	.0	.0	12.0	.0
29	2.1	.0	3.0	42.5	42.5	42.4	23.9	10.4	8.1	42.4	14.2	.0	.0	8.1	.0
30	1.7	.0	2.5	35.3	35.3	44.8	25.1	9.5	10.3	44.8	7.1	.0	.0	10.3	.0
31	2.3	.0	3.2	45.6	45.6	43.7	25.8	10.3	7.7	43.7	15.2	.0	.0	7.7	.0
=====															
	64.6	.0	90.7	1301.4	1301.4	1393.0	766.1	350.3	276.5	1393.0	380.9	.0	29.5	276.5	.0

JUL , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL		SUPPLIED FROM									E	T	INPUT	DEFICIT
				PV-1
E	PV-1
T	E-S
E	E-S
T	E-X
E	E-X
T	TOTAL
OUTPUT						
=====																
1	2.8	39.5	.0	.0	.0	.0	.0	.0	.0	.0	61.5	27.2	61.5	.0	.0	
2	2.3	33.1	.0	.0	.0	.0	.0	.0	.0	.0	60.3	26.2	60.3	.0	.0	
3	2.5	36.1	.0	.0	.0	.0	.0	.0	.0	.0	62.1	27.4	62.1	.0	.0	
4	2.5	35.3	.0	.0	.0	.0	.0	.0	.0	.0	69.1	31.3	69.1	.0	.0	
5	2.4	34.6	.0	.0	.0	.0	.0	.0	.0	.0	65.4	28.8	65.4	.0	.0	
6	1.9	27.3	.0	.0	.0	.0	.0	.0	.0	.0	63.2	27.6	63.2	.0	.0	
7	1.4	20.1	.0	.0	.0	.0	.0	.0	.0	.0	52.4	21.9	52.4	.0	.0	
8	2.8	40.1	.0	.0	.0	.0	.0	.0	.0	.0	65.9	29.4	65.9	.0	.0	
9	2.9	41.9	.0	.0	.0	.0	.0	.0	.0	.0	67.0	30.1	67.0	.0	.0	
10	4.6	65.3	.0	.0	.0	.0	.0	.0	.0	.0	68.8	31.4	68.8	.0	.0	
11	4.7	67.4	.0	.0	.0	.0	.0	.0	.0	.0	66.4	30.0	66.4	.0	.0	
12	3.7	52.4	.0	.0	.0	.0	.0	.0	.0	.0	61.7	27.0	61.7	.0	.0	
13	3.5	50.2	.0	.0	.0	.0	.0	.0	.0	.0	64.8	29.1	64.8	.0	.0	
14	3.5	50.2	.0	.0	.0	.0	.0	.0	.0	.0	64.8	29.1	64.8	.0	.0	
15	2.6	36.6	.0	.0	.0	.0	.0	.0	.0	.0	60.6	26.1	60.6	.0	.0	
16	2.0	28.3	.0	.0	.0	.0	.0	.0	.0	.0	56.2	23.7	56.2	.0	.0	
17	3.1	44.6	.0	.0	.0	.0	.0	.0	.0	.0	58.2	25.0	58.2	.0	.0	
18	3.0	42.7	.0	.0	.0	.0	.0	.0	.0	.0	51.9	21.6	51.9	.0	.0	
19	3.8	54.4	.0	.0	.0	.0	.0	.0	.0	.0	63.0	27.9	63.0	.0	.0	
20	4.8	69.3	.0	.0	.0	.0	.0	.0	.0	.0	63.9	28.4	63.9	.0	.0	
21	3.9	55.9	.0	.0	.0	.0	.0	.0	.0	.0	66.3	29.7	66.3	.0	.0	
22	3.0	42.5	.0	.0	.0	.0	.0	.0	.0	.0	63.2	27.6	63.2	.0	.0	
23	2.9	41.6	.0	.0	.0	.0	.0	.0	.0	.0	65.5	29.2	65.5	.0	.0	
24	2.0	28.3	.0	.0	.0	.0	.0	.0	.0	.0	63.3	27.7	63.3	.0	.0	
25	2.5	36.4	.0	.0	.0	.0	.0	.0	.0	.0	59.8	25.9	59.8	.0	.0	
26	2.0	28.5	.0	.0	.0	.0	.0	.0	.0	.0	49.7	20.3	49.7	.0	.0	
27	3.1	44.4	.0	.0	.0	.0	.0	.0	.0	.0	56.2	24.1	56.2	.0	.0	
28	2.1	30.7	.0	.0	.0	.0	.0	.0	.0	.0	57.2	24.2	57.2	.0	.0	
29	3.0	42.5	.0	.0	.0	.0	.0	.0	.0	.0	57.3	24.4	57.3	.0	.0	
30	2.5	35.3	.0	.0	.0	.0	.0	.0	.0	.0	61.4	26.8	61.4	.0	.0	
31	3.2	45.6	.0	.0	.0	.0	.0	.0	.0	.0	59.8	25.7	59.8	.0	.0	
=====																
	90.7	1301.4	.0	.0	.0	.0	.0	.0	.0	.0	1907.0	835.0	1907.0	.0	.0	

AUG , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	PER SQ-M	AIR-COOLED PER SQ-M	PER SQ-M	TOTAL INPUT	TOTAL	PV-1	E-S	E-A	TOTAL OUTPUT	PV-1	E-A		
1	1.8	.0	2.4	34.7	34.7	43.8	21.3	13.2	9.3	43.8	10.0	.0	9.3	.0
2	1.9	.0	2.5	35.9	35.9	40.7	22.1	9.6	9.0	40.7	10.3	.0	9.0	.0
3	1.6	.0	2.1	30.8	30.8	41.1	21.4	6.1	13.5	41.1	6.6	.0	13.5	.0
4	.9	.0	1.4	19.7	19.7	39.2	17.2	.9	21.0	39.2	1.0	.0	21.0	.0
5	1.5	.0	2.1	30.4	30.4	42.0	22.5	4.9	14.6	42.0	5.3	.0	14.6	.0
6	1.5	.0	2.1	30.4	30.4	45.2	22.2	5.1	17.8	45.2	5.5	.0	17.8	.0
7	1.7	.0	2.3	33.0	33.0	50.1	22.2	7.2	20.7	50.1	7.7	.0	20.7	.0
8	1.9	.0	2.6	37.4	37.4	52.7	23.7	9.4	19.6	52.7	10.1	.0	19.6	.0
9	3.0	.0	4.0	57.7	57.7	49.3	25.8	14.9	8.6	49.3	25.0	.0	8.6	.0
10	3.3	.0	4.4	63.4	63.4	48.7	26.0	22.7	.0	48.7	24.6	.0	.0	.0
11	4.1	.0	5.3	76.4	76.4	44.5	25.1	19.4	.0	44.5	21.9	.0	23.6	.0
12	2.6	.0	3.6	51.3	51.3	46.7	25.5	21.1	.0	46.7	20.3	.0	.0	.0
13	1.7	.0	2.4	34.4	34.4	43.3	21.7	16.0	5.6	43.3	9.4	.0	5.6	.0
14	1.7	.0	2.4	34.1	34.1	43.7	22.5	7.8	13.4	43.7	8.4	.0	13.4	.0
15	1.3	.0	1.9	27.6	27.6	37.6	18.4	6.2	13.0	37.6	6.7	.0	13.0	.0
16	1.6	.0	2.3	33.4	33.4	39.2	22.3	7.4	9.5	39.2	8.0	.0	9.5	.0
17	2.3	.0	3.2	45.3	45.3	43.3	23.8	13.4	6.1	43.3	16.8	.0	6.1	.0
18	3.0	.0	4.0	57.0	57.0	46.1	25.7	15.3	5.1	46.1	24.9	.0	5.1	.0
19	1.9	.0	2.7	38.4	38.4	42.7	22.7	20.0	.0	42.7	11.8	.0	.0	.0
20	1.3	.0	2.0	29.3	29.3	41.2	22.6	5.1	13.5	41.2	4.2	.0	13.5	.0
21	1.2	.0	1.9	26.9	26.9	38.1	20.0	4.2	13.9	38.1	4.6	.0	13.9	.0
22	1.9	.0	2.6	38.0	38.0	40.7	21.1	12.0	7.5	40.7	12.9	.0	7.5	.0
23	1.7	.0	2.4	34.7	34.7	40.3	20.9	9.7	9.8	40.3	10.4	.0	9.8	.0
24	1.3	.0	2.0	29.2	29.2	40.4	21.3	4.9	14.2	40.4	5.3	.0	14.2	.0
25	1.8	.0	2.6	37.0	37.0	40.9	21.5	11.0	8.4	40.9	11.8	.0	8.4	.0
26	1.4	.0	2.1	29.8	29.8	40.5	20.9	5.9	13.7	40.5	6.3	.0	13.7	.0
27	2.2	.0	3.0	43.4	43.4	43.9	23.2	13.9	6.8	43.9	15.6	.0	6.8	.0
28	2.3	.0	3.2	45.5	45.5	45.0	24.4	13.8	6.7	45.0	16.4	.0	6.7	.0
29	1.6	.0	2.4	34.0	34.0	45.1	23.6	8.9	12.6	45.1	7.3	.0	12.6	.0
30	2.2	.0	3.1	45.0	45.0	45.0	24.4	13.3	7.3	45.0	15.9	.0	7.3	.0
31	2.2	.0	3.0	42.8	42.8	45.4	25.1	14.0	6.3	45.4	13.4	.0	6.3	.0

60.4 .0 84.1 1206.6 1206.6 1346.1 701.4 337.2 307.5 1346.1 358.5 .0 30.7 307.5 .0														

AUG , 1963. - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL

SQ-M | | SUPPLIED FROM | | | | | | TOTAL OUTPUT | E | | T | INPUT | DEFICIT | |
| | | | | PV-1
E | PV-1
T | E-S
E | E-S
T | E-X
E | E-X
T | | | | | | | |
=====																
1	2.4	34.7	.0	.0	.0	.0	.0	.0	.0	.0	59.1	25.8	59.1	.0	.0	
2	2.5	35.9	.0	.0	.0	.0	.0	.0	.0	.0	53.4	22.7	53.4	.0	.0	
3	2.1	30.8	.0	.0	.0	.0	.0	.0	.0	.0	54.3	23.1	54.3	.0	.0	
4	1.4	19.7	.0	.0	.0	.0	.0	.0	.0	.0	51.6	21.2	51.6	.0	.0	
5	2.1	30.4	.0	.0	.0	.0	.0	.0	.0	.0	56.1	24.0	56.1	.0	.0	
6	2.1	30.4	.0	.0	.0	.0	.0	.0	.0	.0	61.8	27.2	61.8	.0	.0	
7	2.3	33.0	.0	.0	.0	.0	.0	.0	.0	.0	70.4	32.1	70.4	.0	.0	
8	2.6	37.4	.0	.0	.0	.0	.0	.0	.0	.0	74.2	34.7	74.2	.0	.0	
9	4.0	57.7	.0	.0	.0	.0	.0	.0	.0	.0	69.4	31.3	69.4	.0	.0	
10	4.4	63.4	.0	.0	.0	.0	.0	.0	.0	.0	67.7	30.7	67.7	.0	.0	
11	5.3	76.4	.0	.0	.0	.0	.0	.0	.0	.0	60.5	26.5	60.5	.0	.0	
12	3.6	51.3	.0	.0	.0	.0	.0	.0	.0	.0	65.0	28.7	65.0	.0	.0	
13	2.4	34.4	.0	.0	.0	.0	.0	.0	.0	.0	59.1	25.3	59.1	.0	.0	
14	2.4	34.1	.0	.0	.0	.0	.0	.0	.0	.0	59.3	25.7	59.3	.0	.0	
15	1.9	27.6	.0	.0	.0	.0	.0	.0	.0	.0	48.4	19.6	48.4	.0	.0	
16	2.3	33.4	.0	.0	.0	.0	.0	.0	.0	.0	50.8	21.2	50.8	.0	.0	
17	3.2	45.3	.0	.0	.0	.0	.0	.0	.0	.0	58.3	25.3	58.3	.0	.0	
18	4.0	57.0	.0	.0	.0	.0	.0	.0	.0	.0	63.4	28.1	63.4	.0	.0	
19	2.7	38.4	.0	.0	.0	.0	.0	.0	.0	.0	57.7	24.7	57.7	.0	.0	
20	2.0	29.3	.0	.0	.0	.0	.0	.0	.0	.0	54.3	23.2	54.3	.0	.0	
21	1.9	26.9	.0	.0	.0	.0	.0	.0	.0	.0	49.7	20.1	49.7	.0	.0	
22	2.6	38.0	.0	.0	.0	.0	.0	.0	.0	.0	54.1	22.7	54.1	.0	.0	
23	2.4	34.7	.0	.0	.0	.0	.0	.0	.0	.0	53.6	22.3	53.6	.0	.0	
24	2.0	29.2	.0	.0	.0	.0	.0	.0	.0	.0	53.2	22.4	53.2	.0	.0	
25	2.6	37.0	.0	.0	.0	.0	.0	.0	.0	.0	54.3	22.9	54.3	.0	.0	
26	2.1	29.8	.0	.0	.0	.0	.0	.0	.0	.0	53.7	22.5	53.7	.0	.0	
27	3.0	43.4	.0	.0	.0	.0	.0	.0	.0	.0	59.9	25.9	59.9	.0	.0	
28	3.2	45.5	.0	.0	.0	.0	.0	.0	.0	.0	61.7	27.0	61.7	.0	.0	
29	2.4	34.0	.0	.0	.0	.0	.0	.0	.0	.0	61.5	27.1	61.5	.0	.0	
30	3.1	45.0	.0	.0	.0	.0	.0	.0	.0	.0	61.5	27.0	61.5	.0	.0	
31	3.0	42.8	.0	.0	.0	.0	.0	.0	.0	.0	62.1	27.4	62.1	.0	.0	
=====																
	84.1	1206.6	.0	.0	.0	.0	.0	.0	.0	.0	1820.2	788.1	1820.2	.0	.0	

SEP , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	1.7	.0	2.3	33.5	33.5	45.0	19.4	10.0	15.6	45.0	10.7	.0	.0	15.6	.0
2	1.2	.0	1.7	25.0	25.0	44.2	18.4	4.2	21.7	44.2	4.5	.0	.0	21.7	.0
3	1.7	.0	2.3	33.4	33.4	45.2	20.9	8.7	15.7	45.2	9.3	.0	.0	15.7	.0
4	1.5	.0	2.1	30.7	30.7	45.0	21.3	6.2	17.5	45.0	6.6	.0	.0	17.5	.0
5	2.1	.0	2.7	39.2	39.2	44.0	22.2	12.1	9.7	44.0	13.0	.0	.0	9.7	.0
6	1.6	.0	2.2	31.5	31.5	39.5	17.5	10.0	11.9	39.5	10.8	.0	.0	11.9	.0
7	1.3	.0	1.8	26.0	26.0	40.3	18.1	5.1	17.0	40.3	5.5	.0	.0	17.0	.0
8	.8	.0	1.2	17.7	17.7	41.1	15.7	.6	24.7	41.1	.7	.0	.0	24.7	.0
9	.8	.0	1.3	18.4	18.4	43.4	16.7	.4	26.3	43.4	.4	.0	.0	26.3	.0
10	1.0	.0	1.5	20.9	20.9	44.0	16.9	2.1	25.0	44.0	2.3	.0	.0	25.0	.0
11	1.5	.0	2.0	28.8	28.8	45.7	19.6	6.1	19.9	45.7	6.6	.0	.0	19.9	.0
12	1.4	.0	2.0	28.2	28.2	46.4	20.4	5.0	21.0	46.4	5.4	.0	.0	21.0	.0
13	2.1	.0	2.7	38.7	38.7	46.9	21.3	12.5	13.2	46.9	13.4	.0	.0	13.2	.0
14	1.3	.0	1.8	26.1	26.1	41.8	17.7	5.6	18.5	41.8	6.0	.0	.0	18.5	.0
15	1.4	.0	1.9	27.7	27.7	41.9	18.5	6.2	17.2	41.9	6.7	.0	.0	17.2	.0
16	1.2	.0	1.7	24.9	24.9	42.0	16.8	5.4	19.9	42.0	5.8	.0	.0	19.9	.0
17	1.2	.0	1.7	24.7	24.7	42.2	18.1	4.1	19.9	42.2	4.5	.0	.0	19.9	.0
18	1.0	.0	1.5	20.9	20.9	41.5	16.8	2.3	22.5	41.5	2.5	.0	.0	22.5	.0
19	2.6	.0	3.5	49.8	49.8	39.2	20.8	12.8	5.6	39.2	23.4	.0	.0	5.6	.0
20	3.8	.0	4.8	68.7	68.7	38.0	20.9	17.2	.0	38.0	20.9	.0	21.7	.0	.0
21	4.2	.0	5.4	77.0	77.0	32.1	17.3	14.8	.0	32.1	16.7	.0	38.7	.0	.0
22	4.0	.0	5.0	72.0	72.0	33.6	17.5	16.0	.0	33.6	16.2	.0	34.1	.0	.0
23	2.6	.0	3.6	51.4	51.4	33.9	16.6	17.2	.0	33.9	18.5	.0	11.7	.0	.0
24	2.9	.0	3.9	56.1	56.1	34.4	20.0	14.4	.0	34.4	18.8	.0	12.5	.0	.0
25	2.0	.0	2.9	41.0	41.0	36.6	20.2	16.4	.0	36.6	15.1	.0	1.5	.0	.0
26	1.8	.0	2.6	36.6	36.6	40.1	22.6	17.4	.0	40.1	10.4	.0	.0	.0	.0
27	4.5	.0	5.6	80.6	80.6	30.6	16.0	13.8	.9	30.6	25.0	.0	34.1	.9	.0
28	2.8	.0	3.7	53.0	53.0	29.2	15.7	13.6	.0	29.2	14.2	.0	19.4	.0	.0
29	4.3	.0	5.4	77.6	77.6	29.3	16.2	13.1	.0	29.3	14.3	.0	43.3	.0	.0
30	4.2	.0	5.2	75.3	75.3	31.0	16.5	14.5	.0	31.0	14.6	.0	40.4	.0	.0

	64.8	.0	86.1	1235.4	1235.4	1188.1	556.5	287.9	343.7	1188.1	322.7	.0	257.4	343.7	.0

SEP. 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		SUPPLIED FROM									E	T	INPUT	DEFICIT
				PV-I E	PV-I T	E-S E	E-S T	E-X E	E-X T	TOTAL OUTPUT						
=====																
1	2.3	33.5	.0	.0	.0	.0	.0	.0	.0	.0	60.1	26.0	60.1	.0	.0	
2	1.7	25.0	.0	.0	.0	.0	.0	.0	.0	.0	58.8	25.2	58.8	.0	.0	
3	2.3	33.4	.0	.0	.0	.0	.0	.0	.0	.0	60.2	26.2	60.2	.0	.0	
4	2.1	30.7	.0	.0	.0	.0	.0	.0	.0	.0	59.8	26.0	59.8	.0	.0	
5	2.7	39.2	.0	.0	.0	.0	.0	.0	.0	.0	57.8	25.0	57.8	.0	.0	
6	2.2	31.5	.0	.0	.0	.0	.0	.0	.0	.0	50.2	20.5	50.2	.0	.0	
7	1.8	26.0	.0	.0	.0	.0	.0	.0	.0	.0	51.2	21.3	51.2	.0	.0	
8	1.2	17.7	.0	.0	.0	.0	.0	.0	.0	.0	52.9	22.1	52.9	.0	.0	
9	1.3	18.4	.0	.0	.0	.0	.0	.0	.0	.0	57.2	24.4	57.2	.0	.0	
10	1.5	20.9	.0	.0	.0	.0	.0	.0	.0	.0	58.4	25.0	58.4	.0	.0	
11	2.0	28.8	.0	.0	.0	.0	.0	.0	.0	.0	61.1	26.7	61.1	.0	.0	
12	2.0	28.2	.0	.0	.0	.0	.0	.0	.0	.0	62.0	27.4	62.0	.0	.0	
13	2.7	38.7	.0	.0	.0	.0	.0	.0	.0	.0	63.0	27.9	63.0	.0	.0	
14	1.8	26.1	.0	.0	.0	.0	.0	.0	.0	.0	54.1	22.8	54.1	.0	.0	
15	1.9	27.7	.0	.0	.0	.0	.0	.0	.0	.0	53.9	22.9	53.9	.0	.0	
16	1.7	24.9	.0	.0	.0	.0	.0	.0	.0	.0	54.9	23.0	54.9	.0	.0	
17	1.7	24.7	.0	.0	.0	.0	.0	.0	.0	.0	54.9	23.2	54.9	.0	.0	
18	1.5	20.9	.0	.0	.0	.0	.0	.0	.0	.0	53.8	22.5	53.8	.0	.0	
19	3.5	49.8	.0	.0	.0	.0	.0	.0	.0	.0	49.4	20.2	49.4	.0	.0	
20	4.8	68.7	.0	.0	.0	.0	.0	.0	.0	.0	46.6	19.0	46.6	.0	.0	
21	5.4	77.0	.0	.0	.0	.0	.0	.0	.0	.0	33.7	13.1	33.7	.0	.0	
22	5.0	72.0	.0	.0	.0	.0	.0	.0	.0	.0	37.2	14.6	37.2	.0	.0	
23	3.6	51.4	.0	.0	.0	.0	.0	.0	.0	.0	38.8	14.9	38.8	.0	.0	
24	3.9	56.1	.0	.0	.0	.0	.0	.0	.0	.0	40.1	15.4	40.1	.0	.0	
25	2.9	41.0	.0	.0	.0	.0	.0	.0	.0	.0	43.9	17.6	43.9	.0	.0	
26	2.6	36.6	.0	.0	.0	.0	.0	.0	.0	.0	51.0	21.1	51.0	.0	.0	
27	5.6	80.6	.0	.0	.0	.0	.0	.0	.0	.0	31.7	11.6	31.7	.0	.0	
28	3.7	53.0	.0	.0	.0	.0	.0	.0	.0	.0	27.8	10.2	27.8	.0	.0	
29	5.4	77.6	.0	.0	.0	.0	.0	.0	.0	.0	27.0	10.3	27.0	.0	.0	
30	5.2	75.3	.0	.0	.0	.0	.0	.0	.0	.0	31.4	12.0	31.4	.0	.0	
=====																
	86.1	1235.4	.0	.0	.0	.0	.0	.0	.0	.0	1482.9	618.1	1482.9	.0	.0	

OCT , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	°U SQ-M	PER SQ-M	°U SQ-M			PV-1	E-S	E-X		PV-1	E-X			
1	.3	.0	1.2	16.7	16.7	34.4	12.8	14.5	7.1	34.4	2.5	.0	.0	7.1	.0
2	.3	.0	1.1	16.3	16.3	37.7	14.3	.7	22.6	37.7	.8	.0	.0	22.6	.0
3	2.6	.0	3.5	50.7	50.7	36.4	17.9	12.8	5.7	36.4	25.0	.0	2.0	5.7	.0
4	4.4	.0	5.4	77.8	77.8	35.6	18.1	17.5	.0	35.6	19.0	.0	35.9	.0	.0
5	3.9	.0	4.9	70.7	70.7	36.6	18.6	18.0	.0	36.6	18.1	.0	29.5	.0	.0
6	3.6	.0	4.5	65.0	65.0	37.4	19.8	17.6	.0	37.4	19.5	.0	20.8	.0	.0
7	1.4	.0	2.0	28.0	28.0	40.9	18.4	16.6	5.9	40.9	7.0	.0	.0	5.9	.0
8	1.3	.0	1.8	25.4	25.4	42.3	19.2	3.8	19.3	42.3	4.1	.0	.0	19.3	.0
9	1.1	.0	1.7	23.8	23.8	39.3	17.2	4.2	17.9	39.3	4.5	.0	.0	17.9	.0
10	3.8	.0	4.8	69.2	69.2	38.1	19.1	13.4	5.5	38.1	25.0	.0	19.3	5.5	.0
11	2.7	.0	3.5	50.4	50.4	35.9	18.6	17.3	.0	35.9	19.1	.0	8.0	.0	.0
12	2.5	.0	3.3	46.9	46.9	36.8	18.1	18.7	.0	36.8	18.7	.0	5.4	.0	.0
13	1.8	.0	2.5	36.1	36.1	38.3	18.3	20.0	.0	38.3	13.9	.0	.0	.0	.0
14	1.8	.0	2.5	36.0	36.0	40.3	19.4	13.9	7.0	40.3	12.8	.0	.0	7.0	.0
15	1.8	.0	2.5	36.0	36.0	40.3	19.4	11.9	9.0	40.3	12.8	.0	.0	9.0	.0
16	1.8	.0	2.5	35.5	35.5	40.3	19.3	11.7	9.3	40.3	12.6	.0	.0	9.3	.0
17	2.7	.0	3.5	50.3	50.3	40.5	20.1	14.8	5.7	40.5	24.4	.0	.0	5.7	.0
18	3.3	.0	4.2	60.0	60.0	35.6	17.5	18.1	.0	35.6	21.6	.0	15.8	.0	.0
19	3.8	.0	4.7	68.0	68.0	36.5	18.3	18.2	.0	36.5	19.4	.0	25.4	.0	.0
20	2.0	.0	2.7	38.4	38.4	36.2	19.1	17.1	.0	36.2	15.2	.0	.0	.0	.0
21	.8	.0	1.3	19.3	19.0	35.8	16.7	7.6	11.5	35.8	.9	.0	.0	11.5	.0
22	.8	.0	1.3	19.3	19.0	35.8	16.7	.8	18.3	35.8	.9	.0	.0	18.3	.0
23	3.7	.0	4.6	66.4	66.4	29.2	14.2	11.6	3.4	29.2	25.0	.0	21.6	3.9	.0
24	5.1	.0	6.2	89.5	89.6	21.4	10.1	11.3	.0	21.4	17.6	.0	57.3	.0	.0
25	4.8	.0	5.9	85.1	85.1	22.9	10.8	12.1	.0	22.9	16.3	.0	53.6	.0	.0
26	5.0	.0	6.2	88.2	88.2	21.8	10.2	11.6	.0	21.8	17.2	.0	55.8	.0	.0
27	5.0	.0	6.1	88.2	88.2	24.5	12.2	12.3	.0	24.5	16.5	.0	55.1	.0	.0
28	3.4	.0	4.3	61.1	61.1	27.1	12.7	14.4	.0	27.1	15.1	.0	29.6	.0	.0
29	2.0	.0	2.8	40.1	40.1	29.0	13.7	15.3	.0	29.0	16.3	.0	6.2	.0	.0
30	1.8	.0	2.6	37.1	37.1	28.1	13.9	14.2	.0	28.1	17.3	.0	1.8	.0	.0
31	4.4	.0	5.5	78.7	78.7	24.6	11.4	13.2	.0	24.6	15.2	.0	48.6	.0	.0

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84.7 .0 109.7 1573.3 1573.8 1059.7 506.2 405.2 148.2 1059.7 454.0 .0 491.6 148.7 .0

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD TOTAL	THERMAL OUTPUT						A/C LOAD	A/C OUTPUT		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL		PV-I E	PV-T	SUPPLIED FROM		E-X E	E-A T		TOTAL OUTPUT	E			T
						E-S E	E-S T								
1	1.2	16.7	.0	.0	.0	.0	.0	.0	.0	.0	38.5	14.4	38.5	.0	.0
2	1.1	16.3	.0	.0	.0	.0	.0	.0	.0	.0	44.9	17.7	44.9	.0	.0
3	3.5	50.7	.0	.0	.0	.0	.0	.0	.0	.0	42.2	16.4	42.2	.0	.0
4	5.4	77.8	.0	.0	.0	.0	.0	.0	.0	.0	40.0	15.6	40.0	.0	.0
5	4.9	70.7	.0	.0	.0	.0	.0	.0	.0	.0	41.1	16.6	41.1	.0	.0
6	4.5	65.0	.0	.0	.0	.0	.0	.0	.0	.0	42.9	17.4	42.9	.0	.0
7	2.0	28.0	.0	.0	.0	.0	.0	.0	.0	.0	50.4	20.9	50.4	.0	.0
8	1.8	25.4	.0	.0	.0	.0	.0	.0	.0	.0	53.2	22.3	53.2	.0	.0
9	1.7	23.8	.0	.0	.0	.0	.0	.0	.0	.0	47.7	19.3	47.7	.0	.0
10	4.8	69.2	.0	.0	.0	.0	.0	.0	.0	.0	45.0	18.1	45.0	.0	.0
11	3.5	50.4	.0	.0	.0	.0	.0	.0	.0	.0	40.0	15.9	40.0	.0	.0
12	3.3	46.9	.0	.0	.0	.0	.0	.0	.0	.0	42.1	16.8	42.1	.0	.0
13	2.5	36.1	.0	.0	.0	.0	.0	.0	.0	.0	45.4	18.3	45.4	.0	.0
14	2.5	36.0	.0	.0	.0	.0	.0	.0	.0	.0	49.2	20.3	49.2	.0	.0
15	2.5	36.0	.0	.0	.0	.0	.0	.0	.0	.0	49.2	20.3	49.2	.0	.0
16	2.5	35.5	.0	.0	.0	.0	.0	.0	.0	.0	49.2	20.3	49.2	.0	.0
17	3.5	50.3	.0	.0	.0	.0	.0	.0	.0	.0	49.4	20.5	49.4	.0	.0
18	4.2	60.0	.0	.0	.0	.0	.0	.0	.0	.0	40.1	15.6	40.1	.0	.0
19	4.7	68.0	.0	.0	.0	.0	.0	.0	.0	.0	41.2	16.5	41.2	.0	.0
20	2.7	38.4	.0	.0	.0	.0	.0	.0	.0	.0	40.8	16.2	40.8	.0	.0
21	1.3	19.0	.0	.0	.0	.0	.0	.0	.0	.0	41.0	15.8	41.0	.0	.0
22	1.3	19.0	.0	.0	.0	.0	.0	.0	.0	.0	41.0	15.8	41.0	.0	.0
23	4.6	66.4	1.7	.1	.3	.0	.0	.5	1.4	1.7	24.2	9.2	24.2	.0	.0
24	6.2	89.6	9.1	.7	2.0	2.4	7.1	.0	.0	9.1	4.7	1.4	4.7	.0	.0
25	5.9	85.1	11.8	.8	2.2	3.4	9.6	.0	.0	11.8	6.7	2.9	8.7	.0	.0
26	6.2	88.2	15.3	1.2	3.2	4.4	12.1	.0	.0	15.3	5.6	1.8	5.6	.0	.0
27	6.1	88.2	9.1	.5	1.3	2.8	7.8	.0	.0	9.1	13.0	4.5	13.0	.0	.0
28	4.3	61.1	5.0	.2	.5	1.5	4.5	.0	.0	5.0	19.7	7.1	19.7	.0	.0
29	2.8	40.1	.2	.0	.0	.1	.2	.0	.0	.2	25.1	9.0	25.1	.0	.0
30	2.6	37.1	.0	.0	.0	.0	.0	.0	.0	.0	23.9	8.1	23.9	.0	.0
31	5.5	78.7	3.1	.0	.0	1.1	3.1	.0	.0	3.1	14.3	4.6	14.3	.0	.0
=====															
	109.7	1573.8	55.2	3.4	9.4	15.7	44.4	.5	1.4	55.2	1113.7	439.7	1113.7	.0	.0

NOV , 1963 - MOBILE, ALABAMA - (H)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	2.9	.0	3.7	53.7	53.7	22.1	9.2	12.8	.0	22.1	17.9	.0	21.8	.0	.0
2	2.8	.0	3.6	51.4	51.4	21.0	8.5	12.5	.0	21.0	19.1	.0	19.1	.0	.0
3	2.4	.0	3.1	44.9	44.9	21.0	8.5	12.5	.0	21.0	15.9	.0	16.5	.0	.0
4	2.5	.0	3.4	48.1	48.1	21.0	8.4	12.6	.0	21.0	16.5	.0	17.8	.0	.0
5	4.4	.0	5.5	78.6	78.6	21.0	8.4	12.6	.0	21.0	20.2	.0	44.9	.0	.0
6	4.2	.0	5.2	74.8	74.8	21.0	8.4	12.6	.0	21.0	20.1	.0	40.9	.0	.0
7	2.2	.0	2.9	42.1	42.1	21.0	8.5	12.5	.0	21.0	16.6	.0	13.1	.0	.0
8	1.9	.0	2.6	37.9	37.9	21.0	8.9	12.1	.0	21.0	13.3	.0	12.6	.0	.0
9	4.0	.0	4.9	71.0	71.0	21.0	8.5	12.5	.0	21.0	15.3	.0	42.8	.0	.0
10	4.3	.0	5.4	77.1	77.1	21.0	8.3	12.7	.0	21.0	20.6	.0	42.6	.0	.0
11	2.4	.0	3.1	44.4	44.4	21.0	8.5	12.5	.0	21.0	15.8	.0	16.4	.0	.0
12	2.8	.0	3.5	50.5	50.5	21.0	8.4	12.6	.0	21.0	13.5	.0	25.6	.0	.0
13	3.9	.0	4.9	70.6	70.6	21.0	8.3	12.7	.0	21.0	15.5	.0	42.8	.0	.0
14	4.1	.0	5.1	72.8	72.8	21.0	8.3	12.7	.0	21.0	17.3	.0	42.4	.0	.0
15	2.3	.0	3.0	43.2	43.2	21.0	8.5	12.5	.0	21.0	18.3	.0	12.0	.0	.0
16	1.6	.0	2.2	31.8	31.8	21.0	8.7	12.3	.0	21.0	13.6	.0	6.4	.0	.0
17	1.6	.0	2.3	32.7	32.7	21.0	9.5	11.5	.0	21.0	13.2	.0	7.0	.0	.0
18	1.8	.0	2.4	34.6	34.6	21.0	8.3	12.7	.0	21.0	12.4	.0	10.9	.0	.0
19	2.8	.0	3.6	51.4	51.4	21.0	8.4	12.6	.0	21.0	17.5	.0	20.8	.0	.0
20	1.7	.0	2.4	33.7	33.7	21.0	8.8	12.2	.0	21.0	14.6	.0	6.4	.0	.0
21	2.0	.0	2.7	39.0	39.0	21.0	8.3	12.7	.0	21.0	13.1	.0	14.6	.0	.0
22	3.7	.0	4.7	66.7	66.7	21.0	8.3	12.7	.0	21.0	16.2	.0	38.4	.0	.0
23	4.4	.0	5.5	79.4	79.4	21.0	8.3	12.7	.0	21.0	19.8	.0	45.9	.0	.0
24	3.2	.0	4.1	58.8	58.8	21.0	8.3	12.7	.0	21.0	20.1	.0	25.1	.0	.0
25	2.1	.0	2.8	39.8	39.8	21.0	8.3	12.7	.0	21.0	17.3	.0	10.1	.0	.0
26	3.3	.0	4.1	58.9	58.9	21.0	8.3	12.7	.0	21.0	16.4	.0	29.7	.0	.0
27	2.1	.0	2.8	40.8	40.8	21.0	8.3	12.7	.0	21.0	20.4	.0	5.7	.0	.0
28	1.8	.0	2.4	34.8	34.8	21.0	8.3	12.7	.0	21.0	15.7	.0	6.3	.0	.0
29	1.6	.0	2.2	32.0	32.0	21.0	8.4	12.6	.0	21.0	15.9	.0	3.4	.0	.0
30	1.5	.0	2.1	30.0	30.0	21.0	8.4	12.6	.0	21.0	14.8	.0	3.5	.0	.0

	82.4	.0	106.4	1525.6	1525.6	631.1	254.7	376.4	.0	631.1	496.7	.0	645.4	.0	.0

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT TOTAL		THERMAL LOAD TOTAL	THERMAL OUTPUT SUPPLIED FROM						A/C LOAD	A/C OUTPUT		AUX. THERMAL INPUT	THERMAL LOAD DEFICIT	
	PER SQ-M	TOTAL SQ-M		PV-1 E	PV-1 T	E-S E	E-S T	E-X E	E-X T		TOTAL OUTPUT	E			T
1	3.7	53.7	16.5	.9	2.5	5.0	14.0	.0	.0	16.5	3.6	1.1	3.6	.0	.0
2	3.6	51.4	12.8	.6	1.9	3.9	10.9	.0	.0	12.8	.0	.0	.0	.0	.0
3	3.1	44.9	8.9	.5	1.4	2.6	7.5	.0	.0	8.9	.0	.0	.0	.0	.0
4	3.4	48.1	17.0	1.7	4.9	4.3	12.1	.0	.0	17.0	.0	.0	.0	.0	.0
5	5.5	78.6	17.9	.9	2.5	5.5	15.5	.0	.0	17.9	.0	.0	.0	.0	.0
6	5.2	74.8	18.2	1.2	3.5	5.4	14.8	.0	.0	18.2	.0	.0	.0	.0	.0
7	2.9	42.1	5.8	.3	.8	1.7	5.0	.0	.0	5.8	.0	.0	.0	.0	.0
8	2.6	37.9	1.6	.0	.0	.6	1.6	.0	.0	1.6	.0	.0	.0	.0	.0
9	4.9	71.0	14.4	1.0	2.8	4.1	11.6	.0	.0	14.4	.0	.0	.0	.0	.0
10	5.4	77.1	16.5	1.2	3.4	4.6	13.1	.0	.0	16.5	.0	.0	.0	.0	.0
11	3.1	44.4	4.9	.2	.7	1.5	4.2	.0	.0	4.9	.0	.0	.0	.0	.0
12	3.5	50.5	1.3	.0	.0	.5	1.3	.0	.0	1.3	.0	.0	.0	.0	.0
13	4.9	70.6	7.9	.7	1.9	2.1	6.0	.0	.0	7.9	.0	.0	.0	.0	.0
14	5.1	72.8	14.1	1.0	2.8	4.0	11.3	.0	.0	14.1	.0	.0	.0	.0	.0
15	3.0	43.2	9.8	.5	1.5	3.0	8.3	.0	.0	9.8	.0	.0	.0	.0	.0
16	2.2	31.8	.5	.1	.2	.1	.3	.0	.0	.5	.0	.0	.0	.0	.0
17	2.3	32.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	2.4	34.6	3.6	.1	.4	1.1	3.2	.0	.0	3.6	.0	.0	.0	.0	.0
19	3.6	51.4	10.5	1.1	3.0	2.6	7.6	.0	.0	10.5	.0	.0	.0	.0	.0
20	2.4	33.7	4.1	.6	1.9	.8	2.2	.0	.0	4.1	.0	.0	.0	.0	.0
21	2.7	39.0	2.3	.0	.0	.8	2.3	.0	.0	2.3	.0	.0	.0	.0	.0
22	4.7	66.7	9.6	.3	.9	3.0	8.7	.0	.0	9.6	.0	.0	.0	.0	.0
23	5.5	79.4	20.8	1.2	3.5	6.3	17.3	.0	.0	20.8	.0	.0	.0	.0	.0
24	4.1	58.8	17.1	1.1	3.3	5.0	13.9	.0	.0	17.1	.0	.0	.0	.0	.0
25	2.8	39.8	8.5	.4	1.1	2.7	7.5	.0	.0	8.5	.0	.0	.0	.0	.0
26	4.1	58.9	14.5	.9	2.6	4.2	11.9	.0	.0	14.5	.0	.0	.0	.0	.0
27	2.8	40.8	18.6	2.0	5.5	4.8	13.2	.0	.0	18.6	.0	.0	.0	.0	.0
28	2.4	34.8	8.6	.9	2.5	2.1	6.1	.0	.0	8.6	.0	.0	.0	.0	.0
29	2.2	32.0	8.1	.9	2.5	1.9	5.6	.0	.0	8.1	.0	.0	.0	.0	.0
30	2.1	30.0	2.1	.1	.3	.6	1.8	.0	.0	2.1	.0	.0	.0	.0	.0
=====															
	106.4	1525.6	296.7	20.4	58.0	84.9	238.6	.0	.0	296.7	3.6	1.1	3.6	.0	.0

DEC . 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM					
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X			
1	3.1	.0	3.9	55.6	55.6	22.0	8.7	13.3	.0	22.0	14.5	.0	28.9	.0	.0
2	2.6	.0	3.3	47.8	47.8	22.0	8.7	13.3	.0	22.0	15.7	.0	19.6	.0	.0
3	3.3	.0	4.1	58.6	58.6	22.0	8.7	13.3	.0	22.0	17.9	.0	27.3	.0	.0
4	2.6	.0	3.3	47.7	47.7	22.0	8.7	13.3	.0	22.0	14.3	.0	21.5	.0	.0
5	1.9	.0	2.6	36.9	36.9	22.0	8.7	13.3	.0	22.0	15.0	.0	7.9	.0	.0
6	4.4	.0	5.5	79.5	79.5	22.0	8.6	13.4	.0	22.0	24.5	.0	36.7	.0	.0
7	3.7	.0	4.7	66.7	66.7	22.0	8.7	13.3	.0	22.0	25.0	.0	26.3	.2	.0
8	3.2	.0	4.0	56.6	56.8	22.0	8.6	13.4	.0	22.0	15.9	.0	28.1	.0	.0
9	4.4	.0	5.5	78.9	78.9	22.0	8.6	13.4	.0	22.0	22.2	.0	39.9	.0	.0
10	4.6	.0	5.7	81.6	81.6	22.0	8.7	13.0	.4	22.0	25.0	.0	38.1	1.3	.0
11	1.8	.0	2.4	34.5	34.5	22.0	8.7	13.3	.0	22.0	19.4	.0	.0	.0	.0
12	4.4	.0	5.5	79.3	79.3	22.0	8.7	10.7	2.6	22.0	25.0	.0	27.5	10.0	.0
13	4.6	.0	5.7	82.4	82.4	22.0	8.7	10.0	3.3	22.0	25.0	.0	30.1	17.9	.0
14	3.8	.0	4.8	68.6	68.6	22.0	8.7	10.9	2.4	22.0	25.0	.0	24.8	7.2	.0
15	2.2	.0	2.9	42.0	42.0	23.0	9.0	14.0	.0	23.0	25.0	.0	.9	1.0	.0
16	1.4	.0	2.0	28.0	28.0	23.0	8.6	14.4	.0	23.0	15.2	.0	.0	.0	.0
17	1.5	.0	2.1	29.6	29.8	23.0	8.9	14.1	.0	23.0	15.9	.0	.0	.0	.0
18	1.6	.0	2.2	30.9	30.9	23.0	8.4	12.0	2.6	23.0	17.8	.0	.0	5.1	.0
19	1.2	.0	1.8	25.7	25.7	23.0	9.3	13.7	.0	23.0	13.2	.0	.0	.0	.0
20	1.2	.0	1.8	26.5	26.5	23.0	9.7	12.2	1.1	23.0	13.6	.0	.0	1.1	.0
21	1.2	.0	1.8	26.0	26.0	23.0	10.4	12.0	.6	23.0	12.6	.0	.0	.6	.0
22	1.5	.0	2.1	30.2	30.2	23.0	8.9	12.9	1.2	23.0	16.6	.0	.0	1.7	.0
23	2.7	.0	3.5	49.6	49.6	23.0	8.7	13.2	1.1	23.0	25.0	.0	10.4	1.6	.0
24	1.8	.0	2.4	34.3	34.3	23.0	8.6	14.4	.0	23.0	17.7	.0	.0	.0	.8
25	1.6	.0	2.2	32.0	32.0	23.0	8.7	14.1	.2	23.0	16.7	.0	.0	.6	.0
26	1.7	.0	2.3	32.4	32.4	23.0	8.7	11.8	2.5	23.0	17.2	.0	.0	4.1	.0
27	1.5	.0	2.1	29.6	29.8	23.0	8.9	12.1	2.1	23.0	15.9	.0	.0	3.0	.0
28	1.4	.0	2.0	29.1	29.1	23.0	9.0	11.4	2.6	23.0	15.3	.0	.0	4.1	.0
29	1.5	.0	2.2	31.7	31.7	23.0	9.2	13.8	.0	23.0	18.6	.0	.0	.0	.0
30	3.2	.0	4.1	58.7	58.7	23.0	9.0	13.4	.6	23.0	25.0	.0	17.0	2.0	.0
31	4.1	.0	5.1	73.6	73.6	23.0	9.2	13.8	.0	23.0	23.9	.0	33.2	.0	.0
=====															
	79.8	.0	103.6	1485.5	1485.5	699.0	274.3	401.3	23.4	699.0	589.7	.0	418.2	61.7	.0

DEC , 1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

DAY	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		SUPPLIED FROM									E	I	INPUT	DEFICIT
				PV-1 E	PV-1 T	E-S E	E-S T	E-X E	E-X T	TOTAL OUTPUT						
1	3.9	55.6	3.6	.3	.9	.9	2.7	.0	.0	3.6	.0	.0	.0	.0		
2	3.3	47.8	6.1	.4	1.0	1.8	5.1	.0	.0	6.1	.0	.0	.0	.0		
3	4.1	58.6	9.9	.9	2.7	2.5	7.2	.0	.0	9.9	.0	.0	.0	.0		
4	3.3	47.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0		
5	2.6	36.9	17.5	1.9	5.4	4.4	12.1	.0	.0	17.5	.0	.0	.0	.0		
6	5.5	79.5	40.5	4.4	12.3	10.2	28.2	.0	.0	40.5	.0	.0	.0	.0		
7	4.7	66.7	20.1	1.5	4.5	5.6	15.2	.2	.5	20.1	.0	.0	.0	.0		
8	4.0	56.8	13.4	.6	1.7	4.2	11.7	.0	.0	13.4	.0	.0	.0	.0		
9	5.5	78.9	34.3	3.3	9.3	9.0	24.9	.0	.0	34.3	.0	.0	.0	.0		
10	5.7	81.6	42.6	4.5	12.5	10.3	27.4	1.0	2.7	42.6	.0	.0	.0	.0		
11	2.4	34.5	33.3	2.1	6.0	10.1	27.3	.0	.0	33.3	.0	.0	.0	.0		
12	5.5	79.3	83.7	12.2	29.7	14.8	36.4	7.3	17.6	83.7	.0	.0	.0	.0		
13	5.7	82.4	87.0	12.6	30.2	9.8	25.2	14.6	31.6	87.0	.0	.0	.0	.0		
14	4.8	68.6	47.2	4.8	13.0	8.3	22.6	4.8	11.7	47.2	.0	.0	.0	.0		
15	2.9	42.0	25.7	1.8	4.9	6.6	18.0	1.0	2.7	25.7	.0	.0	.0	.0		
16	2.0	28.0	12.7	.8	2.3	3.8	10.4	.0	.0	12.7	.0	.0	.0	.0		
17	2.1	29.8	17.6	1.5	4.4	4.5	13.1	.0	.0	17.6	.0	.0	.0	.0		
18	2.2	30.9	16.3	.9	2.4	2.5	7.1	2.5	6.8	16.3	.0	.0	.0	.0		
19	1.8	25.7	4.4	.1	.3	1.5	4.1	.0	.0	4.4	.0	.0	.0	.0		
20	1.8	26.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0		
21	1.8	26.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0		
22	2.1	30.2	7.8	1.1	3.2	1.2	3.4	.4	1.2	7.8	.0	.0	.0	.0		
23	3.5	49.6	8.9	.5	1.4	2.1	6.1	.5	1.4	8.9	.0	.0	.0	.0		
24	2.4	34.3	29.2	4.0	10.8	6.8	18.4	.0	.0	29.2	.0	.0	.0	.0		
25	2.2	32.0	24.9	2.8	7.8	5.7	15.8	.5	1.3	24.9	.0	.0	.0	.0		
26	2.3	32.4	22.9	2.7	7.6	3.8	10.6	1.6	4.7	22.9	.0	.0	.0	.0		
27	2.1	29.8	16.3	1.5	4.2	3.3	9.4	1.0	2.7	16.3	.0	.0	.0	.0		
28	2.0	29.1	12.3	1.3	3.6	1.7	4.7	1.5	4.1	12.3	.0	.0	.0	.0		
29	2.2	31.7	3.8	.0	.0	1.3	3.8	.0	.0	3.8	.0	.0	.0	.0		
30	4.1	58.7	27.4	2.4	6.8	6.0	16.6	1.5	3.9	27.4	.0	.0	.0	.0		
31	5.1	73.6	29.2	2.2	5.9	8.5	23.3	.0	.0	29.2	.0	.0	.0	.0		
=====																
103.6 1485.5 698.4 73.0 194.8 151.0 410.9 38.3 92.7 698.4 .0 .0 .0 .0 .0																

1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE SUPPLIED FROM		PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM				
	PER SQ-M	PER SQ-M	PER SQ-M	PER SQ-M			PV-1	E-S	E-X		PV-1	E-X			
JAN	77.	0.	101.	1450.	1450.	662.	288.	379.	15.	682.	639.	0.	281.	63.	0.
FEB	103.	0.	132.	1689.	1689.	616.	279.	336.	1.	616.	571.	0.	821.	6.	0.
MAR	104.	0.	136.	1957.	1957.	888.	474.	405.	9.	888.	486.	0.	864.	9.	0.
APR	89.	0.	121.	1732.	1732.	981.	563.	408.	11.	981.	436.	0.	612.	11.	0.
MAY	87.	0.	121.	1738.	1738.	1147.	696.	450.	1.	1147.	489.	0.	415.	1.	0.
JUN	70.	0.	100.	1439.	1439.	1212.	762.	386.	65.	1212.	403.	0.	146.	65.	0.
JUL	65.	0.	91.	1301.	1301.	1393.	766.	350.	277.	1393.	381.	0.	29.	277.	0.
AUG	60.	0.	84.	1207.	1207.	1346.	701.	337.	308.	1346.	358.	0.	31.	308.	0.
SEP	65.	0.	86.	1235.	1235.	1188.	556.	288.	344.	1188.	323.	0.	257.	344.	0.
OCT	85.	0.	110.	1574.	1574.	1060.	506.	405.	148.	1060.	454.	0.	492.	149.	0.
NOV	82.	0.	106.	1526.	1526.	631.	255.	376.	0.	631.	497.	0.	645.	0.	0.
DEC	80.	0.	104.	1485.	1485.	699.	274.	401.	23.	699.	590.	0.	418.	62.	0.

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967.	0.	1292.	18533.	18533.	11843.	6120.	4522.	1201.	11843.	5626.	0.	5011.	1294.	0.

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1963 - MOBILE, ALABAMA - (W)

(ALL UNITS = KW-HR)

MONTH	PHOTOVOLTAIC INPUT		THERMAL LOAD	THERMAL OUTPUT								A/C LOAD	A/C OUTPUT		AUX. THERMAL LOAD	
	PER SQ-M	TOTAL SQ-M		PV-I E	PV-I T	SUPPLIED FROM E-S E	SUPPLIED FROM E-S T	E-X E	E-X T	TOTAL OUTPUT			E	T	INPUT	DEFICIT
JAN	101.	1450.	948.	101.	264.	212.	567.	49.	117.	948.	0.	0.	0.	0.	0.	0.
FEB	132.	1889.	787.	89.	245.	194.	527.	5.	15.	787.	0.	0.	0.	0.	0.	0.
MAR	136.	1957.	169.	11.	30.	50.	140.	0.	0.	169.	647.	237.	647.	0.	0.	0.
APR	121.	1732.	16.	2.	5.	4.	12.	0.	0.	16.	993.	381.	993.	0.	0.	0.
MAY	121.	1738.	0.	0.	0.	0.	0.	0.	0.	0.	1373.	558.	1373.	0.	0.	0.
JUN	100.	1439.	0.	0.	0.	0.	0.	0.	0.	0.	1592.	672.	1592.	0.	0.	0.
JUL	91.	1301.	0.	0.	0.	0.	0.	0.	0.	0.	1907.	835.	1907.	0.	0.	0.
AUG	84.	1207.	0.	0.	0.	0.	0.	0.	0.	0.	1820.	788.	1820.	0.	0.	0.
SEP	86.	1235.	0.	0.	0.	0.	0.	0.	0.	0.	1483.	618.	1483.	0.	0.	0.
OCT	110.	1574.	55.	3.	9.	16.	44.	0.	1.	55.	1114.	440.	1114.	0.	0.	0.
NOV	106.	1526.	297.	20.	58.	85.	239.	0.	0.	297.	4.	1.	4.	0.	0.	0.
DEC	104.	1485.	698.	73.	195.	151.	411.	38.	93.	698.	0.	0.	0.	0.	0.	0.
=====																
	1292.	18533.	2970.	299.	806.	712.	1939.	93.	226.	2970.	10933.	4530.	10933.	0.	0.	0.

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JUL 1, 1958 - WILMINGTON, DELAWARE - (W 1182)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL	SUPPLIED FROM		TOTAL IN STORAGE			
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-A				
1	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.33	.00	.00	.00
2	.00	.00	.00	.00	.00	.52	.00	.51	.21	.52	.00	1.02	1.02	.00	1.50	.00
3	.00	.00	.00	.00	.00	.46	.00	.46	.00	.46	.00	.00	.53	.00	.00	.00
4	.00	.00	.00	.00	.00	.39	.00	.39	.00	.39	.00	.00	.11	.00	.00	.00
5	.00	.00	.00	.00	.00	.39	.00	.10	.29	.39	.00	.95	.95	.00	1.50	.00
6	.09	.53	.14	.50	1.03	.74	.74	.00	.00	.74	.20	.00	1.15	.00	.00	.00
7	.10	.59	.17	.61	1.20	.87	.87	.00	.00	.87	.22	.00	1.37	.00	.00	.00
8	.13	.76	.23	.83	1.59	1.02	1.02	.00	.00	1.02	.43	.00	1.79	.00	.00	.00
9	.23	1.38	.36	1.30	2.68	1.43	1.43	.00	.00	1.43	.97	.00	2.76	.00	.00	.00
10	.31	1.87	.43	1.53	3.40	1.84	1.84	.00	.00	1.84	1.21	.00	3.97	.00	.00	.00
11	.42	2.52	.53	1.90	4.42	2.18	2.18	.00	.00	2.18	1.77	.00	5.74	.00	.00	.00
12	.49	2.92	.59	2.11	5.03	2.57	2.57	.00	.00	2.57	1.92	.00	7.66	.00	.00	.00
13	.49	2.96	.59	2.13	5.08	2.72	2.72	.00	.00	2.72	1.84	.00	9.50	.00	.00	.00
14	.35	2.08	.43	1.54	3.63	2.77	2.77	.00	.00	2.77	.55	.00	10.04	.00	.00	.00
15	.33	1.95	.44	1.57	3.52	2.83	2.83	.00	.00	2.83	.41	.00	10.45	.00	.00	.00
16	.26	1.58	.40	1.43	3.01	3.05	3.80	.25	.00	3.05	.00	.00	10.18	.00	.00	.00
17	.16	.97	.29	1.04	2.01	2.99	1.87	1.12	.00	2.99	.00	.00	8.98	.00	.00	.00
18	.10	.61	.18	.65	1.26	2.99	1.17	1.82	.00	2.99	.00	.00	7.01	.00	.00	.00
19	.03	.15	.04	.14	.30	2.71	.28	2.43	.00	2.71	.00	.00	4.40	.00	.00	.00
20	.00	.00	.00	.00	.00	2.45	.00	2.45	.00	2.45	.00	.00	1.76	.00	.00	.00
21	.00	.00	.00	.00	.00	2.11	.00	1.64	.47	2.11	.00	.81	.81	.00	1.50	.00
22	.00	.00	.00	.00	.00	1.91	.00	.75	1.16	1.91	.00	.27	.27	.00	1.50	.00
23	.00	.00	.00	.00	.00	1.64	.00	.25	1.39	1.64	.00	.09	.09	.00	1.50	.00
24	.00	.00	.00	.00	.00	.90	.00	.08	.82	.90	.00	.54	.54	.00	1.50	.00
=====																
	3.49	20.88	4.82	17.28	38.16	42.03	25.09	12.59	4.35	42.03	9.50	3.68		.00	9.00	.00

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PHOTOVOLTAIC INPUT						ELECTRICAL LOAD		ELECTRICAL OUTPUT			ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
HOUR	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM		TOTAL IN STORAGE				
	PER SQ-M	50.0	PER SQ-M	30.0			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1		E-X			
1	.00	.00	.00	.00	.00	.74	.00	.50	.24	.74	.00	.99	.99	.00	1.50	.00
2	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.20	.00	.00	.00
3	.00	.00	.00	.00	.00	.74	.00	.18	.56	.74	.00	.74	.74	.00	1.50	.00
4	.00	.00	.00	.00	.00	.67	.00	.67	.00	.67	.00	.00	.03	.00	.00	.00
5	.00	.00	.00	.00	.00	.59	.00	.03	.57	.59	.00	.74	.74	.00	1.50	.00
6	.09	.53	.14	.50	1.03	.87	.87	.00	.00	.87	.08	.00	.81	.00	.00	.00
7	.10	.59	.17	.60	1.18	1.02	1.02	.00	.00	1.02	.08	.00	.89	.00	.00	.00
8	.13	.79	.24	.87	1.66	1.25	1.25	.00	.00	1.25	.26	.00	1.15	.00	.00	.00
9	.20	1.21	.32	1.13	2.34	1.62	1.62	.00	.00	1.62	.51	.00	1.66	.00	.00	.00
10	.29	1.75	.40	1.44	3.18	2.18	2.18	.00	.00	2.18	.71	.00	2.37	.00	.00	.00
11	.40	2.38	.50	1.80	4.17	2.57	2.57	.00	.00	2.57	1.19	.00	3.57	.00	.00	.00
12	.49	2.91	.59	2.11	5.01	2.72	2.72	.00	.00	2.72	1.78	.00	5.34	.00	.00	.00
13	.49	2.94	.59	2.13	5.07	2.77	2.77	.00	.00	2.77	1.77	.00	7.11	.00	.00	.00
14	.43	2.56	.54	1.92	4.48	2.83	2.83	.00	.00	2.83	1.22	.00	8.34	.00	.00	.00
15	.34	2.06	.46	1.65	3.70	2.83	2.83	.00	.00	2.83	.56	.00	8.90	.00	.00	.00
16	.26	1.55	.39	1.40	2.95	3.10	2.74	.36	.00	3.10	.00	.00	8.51	.00	.00	.00
17	.16	.96	.29	1.04	2.00	3.10	1.86	1.24	.00	3.10	.00	.00	7.17	.00	.00	.00
18	.09	.54	.16	.59	1.13	3.05	1.05	2.00	.00	3.05	.00	.00	5.02	.00	.00	.00
19	.09	.51	.13	.48	.99	2.99	.92	2.07	.00	2.99	.00	.00	2.80	.00	.00	.00
20	.00	.00	.00	.00	.00	2.58	.00	2.58	.00	2.58	.00	.00	.02	.00	.00	.00
21	.00	.00	.00	.00	.00	2.11	.00	.02	1.50	1.52	.00	.00	.00	.00	1.50	.59
22	.00	.00	.00	.00	.00	1.91	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.41
23	.00	.00	.00	.00	.00	1.91	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.41
24	.00	.00	.00	.00	.00	.82	.00	.00	.82	.82	.00	.54	.54	.00	1.50	.00
=====																
	3.56	21.26	4.92	17.64	38.90	45.74	27.25	10.39	6.69	44.33	8.16	3.01		.00	10.50	1.41

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PHOTOVOLTAIC INPUT					ELECTRICAL LOAD		ELECTRICAL OUTPUT			ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
HOUR	WATER-COOLED PER SQ-M	PER 50.0 SQ-M	AIR-COOLED PER SQ-M	PER 30.0 SQ-M	TOTAL INPUT	TOTAL	SUPPLIED FROM		TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE				
							PV-1	E-S	E-A		PV-1	E-A				
1	.00	.00	.00	.00	.00	.82	.00	.50	.32	.82	.00	.93	.93	.00	1.50	.00
2	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.13	.00	.00	.00
3	.00	.00	.00	.00	.00	.74	.00	.13	.62	.74	.00	.70	.70	.00	1.50	.00
4	.00	.00	.00	.00	.00	.67	.00	.65	.02	.67	.00	1.17	1.17	.00	1.50	.00
5	.00	.00	.00	.00	.00	.67	.00	.67	.00	.67	.00	.00	.46	.00	.00	.00
6	.09	.53	.14	.50	1.03	.94	.94	.00	.00	.94	.01	.00	.47	.00	.00	.00
7	.10	.59	.17	.60	1.19	1.02	1.02	.00	.00	1.02	.08	.00	.55	.00	.00	.00
8	.15	.88	.27	.97	1.85	1.25	1.25	.00	.00	1.25	.43	.00	.98	.00	.00	.00
9	.23	1.40	.36	1.31	2.70	1.62	1.62	.00	.00	1.62	.81	.00	1.79	.00	.00	.00
10	.27	1.63	.38	1.35	2.98	2.06	2.06	.00	.00	2.06	.65	.00	2.45	.00	.00	.00
11	.43	2.59	.54	1.94	4.53	2.44	2.44	.00	.00	2.44	1.63	.00	4.07	.00	.00	.00
12	.50	2.99	.60	2.15	5.15	2.57	2.57	.00	.00	2.57	2.02	.00	5.09	.00	.00	.00
13	.48	2.89	.58	2.08	4.97	2.83	2.83	.00	.00	2.83	1.64	.00	7.73	.00	.00	.00
14	.40	2.38	.50	1.80	4.19	2.89	2.89	.00	.00	2.89	.92	.00	8.65	.00	.00	.00
15	.19	1.14	.27	.96	2.10	2.83	1.95	.88	.00	2.83	.00	.00	7.70	.00	.00	.00
16	.20	1.20	.31	1.09	2.30	3.10	2.13	.97	.00	3.10	.00	.00	6.66	.00	.00	.00
17	.16	.96	.29	1.04	2.00	3.16	1.86	1.31	.00	3.16	.00	.00	5.25	.00	.00	.00
18	.09	.51	.15	.54	1.05	3.05	.98	2.07	.00	3.05	.00	.00	3.03	.00	.00	.00
19	.09	.51	.13	.48	.99	2.99	.92	2.07	.00	2.99	.00	.00	.80	.00	.00	.00
20	.00	.00	.00	.00	.00	2.71	.00	.75	1.50	2.25	.00	.00	.00	.00	1.50	.46
21	.00	.00	.00	.00	.00	2.58	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	1.08
22	.00	.00	.00	.00	.00	2.33	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.83
23	.00	.00	.00	.00	.00	2.11	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.61
24	.00	.00	.00	.00	.00	1.17	.00	.00	1.17	1.17	.00	.26	.26	.00	1.50	.00
=====																
	3.38	20.21	4.69	16.82	37.03	47.31	25.48	10.72	8.13	44.33	8.19	3.06		.00	12.00	2.99

JUL 4, 1958 - WILMINGTON, DELAWARE - (W 185)

[illegible]

JUL 5, 1958 - WILMINGTON, DELAWARE - (H (186)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM		TOTAL IN STORAGE				
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1		E-A			
1	.00	.00	.00	.00	.00	.82	.00	.82	.00	.82	.00	.00	.08	.00	.00	.00
2	.00	.00	.00	.00	.00	.74	.00	.08	.66	.74	.00	.66	.08	.00	1.50	.00
3	.00	.00	.00	.00	.00	.67	.00	.62	.05	.67	.00	1.15	1.15	.00	1.50	.00
4	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.35	.00	.00	.00
5	.00	.00	.00	.00	.00	.67	.00	.32	.34	.67	.00	.92	.92	.00	1.50	.00
6	.09	.53	.14	.50	1.03	1.02	.95	.06	.00	1.02	.00	.00	.35	.00	.00	.00
7	.08	.50	.14	.50	1.00	1.17	.93	.24	.00	1.17	.00	.00	.39	.00	.00	.00
8	.11	.68	.19	.69	1.37	1.43	1.28	.15	.00	1.43	.00	.00	.42	.00	.00	.00
9	.11	.66	.17	.63	1.29	1.43	1.20	.23	.00	1.43	.00	.00	.17	.00	.00	.00
10	.13	.76	.19	.67	1.43	1.74	1.33	.16	.25	1.74	.00	.99	.99	.00	1.50	.00
11	.08	.51	.13	.48	.98	2.18	.91	.92	.35	2.18	.00	.91	.91	.00	1.50	.00
12	.10	.60	.15	.55	1.15	2.06	1.07	.85	.15	2.06	.00	1.07	1.07	.00	1.50	.00
13	.11	.68	.17	.60	1.27	2.30	1.18	.99	.13	2.30	.00	1.09	1.09	.00	1.50	.00
14	.18	1.10	.25	.90	2.00	2.57	1.86	.72	.00	2.57	.00	.00	.32	.00	.00	.00
15	.14	.83	.20	.72	1.55	2.57	1.44	.29	.84	2.57	.00	.52	.52	.00	1.50	.00
16	.16	.97	.25	.89	1.85	2.99	1.72	.49	.70	2.99	.00	.57	.57	.00	1.50	.00
17	.13	.78	.22	.80	1.58	2.99	1.47	.53	1.00	2.99	.00	.40	.40	.00	1.50	.00
18	.08	.50	.14	.50	1.01	3.05	.94	.37	1.50	2.81	.00	.00	.00	.00	1.50	.24
19	.09	.51	.13	.40	.99	2.99	.92	.00	1.50	2.42	.00	.00	.00	.00	1.50	.57
20	.00	.00	.00	.00	.00	2.45	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.95
21	.00	.00	.00	.00	.00	2.01	.00	.00	1.50	1.50	.00	.00	.30	.00	1.50	.51
22	.00	.00	.00	.00	.00	1.73	.00	.00	1.50	1.50	.00	.00	.20	.00	1.50	.23
23	.00	.00	.00	.00	.00	1.56	.00	.00	1.50	1.50	.00	.00	.30	.00	1.50	.06
24	.00	.00	.00	.00	.00	.74	.00	.00	.74	.74	.00	.60	.60	.00	1.50	.00
*****																
	1.61	9.61	2.48	8.88	18.50	42.63	17.20	8.60	14.27	40.07	.00	8.88		.00	25.50	2.56

JUL 6, 1958 - WILMINGTON, DELAWARE - (W 187)																	
HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE				
	PER 50.0 SQ-M	50.0 SQ-M	PER 30.0 SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-A					
1	.00	.00	.30	.00	.00	.59	.00	.56	.04	.59	.00	1.16	1.16	.00	1.50	.00	
2	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.60	.00	.00	.00	
3	.00	.00	.00	.00	.00	.39	.00	.39	.00	.39	.00	.00	.17	.00	.00	.00	
4	.00	.00	.00	.00	.00	.46	.00	.16	.29	.46	.00	.95	.95	.00	1.50	.00	
5	.00	.00	.00	.00	.00	.46	.00	.46	.00	.46	.00	.00	.46	.00	.00	.00	
6	.09	.53	.14	.50	1.03	.87	.87	.00	.00	.87	.07	.00	.54	.00	.00	.00	
7	.08	.50	.13	.47	.97	.87	.87	.00	.00	.87	.03	.00	.57	.00	.00	.00	
8	.12	.71	.20	.73	1.44	1.02	1.02	.00	.00	1.02	.30	.00	.86	.00	.00	.00	
9	.13	.75	.20	.70	1.45	1.17	1.17	.00	.00	1.17	.16	.00	1.02	.00	.00	.00	
10	.08	.51	.13	.48	.98	1.29	.92	.37	.00	1.29	.00	.00	.63	.00	.00	.00	
11	.11	.65	.16	.58	1.22	1.54	1.14	.41	.00	1.54	.00	.00	.19	.00	.00	.00	
12	.25	1.48	.32	1.14	2.63	1.84	1.84	.00	.00	1.84	.55	.00	.74	.00	.00	.00	
13	.24	1.42	.30	1.09	2.51	1.95	1.95	.00	.00	1.95	.35	.00	1.09	.00	.00	.00	
14	.21	1.25	.28	1.00	2.25	2.30	2.10	.21	.00	2.30	.00	.00	.87	.00	.00	.00	
15	.22	1.32	.30	1.09	2.41	2.57	2.24	.34	.00	2.57	.00	.00	.51	.00	.00	.00	
16	.20	1.21	.31	1.10	2.31	2.99	2.14	.88	.37	2.99	.00	.89	.89	.00	1.50	.00	
17	.15	.87	.26	.92	1.79	3.05	1.66	.83	.56	3.05	.00	.75	.75	.00	1.50	.00	
18	.08	.50	.13	.47	.96	2.58	.90	.69	.99	2.58	.00	.41	.41	.00	1.50	.00	
19	.09	.51	.13	.48	.99	1.40	.92	.34	.11	1.40	.00	1.10	1.10	.00	1.50	.00	
20	.00	.00	.00	.00	.00	1.40	.00	1.03	.38	1.40	.00	.89	.89	.00	1.50	.00	
21	.00	.00	.00	.00	.00	1.40	.00	.82	.58	1.40	.00	.73	.73	.00	1.50	.00	
22	.00	.00	.00	.00	.00	1.48	.00	.68	.80	1.48	.00	.55	.55	.00	1.50	.00	
23	.00	.00	.00	.00	.00	1.40	.00	.51	.89	1.40	.00	.48	.48	.00	1.50	.00	
24	.00	.00	.00	.00	.00	.67	.00	.45	.22	.67	.00	1.01	1.01	.00	1.50	.00	
=====																	
	2.04	12.20	3.00	10.74	22.95	34.23	19.74	9.27	5.21	34.23	1.46	8.92		.00	16.50	.00	

JUL 7, 1958 - WILMINGTON, DELAWARE - (W 1188)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			SUPPLIED FROM		TOTAL IN STORAGE				
	PER 50.0 SQ-M	50.0 SQ-M	PER 30.0 SQ-M	30.0 SQ-M			PV-1	E-S	E-X	TOTAL OUTPUT	PV-1		E-X			
1	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.38	.00	.00	.00
2	.00	.00	.00	.00	.00	.59	.00	.35	.24	.59	.00	.99	.99	.00	1.50	.00
3	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.43	.00	.00	.00
4	.00	.00	.00	.00	.00	.52	.00	.40	.12	.52	.00	1.09	1.09	.00	1.50	.00
5	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.45	.00	.00	.00
6	.09	.53	.14	.50	1.03	.87	.87	.00	.00	.87	.07	.00	.52	.00	.00	.00
7	.08	.50	.13	.47	.97	.94	.90	.04	.00	.94	.00	.00	.48	.00	.00	.00
8	.13	.77	.22	.81	1.57	1.09	1.09	.00	.00	1.09	.34	.00	.82	.00	.00	.00
9	.12	.72	.19	.68	1.40	1.25	1.25	.00	.00	1.25	.04	.00	.86	.00	.00	.00
10	.08	.51	.13	.48	.98	1.64	.92	.72	.00	1.64	.00	.00	.08	.00	.00	.00
11	.10	.59	.15	.53	1.12	1.74	1.04	.08	.62	1.74	.00	.70	.70	.00	1.50	.00
12	.12	.74	.18	.64	1.38	1.95	1.29	.65	.01	1.95	.00	1.17	1.17	.00	1.50	.00
13	.14	.81	.19	.69	1.50	1.95	1.40	.55	.00	1.95	.00	.00	.58	.00	.00	.00
14	.20	1.17	.26	.95	2.12	2.18	1.97	.21	.00	2.18	.00	.00	.36	.00	.00	.00
15	.15	.89	.21	.77	1.66	2.30	1.54	.33	.43	2.30	.00	.84	.84	.00	1.50	.00
16	.16	.96	.25	.88	1.85	2.58	1.72	.78	.08	2.58	.00	1.13	1.13	.00	1.50	.00
17	.14	.85	.25	.89	1.74	2.58	1.62	.96	.00	2.58	.00	.00	.10	.00	.00	.00
18	.09	.51	.14	.52	1.03	2.45	.95	.09	1.41	2.45	.00	.07	.07	.00	1.50	.00
19	.09	.51	.13	.48	.99	2.45	.92	.07	1.46	2.45	.00	.03	.03	.00	1.50	.00
20	.00	.00	.00	.00	.00	2.11	.00	.03	1.50	1.53	.00	.00	.00	.00	1.50	.59
21	.00	.00	.00	.00	.00	1.82	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.32
22	.00	.00	.00	.00	.00	1.73	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.23
23	.00	.00	.00	.00	.00	1.73	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.23
24	.00	.00	.00	.00	.00	.90	.00	.00	.90	.90	.00	.47	.47	.00	1.50	.00
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PHOTOVOLTAIC INPUT					ELECTRICAL LOAD		ELECTRICAL OUTPUT			ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
HOUR	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM					TOTAL IN STORAGE
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-A				
1	.00	.00	.00	.00	.00	.70	.00	.44	.46	.90	.00	.82	.82	.00	1.50	.00
2	.00	.00	.00	.00	.00	.82	.00	.70	.06	.82	.00	1.14	1.14	.00	1.50	.00
3	.00	.00	.00	.00	.00	.82	.00	.82	.00	.82	.00	.00	.26	.00	.00	.00
4	.00	.00	.00	.00	.00	.90	.00	.24	.66	.90	.00	.66	.66	.00	1.50	.00
5	.00	.00	.00	.00	.00	.90	.00	.61	.29	.90	.00	.96	.96	.00	1.50	.00
6	.09	.53	.14	.50	1.03	1.17	.95	.22	.00	1.17	.00	.00	.72	.00	.00	.00
7	.08	.50	.13	.47	.97	1.25	.90	.35	.00	1.25	.00	.00	.35	.00	.00	.00
8	.11	.66	.17	.62	1.29	1.43	1.27	.16	.00	1.43	.00	.00	.18	.00	.00	.00
9	.11	.66	.17	.62	1.29	1.62	1.20	.17	.26	1.62	.00	.98	.98	.00	1.50	.00
10	.08	.51	.13	.48	.98	2.06	.92	.91	.23	2.06	.00	1.00	1.00	.00	1.50	.00
11	.17	1.01	.23	.83	1.85	2.18	1.72	.46	.00	2.18	.00	.00	.51	.00	.00	.00
12	.22	1.33	.29	1.04	2.37	2.30	2.20	.10	.00	2.30	.00	.00	.40	.00	.00	.00
13	.24	1.43	.31	1.10	2.53	2.57	2.35	.22	.00	2.57	.00	.00	.16	.00	.00	.00
14	.21	1.26	.28	1.00	2.26	2.57	2.10	.15	.33	2.57	.00	.93	.93	.00	1.50	.00
15	.15	.89	.21	.77	1.66	2.44	1.54	.86	.03	2.44	.00	1.16	1.16	.00	1.50	.00
16	.16	.93	.24	.85	1.78	2.99	1.66	1.08	.26	2.99	.00	.98	.98	.00	1.50	.00
17	.13	.78	.22	.80	1.57	2.85	1.46	.91	.47	2.85	.00	.82	.82	.00	1.50	.00
18	.08	.51	.14	.51	1.01	2.71	.94	.76	1.01	2.71	.00	.39	.39	.00	1.50	.00
19	.09	.51	.13	.48	.99	1.91	.92	.36	.63	1.91	.00	.69	.69	.00	1.50	.00
20	.00	.00	.00	.00	.00	1.40	.00	.64	.76	1.40	.00	.58	.58	.00	1.50	.00
21	.00	.00	.00	.00	.00	1.40	.00	.54	.86	1.40	.00	.51	.51	.00	1.50	.00
22	.00	.00	.00	.00	.00	1.40	.00	.47	.93	1.40	.00	.45	.45	.00	1.50	.00
23	.00	.00	.00	.00	.00	1.40	.00	.42	.99	1.40	.00	.41	.41	.00	1.50	.00
24	.00	.00	.00	.00	.00	.67	.00	.38	.29	.67	.00	.96	.96	.00	1.50	.00
=====																
	1.93	11.53	2.43	10.14	21.66	40.70	20.15	12.03	8.52	40.70	.00	13.42		.00	25.50	.00

JUL 9, 1958 - WILMINGTON, DELAWARE - 14 (190)

HOUR	PHOTOVOLTAIC INPUT				TOTAL INPUT	ELECTRICAL LOAD TOTAL	ELECTRICAL OUTPUT SUPPLIED FROM				ELECTRICAL STORAGE SUPPLIED FROM			TOTAL IN STORAGE	PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M				PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X					
	50.0	30.0	50.0	30.0													
1	.00	.00	.00	.00	.00	.67	.00	.67	.00	.67	.00	.00	.24	.00	.00	.00	
2	.00	.00	.00	.00	.00	.67	.00	.23	.44	.67	.00	.84	.84	.00	1.50	.00	
3	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.20	.00	.00	.00	
4	.00	.00	.00	.00	.00	.59	.00	.19	.41	.59	.00	.86	.86	.00	1.50	.00	
5	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.30	.00	.00	.00	
6	.09	.53	.14	.50	1.03	.87	.67	.00	.00	.87	.07	.00	.37	.00	.00	.00	
7	.08	.50	.13	.47	.97	.87	.87	.00	.00	.87	.03	.00	.40	.00	.00	.00	
8	.12	.72	.21	.74	1.46	.94	.94	.00	.00	.94	.38	.00	.78	.00	.00	.00	
9	.14	.85	.22	.80	1.65	1.09	1.09	.00	.00	1.09	.40	.00	1.19	.00	.00	.00	
10	.19	1.12	.28	1.01	2.13	1.21	1.21	.00	.00	1.21	.71	.00	1.89	.00	.00	.00	
11	.24	1.46	.34	1.22	2.69	1.29	1.29	.00	.00	1.29	1.11	.00	3.00	.00	.00	.00	
12	.28	1.65	.37	1.33	2.98	1.21	1.21	.00	.00	1.21	1.43	.00	4.43	.00	.00	.00	
13	.29	1.74	.39	1.39	3.13	1.13	1.13	.00	.00	1.13	1.62	.00	6.06	.00	.00	.00	
14	.28	1.68	.38	1.35	3.03	1.21	1.21	.00	.00	1.21	1.48	.00	7.53	.00	.00	.00	
15	.24	1.43	.34	1.21	2.65	1.21	1.21	.00	.00	1.21	1.15	.00	6.68	.00	.00	.00	
16	.22	1.34	.34	1.23	2.57	1.48	1.48	.00	.00	1.48	.83	.00	9.51	.00	.00	.00	
17	.17	1.03	.30	1.06	2.09	1.48	1.48	.00	.00	1.48	.43	.00	9.94	.00	.00	.00	
18	.12	.74	.21	.75	1.49	1.48	1.39	.09	.00	1.48	.00	.00	9.84	.00	.00	.00	
19	.10	.59	.16	.56	1.15	1.40	1.07	.33	.00	1.40	.00	.00	9.48	.00	.00	.00	
20	.00	.00	.00	.00	.00	1.40	.00	1.40	.00	1.40	.00	.00	7.97	.00	.00	.00	
21	.00	.00	.00	.00	.00	1.26	.00	1.26	.00	1.26	.00	.00	6.62	.00	.00	.00	
22	.00	.00	.00	.00	.00	1.13	.00	1.13	.00	1.13	.00	.00	5.40	.00	.00	.00	
23	.00	.00	.00	.00	.00	1.13	.00	1.13	.00	1.13	.00	.00	4.19	.00	.00	.00	
24	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	3.84	.00	.00	.00	
=====																	
	2.58	15.39	3.80	13.64	29.02	25.16	16.45	7.87	.85	25.16	9.64	1.70		.00	3.00	.00	

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JUL 10, 1958 - WILMINGTON, DELAWARE - 78 (191)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE			
	PER SQ-M	30.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-X		PV-1	E-X				
1	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	3.48	.00	.00	.00
2	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	3.13	.00	.00	.00
3	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	2.77	.00	.00	.00
4	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	2.42	.00	.00	.00
5	.00	.00	.00	.00	.00	.33	.00	.33	.00	.33	.00	.00	2.07	.00	.00	.00
6	.05	.28	.07	.27	.55	.68	.51	.17	.00	.68	.00	.00	1.88	.00	.00	.00
7	.07	.43	.13	.47	.91	.68	.68	.00	.00	.68	.15	.00	2.03	.00	.00	.00
8	.12	.72	.23	.81	1.53	.68	.68	.00	.00	.68	.68	.00	2.71	.00	.00	.00
9	.24	1.41	.37	1.32	2.73	.94	.94	.00	.00	.94	1.46	.00	4.17	.00	.00	.00
10	.31	1.82	.42	1.50	3.33	1.37	1.37	.00	.00	1.37	1.58	.00	5.75	.00	.00	.00
11	.42	2.51	.53	1.90	4.40	1.54	1.54	.00	.00	1.54	2.33	.00	8.08	.00	.00	.00
12	.51	3.05	.61	2.19	5.24	1.64	1.64	.00	.00	1.64	2.96	.00	11.03	.00	.00	.00
13	.47	2.81	.57	2.05	4.86	1.84	1.84	.00	.00	1.84	2.45	.00	13.48	.00	.00	.00
14	.24	1.41	.33	1.19	2.60	1.84	1.84	.00	.00	1.84	.53	.00	14.01	.00	.00	.00
15	.15	.90	.23	.81	1.71	1.74	1.59	.15	.00	1.74	.00	.00	13.85	.00	.00	.00
16	.18	1.08	.28	1.00	2.08	2.01	1.94	.07	.00	2.01	.00	.00	13.77	.00	.00	.00
17	.16	.98	.28	1.00	1.98	2.11	1.84	.27	.00	2.11	.00	.00	13.48	.00	.00	.00
18	.12	.73	.20	.71	1.44	2.11	1.34	.77	.00	2.11	.00	.00	12.65	.00	.00	.00
19	.10	.59	.16	.56	1.15	1.91	1.07	.84	.00	1.91	.00	.00	11.75	.00	.00	.00
20	.00	.00	.00	.00	.00	1.73	.00	1.73	.00	1.73	.00	.00	9.89	.00	.00	.00
21	.00	.00	.00	.00	.00	1.64	.00	1.64	.00	1.64	.00	.00	8.13	.00	.00	.00
22	.00	.00	.00	.00	.00	1.64	.00	1.64	.00	1.64	.00	.00	6.36	.00	.00	.00
23	.00	.00	.00	.00	.00	1.73	.00	1.73	.00	1.73	.00	.00	4.51	.00	.00	.00
24	.00	.00	.00	.00	.00	.99	.00	.99	.00	.99	.00	.00	3.44	.00	.00	.00
=====																
	3.14	18.74	4.40	15.77	34.51	30.47	18.83	11.64	.00	30.47	12.13	.00		.00	.00	.00

JUL 11, 1958 - WILMINGTON, DELAWARE - (W) (192)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT SUPPLIED FROM			ELECTRICAL STORAGE SUPPLIED FROM			PHOTOVOLTAIC INPUT WASTED	AUA. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED PER SQ-M	SO.0 SQ-M	AIR-COOLED PER SQ-M	30.0 SQ-M	TOTAL INPUT	TOTAL	PV-1	E-S	E-X	TOTAL OUTPUT	PV-1	E-X STORAGE			
1	.00	.00	.00	.00	.00	.90	.00	.90	.00	.90	.00	.00	2.47	.00	.00
2	.00	.00	.00	.00	.00	.82	.00	.82	.00	.82	.00	.00	1.59	.00	.00
3	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.79	.00	.00
4	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	1.18	1.18	.00	1.50
5	.00	.00	.00	.00	.00	.82	.00	.82	.00	.82	.00	.00	.30	.00	.00
6	.05	.28	.07	.27	.55	1.17	.51	.28	.38	1.17	.00	.86	.86	.00	1.50
7	.07	.43	.11	.40	.83	1.17	.77	.40	.00	1.17	.00	.00	.45	.00	.00
8	.09	.56	.16	.57	1.13	1.34	1.05	.29	.00	1.34	.00	.00	.19	.00	.00
9	.12	.72	.19	.67	1.39	1.34	1.29	.05	.00	1.34	.00	.00	.09	.00	.00
10	.10	.57	.15	.54	1.10	1.64	1.03	.09	.53	1.64	.00	.77	.77	.00	1.50
11	.11	.63	.16	.57	1.20	1.64	1.12	.52	.00	1.64	.00	.00	.21	.00	.00
12	.23	1.38	.30	1.06	2.44	1.95	1.95	.00	.00	1.95	.29	.00	.51	.00	.00
13	.22	1.32	.29	1.04	2.36	2.44	2.20	.24	.00	2.44	.00	.00	.25	.00	.00
14	.24	1.43	.34	1.21	2.64	2.57	2.46	.12	.00	2.57	.00	.00	.12	.00	.00
15	.24	1.46	.34	1.23	2.68	2.72	2.50	.11	.11	2.72	.00	1.10	1.10	.00	1.50
16	.20	1.18	.30	1.08	2.26	2.85	2.11	.74	.00	2.85	.00	.00	.30	.00	.00
17	.16	.97	.27	.98	1.95	1.48	1.48	.00	.00	1.48	.30	.00	.60	.00	.00
18	.12	.73	.20	.71	1.45	1.40	1.34	.06	.00	1.40	.00	.00	.54	.00	.00
19	.10	.59	.16	.56	1.15	1.40	1.07	.33	.00	1.40	.00	.00	.19	.00	.00
20	.00	.00	.00	.00	.00	1.40	.00	.17	1.23	1.40	.00	.21	.21	.00	1.50
21	.00	.00	.00	.00	.00	1.40	.00	.20	1.20	1.40	.00	.23	.23	.00	1.50
22	.00	.00	.00	.00	.00	1.40	.00	.22	1.19	1.40	.00	.25	.25	.00	1.50
23	.00	.00	.00	.00	.00	1.40	.00	.23	1.17	1.40	.00	.26	.26	.00	1.50
24	.00	.00	.00	.00	.00	.59	.00	.24	.35	.59	.00	.21	.21	.00	1.50
=====															
228	2.05	12.24	1.04	10.90	23.15	35.35	20.87	8.31	6.17	35.35	.60	5.80	.00	13.50	.00

JUL 12, 1958 - WILMINGTON, DELAWARE - (W 193)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE			
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-A				
1	.00	.00	.03	.00	.00	.59	.00	.59	.00	.59	.00	.00	.27	.00	.00	.00
2	.00	.00	.03	.00	.00	.52	.00	.25	.27	.52	.00	.97	.97	.00	1.50	.00
3	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.41	.00	.00	.00
4	.00	.00	.00	.00	.00	.52	.00	.38	.14	.52	.00	1.07	1.07	.00	1.50	.00
5	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.43	.00	.00	.00
6	.05	.28	.07	.27	.55	.94	.51	.40	.03	.94	.00	1.16	1.16	.00	1.50	.00
7	.07	.43	.11	.40	.83	1.09	.77	.32	.00	1.09	.00	.00	.82	.00	.00	.00
8	.09	.57	.16	.59	1.15	1.25	1.07	.18	.00	1.25	.00	.00	.62	.00	.00	.00
9	.12	.75	.20	.70	1.45	1.43	1.35	.09	.00	1.43	.00	.00	.53	.00	.00	.00
10	.10	.57	.15	.54	1.10	1.64	1.03	.49	.12	1.64	.00	1.09	1.09	.00	1.50	.00
11	.11	.63	.16	.57	1.20	1.74	1.12	.62	.00	1.74	.00	.00	.43	.00	.00	.00
12	.12	.71	.17	.61	1.32	1.95	1.23	.40	.32	1.95	.00	.93	.93	.00	1.50	.00
13	.23	1.40	.31	1.09	2.49	2.06	2.06	.00	.00	2.06	.24	.00	1.17	.00	.00	.00
14	.24	1.43	.34	1.20	2.63	2.30	2.30	.00	.00	2.30	.13	.00	1.30	.00	.00	.00
15	.18	1.10	.27	.96	2.06	2.30	1.91	.39	.00	2.30	.00	.00	.88	.00	.00	.00
16	.16	.96	.25	.89	1.84	2.45	1.72	.74	.00	2.45	.00	.00	.09	.00	.00	.00
17	.16	.95	.27	.96	1.92	1.19	1.19	.00	.00	1.19	.54	.00	.62	.00	.00	.00
18	.12	.74	.20	.72	1.45	1.19	1.19	.00	.00	1.19	.14	.00	.77	.00	.00	.00
19	.10	.59	.16	.56	1.15	1.33	1.07	.26	.00	1.33	.00	.00	.49	.00	.00	.00
20	.00	.00	.00	.00	.00	1.33	.00	.46	.87	1.33	.00	.49	.49	.00	1.50	.00
21	.00	.00	.00	.00	.00	1.33	.00	.46	.87	1.33	.00	.50	.50	.00	1.50	.00
22	.00	.00	.00	.00	.00	1.33	.00	.46	.87	1.33	.00	.50	.50	.00	1.50	.00
23	.00	.00	.00	.00	.00	1.26	.00	.47	.80	1.26	.00	.56	.56	.00	1.50	.00
24	.00	.00	.00	.00	.00	.52	.00	.52	.01	.52	.00	1.18	1.18	.00	1.50	.00
=====																
	1.86	11.09	2.61	10.06	21.16	31.42	18.53	8.59	4.30	31.42	1.05	8.46		.00	15.00	.00

JUL 13, 1958 - WILMINGTON, DELAWARE - 1H (194)

HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE				
	PER SQ-M	50.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-A					
1	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.62	.00	.00	.00	
2	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.06	.00	.00	.00	
3	.00	.00	.00	.00	.00	.59	.00	.05	.54	.59	.00	.76	.76	.00	1.50	.00	
4	.00	.00	.00	.00	.00	.52	.00	.52	.00	.52	.00	.00	.20	.00	.00	.00	
5	.00	.00	.00	.00	.00	.52	.00	.18	.34	.52	.00	.92	.92	.00	1.50	.00	
6	.05	.28	.07	.27	.55	.87	.51	.36	.00	.87	.00	.00	.53	.00	.00	.00	
7	.07	.43	.12	.42	.84	.87	.79	.09	.00	.87	.00	.00	.43	.00	.00	.00	
8	.11	.67	.21	.74	1.41	.94	.94	.00	.00	.94	.33	.00	.76	.00	.00	.00	
9	.19	1.11	.29	1.04	2.16	1.09	1.09	.00	.00	1.09	.83	.00	1.60	.00	.00	.00	
10	.21	1.25	.29	1.05	2.30	1.37	1.37	.00	.00	1.37	.71	.00	2.30	.00	.00	.00	
11	.42	2.51	.53	1.90	4.40	1.54	1.54	.00	.00	1.54	2.33	.00	4.64	.00	.00	.00	
12	.47	2.84	.58	2.06	4.90	1.74	1.74	.00	.00	1.74	2.58	.00	7.22	.00	.00	.00	
13	.31	1.87	.39	1.41	3.27	1.84	1.84	.00	.00	1.84	1.10	.00	8.32	.00	.00	.00	
14	.33	1.95	.44	1.56	3.51	2.06	2.06	.00	.00	2.06	1.10	.00	9.41	.00	.00	.00	
230	15	.23	1.37	.31	1.13	2.50	2.06	2.06	.00	.00	2.06	.24	.00	9.66	.00	.00	.00
	16	.20	1.22	.31	1.11	2.33	2.33	2.17	.17	.00	2.33	.00	.00	9.48	.00	.00	.00
	17	.17	.99	.30	1.06	2.05	2.33	1.91	.43	.00	2.33	.00	.00	9.02	.00	.00	.00
	18	.08	.51	.15	.54	1.04	2.33	.97	1.36	.00	2.33	.00	.00	7.55	.00	.00	.00
	19	.08	.49	.13	.46	.96	2.33	.89	1.44	.00	2.33	.00	.00	6.00	.00	.00	.00
	20	.00	.00	.00	.00	.00	2.11	.00	2.11	.00	2.11	.00	.00	3.73	.00	.00	.00
	21	.00	.00	.00	.00	.00	2.01	.00	2.01	.00	2.01	.00	.00	1.56	.00	.00	.00
	22	.00	.00	.00	.00	.00	1.73	.00	1.46	.27	1.73	.00	.97	.97	.00	1.50	.00
	23	.00	.00	.00	.00	.00	1.73	.00	.90	.82	1.73	.00	.53	.53	.00	1.50	.00
	24	.00	.00	.00	.00	.00	.74	.00	.50	.24	.74	.00	.99	.99	.00	1.50	.00
=====																	
	2.93	17.49	4.11	14.73	32.23	34.73	19.88	12.64	2.22	34.73	9.23	4.17	.00	.00	7.50	.00	

JUL 14, 1954 - WILMINGTON, DELAWARE - (W 1951)																	
PHOTOVOLTAIC INPUT					ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT	
HOUR	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE				
	SD-0	SD-1	SD-0	SD-1			PV-1	E-S	E-A		PV-1	E-A					
1	.00	.00	.00	.00	.00	.67	.00	.67	.00	.67	.00	.00	.28	.00	.00	.00	
2	.00	.00	.00	.00	.00	.67	.00	.26	.41	.67	.00	.86	.86	.00	1.50	.00	
3	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.23	.00	.00	.00	
4	.00	.00	.00	.00	.00	.59	.00	.21	.38	.59	.00	.88	.88	.00	1.50	.00	
5	.00	.00	.00	.00	.00	.59	.00	.59	.00	.59	.00	.00	.25	.00	.00	.00	
6	.05	.24	.07	.27	.55	.79	.51	.23	.21	.94	.00	1.02	1.02	.00	1.50	.00	
7	.07	.43	.11	.40	.83	.94	.77	.17	.06	.94	.00	.00	.84	.00	.00	.00	
8	.10	.59	.17	.61	1.20	.94	.94	.00	.00	.94	.15	.00	.99	.00	.00	.00	
9	.11	.68	.18	.64	1.32	1.09	1.09	.00	.00	1.09	.13	.00	1.12	.00	.00	.00	
10	.09	.51	.13	.46	1.00	1.29	.93	.36	.00	1.29	.00	.00	.73	.00	.00	.00	
11	.09	.56	.15	.52	1.08	1.45	1.00	.45	.00	1.45	.00	.00	.25	.00	.00	.00	
12	.14	.83	.20	.71	1.55	1.45	1.44	.02	.00	1.45	.00	.00	.23	.00	.00	.00	
13	.13	.79	.19	.69	1.48	1.64	1.38	.22	.04	1.64	.00	1.15	1.15	.00	1.50	.00	
14	.17	1.04	.26	.93	1.97	1.74	1.74	.00	.00	1.74	.09	.00	1.24	.00	.00	.00	
231	15	.08	.50	.13	.47	.98	1.74	.91	.83	.00	1.74	.00	.00	.35	.00	.00	.00
	16	.11	.75	.19	.69	1.44	2.11	1.34	.32	.45	2.11	.00	.83	.83	.00	1.50	.00
	17	.12	.73	.21	.74	1.47	2.01	1.37	.64	.00	2.01	.00	.00	.15	.00	.00	.00
	18	.08	.49	.13	.47	.96	1.91	.89	.14	.86	1.91	.00	.49	.49	.00	1.50	.00
	19	.08	.49	.13	.46	.96	1.91	.89	.45	.57	1.91	.00	.74	.74	.00	1.50	.00
	20	.00	.00	.00	.00	.00	1.82	.00	.69	1.13	1.82	.00	.29	.29	.00	1.50	.00
	21	.00	.00	.00	.00	.00	1.73	.00	.27	1.46	1.73	.00	.03	.03	.00	1.50	.00
	22	.00	.00	.00	.00	.00	1.64	.00	.03	1.50	1.53	.00	.00	.00	.00	1.50	.11
	23	.00	.00	.00	.00	.00	1.64	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.14
	24	.00	.00	.00	.00	.00	.90	.00	.00	.90	.90	.00	.47	.47	.00	1.50	.00
=====																	
	1.45	8.68	2.26	8.11	16.79	32.01	15.21	7.13	9.43	31.77	.37	6.78	.00	.00	18.00	.25	

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HOUR	PHOTOVOLTAIC INPUT				ELECTRICAL LOAD		ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
	WATER-COOLED		AIR-COOLED		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE			
	PER SQ-M	30.0 SQ-M	PER SQ-M	30.0 SQ-M			PV-1	E-S	E-A		PV-1	E-S				
1	.00	.00	.00	.00	.00	.62	.00	.44	.38	.82	.00	.88	.88	.00	1.50	.00
2	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.62	.00	.08	.74	.82	.00	.60	.60	.00	1.50	.00
4	.00	.00	.00	.00	.00	.74	.00	.56	.18	.74	.00	1.04	1.04	.00	1.50	.00
5	.00	.00	.00	.00	.00	.74	.00	.74	.00	.74	.00	.00	.24	.00	.00	.00
6	.05	.28	.07	.27	.55	1.09	.51	.23	.36	1.09	.00	.90	.90	.00	1.50	.00
7	.07	.43	.12	.42	.85	1.17	.79	.36	.00	1.17	.00	.00	.49	.00	.00	.00
8	.10	.61	.18	.64	1.25	1.34	1.16	.18	.00	1.34	.00	.00	.30	.00	.00	.00
9	.14	.81	.21	.76	1.57	1.62	1.46	.16	.00	1.62	.00	.00	.12	.00	.00	.00
10	.11	.68	.17	.62	1.30	1.95	1.21	.11	.63	1.95	.00	.69	.69	.00	1.50	.00
11	.29	1.75	.38	1.36	3.11	2.18	2.18	.00	.00	2.18	.65	.00	1.34	.00	.00	.00
12	.35	2.08	.43	1.55	3.64	2.44	2.44	.00	.00	2.44	.87	.00	2.21	.00	.00	.00
13	.37	2.23	.46	1.65	3.88	2.57	2.57	.00	.00	2.57	.95	.00	3.16	.00	.00	.00
14	.38	2.25	.49	1.77	4.02	2.72	2.72	.00	.00	2.72	.94	.00	4.09	.00	.00	.00
15	.15	.90	.22	.77	1.68	2.77	1.56	1.21	.00	2.77	.00	.00	2.79	.00	.00	.00
16	.17	1.02	.26	.93	1.95	3.05	1.81	1.23	.00	3.05	.00	.00	1.46	.00	.00	.00
17	.15	.91	.25	.91	1.82	2.99	1.69	1.30	.00	2.99	.00	.00	.06	.00	.00	.00
18	.08	.50	.14	.51	1.01	2.85	.94	.05	1.50	2.49	.00	.00	.00	.00	1.50	.36
19	.08	.49	.13	.46	.96	2.85	.89	.00	1.50	2.39	.00	.00	.00	.00	1.50	.46
20	.00	.00	.00	.00	.00	2.58	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	1.08
21	.00	.00	.00	.00	.00	2.33	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.83
22	.00	.00	.00	.00	.00	2.22	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.72
23	.00	.00	.00	.00	.00	2.11	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.61
24	.00	.00	.00	.00	.00	1.37	.00	.00	1.37	1.37	.00	.10	.10	.00	1.50	.00
=====																
	2.50	14.95	3.52	12.63	27.57	46.08	21.93	7.43	12.66	42.02	3.40	4.22		.00	18.00	4.06

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PHOTOVOLTAIC INPUT						ELECTRICAL LOAD	ELECTRICAL OUTPUT				ELECTRICAL STORAGE			PHOTO-VOLTAIC INPUT WASTED	AUX. ELECT. INPUT	ELECT. LOAD DEFICIT
HOUR	WATER-COOLED PER SQ-M		AIR-COOLED PER SQ-M		TOTAL INPUT	TOTAL	SUPPLIED FROM			TOTAL OUTPUT	SUPPLIED FROM		TOTAL IN STORAGE			
	50.0	30.0	50.0	30.0			PV-1	E-S	E-A		PV-1	E-A				
1	.00	.00	.00	.00	.00	1.27	.00	.09	1.18	1.27	.00	.25	.25	.00	1.50	.00
2	.00	.00	.00	.00	.00	1.08	.00	.24	.84	1.08	.00	.52	.52	.00	1.50	.00
3	.00	.00	.00	.00	.00	.90	.00	.46	.42	.90	.00	.85	.85	.00	1.50	.00
4	.00	.00	.00	.00	.00	.82	.00	.74	.03	.82	.00	1.16	1.16	.00	1.50	.00
5	.00	.00	.00	.00	.00	.82	.00	.62	.00	.82	.00	.00	.28	.00	.00	.00
6	.05	.28	.07	.27	.55	1.17	.51	.26	.40	1.17	.00	.87	.87	.00	1.50	.00
7	.07	.43	.11	.40	.83	1.34	.77	.57	.00	1.34	.00	.00	.26	.00	.00	.00
8	.11	.65	.19	.70	1.34	1.62	1.25	.24	.13	1.62	.00	1.08	1.08	.00	1.50	.00
9	.17	1.01	.26	.95	1.96	1.83	1.82	.01	.00	1.63	.00	.00	1.07	.00	.00	.00
10	.19	1.13	.27	.96	2.08	2.30	1.94	.37	.00	2.30	.00	.00	.67	.00	.00	.00
11	.11	.63	.16	.58	1.21	2.30	1.12	.63	.56	2.30	.00	.75	.75	.00	1.50	.00
12	.20	1.19	.27	.95	2.14	2.18	1.99	.19	.00	2.18	.00	.00	.54	.00	.00	.00
13	.28	1.65	.35	1.26	2.91	2.30	2.30	.00	.00	2.30	.36	.00	.91	.00	.00	.00
14	.29	1.74	.40	1.42	3.15	2.44	2.44	.00	.00	2.44	.45	.00	1.36	.00	.00	.00
15	.23	1.40	.32	1.15	2.55	2.44	2.37	.07	.00	2.44	.00	.00	1.29	.00	.00	.00
16	.20	1.22	.31	1.11	2.33	2.71	2.17	.54	.00	2.71	.00	.00	.71	.00	.00	.00
17	.14	.87	.24	.87	1.74	2.71	1.61	.66	.44	2.71	.00	.84	.84	.00	1.50	.00
18	.08	.51	.15	.53	1.04	2.85	.97	.78	1.10	2.85	.00	.32	.32	.00	1.50	.00
19	.08	.49	.13	.46	.96	2.71	.89	.30	1.50	2.68	.00	.00	.00	.00	1.50	.02
20	.00	.00	.00	.00	.00	2.33	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.83
21	.00	.00	.00	.00	.00	2.11	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.61
22	.00	.00	.00	.00	.00	1.73	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.23
23	.00	.00	.00	.00	.00	1.64	.00	.00	1.50	1.50	.00	.00	.00	.00	1.50	.14
24	.00	.00	.00	.00	.00	.82	.00	.00	.82	.82	.00	.54	.54	.00	1.50	.00
=====																
24	2.21	13.19	3.25	11.57	24.78	44.44	22.15	7.03	13.91	42.60	.62	7.18		.00	22.50	1.84

APPENDIX B

Design Considerations for the Madison Residence

The first step in any design analysis, whether for energy consumption or not, is to establish the parameters of the problem. For general projects, the design weather parameters are a major consideration and are shown in Figure B1 for Madison, Wisconsin. For this particular study, a variety of other assumptions were made. First, only maximum ASHRAE values were used for the heating design conditions (design temperatures not to be exceeded 1% of the heating season). This assures that the resulting calculated heating requirements are somewhat conservative. If the curve which compares heating season percent with design capacity percent (see Figure B2 for Pittsburgh, Pennsylvania) is studied, it can be readily seen that the maximum design condition is being approached less than 10% of the time. In fact, the heating requirements of the building are only 60% of the maximum nearly 90% of the heating season. Secondly, no credit was given to either solar gain or internal loads throughout the heating season. This further insures that the actual heat loss from the building will be less than our calculated maximum.

Shown in Figure B3 are the "U" values utilized in the heat loss calculations. These values were developed as part of a heat pump investigation done for EPRI by the Westinghouse Research and Development Center.¹ The designs made were for a Level 3 structure which goes beyond the insulation included in the Level 2 structure defined by the FHA.² The "U" values shown are proposed as potential future standards by NEMA, power companies, and insulation manufacturers. They are not unreasonable and can be economically achieved even in today's market.

The method of calculation used to determine the maximum design thermal load was a modification of that proposed by the Carrier Corp.³ Because solar gain was not considered in the overall heat loss equation, equivalent temperature differences included in the method proposed by

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| | <u>Latitude</u> | <u>Daily
Temp. Range</u> | <u>Summer</u> | | <u>Winter</u> | <u>Grains of
Moisture</u> | <u>Wind Speed</u> | |
|---------|-----------------|------------------------------|---------------|-----------|---------------|-------------------------------|-------------------|---------------|
| | | | <u>DB</u> | <u>WB</u> | | | <u>Summer</u> | <u>Winter</u> |
| Madison | 43°11' | 18°F | 100°F | 93°F | -9°F | 161.2 | 8SW | 10.1NW |

Figure B1. Design weather data for Madison

Fig. B2 — Heating system design capacity utilization vs heating season duration for Pittsburgh

Single Family - Level (3)

ASSUMPTION: The "U" Values have been established through the use of proposed building techniques and proposed standards of the future reflected in recommendations made by NEMA, Power Companies and Insulation Manufacturers.

<u>Structure Type</u>	<u>"U" Values</u>	
	<u>Winter</u>	<u>Summer</u>
	<u>(BTU/Ft²/°F)</u>	
Wood Frame	.052	
Brick Frame	.053	
Interior Garage Walls	.063	
Windows	.342	.333
Doors - Glass	.36	.35
Doors - Regular with Storm Door	.24	.42
Interior Garage Ceiling	.06	
Ceiling	.042	
Floor over Crawl Space	.042	
For attic or vented roof space values reduced by
.75		

(The parameter "U" is a thermal conductivity describing heat flow per unit area per °F through a material)

Figure B3. "U" values for various parts of the structure of a Level 3 house

Carrier were not used in the heating calculation. By this omission, we ignore the time lag or storage potential of the building's structure which means that, on a daily basis, the house is more efficient than the maximum design loss calculation would indicate. Figure B4 shows the design conditions and resulting energy requirements for each surface. Resulting losses to unheated enclosed spaces are shown as well as the slab losses. The following formula $BTUH = ("U" \times \Delta T \times A)$ was used for these calculations. Infiltration was done by the Crack Method and used the winter wind speeds in Figure B1 to enter tables provided in the book Thermal Comfort, written by Egan.⁴

If these maximum values are plotted on a chart of outdoor air temperature versus required BTU's for heating with the assumption that anything below a 70° exterior temperature requires heating, the curves in Figure B5 result which illustrate the number of BTU's required for any outside air temperature condition. A 75° air-conditioning temperature is specified.

DESIGN CONDITIONS

Dry Bulb Temperature
Wet Bulb Temperature
Basement Temperature

Winter Summer

-9 100
- 93
36.77 -

Energy Requirements

| Structural Area | Area
(ft ²) | Winter
(BTU) | Summer
(BTU) | Summer (Solar)
(BTU) |
|-------------------------|----------------------------|-----------------|-----------------|-------------------------|
| Frame Wall | | | | |
| North | 92 | | 120 | |
| South | 323 | | 621 | |
| East | 394 | | 512 | |
| West | 385 | | 1022 | |
| TOTAL | | 4909 | 2275 | |
| Bermed Wall | | | | |
| North | 216 | | 281 | |
| East | 58 | | 76 | |
| West | 58 | | 76 | |
| TOTAL | | 346 | 433 | |
| Roof | | | | |
| North | 1058 | | 834 | |
| South (sunlit) | 672 | | 1143 | |
| South (below collector) | 576 | | 2358 | |
| TOTAL | | 7021 | 4335 | |
| Glass Doors | | | | |
| South | 135 | | 799 | 1637 |
| TOTAL | | 3733 | 799 | 1637 |
| Cellar Doors | | | | |
| East | 20 | | | |
| TOTAL | | 664 | 210 | |
| Windows | | | | |
| North | | | 289 | 302 |
| South | | | 537 | 916 |
| East | | | 424 | 476 |
| West | | | 273 | 4173 |
| TOTAL | | 3417 | 1523 | 5867 |
| Floors | | | | |
| To Basement | 1452 | 2026 | | |
| To Exterior | 84 | 279 | 88 | |
| TOTAL | | 2305 | 88 | |
| Infiltration | | | | |
| Sensible | | 4546 | 1930 | |
| Latent | | - | 3051 | |
| TOTAL | | 4546 | 4981 | |
| Internal | | - | 4748 | |
| TOTAL FOR STRUCTURE | | 26941 | 19392 | |

Figure B4. Design conditions for the Madison structure

Fig. B5 — Energy requirements of the level 3 Madison residence

REFERENCES

1. "Investigation of Methods to Improve Heat Pump Performance and Reliability In a Northern Climate", EPRI Contract No. RP 544-1 Westinghouse Electric Corporation, Final Report, 1977.
2. "Investigation of Methods to Improve Heat Pump Performance and Reliability In a Northern Climate", *ibid.*
3. "Carrier System Design Manual Part 1 - Load Estimating", Carrier Air Conditioning Company, Syracuse, New York, 9th Printing, 1972.
4. "Concepts In Thermal Comfort", M. David Egan, Prentiss Hall, 1975.

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2. THE UTILITY/RESIDENCE INTERFACE

2.1 Introduction

The study performed during the original contract period considered the possible effects of the differing points of view of the homeowner and the electric utility with regard to the cost of the electrical energy needed to supplement the solar energy system. This interaction was termed the Utility/Residence Interface. The concern was over the possibility that the residential user might reduce his energy consumption from the utility to a small fraction of its former value owing to his use of solar energy and yet not achieve an essentially linear dollar savings. If this were to occur, the financial incentive for the homeowner would be substantially reduced. The purpose of this mini-study was to put the Utility/Residence Interface in perspective, to examine alternatives, and to suggest possible means of examining it in light of several future National Energy Scenarios.

This study was performed in conjunction with the one entitled, "Feasibility of Autonomous On-Site Residential Systems" reported in Section 1.0 of this Volume. As the analysis proceeded, it became evident that the potential for autonomous on-site residential systems was not limited to the more favorable insolation regions of the United States. In this context, the Utility/Residence Interface becomes less vital to the residential utilization of photovoltaic systems. Therefore, additional time was devoted to analyzing the autonomous home for all regions covered in the original study so that its impact on the Utility/Residence Interface could be determined at many locations. The general problem of evaluating the true cost of all energy remains, however, essential to determining the proper direction of future National Energy programs.

2.2 Discussion

The important elements of the Utility/Residence Interface are depicted in the figures which are discussed in the following paragraphs.

Figure 2.1 serves to make the Utility/Residence Interface explicit. If the value to the user of reducing his non-renewable energy source consumption is not consistent with the degree of reduction, an economic problem exists. It would appear that the overall economic structure should include means to adapt so that needed national objectives can be achieved.

In order to determine the economic value of energy, some basic future energy scenarios must be envisioned. These are illustrated in Figure 2.2. The projection of the present trend is the one least likely to occur in the time period being considered; however, it is the easiest to deal with because of prior experience.

Figure 2.3 summarizes the energy philosophy used in the past. In many instances, the cost of energy was so low that inaccuracies in the estimation of true economic costs were lost in the noise. Now, however, delayed difficulties due to these inaccuracies are beginning to be felt. It is also evident now that secondary costs, including environmental, which had been ignored, must be included.

Figure 2.4 presents the likely initial viewpoints of the electric utility, the homeowner, and the public to an on-site residential solar energy system which provides a major portion of the electric energy needs. From this position, the utility could not see much change in its cost of service, and anticipating reduced business, would therefore feel justified to charge a rate that is substantially more than linearly proportional to the energy used for the auxiliary energy needs of the residence. For example, a reduction of utility energy use to 20% of the normal requirement without solar might only result in cutting the electric bill in half. This would dramatically reduce the homeowner's incentive to adopt the solar energy system. Yet, the public interest could very well be vested in widespread use of solar energy

UTILITY/RESIDENCE INTERFACE

UTILITY/RESIDENCE INTERFACE DEALS WITH THE VALUE OF SUBSTANTIALLY
REDUCED RESIDENTIAL UTILITY ENERGY USAGE AS VIEWED BY THE RESIDENT,
THE UTILITY, AND THE PUBLIC INTEREST

RESOLUTION OF THE ABOVE QUESTION DEPENDS UPON ANSWERS TO MANY QUESTIONS,
SUCH AS:

How does one assess the cost and value of energy in various
situations?

What is the value of reducing to, say, 10% the non-solar energy
needed to perform the same function?

How can this be adapted to our overall economic structure?

Figure 2.1

BASIC ENERGY SCENARIOS

THERE ARE TWO BASIC FUTURE ENERGY SCENARIOS BOTH OF WHICH SHOULD BE CONSIDERED

I. A COST-BENEFIT PRICING ENVIRONMENT FOR ALL ENERGY WHEREIN ALL COSTS ARE CONSIDERED AND RESOURCES ARE CONSERVED.

II. OVERALL POLICY ABOUT THE SAME AS IT IS NOW.

IN BOTH OF THE ABOVE SCENARIOS, TWO SUB-SCENARIOS INVOLVING ELECTRIC RATE STRUCTURE SHOULD BE CONSIDERED:

A) PRESENT CLASS ALLOCATION, BLOCK STRUCTURES, AND PEAK LOAD DISTRIBUTION

B) REVISION OF RATE STRUCTURE AND REMOVAL OR ATTENUATION OF PEAKS

VIRTUALLY ALL EVALUATIONS USE THE II A SCENARIO -- A PROJECTION OF THE PRESENT TREND.

Figure 2.2

PAST ENERGY PHILOSOPHY

PLENTIFUL AND CHEAP

PRICED TO ENCOURAGE GREATER USE

COMPETITION BETWEEN FUELS

INACCURACIES NOT IMPORTANT
(BECAUSE OF LOW COST)

SECONDARY COSTS IGNORED

Figure 2.3

UTILITY VIEWPOINT

FIXED COSTS

OCCASIONAL HIGH DEMAND

REDUCED BUSINESS

RESIDENT VIEWPOINT

SUBSTANTIAL COST REDUCTION NEEDED TO
JUSTIFY SOLAR ALTERNATIVE

PUBLIC VIEWPOINT

SOLAR UTILIZATION:

CONSERVES NON-RENEWABLE FUEL

REDUCES IMPORT DEPENDANCE

ALLEVIATES ENVIRONMENTAL PROBLEMS

PRESENTS INSTITUTIONAL PROBLEMS

Figure 2.4

for the reasons given. It should also be noted that other institutional problems exist which could have economic overtones.

Figure 2.5 very succinctly outlines electric energy pricing philosophy. A useful review of present methods in some detail can be obtained from a study by Foster Associates for the Bonneville Power Administration.¹ It includes comments on various alternatives, mostly from the industry view.

Some of the basic reasons for the Utility/Residence Interface problem are indicated in Figure 2.6 along with possible means of alleviation. Although the overriding factor presented in Figure 2.6 will remain, it should be stressed that the total residential electrical load will increase and that there will only be a moderate slowing of projected increases.

The impact of the Utility/Residence Interface is region dependent, due both to the nature of the electrical load and the specific utility characteristics. Figure 2.7 illustrates possible variations.

The long-term interrelation between residential on-site photovoltaic systems and the electric utility is summarized in Figure 2.8. Appendix A contains the full text of an overview by W. R. Hughes, of Charles River Associates; the quote shown is from this text.

2.3 Conclusions

1. Fuels which are alternatives to solar energy are underpriced at present.
2. On-site residential systems must reduce utility load to be effective and to achieve the national objectives of resource conservation.
3. In the future, utility residential loads will increase at a rate less than anticipated owing to the presence of solar energy systems.

ELECTRIC ENERGY PRICING

PRESENT PRACTICE USUALLY BASED ON:

- LOAD CLASS (INDUSTRIAL, COMMERCIAL, RESIDENTIAL)
- BLOCK RATES (USUALLY DESIGNED TO ENCOURAGE GREATER USE)
- PEAK REQUIREMENT (BY DAY AND SEASON)

POSSIBLE FUTURE CHANGES:

- RATES NOT DESIGNED TO ENCOURAGE GREATER USE
- LEVELING OF PEAKS
- ELIMINATION OR MODIFICATION OF CLASS RATES
- DEMAND REDUCED BY RISING AVERAGE AND/OR PEAK PRICE

Figure 2.5

REASONS FOR THE INTERFACE PROBLEM

NEGATIVE FACTORS

Fixed costs of service, capacity, and distribution

Reduction of potential business

Problems of electrical interfacing

Unusual demands

POSITIVE FACTORS

Thermal and electrical storage can actually be to
utilities' advantage

Storage could, in some cases, reduce distribution, and
capacity could be traded to other classes of customers

Need for increased capacity could be eliminated in some
instances

Effect of RPS will be very gradual and will hardly be
noticed in this century

OVERRIDING FACTOR

In most regions of the country, there would be a slow but
consistent reduction in the rate of increase of residential
load

For the year 2000, the annual electric utility bill for a
solar-supplied, all-electric home is estimated to be
from \$50 to \$150 in 1975 dollars on a linear charge
basis.

Figure 2.6

REGIONAL EFFECTS

THE UTILITY/RESIDENCE INTERFACE WILL HAVE A DIFFERENT ASPECT FOR
VARIOUS REGIONS

DEPENDS ON NATURE OF THE UTILITY
DEPENDS ON SPACE HEATING LOAD

IN THE COLDER REGIONS, THE USE OF SOLAR ENERGY CAN HELP TO MAKE
ELECTRIC SPACE HEATING COMPETITIVE

IN THE TEMPERATE AND WARM REGIONS, THE UTILITY/RESIDENCE IMPACT WILL
DEPEND ON THE UTILITY MAKE-UP AND COSTS

Figure 2.7

LONG-TERM EFFECT OF/ON PHOTOVOLTAIC SYSTEMS

THE FOLLOWING IS A QUOTE FROM AN OVERVIEW BY CHARLES RIVER ASSOCIATES:

" . . . it is reasonably clear that the prices of energy for the alternatives to photovoltaic energy systems -- conventional electricity purchases, gas, and oil, are below the pertinent economic cost for harmonizing the decisions of purchasers of residential energy systems with the relevant benefit-cost valuation of the photovoltaic system."

OF NECESSITY, ON-SITE SYSTEMS MUST REDUCE UTILITY LOAD TO BE EFFECTIVE AND ACHIEVE NATIONAL OBJECTIVES OF RESOURCE CONSERVATION.

UTILITY RESIDENTIAL LOAD IN THE DISTANT FUTURE WILL INCREASE AT A RATE LESS THAN PROJECTED -- BUT PEAKS WILL GRADUALLY BE REDUCED ALSO.

UTILITIES WILL EXPAND INTO THE EQUIPMENT FIELD.

Figure 2.8

4. Utilities will expand into such areas of business as selling, installing, and servicing residential solar energy systems.

2.4 Recommendations

Suggestions for a detailed evaluation of the interface problem and some of the elements that should be included are contained in Figure 2.9. Solar penetration of the market should be made by region, and the impact on the Utility involved should be determined. Important factors include the affordability of the service and competitiveness with other fuels for thermal loads. Most important is the impact of the autonomous option. This should all be evaluated in the light of the various energy scenarios previously defined.

ELEMENTS OF UTILITY/RESIDENCE INTERFACE REQUIRING ANALYSIS

FUTURE PROJECTIONS:

SOLAR PENETRATION OF MARKET

ELECTRICAL GENERATION AND CAPACITY

IMPACT OF RPS ON UTILITY -- AND THE REVERSE

ANALYSIS MUST BE BY REGION AND INCLUDE:

EFFECT OF ELECTRIC RATE STRUCTURE AND PRICE ON DEMAND
AND CAPACITY

AFFORDABILITY OF SERVICE

COMPETITIVENESS OF RATE STRUCTURE

IMPACT OF AUTONOMOUS OPTION

EVALUATION SHOULD BE IN EACH OF THE BASIC ENERGY SCENARIOS
PREVIOUSLY DEFINED

Figure 2.9

REFERENCES

1. "Electric Rate Concepts and Structures," Foster Associates, Inc. for Bonneville Power Administration, May, 1976, U.S. Department of Commerce NTIS-PB 252-905.

APPENDIX A

A Short Overview of Energy Pricing

Dr. William R. Hughes
Charles River Associates

This discussion sets forth a summary overview of selected aspects of energy prices. In particular, it addresses two questions: (1) how do actual prices of energy compare to the economist's idealized model of prices that reflect costs and scarcity in a well-functioning economy of competitive markets and (2) how do the normative criteria pertinent to public utility ratemaking in theory and practice relate to the specific issue of the interface between solar photovoltaic residential systems and electric utility service. These are, of course, complex subjects on which there is an immense theoretical and practical literature. To keep within the effort and time guidelines of this task, this material simply presents an overview without any specific references to the literature or any resort to factual research.

Relevances of Prices

Residential electricity rates, gas rates, and prices for home heating oil all affect the choices of residential energy systems made by homeowners, architects, and builders. By affecting the relative costs of alternative sources of residential energy supply, energy prices are a major influence on the allocation of scarce energy resources. In particular, the rate of adoption of residential photovoltaic (or other solar) energy systems depends on overall system costs, including the cost of any supplementary purchases of electric energy, versus the system cost of the alternatives: all purchased electricity or an all-purchased hybrid energy system involving gas or oil heating.

Economic Cost as a Pricing Norm

In the economic theory of resource allocation, resources are allocated most efficiently when the prices of all alternatives conform to their economic cost, which measures the value of scarce resources in alternative uses. Though this oversimplified statement of the pertinent principle leaves out some important complexities that are of the essence in public utility pricing and in the cost-benefit analysis of government assistance to solar technology, the notion of economic costs as the relevant pricing guide to resource allocation is the best point of departure.¹ In effect, the private benefit-cost calculations of the purchasers of residential energy systems should be in harmony with the public valuation of benefits and costs of the respective alternatives.

Benefit-Cost Comparison and Market Price

Conventional benefit-cost analysis employs market prices as a first approximation to valuation of benefits and costs. The implicit assumption is that in most cases actual market prices tend to be an acceptable approximation to the prices that would obtain in a hypothetical smoothly functioning competitive economy where prices accurately reflect all privately incurred economic costs. Good benefit-cost practice requires adjustment of actual market values for known major deviations from competitive prices and to allow for benefits or costs, such as environmental impacts or national security considerations, that are not reflected in market values. In practice, these less tangible benefit-cost considerations tend to be omitted from benefit-cost calculations.

Two aspects of energy prices and of the energy alternatives pertinent to the introduction of solar photovoltaic systems are especially important in considering the residential-utility interface and the question of government assistance to encourage adoption of photovoltaic

¹In the underlying economic model, marginal costs--the cost of small increments of use at the margin--are the relevant cost concept.

systems. First, there are important deviations of actual energy prices from the prices that would obtain in a hypothetical competitive economy where prices reflect all privately incurred resource costs. Second, solar energy systems rate very highly relative to other energy technologies with respect to aspects of the benefit-cost valuation that largely cannot be reflected in market prices: avoidance of environmental degradation and assurance of a long-term energy supply that does not involve a serious problem of depleting reserves of fuel or other scarce minerals.

Taxes, restrictions on free competition, uncertainty and misinformation, and a variety of other institutional and economic factors account for numerous and substantial deviations between market prices and economic costs throughout the economy. But in markets subject to much less government regulation and intervention than energy, there is reasonably good support for the proposition that the overall resource allocation effect of these factors in combination tends to wash out to a large extent as a form of "noise", or random deviation.

Relation of Energy Prices to Costs

In the cost-benefit evaluation of choices involving solar energy systems, we cannot legitimately make that assumption. Consider the prices of gas, oil, and electricity.

Oil Prices

The prices of imported crude oil and refined products are set by the OPEC cartel at a much higher level than the price would be if there were active competition in the world oil market. That is a fact of life. For domestic energy policy it is appropriate to use the best expectation of actual prices of imported oil as a given in assessing the domestic resource allocation impact of energy alternatives. Domestic petroleum products are subject to very complex price and allocation controls. In general, through the economic cost of increased petroleum use to the U.S. is equal to the cost of imported oil, domestic consumers pay less. The full resource allocation consequences of all

this are not easily traced, because of the effect of taxes (relatively high on gasoline; much lower on heating oil) but in general it is reasonable to state that the economic or scarcity value of petroleum for residential space or water heating homes (taking the presence of OPEC as a given) is higher than the price of home heating oil.

Gas Prices

Gas prices are the creature of F.P.C. and state commission regulation. Interstate sales of natural gas in the field are subject to F.P.C. price ceilings. As a result, large quantities of natural gas are sold to intrastate users at much higher prices for use as petrochemical feedstock. Another result is that the residential, commercial, and industrial demand for natural gas at the regulated burner-tip prices has exceeded available supplies during the 1970's, so that regulation authorities in some states have imposed end use restrictions and limits on addition of new customers. The economic cost at the margin for gas distributors is closer to a value consistent with the intrastate price and the cost of LNG rather than the artificially low price paid at retail, which is based on the embedded costs of all old and new gas. Natural gas for residential use in heating, cooling, and cooking is clearly priced below its scarcity value.

Electricity Rates

Electricity rates to most residential users are subject to public utility regulation. An important minority of residential customers are served by publicly or cooperatively owned suppliers, most of whom are not subject to rate regulation but who follow fairly similar rate practices and are substantial net purchasers from regulated utilities at the wholesale level.

The linkage between economic costs and actual residential electricity rates is complex. Practical cost measurement involves uncertainty and technical complexity. There are important differences between the fully-allocated accounting measures commonly employed in

ascertaining the residential cost of service and the incremental or marginal cost concept pertinent to resource allocation. Furthermore, the economic logic of allocating common or joint costs to determine the relevant incremental cost invokes demand considerations. Furthermore, though cost of service has probably been the single most important regulatory criterion in ratemaking, other factors have also been important: for example, value of service, retention or attraction of industrial establishments through low electric rates, and a generally approving view in the past with respect to residential rate structure as a promotional instrument. Actual rate structures reflect much historical accident and inertia: the result of a long series of pro rata increases without attention to change in the cost impact of increased residential use. Residential rate regulation has always included a large element of political judgment of "fairness" in sharing the cost of service among customers. Recently, there has been vociferous support in many jurisdictions for "Lifeline" rates--very low rates for small quantities of use to benefit the poor--and "fair share" rates--eliminating rate differentials between customer classes based on cost of service to shift burdens now borne by residential rates to industrial and commercial customers.

Today the typical residential electricity rate is a declining block rate, single-part tariff undifferentiated by time of day. In most jurisdictions, most customers pay an incremental rate below their incremental cost of service, because of declining block rates in conjunction with the fact that the incremental cost of expanding the system is considerably above the average embedded historical cost of service. This pattern applies both to basic residential schedules and special all-electric or heating rates.

Application of economic cost as a guiding element to residential rate structure would require differentiated rates by time-of-day, week, and season to reflect the differing affects of use on the cost of expanding and operating the electric system. Load management--the use of rates, load control, and storage devices to influence the time pattern of electricity use--is a very recently introduced practice in the U.S.

that is beginning to spread rapidly. It has direct applicability to the residential-utility interface for photovoltaic systems because of the unusual load curve for purchased power from residential customers having a photovoltaic system.

Energy Prices and the Residential-Utility Interface

From the above discussion, it is reasonably clear that the prices of energy for the alternatives to photovoltaic energy systems--conventional electricity purchases, gas, and oil, are below the pertinent economic cost for harmonizing the decisions of purchasers of residential energy systems with the relevant benefit-cost valuation of the photovoltaic system.

There is an additional issue of how supplemental electricity purchases from the utility should be priced.

If the utility owned the entire photovoltaic system, including solar panels and other elements integral to the dwelling structure, it could charge for the system in one of two ways. The first would be to charge for electric service and waste heat for heating and cooling separately on the basis of use. In practice, it would be very difficult to relate prices reasonably to costs using this structure. The second, simpler alternative, would be to charge a rental for the photovoltaic system and to charge separately for supplementary electric energy provided by the power system. This alternative is also the logical approach to pricing if the utility owned only the "electrical" portion of the system not integral to the dwelling.

If the resident owned the entire photovoltaic system, the utility would probably have to set a special rate for electric service to photovoltaic customers, because the demand for electricity from the utility might be subject to sharp peaking in the event of a series of cold and cloudy days. The cost impact of these peaks depends on a variety of factors: particularly the storage capacity of the photovoltaic system and the frequency and size of these photovoltaic peaks and their

diversity in relation to the overall utility system peak. It could be that with incentive rates for load management, supplementary purchased electricity for photovoltaic systems could have a very low cost of service. Daytime peaks from the customers having photovoltaic systems might be alleviated by overnight and weekend purchases for battery charging whenever weather conditions indicate that supplementary energy purchases may have to be above their normal level.

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3. LINEAR FRESNEL LENS OPTIMIZATION

3.1 Introduction

When solar cell costs are high, photovoltaic collectors can be made more economical if concentrators are used. Thin crystal rolled Fresnel lenses are an obvious choice of inexpensive optics. The trackable structure required to support such a lens, however, costs about four times as much as the lens itself. One way to reduce this cost is to mount an array of fixed, south-facing Fresnel lenses on a roof with the roof serving as structural support for the lenses and the lenses serving as part of the roofing material. One advantage of this arrangement is that the photovoltaic cells would be protected from the weather under the roof. Although the lenses themselves could not track the sun, the absorbers beneath would follow the sun since Fresnel collectors quickly lose their concentration when not tracked.

During the course of this program, a fixed linear Fresnel lens with a moveable absorber was analyzed. This particular lens was a standard line-focus Fresnel lens with flat facets designed for normally incident light. It had an absorber strip moving on a circular-cylindrical track. The design parameters, such as focal length, were chosen arbitrarily and were by no means optimum. The purpose of this present work, which continues the initial program, is to design a Fresnel lens for sunlight with varying angles of incidence and to design a track shape for guiding and supporting the moving absorber so that the total direct light absorption is maximized over a one year period.

Because of previous studies and because of its high direct insolation, we chose Phoenix as the location for the collector. We used a computer to model and optimize the optical system for maximum energy collection.

3.2 System Modeling

We used the subroutine SUN¹ as a convenient source of hourly insolation data since it appeared to be reasonably accurate² for the clear days in which a collector would be able to concentrate sunlight.

As for the lens itself, we assumed an inexpensive crystal rolled glass of negligible thickness and refractive index 1.519 with flat facets underneath to avoid cleaning difficulties. We did not allow for the blockage and scattering of the light by the edges of the facets, but we did account for the Fresnel reflection losses at each surface. No antireflection coating was assumed because of the difficulty of designing such a coating for a wide range of incidence and refraction angles and exterior weather conditions. A construction standard of one foot by four feet was taken to be the size of the lens with a one inch by four foot photovoltaic absorber moving across a thirteen inch cylindrical track. During optimization, we permitted the cross-section of the track to assume the shape of any conic-section, on which the absorber was assumed to locate itself always at the position of best focus. The method used to calculate this focal position as a function of solar incidence angle appears in Appendix A. For each angle of incidence, the amount of light from each facet that would reach the absorber at the focal position was calculated and summed over the lens. In order to keep computer optimization time to a reasonable level, light collection was evaluated only on the 21st day of each month on the hour from sunrise to before noon. Approximate direct insolation symmetry about noon made this simplification possible.

3.3 The Optimization Phase

In the optimization phase an attempt was made to minimize a merit function which has been arranged to be the sum of the available but uncollected light at a representative sample of hours throughout the year. The optimization technique employed is the "orthonormal method".³

In this technique, the individual hour contributions to the merit function are differentiated with respect to the construction parameters, and a linear transformation constructed into a space where the vectors of derivatives of all the hour contributions with respect to the various construction parameters become orthonormal. This has the advantage of eliminating interactions between construction parameters which lead to indeterminacy in conventional iterative matrix methods.

As each new orthonormal variable is derived, a step is made in its direction to try to minimize the merit function. The resulting actual merit function and the starting point are used to do a linear second prediction in the new direction.

As the orthonormal variables change (and consequently the construction parameters), the transformation is updated to account for changed derivative values. After each such pass, the selection and order of the participating variables are changed, so that every variable gets maximum opportunity to participate.

3.4 Stages of Optimization

The final design resulted from several stages of optimization. First, we found that a 32.1° southerly tilt maximized the light energy incident on the glass aperture for the representative days. This angle is close to the 33.4° latitude at Phoenix. Once this angle was determined, it was held constant while the shapes of the Fresnel end track surfaces and their separation were all varied simultaneously.

Fresnel slope optimization occurred in two steps. First, the lens was assumed to focus normally incident light into a line image. With this constraint, the focal length of the lens and the parameters of the conic section of the track and the distance between lens and track were optimized for maximum light incident on the detector. Second, these optimized variables were further refined by modeling the Fresnel slopes of the preliminary optimization by a seventh degree polynomial and reoptimizing with the parameters of the new model. The modeling of the Fresnel lens by a polynomial is described in Appendix B. In the final stage of optimization, the assumed Fresnel facet width was decreased from 0.25" to 0.1".

We carried out the first step of this procedure for two cases -- a north-south oriented lens, and one oriented east-west. Both cases yielded 32% efficient lenses, where efficiency is defined to be the percentage of the energy incident on the aperture which falls on the absorber. With the axis of the lens in the north-south direction, the optimum focal length turned out to be about ten inches while the east-west lens had a focal length of over thirteen inches. Because of numerical difficulties associated with a very short focal length, less than 11-1/2 inches as described in Appendix B, it was impossible to proceed to the second stage of optimization of the Fresnel lens without increasing the degree of the polynomial describing it. This did not seem appropriate because an east-west oriented lens seemed to perform as well with a longer focal length. Another practical advantage of an east-west lens is that the position of focus of the absorber on the track would differ little

over night from evening to morning; whereas these positions would be at opposite sides of the track for a north-south lens. With these considerations, the concept of north-south alignment was eliminated from this study. The optimization performed during the final stage of modeling of the east-west lens improved the efficiency to 41%. The cross-section of this final design is pictured in Figure 3.1. Figure 3.2 is a plot of the slope of the Fresnel lens facets.

Fig.3.1—Cross-section of concentrator. Track is elliptical with $6.50''$ semi-major axis parallel to Fresnel lens and with a $1.53''$ semi-minor axis. Its apex is displaced $0.61''$ off-center

Fig.3.2 – Slope S of the Fresnel facet as a function of the distance D across the lens. $S = -3.032 \times 10^{-8} (D-6.098)^7 + 8.388 \times 10^{-6} \times (D-6.098)^5 + 2.960 \times 10^{-4} (D-6.098)^3 + 0.1162 (D-6.098)$

3.5 Conclusions

We have shown that a one foot by four foot Fresnel lens can be designed for the Phoenix area to concentrate direct sunlight falling on a fixed tilted window onto a one inch wide absorber moving on an elliptical-cylindrical track with an average efficiency of 41%. With the same physical assumptions except for a facet width of 0.25" instead of 0.1", we then compared the more common line-focus tracking Fresnel lens where the absorber does not move relative to the lens with the moveable collector lens system. For the line focus Fresnel lens where the lens position is adjusted once a day, the optimum focal length is 11.3" and absorber to lens separation is 10.4", an efficiency of 45% was calculated with 7% more energy incident on the aperture. Continuous one-axis tracking instead of daily adjustment improved the efficiency to 47% and increased the incident energy by 9% for a system with a 13.3" focal length and a 12.3" lens-to-absorber separation. These results are not surprising since the closer the sun's rays are to normal incidence, the smaller the Fresnel reflection and refraction losses. And except for these losses, all normally incident light can be made to focus on a strip absorber; but defocussing occurs as the incidence angle varies from normal as it more strongly does for a fixed lens than for a lens with one-axis tracking.

3.6 Recommendations

Although its efficiency is lower, the fixed Fresnel lens with a moveable absorber still has the advantage in cost and maintenance discussed in Section 3.1. Consequently, this concept may prove to be the best choice for certain applications such as shopping centers and industrial buildings, or even possibly residences.

The key item is cost per kWh of the complete structure located at a given site. Additional analyses should be performed to determine the economic credit due the Fresnel lens when it is installed as part of the roof of an industrial or commercial building. Then, the cost of the entire lens system should be determined together with array performance to determine the cost per kilowatt hour of energy produced. With this system as a base point, the cost of a system with a non-waterproof moveable Fresnel lens should be estimated and its performance determined so that the cost per kilowatt hour of the moveable system can be compared with that of the one using a fixed lens and moveable absorber.

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APPENDIX A

Absorber Position on Track

Of importance in any optimizing process is the development of numerical techniques which are highly accurate but require only minimum computing time. This consideration was the guide for devising the method of calculating the position of best focus on the absorber track for a given solar incidence angle.

The positions on the track of the rays through the centers of the facets were found by ray tracing as illustrated in Figure A1. Each ray is associated with a transmission factor representing the percentage of light that is not lost when passing through the facet. With these transmission factors as "masses", the center of gravity of these ray-points was located. Since the center of gravity lies within the convex hull of a set of points on the track, it cannot lie on the track itself if the track is curved. The point of best focus must of course lie on the track. A point on the track close to the center of gravity was found by intersecting the track with the line through the center of gravity and perpendicular to the chord connecting the two extreme-most ray-points. We chose this point as the location of the absorber since to determine the point on the track closest to the center of gravity any more precisely would not be computer-cost effective.

Fig.A1— Focal position. G is the center of gravity of the rays on the track represented by crosses. The absorber is located at F.

APPENDIX B

Fresnel Lens Modeling

In order to model and optimize a Fresnel lens, a function which gives the slope of the facets at any point on the lens is necessary. This function should have several parameters which can be varied during the course of optimization. It also should be able to model the initial design of a Fresnel lens with a line focus for normally incident light.

The function

$$S = \text{slope} = (Z/F)/(n \sqrt{1 + (Z/F)^2} - 1) \quad (\text{B-1})$$

gives the slope required for a facet at a distance Z from the center of the lens to focus normally incident light to a line F units directly below the center of the lens. Here n is the index of refraction of the lens which is 1.519 for crystal forming. The function S may be expanded by a Taylor series as follows

$$S = [Z/(F(n-1))][1 - nw + (3n-1)nw^2/2 - n(5n^2-4n+1)w^3/2 + \dots] \quad (\text{B-2})$$

where

$$w = (Z/F)^2/(2(n-1)).$$

The truncation of the infinite series above into a seventh degree polynomial in Z with only the terms written out above, designated as $T(Z)$, is a reasonably good approximation of S for a 12" wide lens with a focal length greater than 11.5". For shorter focal lengths, instead of the magnitude of T increasing toward the edge of the lens as the magnitude of S does, it starts to decrease at some distance from the center. This means that light striking the edge of a lens with slope T cannot focus together with the central light. Consequently, in order to model shorter focal-length lenses, a higher degree polynomial would have to be used.

(The focal length cannot be much shorter than 7" without the infinite Taylor series diverging near the edges.) It is desirable to stick to the lowest possible degree polynomial in order to keep computation cost down.

In order to consider a range of Fresnel lenses more general than the line-focus lenses, the parameters of T can be made into more general variables. One obvious way to do this is to allow the coefficients of Z in T to vary independently of one another instead of being fixed functions of n and F. The problem associated with doing this is the same as for short-focal-length lenses, namely, defocussing caused by wiggles in the polynomial. The higher the degree of the polynomial, the more wiggle it can develop. The most convenient way to restrain this defocussing is to keep T monotonically increasing in Z. We can do this by considering its derivative T', which can be expressed in the form:

$$T' = c(Z^2 - r_1)(Z^2 - r_2 - ir_3)(Z^2 - r_2 + ir_3), \quad (B-3)$$

where $i = \sqrt{-1}$. Now the parameters c, r_1 , r_2 , and r_3 may be used as independent variables of optimization with the slope function being obtained from T' by integration with a zero integration constant. By constraining r_1 to be greater than the square of 6 inches and r_3 to be positive, the integral of T' will remain monotonically increasing during the optimization since T' has no real root for the magnitude of Z less than 6 inches.

In this manner the slope for the Fresnel lens was optimized. The final parameters turned out to be:

$$c = -0.2122 \times 10^{-6}$$

$$r_1 = 226.7$$

$$r_2 = -14.55$$

$$r_3 = 46.93$$

Also, a decentering was permitted by replacing Z by $Z - Z_0$. The optimized value of Z_0 was 0.098". The optimized slope varied monotonically from -0.837 at $Z = -6$ inches to +0.799 at $Z = +6$ inches. The graph of the integral of T' (the slope) is shown in Figure 3.2.

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4. UTILITY SYSTEM RELIABILITY ASSESSMENT TECHNIQUES

4.1 Introduction

The electric utility industry has traditionally planned its expansion to allow for an excess of capacity above the anticipated customer demand. This margin has been provided to allow for the uncertainties associated with projecting demand and also to account for the unexpected loss of an installed generating unit. Originally, a fixed megawatt amount (often equal to the largest single unit on a system) or a fixed percentage of the peak generation required was used to determine this reserve. Although these "rule of thumb" approaches are simple to evaluate, they can result in excessive reserve capacity (with corresponding high capital costs) or an inadequate level of reliability. Thus, as utility systems have continued to grow, these methods of generation planning have been almost completely supplanted by probabilistic methods of analysis.

Probabilistic calculations are more difficult to perform, however the use of computer programs minimizes this problem so that the advantages of the more sophisticated analysis can be realized. Both the load and the available generation, though not entirely predictable, can be conveniently described by probabilistic models. Inherent in these models is the consideration of load variability, the effects of unit size and forced outage rate, and the characteristics of the existing generation system.

Although a number of probability methods exist for the calculation of system reliability, the Loss of Load Probability (LOLP) method has been most widely accepted and used by the electric utility industry. This approach determines the probability that there will not be sufficient capacity to meet the peak load on any single day chosen at random from the homogeneous period for which the load and capacity models were established. Even though this probability is calculated for homogeneous periods which are

longer than a day (e.g., a week or a month), it is summed daily over the time period to give an expected value of capacity deficiency. It is this expected value, expressed in days per period, which is commonly referred to as the loss of load probability (LOLP). Early applications of the loss of load method used an annual period, and as a result, an annual days per year figure of merit has become accepted for expressing the LOLP.

Contained within the loss of load method are several underlying assumptions regarding both load and generation. Of particular relevance to cases which include solar photovoltaic generation is the assumption that generation forced outages are entirely random with respect to the time of their occurrence. Thus it would be equally probable for a base-load unit to be forced out of service at midnight as at noon (or any other time). Because this assumption is valid for conventional generation, the probability that the load will exceed available capacity is calculated only for the period of maximum risk - the daily peak. With photovoltaic generation, quite the opposite is true. Not only will the available capacity vary diurnally, but the extent of this variation will depend on the particular design employed in the solar power plant. Clearly, then, the traditional loss of load calculations must be adapted to allow for this major difference.

Because of its wide acceptance, the term LOLP is often referred to in a very general way in studies which use different representations of the load and capacity with varying degrees of sophistication. As a result, it is often misunderstood and misinterpreted. Great care must be exercised in any adaptations to insure that the results can be properly related to commonly accepted figures of merit. It is the purpose of this report to review briefly the existing methodology as it is applied to conventional utility systems and to demonstrate a way in which this technique can be extended to assess the reliability of systems which include solar photovoltaic generation so that the result is consistent with current practices.

4.2 Basic Description of the Probabilistic Method

In order to better understand the results of this study, it is necessary to have some fundamental knowledge of the probabilistic methods used in calculating the system reliability. The basic principles and philosophies are not very difficult and are reviewed briefly within this section.

One of the first significant applications of probabilistic reliability analyses was in structural design. Prior to its use, safety factors which were sometimes entirely arbitrary were used for the component specifications. The result was often an overly conservative design and hence higher costs. Furthermore, there was no good way to measure the relative safety of two alternate designs. Reliability analysis techniques were introduced as a systematic approach to system design which provided a quantitative answer to the following three questions:

1. How safe is the design?
2. How safe should it be?
3. How much safer than an alternate design is it?

Because the probabilistic approach was consistent and systematic, it was now possible to design systems to a predetermined level of safety. Whereas safety factors were often specified based on the maximum stress acting on the minimum yield strength (either of which occurred only rarely), the reliability method took the likelihood of a given stress or strength occurring into account so that the probability of simultaneous occurrences was not the important factor.

The use of this probabilistic approach in planning power system capacity additions was first proposed early in the 1930's. It was not until the mid-1950's, however, that the approach gained wide

acceptance. The analogy between the planning problem and structural design considerations is surprisingly straightforward. The load or demand of the utility is equivalent to the applied stress while the available generating capacity is comparable to the withstand strength. In the remainder of this section, the terms stress and strength will be used since these concepts are more easily pictured in describing the methodology. It should be kept in mind throughout that the stress and strength are entirely equivalent to the load and available capacity to which the technique is applied in this report.

In general, the magnitude of almost every measurable parameter tends to vary randomly about the average value. This is true whether it be the yield stress of beams, the peak electric demand, height of people, etc. No two samples will yield exactly the same value, although the values obtained will usually group around the average value. Parameters which exhibit this type of behavior are ideally suited to probabilistic techniques. Probability density functions can be determined which will characterize the probability that the parameter will lie within a particular range of values.

4.2.1 Stress-Strength Relationships

Illustrated in Figure 4.1 is a hypothetical Warner diagram which shows the density functions of the applied stress (s) and actual strength (S) plotted together on the same graph. The probability of failure is simply the probability that the applied stress is greater than the strength or, conversely, that the withstand strength is less than the applied stress. In the context of power system generation planning, then, this would be the probability that the load is greater than the available capacity or, restated, that the capacity is inadequate to meet the system demand.

The shaded area of Figure 4.1 is indicative of the finite probability of failure and is a function of the amount of overlap of the two density functions. As the overlap increases, so does the probability of failure. The Warner diagram is thus a useful tool in

FIGURE 4.1. WARNER DIAGRAM SHOWING OVERLAP OF STRESS AND STRENGTH DISTRIBUTIONS

FIGURE 4.2. EXPANDED SCALE SHOWING AREA OF OVERLAP AND PROBABILITIES INVOLVED

visualizing the effects which system changes will have on the power system reliability.

Strictly speaking, the reliability is defined as

$$\text{Reliability} = 1 - P(\text{FAILURE}) \quad (4-1)$$

In the electric power industry, the term reliability is often used loosely in a generic sense to imply a determination of system adequacy. By keeping this point in mind when reviewing generation system reliability assessments, a great deal of confusion can often be avoided. Generally, the output of a reliability study is the probability of failure and not the reliability.

In order to evaluate the failure probability (probability that stress is greater than strength), let us look more closely at the region of overlap from Figure 4.1. This is shown in Figure 4.2. The rectangular section centered about s_1 is the probability that the stress has a value within a range $ds/2$ of s_1 or as ds becomes infinitesimal

$$P\left(s_1 - \frac{ds}{2} \leq s \leq s_1 + \frac{ds}{2}\right) = f_1(s_1) ds \quad (4-2)$$

where f_1 is the stress density function. It is necessary to specify some increment about s_1 in a continuous density function because the probability of obtaining exactly s_1 is zero. The shaded area in Figure 4.2 represents the probability that the strength is less than the value s_1 , that is

$$P(S \leq s_1) = \int_{-\infty}^{s_1} f_2(S) ds \quad (4-3)$$

where f_2 is the strength density function. It is assumed that the stress and strength function are independent, that is $f_1(s|S) = f_1(s)$ and $f_2(S|s) = f_2(S)$. Then the probability that the stress is at a given level and the strength is less than the same level of stress is

$p(\text{failure at a stress of } s_1) = p(s_1 - \frac{ds}{2} \leq s \leq s_1 + \frac{ds}{2}) \times p(S \leq s_1)$.
To find the total probability of failure, the individual probabilities of failure at a given stress level must be summed over all possible stress levels, or

$$p(\text{failure}) = \int_{-\infty}^{\infty} f_1(s) \times \left[\int_{-\infty}^s f_2(S) dS \right] ds \quad (4-4)$$

This expression may be recognized as a convolution integral.

4.2.2 Margin

It is sometimes useful to identify a new parameter, the margin (M), which is defined as the amount by which the strength exceeds the applied stress, or

$$M = S - s \quad (4-5)$$

In the context of generation capacity planning, this margin is the amount of excess capacity which is available on the system. The use of a margin distribution makes it possible to combine both stress and strength densities into a single probabilistic function, with a failure occurring whenever the margin is negative.

In order to determine the margin density function, we begin with the joint density function of stress and strength, $h(s, S)$. Since the two variables are independent,

$$h(s, S) = f_1(s) f_2(S) \quad (4-6)$$

Substituting $M = S - s$ for S ,

$$h(s, M) = f_1(s) f_2(M + s) \quad (4-7)$$

By integrating overall possible values of s , we arrive at the marginal distribution, g , which is a function of M alone,

$$g(M) = \int_{s=-\infty}^{\infty} h(s, M) ds \quad (4-8)$$

$$= \int_{-\infty}^{\infty} f_1(s) f_2(s + M) ds \quad (4-9)$$

The probability of failure is equal to the probability that the margin is negative, or

$$p(\text{failure}) = \int_{-\infty}^0 g(M) dM \quad (4-10)$$

$$= \int_{M=-\infty}^0 \int_{s=-\infty}^{\infty} f_1(s) f_2(s + M) ds dM \quad (4-11)$$

The probability of failure is thus equal to the area under the negative portion of the margin distribution, as illustrated in Figure 4.3. It should be noted here that this approach is entirely equivalent to the convolution of the stress and strength curves. It provides another perspective of the same technique, but one which is more easily and clearly visualized.

4.2.3 Expected Value

In the foregoing discussion, the basic method of calculating failure probabilities was described. The loss of load probability (LOLP) which is used to measure power system reliability is actually not a probability at all, but rather an expected value. To understand this concept, consider the toss of a coin with equal probability of obtaining "heads" or "tails". One would expect, on the average, that the number of heads obtained in 10 tosses would be

$$\begin{aligned} E[N(\text{Heads})] &= n \times p(\text{Heads}) \\ &= 10 \times 1/2 = 5 \end{aligned}$$

FIGURE 4.3. PLOT OF MARGIN PROBABILITY DISTRIBUTION

TABLE 4.1

EXAMPLE OF DIFFERENCE BETWEEN TOTAL
EXPECTED VALUE AND MAXIMUM RISK

Case	Group 1		Group 2		Group 3		Group 4		$E_T[N]$
	P_1	$E_1[N]$	P_2	$E_2[N]$	P_3	$E_3[N]$	P_4	$E_4[N]$	
I	0.1	2.5	0.1	2.5	0.1	2.5	0.1	2.5	10
II	0.2	5.0	0.0	0	0.2	5.0	0.0	0	10
III	0.4	10.0	0.0	0	0.0	0	0.0	0	10

where n is the number of trials, p is the probability of the event "heads" occurring, and $E[N]$ is the expected number of trials with the outcome "heads" from a sequence of n trials. For a continuous distribution, the expected value is simply n times the mean or average value. As a special case, when $n = 1$, the probability can be viewed as the expected "number" of occurrences of an event which will result from a single trial. The expected value, on the other hand, cannot be considered equivalent to a probability if n is not equal to one. As will be seen later, the use of an expected value allows the individual failure probabilities from dissimilar periods to be combined to determine a single figure of merit for all of the periods under consideration.

One problem with summing a number of expected values together is that the process tends to mask the period with a high risk of failure. As an example, consider the following three cases each of which consist of four groups of 25 samples. In the first case, the probability of failure for each group is the same, 0.1. For the second case, two groups have a 0.2 probability of failure and two have no chance of failing. Finally, the third case has three groups without a risk of failure and one group with a probability of failure of 0.4. These are listed in Table 4.1. Also shown are the expected number of failures for each of the groups of 25 trials and the total expected number of failures, which is the sum of the expected values for each of the four groups. Although the total expected value for each case is the same, the maximum risk of failure for a group within each case is radically different. For the planner developing his system, a group or period of very high risk may represent an inadequate design even though the overall risk of failure is acceptable. In the context of power system capacity planning, both an annual and a monthly LOLP figure can be determined. Both are valid indicators of system reliability but the values used for the two criteria cannot be equated. The interpretation of the two measures must also be different. The philosophy is that the annual LOLP provides for an acceptable average risk of loss of load for the entire year whereas the monthly value assures that the risk within any given month

does not exceed an acceptable level. An understanding of this concept is essential if an analysis of the reliability impact of solar photovoltaic power generation is to be meaningful in terms of the present-day utility practices.

In this section, the basic techniques which are employed in utility reliability analyses have been discussed in a very general way. It was stated that stress (load) and strength (capacity) distributions could be determined and a probability of failure (loss of load) could then be calculated. It was mentioned that a number of probabilities from dissimilar groups (periods) could be combined to provide a single value which is a measure of the system reliability. No details were provided for formulating any of these items, only broad concepts were presented. In the section which follows, the conventional means by which these concepts are applied to the analysis of power system reliability will be explained and a hypothetical system will be analyzed as an example.

4.3 Conventional Analysis of Power Generation System Reliability

The concept of a stress-strength relationship is entirely general. Its application to the generation planning of power systems involves the adoption of certain assumptions and conventions, however. Foremost among these is the assumption that the load (stress) and available capacity (strength) distributions are uncorrelated. This means that the probability that the load will assume a particular value will be the same regardless of the actual amount of capacity which is available. Conversely, the available capacity will not be affected by the demand which exists on the system. The assumption precludes the existence of conditional probabilities between the two random variables so that the probability of failure is simply the convolution of the two distributions. Because there is no correlation, the distributions can be determined independently. For this reason, the development of the load and available capacity will be treated separately in the ensuing discussion.

4.3.1 Load Model

The single basic assumption which is made for the load model is that it is normally distributed. The distribution is uniquely characterized by two parameters - the mean and standard deviation. The mean (μ) and standard deviation (σ) are characteristic of the load level and load variation in a certain period. Each of the periods has a distribution with different values of μ and σ , depending on seasonal variations in load level and fluctuation characteristics.

From the system planner's viewpoint, the amount of capacity installed on the system must be adequate to meet the peak load on any given day. If the system is capable of supplying this level of demand reliably, then the probability of losing load will be even less for periods

of lower demand. In fact, the off-peak probability of loss of load for typical systems is often several orders of magnitude less than the probability calculated for the daily peak. For this reason, the traditional methods for calculating LOLP concern themselves with just the daily peak load distribution. By the same reasoning, weekends and holidays are not included in the analyses.

The daily peaks which are observed in a particular month, can be thought of as random samples drawn from the underlying peak load distribution. The characteristics of the underlying distribution can then be estimated by using the following relationships:

$$\mu = \frac{\sum_{i=1}^n L(i)}{n} \quad (4-12)$$

$$\sigma^2 = \frac{\sum_{i=1}^n L(i)^2 - n\mu^2}{n-1} \quad (4-13)$$

where μ is the sample mean, σ is the sample standard deviation, $L(i)$ is the peak load for the i^{th} sample, and n is the number of samples. The number of weekday peaks (n) included in the determination of μ and σ for an ordinary month can range from 20 to 23 and may be fewer because of holidays. If the mean and standard deviation of the underlying distribution were actually known, the peak value of the load for a given month could be predicted by the equation

$$\begin{aligned} \text{ESTIMATED VALUE OF PEAK} &= \text{DISTRIBUTION MEAN} + \text{DISTRIBUTION SIGMA} \\ &\times \text{FIRST ORDER STATISTIC} \end{aligned} \quad (4-14)$$

The order statistic is a constant that depends on the number of samples (n) in the group. It reflects the fact that for a larger number of samples, the greater the chance will be of observing a higher value. Conversely, if the monthly peak is forecasted, the mean daily peak load can be determined by using historical values of the standard deviation. This

is the way in which forecasted load models are generally constructed, since the annual peak is more easily and accurately predicted.

It was desirable to maintain a close correlation between the daily peak load statistics used in the conventional analysis and the hourly load model to be used later. With this in mind, the daily peak loads were selected from the hourly load data. For each month, a μ and σ were determined from this set of information using the equations presented above. Historical load reduction programs were not used since these programs treat only daily peaks and not hourly loads. As a result, the statistics are developed from only 19 to 22 samples and do not benefit from historical experience. Consequently, the load model must be considered hypothetical even though it has as its basis an actual utility. The validity of the study is not affected, however, since it involves the comparison of two approaches which use essentially the same load data.

The specific loads used throughout the program for the example system were developed from the loads experienced by the Salt River Project of Phoenix, Arizona in the year 1974. Each of these hourly loads was scaled by the ratio of a projected 1990 annual peak to the observed 1974 peak load. For a medium growth scenario in which the annual growth rate is 6.87%, the ratio used is 2.90. The three important parameters contained within the daily peak load model - monthly peak, mean, and standard deviation - are listed in Table 4.2.

4.3.2. Capacity Model

Each generating unit which is included in the capacity probability distribution can be characterized by two parameters - capacity rating and forced outage rate. In practice, both of these parameters will assume multiple values. For example, a unit can have a summer and a winter rating as well as an emergency rating. Similarly, the forced outage rate can change as a unit matures as well as during different stages in its maintenance cycle. In order to keep the analyses of the base system (without photovoltaic generation) as uncomplicated as

TABLE 4.2

DAILY PEAK LOAD STATISTICS FOR EXAMPLE SYSTEM

<u>Month</u>	<u>Peak(MW)</u>	<u>Mean(MW)</u>	<u>Std. Dev.(MW)</u>	<u>% Std. Dev.*</u>	<u>Observations</u>
January	2630	2327	187.6	8.26	22
February	2632	2392	120.7	5.01	19
March	2467	2327	70.3	3.01	21
April	2824	2497	150.9	5.95	22
May	3956	3267	333.6	10.05	22
June	4764	4303	346.2	8.41	20
July	4619	4154	283.8	6.96	22
August	4373	4133	166.6	4.11	22
September	4639	3908	428.0	11.15	20
October	3782	3039	438.4	14.89	22
November	2525	2395	66.7	2.78	20
December	2931	2761	130.0	4.84	21

* % Standard Deviation = Standard Deviation/Mean

possible, these effects were neglected. A single value was assigned to the capacity and forced outage rate of the various units.

Two assumptions were made in developing the capacity model. Each unit is assumed to have two possible states. Either the unit is totally available or it is totally unavailable as a result of a forced outage. Furthermore, each unit outage is assumed to be independent of outages elsewhere on the system. There are units on some systems which are capable of partial outages or have common headers. These types of units can be and have been represented in capacity models. In the context of the present study, however, this added detail does not serve any purpose and was not included.

The forced outage statistic is subject to a number of different interpretations and definitions. Consequently, a discussion of forced outage rates is in order before the capacity probability distribution development is detailed.

4.3.2.1 Forced Outage Rates

The operation of a unit may be thought of as successive intervals of time during which it is available for operation and time during which it is unavailable due to forced outages. For each unit, a forced outage can be defined as an event and the corresponding event probabilities are:

p = the probability of being forced out at any time

q = the probability of being available at any time

so that $p + q = 1$

A statistic which properly estimates this event is required in order to model the probabilistic characteristics of the generation system. The Edison Electric Institute (EEI) defines the forced outage rate (FOR) to be:

$$\text{FOR} = \frac{\text{Forced Outage Hours}}{\text{Forced Outage Hours} + \text{Service Hours}} \quad (4-15)$$

where service hours include only the number of hours that the unit was operated.

For base load units, the service hours represent essentially all of the hours that the unit is not on scheduled maintenance or forced outage. For this type of generation, the EEI definition provides a valid estimate of the probability that these units will experience a forced outage at any time. For non-base load generation, there may be many hours in which the unit is on reserve shutdown or cold standby in addition to being either in service or on a forced outage. In this case, the forced outage rate provides an estimate of the probability of the unit being on forced outage between periods in which the unit is not on cold standby or scheduled maintenance. This is not precisely correct since forced outage hours represent the total number of hours during which the unit is unavailable whether the unit is needed for service or not. The long term probability of finding a unit on forced outage at any time, which is the percentage of time it is on forced outage, can be more consistently estimated by the statistic defined by:

$$FOR = \frac{\text{Time on Forced Outage}}{\text{Time on Forced Outage} + \text{Time Available}} \quad (4-16)$$

The available time in the above relationship is the total time the unit is available to serve the load. This includes reserve shutdown or cold standby time but does not include scheduled outage time. This definition represents the true fraction of total time that a unit is on forced outage between periods of scheduled maintenance.

The term forced outage rate should be interpreted as the statistic which estimates the probability, p , that a generating unit will be forced out and unavailable to meet load at any given instant of time. It is the value of the FOR which is substituted for p in order to develop the available capacity distribution. Now let us see how this statistic, together with the rating, are used to generate a probabilistic capacity model.

4.3.2.3 Available Capacity Distribution

For each unit installed on the system, we can define a random variable, x_i , which is the amount of capacity available from unit i .

With the assumption that the unit is either totally available or totally unavailable due to forced outage, the random variable can only have either of two values, 0 or c_i (the unit capacity). The probability that the random variable, x_i , has a value of 0 is p_i ($\approx \text{FOR}_i$) since this occurs when the unit is forced out. Likewise, the probability that the random variable has a value of c_i is q_i ($= 1 - p_i$) and occurs when the unit is available or not forced out of service. Thus each unit has a point binominal density function such that:

$$P_i(0) = p_i \quad (4-17)$$

$$P_i(c_i) = q_i \quad (4-18)$$

With more than one unit on the system, we would like to determine the total system available capacity. Consequently, we will be concerned with the probability of joint events; that is, the probabilities of overlapping random forced outages. For two events x_1 and x_2 , the probability of the joint occurrence of x_1 and x_2 is written $P(x_1, x_2)$. Assuming independent of forced outages, the multiplicative law for independent events applies and the joint probability of x_1 and x_2 is:

$$P(x_1, x_2) = P_1(x_1) \times P_2(x_2) \quad (4-19)$$

where

$$x_1 = 0, c_1 \text{ and } x_2 = 0, c_2$$

From the above relationships, it can be seen that the probability that both units are available for service is:

$$P(c_1, c_2) = P_1(c_1) \times P_2(c_2) \quad (4-20)$$

$$= q_1 \times q_2 \quad (4-21)$$

Similarly, the probability that only unit 1 is forced out and unit 2 is available would be:

$$P(0, c_2) = P_1(0) \times P_2(c_2) \quad (4-22)$$

$$= p_1 \times q_2 \quad (4-23)$$

The joint probability can be generalized to include any number of units in the system as follows:

$$P(x_1, x_2, \dots, x_n) = P_1(x_1) \times P_2(x_2) \times \dots \times P_n(x_n) \quad (4-24)$$

A new random variable, $y = \sum x_i$, may be defined which is the sum of the random variables associated with the individual units. This new random variable is the system available capacity since x_i is the available capacity associated with the i^{th} unit. The probability of system available capacity, then, is a function of the joint forced outage events.

Consider a system which consists of two units with identical capacity ratings. In this case, there are two ways in which the event $Y = c$ can occur; either unit 1 can be available and unit 2 forced out, $P(c,0)$, or unit 1 can be on forced outage with unit 2 available, $P(0,c)$. In general, it can be stated that the additive law of probabilities applies. Thus the probability of the event Y is the sum of the probabilities of the mutually exclusive ways in which it can occur. For the two unit case,

$$P(Y = c) = P(c,0) + P(0,c) \quad (4-25)$$

$$= q_1 P_2 + P_1 q_2 \quad (4-26)$$

In summary, the probability density of system available capacity is the sum of the joint probabilities for all common values of Y . An example of this density function for a three unit system is developed in Table 4.3 and is illustrated graphically in Figure 4.4.

TABLE 4.3
DEVELOPMENT OF CAPACITY MODEL FOR 3 UNIT SYSTEM

Unit	P	C
1	.01	10 MW
2	.05	20 MW
3	.10	30 MW

$$\begin{aligned}
 P(0 \text{ MW available}) &= P(x_1 = 0, x_2 = 0, x_3 = 0) = p_1 p_2 p_3 = .0005 \\
 P(10 \text{ MW available}) &= P(x_1 = 10, x_2 = 0, x_3 = 0) = q_1 p_2 p_3 = .00495 \\
 P(20 \text{ MW available}) &= P(x_1 = 0, x_2 = 20, x_3 = 0) = p_1 q_2 p_3 = .00095 \\
 P(30 \text{ MW available}) &= P(x_1 = 0, x_2 = 0, x_3 = 30) + P(x_1 = 10, x_2 = 20, x_3 = 0) \\
 &= p_1 p_2 q_3 + q_1 q_2 p_3 = .0945 \\
 P(40 \text{ MW available}) &= P(x_1 = 10, x_2 = 0, x_3 = 30) = q_1 p_2 q_3 = .04455 \\
 P(50 \text{ MW available}) &= P(x_1 = 0, x_2 = 20, x_3 = 30) = p_1 q_2 q_3 = .00855 \\
 P(60 \text{ MW available}) &= P(x_1 = 10, x_2 = 20, x_3 = 30) = q_1 q_2 q_3 = .84645
 \end{aligned}$$

Available Capacity-Y	Outage Capacity	P(Y) Probability	Cumulative Probability
0	60	.00005	.00005
10	50	.00495	.00500
20	40	.00095	.00595
30	30	.09450	.10045
40	20	.04455	.14500
50	10	.00855	.15355
60	0	.84645	1.00000

FIGURE 4.4. PLOT OF PROBABILITY DENSITY OF TABLE 4.3

The individual unit data used as input for the capacity model was again based on Salt River Project generation plans extrapolated in 1990. Sales and purchases of electricity were not included in the analysis in order to avoid confusion. The capacity ratings used represented only the Salt River Project's share in the case of jointly-owned units. Interconnections with neighboring utilities were also neglected in order to keep the size of the system to be analyzed to a more manageable level. Because of these factors, we would not expect our detailed results to agree with those of the Salt River Project. The units on our hypothetical system, listed in Table 4.4, are nonetheless representative of an actual utility. Furthermore, the "conventional" generation capacity remains constant throughout this program. The study is concerned with relative changes from this base, hence the use of a simplified capacity model is acceptable.

The capacity distribution as it is generated in the computer is used directly in the next stage of the analysis. It is not a normal output nor is it easily accessed. For this reason, no attempt is made to determine what the distribution actually is.

Having thus determined both the load and available capacity distributions, the probability that the load exceeds available capacity can be determined for each time period to be considered. This can be done using either of the two approaches (stress-strength or margin) which are discussed in Section 4.2. The detailed algorithms used in the computation of these probabilities need not be elaborated.

The unique mathematical procedure used in the Westinghouse program does deserve some mention. In this technique, the available capacity density function is described by a system of parameters called distribution cumulants. The first and second cumulants correspond to the mean and standard deviation, respectively. Higher order cumulants account for the lack of symmetry. These parameters can be easily combined with the parameters of the load model (mean and standard deviation) to form the margin distribution. Numerical techniques can

TABLE 4.4

DATA FOR "CONVENTIONAL" UNITS ON HYPOTHETICAL UTILITY SYSTEM

| <u>Unit
ID</u> | <u>Unit
Name</u> | <u>Capacity
MW</u> | <u>F.O.
Rate</u> |
|--------------------|----------------------|------------------------|----------------------|
| 1 | Comb Turb | 62.00 | .100 |
| 2 | Comb Turb | 62.00 | .100 |
| 3 | Comb Turb | 62.00 | .100 |
| 4 | Comb Turb | 62.00 | .100 |
| 5 | Comb Turb | 62.00 | .100 |
| 6 | Comb Turb | 62.00 | .100 |
| 7 | Comb Turb | 62.00 | .100 |
| 8 | Comb Cycle | 73.00 | .110 |
| 9 | Comb Cycle | 73.00 | .110 |
| 10 | Comb Cycle | 73.00 | .110 |
| 11 | Comb Cycle | 73.00 | .110 |
| 12 | Oil Steam | 179.00 | .040 |
| 13 | Oil Steam | 90.00 | .020 |
| 14 | Oil Steam | 90.00 | .020 |
| 15 | Oil Steam | 90.00 | .020 |
| 16 | Oil Steam | 90.00 | .020 |
| 17 | 4 Corners | 78.00 | .160 |
| 18 | 4 Corners | 79.00 | .160 |
| 19 | Craig 1 | 110.00 | .130 |
| 20 | Craig 2 | 110.00 | .130 |
| 21 | Coronado 1 | 350.00 | .130 |
| 22 | Coronado 2 | 350.00 | .130 |
| 23 | Coronado 8 | 350.00 | .220 |
| 24 | Palo Verde 1 | 357.00 | .120 |
| 25 | Palo Verde 2 | 357.00 | .120 |
| 26 | Palo Verde 3 | 357.00 | .180 |
| 27 | 1988 Nuc | 350.00 | .140 |
| 28 | 1990 Nuc | 350.00 | .260 |
| 29 | Pump Hydro | 872.00 | .020 |
| 30 | Pond Hydro | 92.00 | .010 |
| 31 | Hayden 2 | 200.00 | .130 |
| 32 | Navajo 1 | 163.00 | .160 |
| 33 | Navajo 2 | 163.00 | .160 |
| 34 | Navajo 3 | 163.00 | .160 |
| 35 | Mohave 1 | 78.00 | .160 |
| 36 | Mohave 2 | 77.00 | .160 |

then be used to approximate the area under the negative portion of the margin distribution, which is the failure probability. Because this method requires much less computer time and space, it has great advantages if hourly reliability analyses are necessary.

4.3.3 Conventional System Reliability (LOLP)

In general, the individual probabilities are calculated on a short enough time period to adequately represent system changes. In conventional systems, this period is usually weekly, bi-weekly, or monthly. For the base system in this study, the load density is developed for a calendar month and the available capacity density remains unchanged throughout the year. Thus it is only necessary to calculate the probability of insufficient capacity on a monthly basis.

Calculation of the individual probabilities that load will exceed available capacity does not complete the analysis. As mentioned in Section 4.2.3, the loss of load probability (LOLP) is actually not a probability but rather an expected value. An appreciation of this concept as it applies to power system reliability calculations is essential to the understanding of results presented in this report.

In calculating the LOLP, each homogeneous time period is made to consist of an integral number of weeks. As a result, the year has traditionally been divided into 13 four-week "months". Although the probability is calculated only once for each period, it is summed daily over the period to obtain a "monthly" LOLP in days/period. As stated previously, the load model is developed from only weekday peaks and excludes weekends and holidays. A much lower level of demand is experienced on weekends and holidays, therefore these days contribute only negligibly to the period LOLP. As a result, the LOLP for a given period is the probability of insufficient capacity summed over the 20 days (4 weeks of 5 days) in that period.

It will be recalled that a probability can be interpreted as the expected "number" of occurrences of an event resulting from a single

trial. Since the load model is developed from daily peak loads, a day is the smallest time interval considered in the conventional reliability analysis. The occurrences per trial can therefore be viewed as days of insufficient capacity per day. Since the number of days (trials) in a period is 20, the period LOLP is given by:

$$\text{LOLP}_M = E [N(\text{capacity deficient days in the "month"})] \quad (4-27)$$

$$= 20 \text{ days} \times P(\text{insufficient capacity}) \frac{\text{days}}{\text{day}} \quad (4-28)$$

The monthly loss of load probability is usually referred to in terms of "days/period" and is the expected number of days in that period on which load exceeds available capacity. This value is usually much less than one, which means that a large number of similar periods must occur before one would expect a loss of load.

Because the load model statistics change from month to month, the monthly LOLP will be different for each month. The annual probability of loss of load (LOLP_A) is determined by summing the 13 monthly LOLP values to obtain the familiar "days/year" figure of merit.

The monthly LOLP in days/period can be converted to the more common days/year units by multiplying by the number of periods in a year, or

$$\text{LOLP}_M \frac{\text{days}}{\text{period}} \times \frac{13 \text{ periods}}{\text{year}} = 13 \text{ LOLP}_M \frac{\text{days}}{\text{year}} = \text{LOLP}_M' \frac{\text{days}}{\text{year}} \quad (4-29)$$

Changing the units does not change the interpretation. The value LOLP_M' is still a measure of the period expected capacity deficiency. The number of periods in a year (13) is simply a scaling factor. The LOLP_M' represents the expected number of days of insufficient capacity in 13 successive periods identical to the one in which the calculation is performed, or in 260 successive trials (20 days/period x 13 periods).

Once again, the annual loss of load probability is defined as:

$$LOLP_A = \sum_{i=1}^{13} LOLP_{M_i} \quad (4-30)$$

If the right side of the expression is simultaneously multiplied and divided by the number of periods per year (13), the equation becomes:

$$LOLP_A = \frac{\sum_{i=1}^{13} 13 LOLP_{M_i}}{13} = \frac{\sum_{i=1}^{13} LOLP'_{M_i}}{13} \quad (4-31)$$

where $LOLP_A$ and $LOLP'_{M_i}$ are expressed in days/year and $LOLP_{M_i}$ is in units of days/period. From this expression it can be seen that the annual LOLP is actually the average of the monthly LOLPs when both are expressed in the same units (days/year). Both monthly and annual loss of load probabilities are valuable measures of system reliability, but both are different in interpretation and application. An annual LOLP criterion can be adopted to maintain an acceptable average risk of load loss for the year. A different criterion can be used for the monthly LOLP to insure that the risk of losing load within any given month does not exceed an acceptable level. The monthly criterion is generally considered to be a more useful tool for generation planning in that it provides more detail regarding system reliability throughout the year. It aids in the scheduling of maintenance, defines required installation dates of new generation more precisely, and provides a consistent basis for making monthly capacity purchases or sales.

The LOLP is a measure of system unreliability. It is an indication of the expected number of days in a given time interval that there will not be adequate capacity to serve the peak demand. Larger values of LOLP indicate a less reliable system. The value of the LOLP generally ranges from 0 to 1, although it can be greater than one for a very unreliable system. Often, the LOLP is interpreted as

the average frequency of generation deficient events. For example, an annual LOLP of 0.1 days per year can be viewed as the expectation of 1 day of insufficient capacity in 10 such annual periods. With this interpretation, the inverse of the LOLP would be the expected interval between occurrences of the loss of load event. Thus, an annual LOLP of 0.1 days/year could be interpreted as expecting a 10 year interval between days of loss of load. The inverse of the LOLP provides a measure of system "reliability" in that a larger value implies a more reliable system.

A conventional reliability analysis was conducted for the example system using the daily peak load statistics of Table 4.2 and the capacity model inputs from Table 4.4. The resulting loss of load probabilities for each of the 13 planning periods and for the entire year are listed in Table 4.5. It can be seen from this table that the risk of losing load is greatest during periods 6 through 10, which roughly correspond with the summer months of June through September (inclusive). The remainder of the periods have values of loss of load probability which are orders of magnitude smaller. This is typical of many summer-peaking utilities. One can readily see the fallacy of dividing the annual LOLP by 13 to determine a monthly LOLP.

The annual LOLP of 0.533 days/year is somewhat higher than typical. No attempt was made to change the capacity model to improve this figure, since it is the differences from the base system value with which we are interested. Again, because of the many simplifications the results cannot be considered applicable to the actual utility from which the load and capacity models were derived.

TABLE 4.5

SUMMARY OF LOSS OF LOAD PROBABILITIES FOR BASE
SYSTEM USING CONVENTIONAL DAILY PEAK ANALYSIS

<u>Period</u>	<u>Monthly LOLP [days/period]</u>
1	0.0000006
2	0.0000009
3	0.0000002
4	0.0000035
5	0.0034267
6	0.137104
7	0.147983
8	0.0902834
9	0.0805253
10	0.0718342
11	0.0013789
12	0.0000039
13	0.0000144
Σ	<u>0.532558</u>

$$\text{Annual LOLP} = 0.532558 \text{ days/year}$$

$$\frac{1}{\text{LOLP}_A} = 1.88 \text{ years/day}$$

4.4 Hourly Reliability Analysis of System Without Solar Generation

In the past, reliability analyses based on daily peak loads and a random available capacity distribution adequately represented the power system. As solar photovoltaic generation is installed on the system, however, a portion of the system capacity tends to vary in a non-random manner from hour to hour throughout the day as well as seasonally. In order to include this effect in reliability assessments, the probability that load exceeds available capacity must be calculated on an hourly basis. This requires not only additional detail within the load model, but also some means of combining individual probabilities to obtain a loss of load probability (LOLP) which is consistent with the traditional method. In order that the figures of merit for systems with photovoltaic power plants obtained from such an analysis can be correlated with the traditional days/year and days/period criteria, the base example system (without solar generation) will be analyzed hourly. Inferences can then be drawn from the results of this analysis regarding the relationships between the LOLP values derived from daily and hourly analyses.

4.4.1 Hourly Load Model

In the hourly load model, as in the daily peak load model, the assumption is made that the load is normally distributed. As a result, only two parameters - mean and standard deviation - are needed for each hour of the day. Such data can be developed conveniently from a month of weekday loads for a given hour. Hence, the method of developing the load model is identical to that used for daily peak loads. The only difference is that now the load model contains statistics for the 24 hours of the day rather than just the peak.

It is impossible to provide conclusive proof that loads are normally distributed. In the case of daily peak loads, extensive work has been done over the years which indicates the assumption is reasonable. To ascertain that a normal distribution is representative of the hourly load behavior, histograms were developed for the loads used to calculate the statistics for the 24 hours of each month. The plot of a normal distribution whose mean and standard deviation were calculated from these same loads was superimposed on the histogram. For many of the hourly load statistics, the "fit" appeared to be quite good (Figure 4.5). For others, particularly where the standard deviation was large, there was a much poorer correlation. This was not an overly discouraging observation; however, in view of the limited number of observations and the sensitivity to the class size of the histogram. The use of chi-squared tests of statistical significance was not considered meaningful due to the limited amount of data from which the statistics were developed. Because the normal distribution appeared to represent the actual load distribution adequately for the greatest majority of the cases, its use in hourly analyses was considered reasonable. The actual statistics employed in the analysis are included as an appendix.

4.4.2 Capacity Model

In considering the capacity model for the hourly analysis of the base system (without solar generation), one should recall the interpretation of the forced outage rate. Simply stated, the FOR is the long-term probability of finding a unit on forced outage at any time. This statistic is developed from the ratio of forced outage hours to hours either forced out or available. As such, it is directly applicable to an hourly reliability analysis and so the capacity model for conventional (i.e., thermal or hydro) units is identical to the model used for analyses which include only daily peak loads.

4.4.3 Hourly Reliability of Base System

The individual probabilities that there will be insufficient capacity to meet demand will be calculated using the same identical

O=OBSERVED, T=THEORETICAL, +=COINCIDENCE OF O AND T

methods as those used for the conventional (peak load) analysis. The interpretation of these probabilities in terms of an expected value will be radically different, however. If we consider the probability to be the expected number of occurrences per trial, each trial now corresponds to an hour and each probability represents the expected number of capacity deficient hours per hour. The expected value of loss of load for a day within a given period could be obtained by summing over the expected value (which is numerically equal to the actual probability) for each hour, or

$$LOLP_d = \sum_{h=1}^{24} LOLP_h \frac{\text{hrs}}{\text{day}} \quad (4-32)$$

Since the daily LOLP is the same for each weekday in a period, the monthly LOLP would simply be 20 times the daily LOLP (4 weeks of 5 days each). Thus:

$$LOLP_M = 20 \times LOLP_d = \sum_{h=1}^{24} 20 LOLP_h = \sum_{h=1}^{24} LOLP_h' \frac{\text{hours}}{\text{period}} \quad (4-33)$$

An hourly loss of load probability ($LOLP_h'$) which has units of hours per period does have meaning in that it is the expected number of hours of capacity deficiency for that hour in a period of 20 such hours. There is a temptation to also divide the hourly probabilities of loss of load by 24 to obtain a "days/period" figure. This simply represents a scaling factor, however a direct interpretation of the resulting values is difficult and misinterpretation is likely.

A partial listing of hourly loss of load probabilities in "hours/period" units appears in Table 4.6. Included are hour 13 (noon to 1 p.m.) through hour 22 (9 p.m. to 10 p.m.). The hours of maximum risk (largest value of LOLP) are seen to occur within a relatively narrow time interval from hour 17 to hour 20. The hourly loss of load

TABLE 4.6

HOURLY LOLP IN HOURS/PERIOD FOR BASE SYSTEM

| Hour
Per.	13	14	15	16	17	18	19	20	21	22
1	.325E-8	.200E-8	.150E-8	.115E-8	.346E-8	.320E-7	.497E-6	.155E-6	.125E-6	.101E-6
2	.530E-8	.356E-8	.647E-9	.755E-9	.263E-8	.670E-8	.731E-7	.121E-6	.109E-6	.286E-7
3	.145E-7	.743E-8	.758E-8	.106E-7	.165E-7	.692E-7	.194E-6	.190E-6	.628E-7	.149E-7
4	.465E-7	.126E-6	.352E-6	.639E-6	.105E-5	.300E-5	.150E-5	.173E-5	.850E-6	.275E-6
5	.369E-3	.922E-3	.158E-2	.186E-2	.336E-2	.293E-2	.312E-2	.988E-3	.684E-3	.110E-3
6	.239E-1	.438E-1	.733E-1	.995E-1	.113E-0	.138E-0	.115E-0	.478E-1	.347E-1	.101E-1
7	.236E-1	.475E-1	.751E-1	.101E-0	.116E-0	.145E-0	.109E-0	.467E-1	.334E-1	.926E-2
8	.124E-1	.296E-1	.435E-1	.512E-1	.611E-1	.762E-1	.493E-1	.243E-1	.164E-1	.434E-2
9	.112E-1	.255E-1	.454E-1	.520E-1	.638E-1	.682E-1	.435E-1	.300E-1	.155E-1	.316E-2
10	.995E-2	.218E-1	.431E-1	.538E-1	.659E-1	.686E-1	.420E-1	.314E-1	.143E-1	.205E-2
11	.259E-3	.442E-3	.103E-2	.124E-2	.162E-2	.144E-2	.993E-3	.800E-3	.199E-3	.430E-4
12	.699E-7	.303E-7	.116E-7	.741E-8	.258E-7	.530E-2	.387E-5	.272E-5	.188E-5	.996E-6
13	.270E-6	.105E-6	.380E-7	.233E-7	.748E-7	.197E-5	.142E-4	.106E-4	.735E-5	.395E-5

$$AE-B = A \times 10^{-B}$$

probabilities which have not been listed are at least two orders of magnitude less than the maximum and can be neglected without significant error.

If only the maximum hourly LOLP from each period were summed, as shown in Table 4.7 a very close correlation is noticed between such an "hours/year" LOLP and the conventional "days/year" figure obtained earlier. This should not be particularly surprising in light of the way in which both values were obtained. In fact, the only difference was in the interpretation used to assign units to each of the expected values. If we were to rename the different expected values for both the daily and hourly calculations so that they were the expected number of occurrences of the capacity deficient event, the differences would disappear. This is because we assume with this approach, as with the daily peak analysis, that the other values of hourly LOLP are negligible compared to the maximum.

From Table 4.6 however, it can be seen that several of the values of hourly LOLP for hours near that in which the maximum LOLP occurs are not negligible. The computer program which calculated each of the hourly LOLP values automatically summed the hours/period number for a given hour over all 13 periods to obtain an annual hours/year figure of merit for that hour. These are listed in Table 4.8. If these values are summed over all 24 hours, the total number of hours in which the load is expected to exceed available capacity will be determined. It can be seen that this value bears no relationship to the conventional annual LOLP (days/year). If this annual hours per year figure of merit were to be divided by 24 hours per day, the resulting value would simply be an average hourly loss of load probability. Any attempt to correlate this value with the annual days/year LOLP would be unduly optimistic because of the large number of hours in which the LOLP is in fact insignificant. The annual hours/year LOLP is meaningful, however the relationship between this new value and more traditional figures of merit will depend to a great extent on the load profile of the particular utility being analyzed.

TABLE 4.7

MAXIMUM HOURLY LOLP IN HOURS/PERIOD FOR BASE SYSTEM

<u>Period</u>	<u>Hour of Occurrence</u>	<u>Hourly LOLP (Hours/Period)</u>
1	19	0.0000005
2	20	0.0000001
3	19	0.0000002
4	18	0.0000030
5	17	0.00336
6	18	0.138
7	18	0.145
8	18	0.0762
9	18	0.0682
10	18	0.0686
11	17	0.00162
12	18	0.00530
13	19	<u>0.0000142</u>

$$\sum_{M=1}^{13} \text{LOLP}_{h_{\max}}^M = 0.506 \text{ hours/year}$$

$$\text{Annual Daily Peak LOLP}^* = 0.533 \text{ days/year}$$

*Determined From Conventional Analysis

TABLE 4.8

ANNUAL HOURLY LOLP (HOURS/YEAR) FOR BASE SYSTEM

<u>Hour</u>	<u>LOLP'_{ha} (Hours/Year)</u>
1	0.000253
2	0.000022
3	0.000010
4	0.000005
5	0.000005
6	0.000004
7	0.000012
8	0.000090
9	0.000482
10	0.002808
11	0.01122
12	0.02827
13	0.08160
14	0.1695
15	0.2830
16	0.3604
17	0.4243
18	0.5003
19	0.3628
20	0.1820
21	0.1151
22	0.02909
23	0.003861
24	<u>0.000441</u>
24
$\sum_{h=1} \text{LOLP}'_{ha}$	2.5556 hours/year

Annual Daily Peak LOLP* = 0.533 days/year

* Determined From Conventional Analysis

It is interesting to note that for systems which usually experience the daily peaks in the same hour, the hours/year loss of load probability for that hour corresponds closely with the annual loss of load probability calculated using daily peak loads. Thus the value of $LOLP_{ha}$ for hour 18, 0.5003 hours/year, is in close agreement with the annual LOLP calculated in the conventional manner using daily peak load statistics, which is 0.5326 days/year. For modest penetrations of solar photovoltaic generation, then, statistics of load and solar capacity developed for this hour can provide a useful estimator of the reliability in the conventional sense.

In summary, we see that new measures of system reliability will result from an hourly reliability analysis. By summing only the maximum hourly LOLP for each period over all 13 periods, a figure of merit which is closely related to the conventional annual LOLP is obtained. For systems which peak regularly in the same hour, a convenient estimate of this value can be obtained by considering only that hour. Such an approach is valid only if the variation from the base system is modest. A summation of all hourly LOLPs is, strictly speaking, the proper method of calculation, however for planning purposes a maximum hourly LOLP in hours/day or hours/period may prove more useful.

4.5 Hourly Reliability Analysis of Power Systems with Photovoltaic Generation

4.5.1 Characterization of Photovoltaic Plants

Having analyzed the concept of an hourly reliability analysis and its interpretation, only the final complication remains to be introduced. This is, of course, the inclusion of solar photovoltaic generating units into the reliability analysis. Because these plants are envisioned as being highly modularized (i.e., consisting of many individual units in parallel), it was assumed that the probability of an outage due to equipment failure is negligible. Thus the statistical characteristics of plant output are the result of two components: the random effects of weather conditions such as cloud cover and ambient temperature, and the non-random position of the sun.

The manner in which solar generation could be incorporated into the reliability analysis depends largely on the statistical behavior. If the output in a given hour tends to be normally distributed, the output of the solar plant can be subtracted from the load model and hence treated as a "negative" load. If, on the other hand, the hourly outputs tend to assume either of two (or even more) distinct values, a binomial model would be appropriate. In this case, the plant would be treated in much the same way as conventional thermal and hydro units.

A computer tape containing the outputs of photovoltaic plant simulations for two designs were obtained from Martin Wolf of the University of Pennsylvania. The simulations were run using actual weather data for one year in Phoenix. The two designs selected were the 10 X Compound Parabolic Collector (CPC) with vertical-axis tracking and the collector/reflector scheme. These are the two approaches which appear to have the most promise as a result of our original program.

The plant outputs were input into the hourly load analysis programs and histograms were developed for the 24 hours of the day for each month. In the case of the photovoltaic plant, all outputs were used, including those obtained during weekends and holidays. When the histograms were plotted it became apparent that the behavior of the plant was not that of a normal distribution, at least not on a monthly scale. There is too much variation in the non-random movement of the sun between the beginning and end of the month. It is quite conceivable that the plant does have a normally distributed output when the statistics are developed for a shorter time period, perhaps a week. However the confidence in values developed from only 5 pieces of information is too low to have any statistical significance.

The data listed in Table 4.9 for a 100 MW 10 X CPC with vertical-axis tracking design is typical of the plant output characteristics throughout much of the day. Most of the plant output values tend to lie within 10 to 15 megawatts of the peak observed output with relatively few observations assuming zero or intermediate values. Rather than attempting to model this as a partial outage, an equivalent forced outage rate representation was adopted. For this two-state approximation of the actual multi-state probability density, only the maximum observed output or no output at all (i.e., forced outage) are assumed possible. The equivalent forced outage rate (EFOR) can be determined from the following equation:

$$EFOR = \sum_{i=1}^n \frac{1}{n} \frac{\text{Max. Output} - \text{Output}_i}{\text{Max. Output}} \quad (4-34)$$

$$= \frac{\sum_{i=1}^n (\% \text{ Unavailable Capacity})_i}{n} \quad (4-35)$$

where n is the number of outputs included. By this definition, we see that the EFOR is actually the average percent unavailable capacity.

TABLE 4.9

TABULATION OF HISTOGRAM VALUES FOR
100 MW 10 X CPC WITH VERTICAL-AXIS TRACKING

Hour 18, July

<u>Class Limits</u>	<u>Frequency of Occurrence</u>
0 - 5	1
5 - 10	0
10 - 15	0
15 - 20	0
20 - 25	1
25 - 30	0
30 - 35	0
35 - 40	0
40 - 45	0
45 - 50	2
50 - 55	5
55 - 60	18
60 - 65	<u>4</u>
	31 Observations

Extremes = 0, 62 MW

The Effective Forced Outage Rate is 0.1336 at a rating of 62 MW.

Several papers appear in the literature which indicate that an EFOR representation is a conservative estimate for practical systems. There should be no reason why this observation should not apply to systems with photovoltaic generation. Thus, the use of more detailed capacity models for the solar photovoltaic plant are likely to improve the results. For the purposes of this program, however, the EFOR approach is considered to be adequate.

A complete list of the equivalent forced outage rate and maximum output statistics for the two types of plant appear in Tables 4.10 and 4.11. The two parameters, EFOR and capacity, are input to the capacity model in the same way as for a conventional thermal or hydro unit. Because these two statistics change from hour to hour and month to month, a new capacity model must be generated for each period. This is accomplished by simultaneously "retiring" a solar plant with statistics representative of the previous period and installing a unit with the proper statistics for the period of interest. Other than this constant substitution of solar plant characteristics, the analysis is conducted in the same manner as the hourly analysis of the base system.

4.5.2 Hourly Reliability of Systems with Photovoltaic Generation

The hourly loss of load probabilities (hours/period) for a 100 MW and 400 MW solar plant are listed in Tables 4.12 and 4.13 respectively. Both of the analyses presented were calculated using a 10 X CPC with vertical-axis tracking design for the solar plant. Only hours 13 through 21 are tabulated, since other hours have a loss of load probability which is insignificant in comparison to the maximum value for that period.

In order to facilitate the comparison of the system which includes solar generation to the base system, the hours/period LOLP for the base system also appears in Tables 4.12 and 4.13. It should not be surprising to note an improvement in the LOLP (lower values). Remember that no change was made in the load, so that any generation additions will improve the reliability. The amount by which the LOLP changes is

TABLE 4.10

EQUIVALENT FORCED OUTAGE RATE AND (CAPACITY)
FOR 100 MW 10X CPC, VERTICAL-AXIS TRACKING DESIGN

| MONTH
HOUR	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
6	0
(0)	0
(0)	0
(0)	.9367
(6.9)	.4014
(30.3)	.2126
(33.7)	.3942
(32.4)	.7927
(15.2)	0
(0)	0
(0)	0
(0)	0
(0)
7	0
(0)	0
(0)	.5142
(44.4)	.2404
(60.9)	.1257
(67.8)	.1643
(67.3)	.2052
(65.8)	.2733
(61.1)	.3934
(49.4)	.7585
(19.3)	0
(0)	0
(0)
8	.5188
(44.1)	.3557
(63.6)	.2123
(76.7)	.1150
(80.7)	.0599
(83.0)	.1005
(80.0)	.1719
(79.3)	.1682
(77.3)	.2527
(74.6)	.1476
(65.2)	.2971
(48.0)	.3220
(27.0)
9	.2047
(75.1)	.2254
(85.1)	.1446
(89.1)	.0608
(87.6)	.0707
(89.2)	.0893
(84.0)	.1029
(84.1)	.1266
(83.9)	.2130
(83.4)	.1006
(82.7)	.1727
(74.0)	.1930
(67.7)
10	.1796
(87.4)	.1994
(95.1)	.1525
(96.1)	.0632
(88.5)	.0960
(89.3)	.1037
(82.8)	.0939
(81.8)	.1171
(84.4)	.2226
(87.7)	.0794
(88.0)	.1874
(86.0)	.1655
(83.7)
11	.1850
(95.7)	.2032
(97.5)	.1964
(97.0)	.0674
(86.5)	.0808
(83.9)	.1133
(75.5)	.1220
(79.1)	.1174
(82.3)	.1985
(84.4)	.0694
(88.5)	.1833
(91.4)	.1820
(90.8)
12	.1865
(96.9)	.2070
(97.9)	.1751
(96.3)	.0858
(83.0)	.0617
(76.1)	.1171
(67.7)	.0949
(71.4)	.1090
(77.6)	.1884
(83.4)	.0423
(87.5)	.1799
(92.2)	.1837
(93.4)
13	.1848
(96.0)	.2266
(97.4)	.1968
(95.9)	.1089
(82.8)	.0911
(77.1)	.1031
(67.5)	.0986
(71.1)	.1171
(77.3)	.1936
(80.6)	.0690
(88.1)	.1590
(92.2)	.1822
(92.2)
14	.2048
(93.3)	.2484
(95.8)	.2280
(96.1)	.0845
(84.8)	.0744
(81.0)	.0930
(74.0)	.0870
(77.4)	.0885
(79.6)	.2363
(84.3)	.1997
(100)	.1805
(89.6)	.1891
(89.6)
15	.2906
(95.7)	.2655
(93.3)	.1998
(94.3)	.0999
(86.2)	.1001
(85.6)	.0876
(77.6)	.0995
(80.2)	.0752
(80.1)	.1981
(81.0)	.1053
(83.3)	.1928
(83.0)	.2112
(81.7)
16	.2022
(71.4)	.2881
(83.8)	.2032
(85.7)	.1031
(82.7)	.1128
(85.6)	.0907
(76.7)	.0854
(79.7)	.0843
(77.6)	.1854
(75.2)	.1279
(76.7)	.1887
(70.2)	.2041
(64.7)
17	.4048
(41.1)	.4342
(59.2)	.2628
(71.8)	.1455
(76.0)	.1263
(79.3)	.1205
(74.0)	.0880
(74.8)	.1461
(73.3)	.2619
(65.0)	.1798
(61.4)	.3191
(44.3)	.3025
(26.2)
18	0
(0)	0
(0)	.5082
(41.7)	.2711
(54.7)	.1733
(63.9)	.1543
(61.9)	.1336
(62.0)	.2225
(54.3)	.4258
(45.0)	.7631
(18.3)	0
(0)	0
(0)
19	0
(0)	0
(0)	0
(0)	.9359
(6.4)	.4404
(28.1)	.2478
(31.4)	.2707
(29.7)	.8231
(12.6)	0
(0)	0
(0)	0
(0)	0
(0)

TABLE 4.11

EQUIVALENT FORCED OUTAGE RATE AND (CAPACITY)
FOR 100 MW COLLECTOR/REFLECTOR DESIGN

| MONTH
HOUR	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
6	0
(0)	0
(0)	0
(0)	0
(0)	.6445
(4.8)	.1830
(5.5)	.5648
(5.1)	0
(0)	0
(0)	0
(0)	0
(0)	0
(0)
7	0
(0)	0
(0)	.5419
(5.5)	.4564
(19.4)	.1794
(26.3)	.1689
(27.4)	.2664
(27.1)	.3958
(20.5)	.4929
(8.0)	0
(0)	0
(0)	0
(0)
8	.6631
(9.1)	.4591
(21.2)	.2647
(32.2)	.1741
(30.0)	.1545
(36.9)	.1163
(38.0)	.2443
(37.3)	.2155
(27.8)	.2390
(28.9)	.2745
(24.5)	.4274
(11.3)	.8143
(3.3)
9	.3806
(34.0)	.3002
(47.9)	.1632
(56.3)	.0923
(52.7)	.1227
(46.4)	.1085
(41.0)	.1064
(39.9)	.2072
(50.8)	.2137
(52.3)	.1697
(49.0)	.2560
(35.8)	.2115
(25.2)
10	.2346
(55.2)	.2640
(71.7)	.1537
(77.5)	.1029
(72.8)	.1338
(65.1)	.1078
(53.7)	.0927
(54.8)	.1795
(68.4)	.2058
(70.6)	.1306
(68.0)	.2204
(55.2)	.1657
(46.1)
11	.2149
(70.9)	.2677
(87.0)	.1656
(92.5)	.0974
(85.9)	.1224
(77.5)	.1248
(63.6)	.1059
(66.5)	.1551
(80.1)	.1895
(81.5)	.1220
(80.8)	.1917
(68.4)	.1852
(61.4)
12	.1829
(77.9)	.2687
(94.7)	.1726
(99.8)	.1076
(91.4)	.0891
(80.4)	.1232
(67.6)	.1135
(73.5)	.1361
(84.1)	.1625
(86.3)	.0987
(87.0)	.1802
(74.2)	.1782
(68.4)
13	.2107
(76.8)	.2767
(93.2)	.1970
(93.5)	.1291
(91.0)	.1141
(81.2)	.1089
(67.3)	.0939
(76.3)	.1415
(83.7)	.1880
(85.2)	.1074
(85.9)	.1514
(73.5)	.1852
(68.0)
14	.2341
(69.1)	.2922
(83.7)	.1953
(91.4)	.1189
(84.5)	.0817
(72.0)	.0976
(61.8)	.0382
(66.5)	.1235
(77.1)	.2181
(80.1)	.1333
(79.3)	.1679
(65.1)	.1881
(60.3)
15	.2981
(56.7)	.3282
(70.2)	.1961
(75.3)	.1356
(70.6)	.1058
(60.0)	.0995
(50.8)	.1015
(54.1)	.1385
(64.7)	.1931
(65.8)	.1555
(64.0)	.2222
(53.0)	.2047
(44.6)
16	.2365
(31.3)	.3483
(46.8)	.2241
(54.1)	.1577
(51.2)	.1101
(41.7)	.1046
(37.3)	.0632
(36.9)	.1448
(45.3)	.1798
(46.4)	.1828
(44.6)	.2633
(33.6)	.2192
(23.8)
17	.5553
(8.4)	.5136
(19.4)	.3135
(30.3)	.1933
(27.8)	.2049
(35.1)	.1377
(35.1)	.1575
(34.7)	.2146
(26.7)	.2462
(24.9)	.2747
(22.3)	.4528
(10.6)	.8394
(4.4)
18	0
(0)	0
(0)	.6059
(5.5)	.4795
(17.2)	.2322
(24.9)	.1582
(24.9)	.1671
(24.5)	.3649
(18.6)	.5479
(8.0)	0
(0)	0
(0)	0
(0)
19	0
(0)	0
(0)	0
(0)	0
(0)	.6752
(4.4)	.2552
(5.5)	.4877
(5.1)	0
(0)	0
(0)	0
(0)	0
(0)	0
(0)

TABLE 4.12

HOURLY LOLP (HOURS/PERIOD) FOR SYSTEM WITH
100 MW 10X CPC, VERTICAL-AXIS TRACKING

PERIOD	HOUR 13		HOUR 14		HOUR 15	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.126055E+04	.324883E+04	.813465E+04	.199731E+08	.428806E+12	.149556E+04
2	.216941E+04	.530272E+04	.151807E+04	.155595E+04	.917741E+13	.646590E+04
3	.586634E+04	.145325E+07	.311054E+04	.743356E+04	.214052E+11	.754134E+04
4	.193760E+07	.465063E+07	.526154E+07	.126441E+06	.708016E+09	.352209E+06
5	.247789E+03	.368781E+03	.615323E+03	.922267E+03	.653663E+03	.154105E+02
6	.182927E+01	.238761E+01	.329434E+01	.437516E+01	.546081E+01	.733233E+01
7	.176223E+01	.236217E+01	.347883E+01	.475310E+01	.546082E+01	.750501E+01
8	.894316E+02	.123622E+01	.239934E+01	.295698E+01	.291337E+01	.434714E+01
9	.842276E+02	.111537E+01	.181615E+01	.254637E+01	.310579E+01	.454462E+01
10	.743125E+02	.995305E+02	.166572E+01	.218405E+01	.325318E+01	.430835E+01
11	.166414E+03	.259184E+03	.296603E+03	.441849E+03	.564655E+03	.102414E+02
12	.304560E+07	.608683E+07	.132704E+07	.303065E+07	.552792E+11	.115771E+07
13	.122559E+06	.270000E+06	.472496E+07	.105219E+06	.213624E+10	.379584E+07

PERIOD	HOUR 16		HOUR 17		HOUR 18	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.336114E+12	.114587E+08	.257444E+06	.346333E+04	.320175E+07	.320175E+07
2	.126922E+12	.755066E+09	.177175E+08	.262719E+08	.670195E+04	.670195E+04
3	.473736E+11	.106290E+07	.891446E+06	.165202E+07	.553016E+07	.602244E+07
4	.214251E+08	.638906E+06	.578821E+08	.105256E+05	.212678E+05	.300057E+05
5	.787034E+03	.185993E+02	.172655E+02	.336046E+02	.224537E+02	.293147E+02
6	.753587E+01	.944684E+01	.876888E+01	.112946E+00	.112615E+00	.138102E+00
7	.742431E+01	.100701E+00	.875733E+01	.115500E+00	.114419E+00	.144753E+00
8	.351944E+01	.512377E+01	.440524E+01	.611431E+01	.605712E+01	.761747E+01
9	.368317E+01	.519565E+01	.482043E+01	.637550E+01	.575209E+01	.682470E+01
10	.417654E+01	.538301E+01	.548786E+01	.659017E+01	.622245E+01	.685537E+01
11	.735352E+03	.124194E+02	.128018E+02	.161887E+02	.141295E+02	.140240E+02
12	.337915E+11	.741275E+04	.181887E+07	.258232E+07	.530231E+06	.530231E+06
13	.130516E+10	.233423E+07	.603066E+07	.748240E+07	.126676E+05	.196676E+05

PERIOD	HOUR 19		HOUR 20		HOUR 21	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.497445E+06	.447445E+06	.154731E+06	.154731E+06	.124601E+06	.124601E+06
2	.731378E+07	.731378E+07	.120660E+06	.120660E+06	.109149E+06	.109149E+06
3	.194027E+06	.194027E+06	.190040E+06	.190040E+06	.628222E+07	.628222E+07
4	.149508E+05	.150184E+05	.172528E+05	.172528E+05	.849715E+06	.849715E+06
5	.288085E+02	.311531E+02	.984104E+03	.984104E+03	.644364E+03	.644364E+03
6	.104468E+00	.110637E+00	.477853E+01	.477853E+01	.347266E+01	.347266E+01
7	.100125E+00	.109276E+00	.467417E+01	.467417E+01	.333798E+01	.333798E+01
8	.447526E+01	.492740E+01	.243216E+01	.243216E+01	.163737E+01	.163737E+01
9	.430925E+01	.435019E+01	.249694E+01	.249694E+01	.154766E+01	.154766E+01
10	.419875E+01	.419875E+01	.313947E+01	.313947E+01	.142917E+01	.142917E+01
11	.992028E+03	.992028E+03	.799903E+03	.799903E+03	.198625E+03	.198625E+03
12	.386565E+05	.386565E+05	.272423E+05	.272423E+05	.188354E+05	.188354E+05
13	.141507E+04	.141507E+04	.106028E+04	.106028E+04	.735032E+05	.735032E+05

TABLE 4.13

HOURLY LOLP (HOURS/PERIOD) FOR SYSTEM WITH
400 MW 10X CPC, VERTICAL-AXIS TRACKING PLANT

PERIOD	HOUR 13		HOUR 14		HOUR 15	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.443315E-09	.324443E-08	.344442E-09	.199731E-08	.706231E-09	.149556E-08
2	.121279E-08	.530272E-08	.108397E-08	.355595E-08	.250134E-09	.646504E-08
3	.231438E-08	.145325E-07	.175343E-08	.743356E-08	.124349E-08	.758134E-08
4	.282707E-08	.465063E-07	.618497E-08	.124541E-06	.236501E-07	.352209E-06
5	.842044E-04	.368781E-03	.201217E-03	.922261E-03	.370877E-03	.158105E-02
6	.861340E-02	.234741E-01	.147178E-01	.487516E-01	.240674E-01	.743233E-01
7	.775712E-02	.234217E-01	.143799E-01	.475310E-01	.237234E-01	.750501E-01
8	.364817E-02	.123622E-01	.808248E-02	.295808E-01	.123624E-01	.434714E-01
9	.335215E-02	.111537E-01	.713230E-02	.254637E-01	.128957E-01	.454462E-01
10	.362223E-02	.995305E-02	.875939E-02	.218005E-01	.170544E-01	.430435E-01
11	.491889E-04	.259188E-03	.129048E-03	.441849E-03	.278016E-03	.102014E-02
12	.763230E-08	.698883E-07	.402472E-08	.303445E-07	.170982E-08	.115771E-07
13	.382434E-07	.270040E-06	.154210E-07	.105219E-06	.674159E-08	.379584E-07

PERIOD	HOUR 16		HOUR 17		HOUR 18	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.120092E-12	.114587E-08	.166005E-11	.346333E-08	.320175E-07	.320175E-07
2	.193429E-12	.755066E-09	.127734E-11	.262719E-08	.670195E-08	.670195E-08
3	.211917E-11	.106290E-07	.556353E-11	.165202E-07	.416739E-07	.692824E-07
4	.532087E-07	.638006E-06	.117290E-08	.105256E-05	.152893E-07	.300057E-05
5	.458161E-03	.165093E-02	.596536E-03	.336046E-02	.684428E-03	.293107E-01
6	.337779E-01	.994684E-01	.419377E-01	.112946E+00	.635973E-01	.158102E+00
7	.315400E-01	.140791E+00	.382611E-01	.115500E+00	.633146E-01	.140753E+00
8	.145176E-01	.512377E-01	.175092E-01	.611431E-01	.304146E-01	.761747E-01
9	.161149E-01	.513545E-01	.232926E-01	.637550E-01	.353022E-01	.682470E-01
10	.222337E-01	.538301E-01	.336233E-01	.659017E-01	.484320E-01	.685537E-01
11	.394461E-03	.124194E-02	.547108E-03	.161687E-02	.133843E-02	.144200E-02
12	.100780E-11	.741275E-08	.148243E-10	.258232E-07	.530231E-06	.530231E-06
13	.429383E-11	.233423E-07	.358979E-07	.748240E-07	.196876E-05	.196876E-05

PERIOD	HOUR 19		HOUR 20		HOUR 21	
	SOLAR	BASE	SOLAR	BASE	SOLAR	BASE
1	.497445E-06	.447445E-06	.154731E-06	.154731E-06	.124601E-06	.124601E-06
2	.731378E-07	.741478E-07	.120660E-06	.120660E-06	.109149E-06	.109149E-06
3	.194027E-06	.194027E-06	.190040E-06	.190040E-06	.628222E-07	.628222E-07
4	.148036E-05	.150188E-05	.172528E-05	.172528E-05	.849715E-06	.849715E-06
5	.168375E-02	.311531E-02	.988194E-03	.988194E-03	.688364E-03	.688364E-03
6	.804379E-01	.114637E+00	.477853E-01	.477853E-01	.347266E-01	.347266E-01
7	.779647E-01	.109276E+00	.467417E-01	.467417E-01	.333798E-01	.333798E-01
8	.325891E-01	.492780E-01	.243216E-01	.243216E-01	.163737E-01	.163737E-01
9	.419823E-01	.435019E-01	.299694E-01	.299694E-01	.154766E-01	.154766E-01
10	.419875E-01	.419875E-01	.313947E-01	.313947E-01	.142917E-01	.142917E-01
11	.992928E-03	.992928E-03	.799903E-03	.799903E-03	.198625E-03	.198625E-03
12	.386565E-05	.386565E-05	.272423E-05	.272423E-05	.188358E-05	.188358E-05
13	.141507E-04	.141507E-04	.106028E-04	.106028E-04	.735032E-05	.735032E-05

dependent on both the time of day and the month. Furthermore, for evening hours (e.g., hour 20) there is no change in the reliability since there is no additional solar generation.

It was found in Section 4.4.2 that the summation of the maximum hourly LOLP from each period is very nearly equal to the annual LOLP obtained from a conventional daily peak analysis. This same philosophy will also apply to systems with solar photovoltaic capacity. Thus in Tables 4.14 and 4.15 the maximum hourly LOLP for each period is listed and the individual values are summed together to obtain an annual LOLP in hours/year which is numerically and philosophically equivalent to the days/year figure arrived at in conventional analyses. A general improvement is noticed in the reliability of the system, but this is to be expected since the load is the same and the generation capacity is being increased. It is interesting to note that the hours/period LOLP for periods 1, 2, 3, and 13 are the same as for the base system. This is because the peak load for these periods occurs after sunset when the photovoltaic plant ceases to produce power. Fortunately, the risk of load loss in these periods is negligible. During the periods of high demand (periods 6 through 10), there is some amount of photovoltaic capacity available to serve the peak load. Another interesting observation is that the hour in which the maximum "monthly" LOLP occurs is shifted in some periods. For penetration of 100 MW, this is noticed in only three periods (period 5, period 11, period 12). With a 400 MW plant installed on the system, the effect is much more pronounced. In fact the hour of maximum risk is delayed by one to two hours in every period from period 4 through 12 except for period 10. Thus the period of maximum risk is no longer the time of peak demand (hour 18) as was the case for the base system, but occurs instead one hour later (hour 19).

Even in hour 19, there is still a capacity contribution from the solar photovoltaic plants, albeit small. As still more photovoltaic capacity is installed on the system, the period of maximum risk will eventually become hour 20 and any capacity credits assigned to the

TABLE 4.14

MAXIMUM HOURLY LOLP IN HOURS/PERIOD FOR SYSTEM WITH
100 MW 10X CPC, VERTICAL-AXIS TRACKING PLANT

| <u>Period</u> | <u>Hour of Occurrence</u> | <u>Hourly LOLP
(Hours/Period)</u> |
|-------------------|---------------------------|---------------------------------------|
| 1 | 19 | 0.0000005 |
| 2 | 20 | 0.0000001 |
| 3 | 19 | 0.0000002 |
| 4 | 18 | 0.0000021 |
| 5 | 19 | 0.002881 |
| 6 | 18 | 0.1126 |
| 7 | 18 | 0.1168 |
| 8 | 18 | 0.06057 |
| 9 | 18 | 0.05762 |
| 10 | 18 | 0.06222 |
| 11 | 18 | 0.001413 |
| 12 | 19 | 0.0000039 |
| 13 | 19 | 0.0000142 |
| $\sum_{M=1}^{13}$ | $LOLP_{h_{Max}^M}$ | = 0.4141 Hours/Year |

TABLE 4.15

MAXIMUM HOURLY LOLP IN HOURS/PERIOD FOR SYSTEM WITH
400 MW 10X CPC, VERTICAL-AXIS TRACKING PLANT

<u>Period</u>	<u>Hour of Occurrence</u>	<u>Hourly LOLP (Hours/Period)</u>
1	19	0.0000005
2	20	0.0000001
3	19	0.0000002
4	20	0.0000017
5	19	0.001684
6	19	0.08044
7	19	0.07796
8	19	0.03255
9	19	0.04198
10	18	0.04843
11	18	0.001338
12	19	0.0000039
13	19	<u>0.0000142</u>
$\sum_{M=1}^{13} \text{LOLP}_{h_{\text{Max}}}^M$		= 0.2844 Hours/Year

units will have diminished to zero. One possible approach which could be used effectively to counteract this saturation effect would be to install limited storage on the system. This concept is presently being studied by Westinghouse under NSF Contract CF522180, "Energy Storage for Photovoltaic Conversion" and will not be discussed further here.

It will be recalled that an annual hourly LOLP can be determined for any hour by summing each of the period hourly LOLP values for that hour together. Tables 4.16 and 4.17 summarize the annual hourly LOLP (hours/year) for each hour with 100 MW and 400 MW of solar generation added to the example system. For convenience, the annual LOLPs of the base system are also included.

As would be expected, the annual LOLP remains unchanged for the evening and early morning hours. With a 100 MW solar plant installed on the system, the annual LOLP values for the midday hours are reduced by 25 to 30 percent while at dusk and dawn the reduction is only about 10%. With a 400 MW plant, the reduction in annual LOLP values is about 60% during the middle of the day and 25% for the twilight hours. However, the percent reduction in LOLP is only indicative of the improved reliability. To determine the load carrying capability of the plant, some alternative measure must be used.

One of the standard outputs of the Westinghouse reliability analysis program is the required annual load reduction. For conventional analyses which use only the daily peak loads, this output represents the amount by which the load must be reduced in order to meet the specified annual reliability criterion. Negative values are indicative of the amount by which the load can be increased and yet maintain the required level of reliability. The same reliability criterion was specified for the analyses of the base system and the system with various levels of solar photovoltaic penetration. The difference in the values of load reduction for the base system and the system with photovoltaic units is thus the amount of load which can be supplied reliably by the solar plant in a particular hour. It is important to recognize that this load carrying capability is not linear. The value for a 400 MW plant is not

TABLE 4.16

LOAD CARRYING CAPABILITY AND ANNUAL HOURLY LOLP (HOURS/YEAR) FOR A
SYSTEM WITH A 100 MW 10X CPC WITH VERTICAL-AXIS TRACKING PLANT

| Hour | Annual*
Solar | Load Reduction
Base | Δ | Annual* LOLP
Solar | Annual* LOLP
Base |
|----------|------------------|------------------------|----------|-----------------------|----------------------|
| 1 | -1199 | -1199 | 0 | .000253 | .000253 |
| 2 | -1515 | -1515 | 0 | .000022 | .000022 |
| 3 | -1611 | -1611 | 0 | .000010 | .000010 |
| 4 | -1692 | -1692 | 0 | .000005 | .000005 |
| 5 | -1650 | -1650 | 0 | .000005 | .000005 |
| 6 | -1656 | -1642 | 14 | .000004 | .000004 |
| 7 | -1543 | -1505 | 38 | .000010 | .000012 |
| 8 | -1343 | -1285 | 58 | .000061 | .000090 |
| 9 | -1125 | -1050 | 75 | .000301 | .000482 |
| 10 | - 814 | - 739 | 75 | .001853 | .002808 |
| 11 | - 559 | - 487 | 72 | .007863 | .01122 |
| 12 | - 364 | - 296 | 68 | .02059 | .02827 |
| 13 | - 130 | - 63 | 67 | .06073 | .08160 |
| 14 | 33 | 106 | 73 | .1245 | .1695 |
| 15 | 156 | 230 | 74 | .2032 | .2830 |
| 16 | 220 | 292 | 72 | .2649 | .3604 |
| 17 | 270 | 335 | 65 | .3254 | .4243 |
| 18 | 331 | 379 | 48 | .4135 | .5003 |
| 19 | 281 | 299 | 18 | .3383 | .3628 |
| 20 | 124 | 124 | 0 | .1820 | .1820 |
| 21 | 16 | 16 | 0 | .1151 | .1151 |
| 22 | - 291 | - 291 | 0 | .02909 | .02909 |
| 23 | - 696 | - 696 | 0 | .003861 | .003861 |
| 24 | -1084 | -1084 | 0 | .000441 | .000441 |
| Σ | | | | 2.0928 | 2.5560 |

* "Annual" For Hour Specified Only

TABLE 4.17

LOAD CARRYING CAPABILITY AND ANNUAL HOURLY LOLP (HOURS/YEAR) FOR A
SYSTEM WITH A 400 MW 10X CPC WITH VERTICAL-AXIS TRACKING PLANT

| Hour | Annual*
Solar | Load Reduction
Base | Δ | Annual* LOLP
Solar | Annual* LOLP
Base |
|----------|------------------|------------------------|----------|-----------------------|----------------------|
| 1 | -1199 | -1199 | 0 | .000253 | .000253 |
| 2 | -1515 | -1515 | 0 | .000022 | .000022 |
| 3 | -1611 | -1611 | 0 | .000010 | .000010 |
| 4 | -1692 | -1692 | 0 | .000005 | .000005 |
| 5 | -1650 | -1650 | 0 | .000005 | .000005 |
| 6 | -1691 | -1642 | 49 | .000003 | .000004 |
| 7 | -1625 | -1505 | 120 | .000006 | .000012 |
| 8 | -1481 | -1285 | 204 | .000026 | .000090 |
| 9 | -1318 | -1050 | 268 | .000095 | .000482 |
| 10 | -1009 | - 739 | 270 | .000642 | .002808 |
| 11 | - 744 | - 487 | 257 | .003144 | .01122 |
| 12 | - 542 | - 296 | 246 | .008790 | .02827 |
| 13 | - 308 | - 63 | 265 | .02717 | .08160 |
| 14 | - 158 | 106 | 264 | .05340 | .1695 |
| 15 | - 37 | 230 | 267 | .09075 | .2830 |
| 16 | 26 | 292 | 266 | .1190 | .3604 |
| 17 | 99 | 335 | 236 | .1558 | .4243 |
| 18 | 203 | 379 | 176 | .2431 | .5003 |
| 19 | 234 | 299 | 65 | .2776 | .3628 |
| 20 | 124 | 124 | 0 | .1820 | .1820 |
| 21 | 16 | 16 | 0 | .1151 | .1151 |
| 22 | - 291 | - 291 | 0 | .02909 | .02909 |
| 23 | - 696 | - 696 | 0 | .003861 | .003861 |
| 24 | -1084 | -1084 | 0 | .000441 | .000441 |
| Σ | | | | 1.3104 | 2.5560 |

* "Annual" For Hour Specified Only

4 times greater than the value for a 100 MW plant, but more typically 3.6 times greater. Again, the saturation effect at higher levels of photovoltaic penetration becomes evident.

The generation planner must install or purchase adequate capacity to assure that the risk of loss of load at any point in time is below some maximum acceptable level. A "capacity credit" can be assigned to the photovoltaic plant for the firm capacity which is available during the time of maximum risk. For the base system, it was observed that the maximum value of annual hourly LOLP was a very good estimate of the LOLP obtained by adding together the maximum hourly loss of load probabilities from each period. This same correlation is seen to exist for the system with 100 and 400 MW of solar generation. Compare, for example, the summation from Table 4.14 (0.4141 Hours/Year) with the maximum hourly value (in hour 18) from Table 4.16 (0.4135 Hours/Year). For the system with 400 MW of installed solar capacity, the summation from Table 4.15 (0.2844 Hours/Year) and the Maximum annual LOLP in Table 4.17 (0.2776 Hours/Year), which now occurs for hour 19, are also in close agreement. The load carrying capability of a 100 MW plant and a 400 MW plant would thus be determined by comparing the annual load reduction for the maximum risk hour of the solar case to that of the maximum risk hour (hour 18 in this example) for the base case. For a 100 MW plant, the load carrying capability would therefore be 48 MW whereas the credit for a 400 MW plant would be 145 MW (379 MW - 234 MW). The incremental gain in capacity credit will only be about 15 megawatts per megawatt of additional solar generating capacity beyond 400 MW. This is because the period of maximum risk has been delayed by the larger amount of solar capacity to an hour before sunset when the plant output will be much lower. As even more solar capacity is installed, the high risk period will eventually become the hour after sunset when no power is produced by photovoltaic generation. At that point, no incremental capacity credit can be claimed. Here again we see the possible advantages of a modest amount of storage on the system. Otherwise, the capacity credits which the photovoltaic units can obtain will diminish rapidly.

In view of the preceding analysis, it appears that several meaningful measures of system reliability can be developed for systems with photovoltaic capacity using conventional techniques and traditional criteria. Furthermore, it is possible to determine credits for the firm megawatts supplied by this generation during the period of maximum risk. It is observed that the period of maximum risk tends to shift to an hour later in the day. As it does, the capacity benefits from the solar photovoltaic units tend to diminish.

4.6 Conclusions

In conclusion, it has been determined that conventional reliability analysis techniques can be adapted to properly assess the reliability impact of photovoltaic generation. To do this, a load model and available capacity model are established for each hour rather than the daily peak. The following figures of merit were developed from the results of this hourly analysis:

1. Hourly LOLP (Hours/Period)
2. Maximum Hourly LOLP for the Period (Hours/Period)
3. Annual Hourly LOLP (Hours/Year)

The hourly LOLP provides the most detail in that it specifies the risk of load loss in any hour of any period. A summation of all 312 hourly LOLP values (24 hours x 13 periods) provides a new reliability measure which is precisely correct but which does not correlate directly with conventional figures of merit.

It was found that the maximum hourly LOLP for a given period is very closely related to the conventional monthly LOLP (days/period) both numerically and philosophically. Although some detail is lost using this approach, there is a significant savings in data requirements and computations. This is because the maximum risk occurs within a relatively small time interval throughout the year. The maximum risk for systems with photovoltaic generation will occur somewhere between the hour of peak load and the hour after sunset in most cases.

The annual hourly LOLP sums the individual hourly LOLP values from each period together for each hour. The hour in which the maximum annual hourly LOLP occurs was found to correspond with the hour of occurrence of many of the maximum hourly LOLP values. The annual hourly

LOLP for this hour provided a very good estimate of the sum of maximum hourly LOLPs and hence the conventional "days/year" figure of merit.

A standard output of the computer program used to calculate the "hours/year" values is the required load reduction. The difference between the load reduction for the base system and the system with photovoltaic generation added represents the load carrying capability of the plant.

A modest capacity credit of 48 MW was realized for the first 100 MW plant installed on the example system. A pronounced saturation effect was noticed as more photovoltaic generation was added. This was a result of the fact that the period of maximum risk had been delayed an hour and photovoltaic output was at that time greatly reduced. This phenomenon indicates that either a gradual introduction of photovoltaic capacity or the use of storage must be considered if a load carrying capability is to be assigned to the plant.

4.7 Recommendations

A new methodology has been developed to assess utility Loss-of-Load Probability on an hourly basis as opposed to a daily basis as done in the past. The results of the hourly and daily analyses correlate well for systems using conventional generation. The new techniques developed should be evaluated by utilities to determine their validity and usefulness in treating real utility systems.

The principal reason for the development of the hourly LOLP analysis was to create a more useful tool to handle solar plants. Although a brief example was included to describe how this can be done, much more work needs to be done to apply the technique to solar plants operated at different locations throughout the country. Only when this is done will a valid picture of solar plant capacity credit emerge.

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APPENDIX A

Hourly Load Data

Contained in Tables A-1 through A-12 are the hourly load statistics used for the hourly LOLP calculation. Each table contains the parameters which define the statistical distribution of the data for each hour of the day for the month covered by the table. These data are based on 1974 Salt River Project loads scaled up to that estimated to occur in 1990.

TABLE A-1

HOURLY LOAD STATISTICS
FOR JANUARY

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 1998 | .0816 | 1645.0 |
| 2 | 1966 | .0888 | 1618.8 |
| 3 | 1972 | .0913 | 1626.5 |
| 4 | 2024 | .0942 | 1628.4 |
| 5 | 2056 | .0980 | 1670.2 |
| 6 | 2198 | .1025 | 1786.3 |
| 7 | 2453 | .1223 | 2006.3 |
| 8 | 2630 | .1219 | 2211.2 |
| 9 | 2554 | .0954 | 2193.4 |
| 10 | 2485 | .0841 | 2150.0 |
| 11 | 2360 | .0807 | 2091.0 |
| 12 | 2247 | .0682 | 2022.4 |
| 13 | 2181 | .0648 | 1969.0 |
| 14 | 2146 | .0673 | 1922.6 |
| 15 | 2123 | .0628 | 1873.7 |
| 16 | 2105 | .0655 | 1857.5 |
| 17 | 2186 | .0653 | 1897.0 |
| 18 | 2363 | .0719 | 2082.8 |
| 19 | 2604 | .0675 | 2259.8 |
| 20 | 2496 | .0670 | 2222.6 |
| 21 | 2479 | .0715 | 2172.3 |
| 22 | 2462 | .0756 | 2085.5 |
| 23 | 2302 | .0710 | 1945.4 |
| 24 | 2094 | .0745 | 1766.7 |
| Daily Peak | 2630 | .0826 | 2327.0 |

TABLE A-2

HOURLY LOAD STATISTICS
FOR FEBRUARY

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 1853 | .0626 | 1682.4 |
| 2 | 1882 | .0637 | 1672.8 |
| 3 | 1888 | .0638 | 1681.1 |
| 4 | 1908 | .0632 | 1697.7 |
| 5 | 1978 | .0729 | 1756.5 |
| 6 | 2091 | .0603 | 1885.1 |
| 7 | 2421 | .0579 | 2182.4 |
| 8 | 2632 | .0524 | 2377.3 |
| 9 | 2525 | .0465 | 2311.1 |
| 10 | 2407 | .0378 | 2223.9 |
| 11 | 2323 | .0369 | 2159.2 |
| 12 | 2262 | .0304 | 2073.8 |
| 13 | 2181 | .0361 | 1999.7 |
| 14 | 2152 | .0364 | 1978.5 |
| 15 | 2004 | .0225 | 1929.4 |
| 16 | 2016 | .0231 | 1923.8 |
| 17 | 2123 | .0324 | 1969.2 |
| 18 | 2192 | .0325 | 2072.3 |
| 19 | 2381 | .0333 | 2239.6 |
| 20 | 2438 | .0414 | 2266.4 |
| 21 | 2436 | .0457 | 2217.6 |
| 22 | 2331 | .0505 | 2118.6 |
| 23 | 2192 | .0533 | 1977.4 |
| 24 | 2062 | .0645 | 1797.2 |
| Daily Peak | 2632 | .0501 | 2391.7 |

TABLE A-3

HOURLY LOAD STATISTICS
FOR MARCH

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 1769 | .0442 | 1617.3 |
| 2 | 1738 | .0493 | 1578.3 |
| 3 | 1735 | .0494 | 1566.7 |
| 4 | 1784 | .0575 | 1577.7 |
| 5 | 1819 | .0622 | 1600.4 |
| 6 | 1972 | .0711 | 1704.1 |
| 7 | 2259 | .0747 | 1959.7 |
| 8 | 2407 | .0657 | 2107.7 |
| 9 | 2294 | .0511 | 2099.4 |
| 10 | 2302 | .0380 | 2099.0 |
| 11 | 2279 | .0334 | 2096.8 |
| 12 | 2302 | .0366 | 2085.7 |
| 13 | 2265 | .0382 | 2057.1 |
| 14 | 2213 | .0378 | 2058.0 |
| 15 | 2215 | .0381 | 2066.2 |
| 16 | 2262 | .0545 | 2053.8 |
| 17 | 2282 | .0425 | 2105.7 |
| 18 | 2395 | .0409 | 2178.4 |
| 19 | 2467 | .0332 | 2249.0 |
| 20 | 2453 | .0282 | 2315.6 |
| 21 | 2372 | .0332 | 2258.4 |
| 22 | 2250 | .0296 | 2123.8 |
| 23 | 2045 | .0298 | 1940.7 |
| 24 | 1937 | .0371 | 1755.5 |
| Daily Peak | 2467 | .0301 | 2326.7 |

TABLE A-4

HOURLY LOAD STATISTICS
FOR APRIL

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 1761 | .0552 | 1658.7 |
| 2 | 1732 | .0518 | 1619.1 |
| 3 | 1680 | .0484 | 1587.7 |
| 4 | 1680 | .0470 | 1576.3 |
| 5 | 1706 | .0430 | 1603.1 |
| 6 | 1798 | .0468 | 1665.5 |
| 7 | 1990 | .0388 | 1849.7 |
| 8 | 2140 | .0375 | 2015.7 |
| 9 | 2134 | .0234 | 2068.9 |
| 10 | 2198 | .0222 | 2119.0 |
| 11 | 2268 | .0327 | 2159.3 |
| 12 | 2314 | .0349 | 2185.3 |
| 13 | 2398 | .0528 | 2199.4 |
| 14 | 2496 | .0587 | 2243.8 |
| 15 | 2598 | .0675 | 2298.4 |
| 16 | 2661 | .0761 | 2325.9 |
| 17 | 2714 | .0813 | 2376.5 |
| 18 | 2824 | .0757 | 2432.4 |
| 19 | 2740 | .0678 | 2420.7 |
| 20 | 2743 | .0571 | 2473.7 |
| 21 | 2673 | .0578 | 2415.4 |
| 22 | 2569 | .0615 | 2275.4 |
| 23 | 2160 | .0409 | 2037.5 |
| 24 | 1972 | .0465 | 1821.2 |
| Daily Peak | 2824 | .0595 | 2496.6 |

TABLE A-5

HOURLY LOAD STATISTICS
FOR MAY

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 2363 | .0945 | 1977.9 |
| 2 | 2158 | .0880 | 1865.0 |
| 3 | 2079 | .0783 | 1814.5 |
| 4 | 2027 | .0757 | 1789.5 |
| 5 | 1972 | .0643 | 1757.1 |
| 6 | 1969 | .0514 | 1800.0 |
| 7 | 2166 | .0489 | 1969.0 |
| 8 | 2502 | .0576 | 2177.2 |
| 9 | 2728 | .0701 | 2303.7 |
| 10 | 3032 | .0837 | 2460.9 |
| 11 | 3261 | .0956 | 2604.7 |
| 12 | 3391 | .0981 | 2711.5 |
| 13 | 3539 | .1063 | 2821.1 |
| 14 | 3707 | .1082 | 2956.0 |
| 15 | 3811 | .1123 | 3033.9 |
| 16 | 3840 | .1071 | 3138.8 |
| 17 | 3956 | .1057 | 3225.0 |
| 18 | 3924 | .0995 | 3260.2 |
| 19 | 3939 | .1031 | 3201.5 |
| 20 | 3704 | .0889 | 3108.3 |
| 21 | 3629 | .0836 | 3039.2 |
| 22 | 3313 | .0827 | 2827.0 |
| 23 | 2939 | .0767 | 2496.5 |
| 24 | 2569 | .0799 | 2194.7 |
| Daily Peak | 3956 | .1005 | 3266.5 |

TABLE A-6

HOURLY LOAD STATISTICS
FOR JUNE

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 3313 | .1471 | 2632.9 |
| 2 | 2925 | .1396 | 2475.0 |
| 3 | 2818 | .1437 | 2347.9 |
| 4 | 2754 | .1434 | 2267.2 |
| 5 | 2696 | .1421 | 2205.6 |
| 6 | 2621 | .1266 | 2198.2 |
| 7 | 2789 | .1255 | 2347.0 |
| 8 | 3073 | .1259 | 2577.5 |
| 9 | 3342 | .1171 | 2855.2 |
| 10 | 3614 | .1161 | 3127.4 |
| 11 | 3941 | .1147 | 3392.9 |
| 12 | 4133 | .1065 | 3597.0 |
| 13 | 4361 | .1032 | 3790.8 |
| 14 | 4500 | .0991 | 3971.5 |
| 15 | 4622 | .0946 | 4108.6 |
| 16 | 4689 | .0882 | 4180.1 |
| 17 | 4720 | .0876 | 4257.8 |
| 18 | 4764 | .0831 | 4295.4 |
| 19 | 4726 | .0885 | 4230.2 |
| 20 | 4509 | .0907 | 4024.9 |
| 21 | 4437 | .0937 | 3944.8 |
| 22 | 4167 | .1009 | 3671.2 |
| 23 | 3747 | .1090 | 3310.5 |
| 24 | 3388 | .1112 | 2969.3 |
| Daily Peak | 4764 | .0841 | 4302.8 |

TABLE A-7

HOURLY LOAD STATISTICS
FOR JULY

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 3197 | .1036 | 2613.4 |
| 2 | 2853 | .0993 | 2467.9 |
| 3 | 2748 | .1006 | 2370.2 |
| 4 | 2682 | .0973 | 2295.0 |
| 5 | 2719 | .1011 | 2262.0 |
| 6 | 2728 | .1018 | 2249.3 |
| 7 | 2780 | .0877 | 2379.9 |
| 8 | 2951 | .0728 | 2621.7 |
| 9 | 3220 | .0666 | 2910.9 |
| 10 | 3579 | .0686 | 3202.2 |
| 11 | 3756 | .0656 | 3408.0 |
| 12 | 3910 | .0633 | 3580.9 |
| 13 | 4156 | .0681 | 3753.9 |
| 14 | 4338 | .0656 | 3870.0 |
| 15 | 4437 | .0715 | 3959.7 |
| 16 | 4495 | .0690 | 4025.7 |
| 17 | 4544 | .0724 | 4081.7 |
| 18 | 4619 | .0759 | 4141.2 |
| 19 | 4500 | .0741 | 4050.4 |
| 20 | 4306 | .0707 | 3894.7 |
| 21 | 4225 | .0717 | 3772.1 |
| 22 | 3930 | .0688 | 3541.0 |
| 23 | 3568 | .0687 | 3231.3 |
| 24 | 3209 | .0720 | 2878.1 |
| Daily Peak | 4619 | .0696 | 4153.8 |

TABLE A-8

HOURLY LOAD STATISTICS
FOR AUGUST

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 2792 | .0650 | 2550.0 |
| 2 | 2644 | .0680 | 2426.2 |
| 3 | 2627 | .0765 | 2335.0 |
| 4 | 2543 | .0733 | 2251.9 |
| 5 | 2467 | .0701 | 2203.1 |
| 6 | 2473 | .0666 | 2201.4 |
| 7 | 2682 | .0647 | 2315.7 |
| 8 | 2829 | .0660 | 2552.4 |
| 9 | 3061 | .0565 | 2828.6 |
| 10 | 3411 | .0527 | 3139.6 |
| 11 | 3637 | .0484 | 3352.9 |
| 12 | 3788 | .0424 | 3543.9 |
| 13 | 3944 | .0370 | 3740.0 |
| 14 | 4115 | .0363 | 3877.0 |
| 15 | 4211 | .0377 | 3972.1 |
| 16 | 4254 | .0494 | 4020.2 |
| 17 | 4344 | .0616 | 4076.5 |
| 18 | 4373 | .0617 | 4100.2 |
| 19 | 4274 | .0571 | 4008.3 |
| 20 | 4153 | .0550 | 3889.4 |
| 21 | 4043 | .086 | 3750.4 |
| 22 | 3802 | .0471 | 3492.3 |
| 23 | 3426 | .0496 | 3153.5 |
| 24 | 3076 | .0543 | 2818.3 |
| Daily Peak | 4373 | .0411 | 4132.5 |

TABLE A-9

HOURLY LOAD STATISTICS
FOR SEPTEMBER

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 2853 | .1395 | 2378.4 |
| 2 | 2774 | .1407 | 2274.4 |
| 3 | 2664 | .1422 | 2187.6 |
| 4 | 2540 | .1344 | 2142.1 |
| 5 | 2667 | .1352 | 2117.2 |
| 6 | 2606 | .1279 | 2152.2 |
| 7 | 2748 | .1156 | 2286.5 |
| 8 | 3021 | .1111 | 2552.6 |
| 9 | 3270 | .1180 | 2761.3 |
| 10 | 3522 | .1189 | 2990.9 |
| 11 | 3742 | .1237 | 3190.1 |
| 12 | 3933 | .1218 | 3353.7 |
| 13 | 4173 | .1190 | 3529.2 |
| 14 | 4350 | .1165 | 3665.4 |
| 15 | 4512 | .1149 | 3789.2 |
| 16 | 4567 | .1139 | 3819.9 |
| 17 | 4625 | .1220 | 3840.7 |
| 18 | 4639 | .1279 | 3823.5 |
| 19 | 4512 | .1259 | 3747.5 |
| 20 | 4442 | .1327 | 3658.9 |
| 21 | 4257 | .1344 | 3480.8 |
| 22 | 3846 | .1339 | 3222.0 |
| 23 | 3524 | .1332 | 2905.9 |
| 24 | 3102 | .1328 | 2584.4 |
| Daily Peak | 4639 | .1115 | 3908.1 |

TABLE A-10
HOURLY LOAD STATISTICS
FOR OCTOBER

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 2259 | .1088 | 1845.1 |
| 2 | 2117 | .0997 | 1766.7 |
| 3 | 2045 | .0964 | 1725.5 |
| 4 | 1998 | .0842 | 1706.4 |
| 5 | 2007 | .0879 | 1704.9 |
| 6 | 2010 | .0707 | 1753.7 |
| 7 | 2210 | .0601 | 1940.8 |
| 8 | 2418 | .0616 | 2126.0 |
| 9 | 2656 | .0821 | 2236.1 |
| 10 | 2966 | .1044 | 2346.5 |
| 11 | 3174 | .1324 | 2448.2 |
| 12 | 3391 | .1508 | 2557.7 |
| 13 | 3461 | .1716 | 2642.4 |
| 14 | 3548 | .1808 | 2740.4 |
| 15 | 3690 | .1972 | 2809.0 |
| 16 | 3724 | .1995 | 2848.4 |
| 17 | 3782 | .1928 | 2910.7 |
| 18 | 3779 | .1691 | 2970.2 |
| 19 | 3721 | .1446 | 3023.6 |
| 20 | 3681 | .1431 | 2932.8 |
| 21 | 3435 | .1320 | 2763.9 |
| 22 | 3188 | .1234 | 2576.3 |
| 23 | 2800 | .1107 | 2320.6 |
| 24 | 2462 | .1117 | 2044.1 |
| Daily Peak | 3782 | .1489 | 3038.5 |

TABLE A-11

HOURLY LOAD STATISTICS
FOR NOVEMBER

| <u>Hour</u> | <u>Maximum
Observed
Value</u> | <u>Sigma
(% of Mean)</u> | <u>Mean</u> |
|-------------|---------------------------------------|------------------------------|-------------|
| 1 | 1778 | .0512 | 1601.5 |
| 2 | 1752 | .0541 | 1587.0 |
| 3 | 1723 | .0505 | 1576.1 |
| 4 | 1775 | .0527 | 1585.3 |
| 5 | 1801 | .0519 | 1615.6 |
| 6 | 1935 | .0518 | 1720.6 |
| 7 | 2268 | .0591 | 1987.9 |
| 8 | 2398 | .0506 | 2161.3 |
| 9 | 2328 | .0343 | 2132.9 |
| 10 | 2262 | .0295 | 2115.4 |
| 11 | 2184 | .0219 | 2090.2 |
| 12 | 2131 | .0203 | 2068.8 |
| 13 | 2117 | .0228 | 2040.9 |
| 14 | 2181 | .0342 | 2034.5 |
| 15 | 2131 | .0334 | 2030.7 |
| 16 | 2117 | .0370 | 2020.3 |
| 17 | 2227 | .0361 | 2068.9 |
| 18 | 2357 | .0346 | 2257.6 |
| 19 | 2525 | .0283 | 2393.9 |
| 20 | 2392 | .0267 | 2328.0 |
| 21 | 2354 | .0269 | 2245.1 |
| 22 | 2221 | .0264 | 2131.3 |
| 23 | 2071 | .0284 | 1965.3 |
| 24 | 1874 | .0348 | 1778.2 |
| Daily Peak | 2525 | .0278 | 2395.0 |

TABLE A-12

HOURLY LOAD STATISTICS
FOR DECEMBER

| Hour | Maximum
Observed
Value | Sigma
(% of Mean) | Mean |
|------------|------------------------------|----------------------|--------|
| 1 | 2340 | .0829 | 2012.8 |
| 2 | 2346 | .0840 | 2000.0 |
| 3 | 2340 | .0851 | 1993.5 |
| 4 | 2375 | .0827 | 2020.7 |
| 5 | 2398 | .0863 | 2066.6 |
| 6 | 2496 | .0811 | 2189.5 |
| 7 | 2699 | .0709 | 2469.8 |
| 8 | 2919 | .0773 | 2661.7 |
| 9 | 2899 | .0564 | 2665.0 |
| 10 | 2812 | .0496 | 2582.2 |
| 11 | 2777 | .0543 | 2494.6 |
| 12 | 2653 | .0534 | 2406.0 |
| 13 | 2528 | .0509 | 2304.5 |
| 14 | 2436 | .0444 | 2233.3 |
| 15 | 2337 | .0361 | 2182.8 |
| 16 | 2299 | .0365 | 2150.6 |
| 17 | 2404 | .0424 | 2210.0 |
| 18 | 2711 | .0469 | 2494.6 |
| 19 | 2931 | .0493 | 2648.5 |
| 20 | 2908 | .0550 | 2613.5 |
| 21 | 2873 | .0596 | 2597.2 |
| 22 | 2806 | .0613 | 2524.6 |
| 23 | 2667 | .0635 | 2388.6 |
| 24 | 2514 | .0686 | 2174.8 |
| Daily Peak | 2931 | .0484 | 2760.9 |