Japan International Cooperation Agency
The Republic of Zimbabwe
Ministry of Transport & Energy

NO. 2

STUDY ON THE PROMOTION OF PHOTOVOLTAIC RURAL ELECTRIFICATION IN THE REPUBLIC OF ZIMBABWE

Final Report

Appendices

MARCH 1999

The Institute of Energy Economics, Japan
Fuji Technosurvey Co., Ltd.

M P N
J R
99 - 31

Japan International Cooperation Agency
The Republic of Zimbabwe
Ministry of Transport & Energy

STUDY ON THE PROMOTION OF PHOTOVOLTAIC RURAL ELECTRIFICATION IN THE REPUBLIC OF ZIMBABWE

Final Report

Appendices

MARCH 1999

The Institute of Energy Economics, Japan
Fuji Technosurvey Co., Ltd.

LISTS OF APPENDICES

APPENDIX - 1

SOCIAL SURVEY

Southern Centre

For Energy And Environment

Japan International Cooperation Agency
JICA

Household Income, Expenditure And Energy Consumption Survey For Assessing The Feasibility Of Solar Rural Electrification In Zimbabwe

Final Draft Report

August 1997

Japan International Cooperation Agency
JICA

Household Income, Expenditure And Energy Consumption Survey For Assessing The Feasibility Of Solar Rural Electrification In Zimbabwe

August 1997

Tendayi Kureya
Lawrence Dhliwayo
Southern Centre for Energy And Environment
31 Frank Johnson Avenue
Eastlea
Harare
Zimbabwe

Final Draft

Table of Contents

List of Tables and Figures

Chapter 1 Introduction

1.1 Background

The state of rural electrification and grid extension is influenced by various technical and administrative factors as well as policy issues. Rural electrification by the Zimbabwe Electricity Supply Authority (ZESA) is influenced by technical, administrative and other policy issues. [Southern Centre, DOE RE socio-economic survey, 1996]. While solar energy is a relatively new technology in Zimbabwe, and thus generally less understood, various mechanisms have already been put in place to promote its dissemination and usage. The biggest solar project in Zimbabwe to date is the US$ 7 million Global Environmental Facility (GEF) Solar Pilot Project. The GEF project was established on grant funding from the GEF. The project was structured to benefit the low income groups by providing an alternative energy source to kerosene and wood for lighting. The justification of the project was climate change abatement and rural development. The project has established a revolving fund and has created much needed awareness for the rural communities to be able to select energy supply options. The project has now reached a stage of transition from a pilot project to a standalone sustainable scheme.

1.2 Electrification by the ZESA Grid

Electrification by the ZESA grid in Zimbabwe has been mainly targeted at the rural business centres with economic and financial viability. A rural electrification master plan study was recently (1996) completed. Electrification of individual households has been limited to those that are situated in proximity to the electrified centres, largely owing to the large amounts of money associated with drawing the grid over longer distances. The level of awareness of the advantages of PV power is limited to the few literate individual members of these communities.

1.3 Solar Projects In Zimbabwe

The GEF solar project is the biggest Solar PV electrification project ongoing in the country.It started in 1993 and is scheduled to run until 1998. The aim of the project was to disseminate solar PV systems to rural households, and the target is some 9 000 systems installed by 1998. The provide financial support to rural households for the purchase and installation of PV systems through a revolving fund. Initially the project was conceived as strictly for lighting, but on further discussions, it was agreed that some pumping systems could also be supported by the project.

1.4 PV Power in Zimbabwean Households

PV installations to date have operated on the ability of the individual household to pay for the system. Originally, the household had to pay on a monthly basis until the loan for their systems was paid up, but some organisations such as the Agricultural Finance Corporation (AFC) now allow farmers to pay back their loans once a year after harvest. Survey results

from Department of Energy show that some families already enjoying PV power got it through one of the following:

- System donated by a well to do relative.
- Household wishing to have better lighting.
- Household with bread winner employed in town making conditions better for family in the rural home.
- Farmer raising sufficient income from agriculture wishing to have better lighting.
- Clinics received donations from overseas.

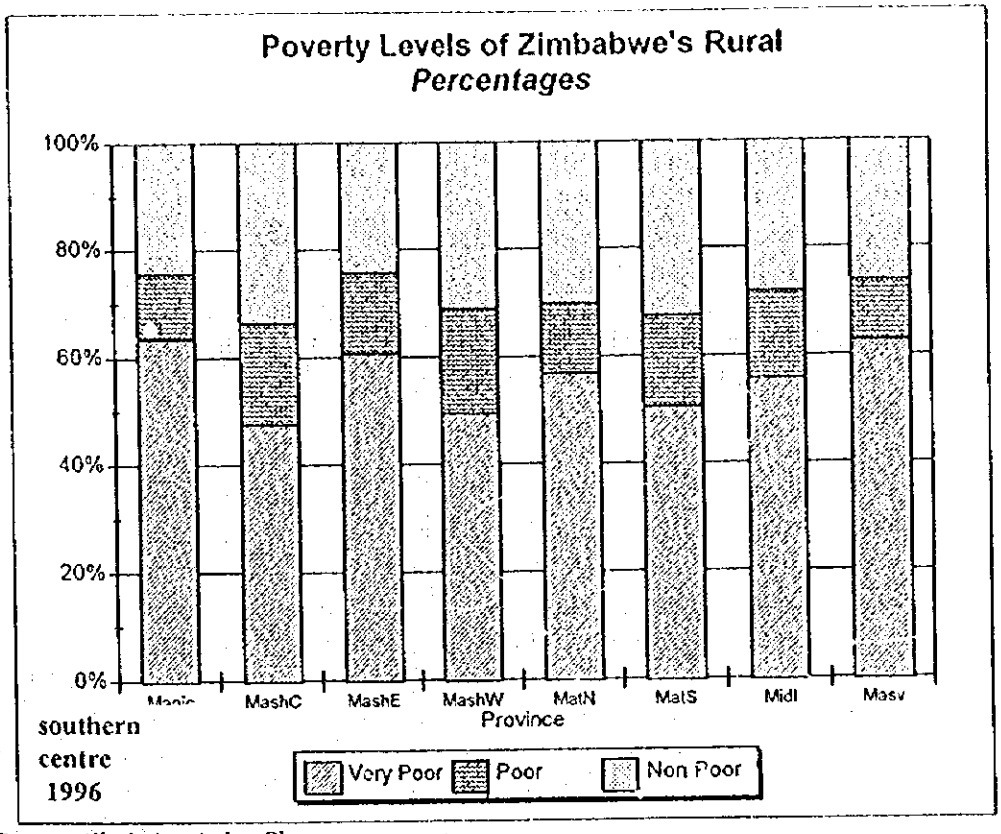
1.5 Market Size

The PV market is currently estimated at 250 000 nation-wide [Southern Centre/FINESSE] and around 25% of rural households are regarded as non-poor. This is the potential market with the real market being dependent on the accessibility of the scheme by the low income target group. With improvement in PV technology and corresponding the reduction in cost, the market will be expected to increase further with stronger competition for grid electricity. The bulk of the market is for lighting systems. These range in size from small one light systems to large ten to fifteen light systems. Commercial systems may even be larger. Each system is constituted by the following hardware:

- PV panel(s) to supply the required energy (panels come in sizes ranging from 12W to 85W)
- Electronic Charge Controller (sizes range from 5 Amperes to 30 Amperes)
- Battery (Low maintenance sized to match energy needs - 40 Ampere Hour to 200 Ampere hour being typical)
- Electric cabling (sized to minimise voltage drop)
- Light switches (5 amp switches being common)
- Socket outlets with voltage dropper for radio
- Battery box and conduit for cabling.

The specific systems vary depending on needs. The average system is taken as a 45W or 50W panel and a 100 ampere hour battery with four lights and radio. This however, is quite an expensive combination for rural folk, whose income is low and not spread over the whole year. As can be seen in the figure below, the levels of poverty among rural folk is high in all the provinces.

Figure 1.1 Poverty Levels of the Rural Folk



Source: Poverty Alleviation Action Plan

The biggest contributor to rural poverty is the reliance and limitation on agriculture of the majority of the inhabitants for their livelihood. this results in their vulnerability to weather/rainfall patterns. Continually drought stricken and generally arid regions are associated with poor agriculture yields. and the market for PV power is generally smaller.

1.6 A Typical Zimbabwean Rural Household Setting

A typical rural family in Zimbabwe tills the family plot of land for their livelihood. The land provides the largest chunk of income in the sense that it does not only create employment for the family, but provides for up to 90% of food requirements. The lifestyles in rural areas are that the family sits around the fire to discuss at the end of a day. The fire provides both lighting and warmth. However if it is not in cold weather, the amount of heat required is very low compared to the lighting levels required.

Alternative income generating projects in rural areas have an impact on the environment as they reduce reliance on extensive agriculture. Income generating activities in the rural areas are still closely associated with the land. These include horticulture, game hunting where available, and harvesting of forest products. Families with alternative means of livelihood stand a larger chance of surviving harsh climatic conditions, and usually it is these kind of families that form the larger part of the PV market.

Chapter 2 The Methodology, and Sequence of Events

2.1 Methodology

A questionnaire survey was carried out in the designated areas. For the household survey, the primary respondent was the head of the household, and in his absence, the spouse. In very few cases any other member of the family would be interviewed where both the above were not present. The Headmaster or his deputy was the target for the school survey. Information collected from the schools was generally the most accurate possible because of the nature of the respondents. This compared well with data collected from the clinics, where the target respondent was the Nurse In Charge. An additional advantage to the data collected from the clinics was that statistics were readily available in their record books and on charts displayed in the clinic, a requirement by the Ministry of Health.

The attached questionnaires were used and variables were collected using this, to provide information for each of the requested data. The Study areas were as proposed by JICA, i.e. Kadoma, Geja, Kadoma Turf, Murewa, Mutare, Bindura, Gokwe and Masvingo. The samples collected leaned closely to the Zimbabwe Master Sample as used by the Central Statistical Office. This was done to allow use of background information about the areas under study. Systematic sampling of households was employed, and the respondent was the head of household. The distribution of sample households by enumeration area was as suggested by JICA, and additional households were interviewed in areas that had smaller populations or large variability. The units of measurements in the survey were households in the general public category, and individual institutions. Systematic sampling of households was followed, while almost all institutions in the wards were visited.

2.2 The Enumerators and Auxiliary Staff.

Two teams were sent into the field to different areas to effectively cover the area in the given time. University of Zimbabwe students predominantly in the Masters of Science Statistics were employed as enumerators. Enough time was allowed per interviewee to allow the enumerator to win the hearts of the respondents so as to get such sensitive information as income data. The general response to these variables was good.

2.3 Schedule of events

The survey took approximately three weeks, and the last two weeks of the study were dedicated to analysis and reporting. Data Entry into the computer was done at Southern Centre and the same team was used. The team leader was careful to make sure that an enumerator entered data from questionnaires filled by others to ensure that any errors encountered at the field would be discussed at data entry. This made it possible to finish data entry soon after completion of the surveys themselves. Analysis was carried out using specialised statistics software, and some of the computer output together with names of programmes used are given as appendices. For the most useful information, applying stratified systematic sampling, the average distance travelled between households was 1.5km. The distance between schools was in the order of 5-20km, and between clinics 20-50km.

The list of enumeration areas and sample sizes are given in the table below. This has been drawn from the criterion suggested by JICA. The proportion of electrified to non electrified households was 1 to 1. This draws from the fact that less than 5% of Zimbabwean rural households are electrified, and less than 2% for solar electrification. The proportion was unachievable for institutions, even though a considerable number of service centres in the study area are electrified. The team visited institutions in the selected districts in the hope of finding those electrified by PV power. In some cases none were found, and in others one or two systems were found with the systems not working because the solar panels had been stolen. However, considerable time was spent looking for electrified institutions. The distribution of surveyed areas is as given in the table below:

Table 2.1 Surveyed areas

DISTRICT	Frequency	Percent	Cumulative
bikita	24	5.4%	5.4%
bindura	23	5.2%	10.6%
chimanimani	13	2.9%	13.8%
gokwe	72	16.3%	30.1%
goromonzi	4	0.9%	31.0%
gutu	48	10.9%	41.9%
kadoma	102	23.1%	64.9%
madziwa	2	0.5%	65.4%
makoni	9	2.0%	67.4%
murewa	62	14.0%	81.4%
mutare	27	6.1%	87.6%
mutasa	43	9.7%	97.3%
shamva	11	2.5%	99.8%
zimunya	1	0.2%	100.0%
Total	442	100.0%	

Table 2.2 Time Schedule Followed

Activity	Time Schedule (Period Beginning)	Time Allocation
1. Initial Site Visits	Week 1 - Week 2 (26th June)	1 week
2. Questionnaire Preparation	Week 1 (28th June)	2 days
3. Training Enumerators	Week 1 (26th June)	3 days
4. Data Collection (Government)	Week 1-week 4 (30th June)	3 Weeks
5. Data Collection (Survey)	Week 2 - Week 4 (1st July)	3 Weeks
6. Data Entry into computer	Week 3 - Week 5 (11th July)	1 Week
7. Analysis and Reporting	Week 5- Week7 (25th July)	2 Weeks

Chapter 3 Data Analysis

3.1 Characteristics of the Respondents

The age and to some extend sex of the respondents were partially controlled by the enumerators. This is because the enumerators asked for the head of the household, who in rural family setting is male and quite of age. It was noted however that the majority of the household heads are usually resident in urban centres where they work for the family's cash income. Slightly more than half of the respondents were male and about 60% of the total number of respondents were between 20 and 40 years of age. The age and sex of the respondent (where this was the head of the household as well) has a strong influence on other variables especially when it came to family priorities.

The distribution of sampled households is as given in the table below. Again distribution was predetermined, and thus the resulting pattern. The majority (80%) of the respondents practice communal land farming. A considerable number is from resettlement areas.

32 Electrification Status

Electrification by the ZESA grid is limited to those households close to electrified business centres. About 65% of the sample of households by design was PV or Grid electrified. Distribution of PV electrified households in the country is strongly influenced by the following factors:

- Natural farming region of the settlement. Agriculturally richer regions have inhabitants with more disposable income, and thus the households could easily afford solar electrification. A good example are the Sanyati areas of Kadoma where the households grow cash crops such as cotton, and the Hauna areas of Honde Valley where the people enjoy cash income all year round from various market gardening activities.

- Professional status of members of the households. Households with members with formal professions are highly likely to use PV power than the general household. In fact, under the GEF solar programme, an arrangement was made to advance installations to members of the teaching profession with deductions made to their monthly cheque. This arrangement is responsible for the vast usage of solar PVs by teachers in rural areas.

- Awareness. Not until the benefits associated with Solar Technology, or any new technologies are fully appreciated within the community will members opt to use them. This was the general trend observed as one went further into remote. Most people interviewed did not fully understand how much solar could do for them, let alone put their money into it. In some visited homes, this survey was the first time Solar PV was introduced to the household.

- Infrastructure and priorities. It was generally difficult for institutions such as clinics and secondary schools to consider solar as a form of energy before considering aspects of infrastructure such as telecommunications and road net-works.

- Infrastructure and Accessibility. The distribution of solar electrified households is closely linked to the infrastructure of the area in question. It was noted that solar PV power was

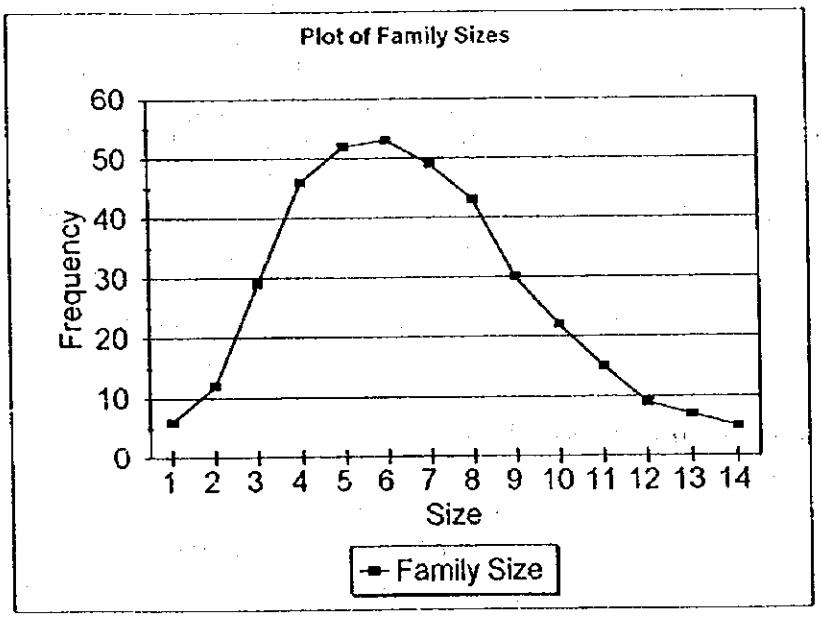
used mainly by those families close to highways. Two reasons were immediately available: one, the sales persons selling solar products stayed as close as possible to highways, and two; prominent business centres are situated along highways, and it is at these centres that well to do people usually reside. New technologies usually take residence at these centres first.

3.3 Characteristics of the family

Rural families are large. The median family size was 6.7 while the modal family size was observed to be 6. 60% of families have between 4 and 8 members per family. Polygamous families were often encountered, and would have up to 20 members per family. Families were significantly larger in resettlement areas than in the traditional communal land family. About 40% of family members were regarded as economically inactive. These were people over 80 years of age, or of primary school going age. The accepted (CSO) definition for economically active is 15years to 65years of age, excluding students, and disabled people. 70% of families have 2 to 5 members regarded as economically active.

The graph below shows a plot of family sizes. The distribution is typically binomial.

Figure 3.1 Plot of Family Sizes



About 50% of families have at least someone working outside the village. These are usually the breadwinners for the family. The general trend is that non-resident members work in urban centres to supplement agricultural produce. The most common job category for the household head was own agriculture (36%) whereas services, business, finance and education with 38% altogether. This was because the majority of Solar PV users (greater than 30%) are teachers.

3.4 Housing Characteristics

The average Zimbabwean family maintains strong traditional cultures. One of these is associated with a traditionally built mud and thatch hut. Almost every home stead in the rural areas has at least one hut, usually used as the kitchen. This hut is a necessity especially in the Manicaland areas, as families carry out traditional rituals there. A typical rural home has the kitchen and the granary built traditionally, and at least one other modern type house. 95% of households visited had at least one modern type house, and the modal number of rooms was five. Almost all (98%) of morden type houses are built of brick plastered with concrete, and roofed with either asbestos of zinc sheets. The morden type houses are targeted for solar electrification. It was noted that generally families were not interested in electrifying the whole house, but at least the sitting or living room, and one (the main) bedroom. Thus large systems are as marketable as small ones, but given the financial status of the people, cheaper systems are more marketable.

3.5 Electric appliances and energy used

Various electric appliances are at use in the rural areas. The most common of these are radios, TVs, fridges and cooking stoves. Radios and TVs use dry and lead batteries, and where available, solar. After lighting, people see solar power as a ready source of fuel for powering radios and TVs. About 90% of families own a radio while 20% own a TV as well. A much fewer number (<10%) own a fridge. These are predominantly shop owners who use the devices for cooling mineral drinks. 100% of clinics use frigdes for storing vaccines. The fridges run on gas supplied by the rural district councils. Most schools (unless grid electrified) do not use any electrical appliances at all, except for very few primary schools that enjoy the privileges of ZBC radio lessons. Secondary school were amongst the most interested in PV power since some of the science classes could use electric power in their experiments. Currently most unelectrified rural schools are using dry batteries as a source of power for science experiments, a situation that disadvantages them due to the limits associated with battery power.

A general description of the type of appliances found in the rural households is given in the table below.

Table 3.1 Appliances Found in Rural Homes.

Appliance	% of Households owning	Number of Hours used/Day	Power (Watts)	Main Source of Power
1. Radio	90%	4-6	5-30	battery
2. TV	20%	2-3	30-40	solar/battery
3. Fridge	<10%	18-24	-	paraffin
4. wick lamp	90%	2-3	-	paraffin
5. Candles	90%	2-3	6 per month	candles
6. Lights	<10%	3-4	9-11	solar
7. wood stove	99%	6-8	not available	wood
8. grinding mills	<1%	6-8	large	diesel
9. water pumps	small	24	large range	wind/solar
10. generators/boilers	very small	2-3	-	diesel

3.7 Sources of household energy by usage

For a typical rural family, firewood is used by 99% of households for cooking while paraffin is used interchangeably with candles for lighting. The general trend is that paraffin is used for lighting in the kitchen (cooking hut) while candles are used in the living room. It is understood that in most families these lighting systems are used simultaneously, since the women folk prepare food in the kitchen while the rest of the family sit in the living room. Paraffin is cheaper that candles for the same lighting period, and it has the added advantage that in most wick lamps, the quantity of light may be adjusted to some extend. The results given in the table below give monthly proportions used by a typical family.

Table 3.2 Sources of energy used by typical rural family

	A: Firewood	B: Paraffin	Candles	C:Diesel/Petrol	D: Gas
1. Units/month	200-400kg	5-10litre	6-12 pieces	100 litre*	19Kg*
2. Cost per month $	$35-$50	$10-20	$15-25	$500*	$200*
3. Average time (hr) used/day	6-8	2-3	2-3	0.5	24
4. Used for Auot mobile	-	-	-	all	-
5. For Cooking	all	20litre*	-	-	-
6. For Lighting	negligible	5-10litre	all	-	negligible
7. For Generator	-	-	-	-	-
8. Others	beer brew*	fridge*	-	grinding mill*	fridge*

*used by few to very few households

3.8 Comparison with Grid electrified Households

In terms of electrical and other appliances, rural unelectrified or PV electrified households do not compare well (if at all) with grid electrified ones. While grid electrified households use high current apparatus such as electric stoves, freezers, food processors and incandescent bulbs, rural unelectrified homes are limited by the source of power available to them. It was understood that the number of appliances a household can buy is controlled more by the source of power available, rather than cost of the apparatus. This could be derived from the fact that most families were looking at purchasing TVs as soon as they got PV power, while those already connected to PV were considering if PV could be used for irons and freezers. Further to this point, about 95% of households connected to solar power have televisions, and this makes up to 80% of people owning Televisions in rural areas. Families belonging to the income band that can afford Solar power have in general high enough income to afford appliances associated with the fuel.

It is important to note that because of the vast difference between PV and grid power, it is improper to use household load characteristics of the two types of power for comparison purposes. Even when the families belong to the same income band, grid electrified households may purchase appliances without being limited by the availlable source of power. Discriminant analysis carried out clearly showed that the lifestyle of grid electrified households was significantly different from all other households, while it was difficult to separate PV electrified from totally unelectrified households.

3.9 Source of water for Household uses

The distance from the source of water is as given below:

Table 3.3 Distance from source of water (m)

	Survey	National(Rural)
1 On premises	38%	5%
2 Shorter than 500m	28%	40%
3 500 to 1,000 m	27%	50%
4 More than 1,000 m	7%	5%

Table 3.4 Household Sources of Water

	Volumes m^3/day	Percentage of Households	Comments
Quantity spent a day (1996)	60-200l/day	80% of families use 60-200l/day	The volume depends mainly on associated family activities. Families with gardening activities consume on average more water. The distance from the source of water has a lot of bearing on the amount of water used.
Total cost in 1996	nil	98% do not pay for water	Most rural folk do not pay for water. Where costs are encountered, such as at growth points, families prefer to carry most of their water from free sources such as wells, and collect only drinking water from the paid source.
From piped inside/outside	metered	<5% at growth points	Piped water is common only at growth points and business centres where the Ministry of Water has installed water facilities. Very few families have to date installed piped water facilities for themselves.
From river/ stream/ dam	200-500l for agriculture two to three times per week	75% of households water vegetable gardens.	Where available, rivers and streams form source for the bulk of water used for watering the family's plot of vegetables.
From communal tap/borehole	20-60l per family drinking water..	Main source of drinking water for 80% of families	Most families have access to a community borehole within walking distance from the homestead.

3.10 Priorities of the family

The five most important things for the rural family were observed to be:

1. Money
2. Food/water
3. Energy
4. Religion
5. Education

in that order. The reasons given were that money would mean a lot of other things, while their family quota of food was necessary for their survival. Next, they would consider the energy with which to cook the food. Religion is common among most families as the most important tool for social peace.

Most families (95%) rely on wood for cooking, and suggested that the ultimate form of energy for them would be grid electricity. But given the cost associated with drawing grid electricity, most families suggested that PV power was the ideal power for rural families, as far as lighting, electrical energy for radio and TVs was concerned, while wood was the best energy for cooking.

3.11 Potential for Solar PV Power

Most of systems in existence (90%) were installed after 1993. The majority (70%) are systems with below 50W supplied power. 50% of installed systems to date supply 25W or less. The most hindering problem to installation of larger systems is cost. In general, the rural folk adopt 'the cheaper the better' policy. Some 50% of systems in existence were cash purchases, though more and more people are moving towards annual installments with a total repayment period of up to 5years. Some 70% of those connected have invested between $3 000 to $10 000 for their systems. Repayment rate is between $100-1000 per month for 75% of the 55% or so who are still repaying.

Maintenance fees for PV systems is low, averaging $50 per year, and usually it goes to battery maintenance. General battery care is carried out by a family member for 75% of the homes, while paid personnel are only called if the problem persists. Most systems to date are still covered by the guarantee period. The following appliances are the commonest connected to PV:

- florescent tubes for lighting. Usually 9-11 watt lamps are the most common. 100% of solar powered homes use solar lighting.
- Radios and radio cassettes. More than 90% of homes have either a radio, cassette player, or radiogram.
- A large percentage (80%) of solar powered homes own black and white TV sets. Very few homes convert to AC current, thus the level of usage of color TVs is small.

Most lighting is turned on from 1800hrs to 2100hrs on average. In addition, most families like to keep their lights off unless when needed, and usually donot use lights when say watching TV. In

fact, grid electrified households have a lot to learn about conservation from their rural counterparts.

The following are the most common types of faults occurring on PV systems:

- Inclination, break down of stem (pole) for solar panel
- Fluctuation of voltage when in use
- Disconnection, loose connection of wire at the terminal of battery
- Corrosion of the battery terminal
- Low Level of pure water in the battery
- Theft

The biggest threat to PV power to date is risk to the panel being stolen. To this end some companies are installing alarms to the system to enhance safety of the panel. The main target is institutions such as clinics where noone will be around at night or during weekends. Once the panel is stolen the whole system becomes useless.

Below are the commonest changes to peoples livesassociated with PV power:

- Family's interests to the outside world becme wider through unlimited access to the radio and television.
- Cooking at night became easier
- Completing homework became easier for school children
- Hours for the entertainment became longer
- Working at home at night (such as knitting, sewing etc.) became easier
- Safety of houses at night (easy to notice snakes, animals, injurious insects, intruder etc.) increased

Everyone connected to PV power experienced at least some change, and 70% expressed their satisfaction without any form of reservation. Of the remaining 30%, 24% were dissatisfied with inability of solar to do other work such as cooking and ironing. Every family put cooking and ironing clothes among future expansions in their solar power.

3.12 Cross Table Analysis for Payable Fees for Solar Electrification

When asked each of the questions related to the amount of money the family was willing to pay for Solar, the following answers were recorded on average:

Table 3.5 Payable Fees for Solar Electrification (10th Percentile i.e. 90% of population (market) can afford these fees)

Too expensive to pay, we won't electrify:
Around ZS 200/m and more

What would be expensive price i.e. unacceptably expensive price for solar PV system, but still pay anyway?:
Around ZS100 /m

Acceptable to pay, but little bit too cheap (not expensive)
Around ZS40/m

Too cheap that makes me worry about quality:
Around ZS15/m

Payable monthly cost:
Around ZS 70/m

Payable initial investment (indoor wiring and battery):
Around ZS 300

Table 3.6 Payable Fees for Solar Electrification (50th Percentile) (i.e. About half 50% of the population (market) can afford these fees)

Too expensive to pay, we won't electrify:
Around ZS 550/m and more

What would be expensive price i.e. unacceptably expensive price for solar PV system, but still pay anyway?:
Around ZS300 /m

Acceptable to pay, but little bit too cheap (not expensive)
Around ZS140/m

Too cheap that makes me worry about quality:
Around ZS50/m

Payable monthly cost:
Around ZS175/m

Payable initial investment (indoor wiring and battery):
Around ZS700

Table 3.7 Payable Fees for Solar Electrification (90th Percentile) (i.e. Only 10% of the population can afford these fees)

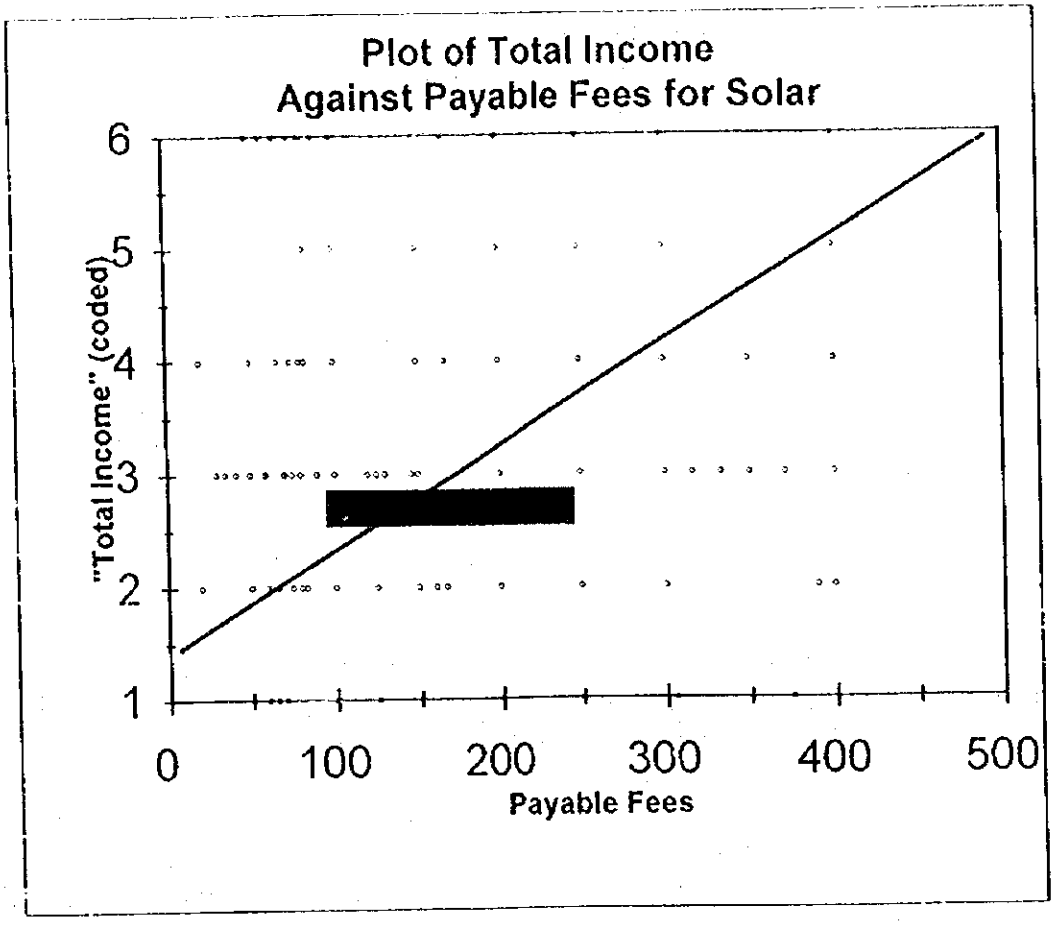
Too expensive to pay, we won't electrify: *Around ZS 1000/m and more*
What would be expensive price i.e. unacceptably expensive price for solar PV system, but still pay anyway?: *Around ZS500 /m*
Acceptable to pay, but little bit too cheap (not expensive) *Around ZS250/m*
Too cheap that makes me worry about quality: *Around ZS150/m*
Payable monthly cost: *Around ZS 400/m*
Payable initial investment (indoor wiring and battery): *Around ZS2000*

The first table shows results associated with 90% of the market. Taking the market to be 30% of households who are (national figures) regarded as nonpoor gives that 27% of households in the country would be classified with the responses given in that table. This says distributing the cost as Z$300 deposit and charging Z$70 per month will assure you of 90% of the market (believed to be 30% of rural households.); while charging Z$700 deposit and Z$175 per month will assure you of 50% of the market. Charging Z$2000 deposit and Z$400 per month will only target 10% of the market.

It shall be noted that rural households' income is usually in kind i.e. as harvest or livestock, and may only be turned to cash when the needed. Consumption expenditure is thus regarded a better measure (WHO) for net income while disposable income may be measured by the difference between total (gross) income and consumption expenditure.

A plot of total consumption versus payable fees for the proposed solar project weakly suggests that families with larger total consumption generally are willing to pay more for solar than those with less. The sample size (400) used is too little to assume the results may be used on a national scale.

Figure 3.2



3.13 Area wise Comparisons

As has been cited earlier, Zimbabwe's rural areas exhibit almost identical settlement and income patterns. This is because of the tenure systems associated with designated communal land, an inheritance from the colonial era. Depending on the geographical and ecological region associated with each settlement is the type of crops grown in each area. The climate associated with the Turf and Geja districts of Mashonaland west is hot and suitable for crops such as cotton and groundnuts, and livestock breeding. These are predominantly cash crops which are turned to cash as soon as they are harvested. This gives the inhabitants the advantage of higher liquidity in terms of cash. Compared to the rest of the country, the households in Mashonaland West (Turf and Geja) exhibit sound financial stability especially after good seasons. The only other areas of the country that compares well or better is the Eastern Highlands (Mutare) where the households have the added advantage of harvesting agricultural produce all year round, thereby allowing them better stability. When ranked by financial stability measured by gross annual income, the areas could be classified from most stable to least as Mutare (Honde) Kadoma (Turf) Kadoma (Geja) Bindura, Murewa, Gokwe, Mutare (south) and Masvingo. All these (but for Masvingo) lie in some of the country's richest in agricultural output.

3.14 Needs for Electrification and Gross Total Income

Satisfaction levels with regards to solar were high across the regions. Basically 85% were satisfied, although they wished the systems cooked and ironed. The higher income groups were observed to be associated with this kind of dissatisfaction, although the data set is not large enough to draw confirmative conclusions. The needs for electrification were high, as can be seen from the 100% positive response to whether the families were considering future installation. The future success of solar electrification may thus be judged by the following criterion:

- Natural farming region of the settlement. A good example are the Sanyati areas of Kadoma where the households grow cash crop cotton, and the Hauna areas of Honde Valley where the people enjoy cash income all year round from various market gardening activities. The areas of Bindura, Gokwe, and Murewa also depict ready markets for Solar electrification.

- Professional status of members of the households. Households with members with formal professions are highly likely to use PV power than the general household. Rural families with a stable income include families with a resident member with a white collar job, families with own investments such as shop owners and grinding mill owners.

- Awareness. Not until the benefits associated with Solar Technology, or any new technologies are fully appreciated within the community will members opt to use them. General good marketing (which is presently poor) will enhance a bigger market

- Infrastructure and priorities. It was generally difficult for institutions such as clinics and secondary schools to consider solar as a form of energy before considering aspects of infrastructure such as telecommunications and road networks. For clinics, the best approach is to deal with the district councils concerned. Some district councilors expressed willingness to work in such projects, but made it clear that they would not afford the total cost. Examples of these were Mutasa and Mutare Rural in Manicaland. Some headmasters expressed interest in paying the total cost of the system, especially if the terms were as relaxed as the case with the JICA systems.

3.15 Consumption Expenditure for lighting fuel Vs Satisfaction for PV panels.

As satisfaction has a nearly 100% favorable response, consumption expenditure for fuel may be regarded separately. Consumption of fuels for cooking and lighting has minimal thresholds. The cost for lighting using parrafin (the cheapest fuel) is low ($10 per month) and thus usage of the fuel is nearly completely inelastic. This implies that marketing for solar will be on grounds other than price. The main advantage of solar lighting is its ease to use and its brighter and cleaner light. This is why solar technology dissemination is closely related to marketing strategies employed, rather than as a substitute for paraffin based on cost.

3.16 CORRELATION ANALYSIS

Table3.8 Comparison of fuel cost and payable fees for solar when considering a target of 50% of the Market in Mutare Areas

	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
Too expensive	1083	600	765	1909	105
Maximum Payable	301.2	300.0	289.6	191.6	10.5
Cheap	139.73	100.00	132.95	95.10	5.24
Too cheap	88.23	50.00	72.20	120.88	6.68
Payable	197.32	166.67	188.78	129.27	7.11
Fuelcost	149.4	53.3	87.2	98.3	22.2

Table 3.9 Cost for Purchasing Fuel Versus Energy Priorities

ROWS: Fuel Cost COLUMNS: energy priorities

Z$	Wood	Paraffin	Grid	Solar	generator	gas	ALL
0-50	23	4	40	61	3	0	131
50-100	17	5	36	43	2	0	103
100-200	5	1	13	22	0	1	42
200-400	2	0	7	10	1	0	20
400+	2	0	7	3	0	1	13
ALL	49	10	103	139	6	2	309

3.16.1 Savings in May Versus Savings in December 1996

The regression equation is

Saving in May97 = 1.22 + 0.383 Saving Dec96

s = 1.742 R-sq = 13.4% R-sq(adj) = 13.1%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	141.70	141.70	46.69	0.000
Error	301	913.55	3.04		
Total	302	1055.25			

Conclusion: Savings in May are correlated positively with Savings in December 1996. This could be because May is harvest time, and there is general flow of funds into the family.

3.16.2 Regression Equation of Fuel Cost versus Payable Fees for Solar

The regression equation is

fuelcost = 117 + 0.085 payable cost

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	32799	32799	0.46	0.500
Error	267	19179846	71835		
Total	268	19212644			

Conclusion: Equation invalid. Amount payable for Solar is uncorrelated with amount spent on fuel

3.16.3 Regression Equation of Disposable Income (measured by consumption expenditure) and Fuel Cost Expenditure

The regression equation is
DI = 1236 + 2.58 fuelcost

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	332004672	332004672	56.23	0.000
Error	290	1712195328	5904122		
Total	291	2044199936			

Conclusion: Consumption expenditure on fuel is correlated to Disposable income

4.16.4 Correlation of Disposable Income and Payable fees for Solar

The regression equation is DI = 938 + 2.59 payable

s = 1351 R-sq = 35.8% R-sq(adj) = 35.5%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	27599014	27599014	15.13	0.000
Error	244	445192224	1824558		
Total	245	472791232			

Conclusion: Payable fees for solar (weakly) correlated to Disposable Income

3.17 Operating Costs for Public Institutions and Satisfaction

3.17.1 Schools

The ordinary rural school in Zimbabwe is run from fees collected from the pupils and a small grant from the Government. Operating costs range from Z$20 000 to Z$ 500 000 for large secondary schools. Almost no schools (none in sample) have been solar electrified yet. Arrangement for installation of solar may be made directly with the school in question, or through the council where the installation is a donation. Despite the apparent large demand for solar power in schools, little has been done to date because of focus on other priorities for the school.

3.17.2 Clinics

Clinics are run from a central location, usually the District council. All the Solar installations occurring at various clinics have been donations. On discussion with District councillors responsible for running the clinics, it was generally felt that arrangement could be made so that the council may meet part of the costs for installations. They however, made it clear that they would not be able to meet anything over Z$2000 (10% of the JICA systems) per clinic. Otherwise the clinic staff rely on medical supplies from Government and fuel and toiletries from the district council.

Chapter 4 Recommendations

1. Electrification by the ZESA grid in Zimbabwe has been mainly targeted at the rural business centres with economic and financial viability. Solar electrification may be targeted at the general household, bearing in mind that for the majority of households, the cheaper the system the better.

2. The level of awareness of the advantages of PV power as a source of clean energy is limited to the few literate individual members of rural communities. Each Solar electrification programme must carry with itself a strong campaign and awareness programme.

3. The biggest Solar PV electrification project ongoing in the country is the Global Environmental Facility (GEF) Solar Pilot project which started in 1993, and is scheduled to run until 1998. All other projects may benefit from the experiences learnt here.

4. PV installations to date have operated on the ability of the individual household to pay for the system. Some families already enjoying PV power got it through one of the following:

   - Household with bread winner employed in town making conditions better for wife and children in the rural home. It is very possible to deal with urban dwellers for payment of systems installed at their rural homes.
   - System donated by a well to do relative.
   - Household wishing to have better lighting.
   - Farmer raising sufficient income from agriculture wishing to have better lighting.
   - Clinics Received Donations from overseas.

   The above need serious consideration when taking solar power to rural communities.

5. The PV market is currently estimated by the size of households generally regarded as non-poor. These vary from province to province, but the national figure was estimated at 25%[Government Poverty Alleviation Strategies Survey.] This is the potential market with the real market being dependent on the accessibility of the scheme by the low income target group.

6. The biggest contributor to rural poverty is the reliance on agriculture of the majority of the inhabitants for their livelihood and absence of any other sources of income. Continually drought stricken and generally arid regions are associated with poor agriculture yields, and the market for PV power is generally smaller. Marketing strategies may be aimed at overcoming this major barrier.

7. Alternative income generating projects in rural areas have an impact on the environment as they reduce reliance on extensive agriculture. Income generating activities in the rural areas are closely associated with the land. These include horticulture, game hunting where

available, and harvesting of forest products. Communities with other income generating activities constitute a readier market for PV power and may be targeted for better results. According to the study these include settlements in the Eastern highlands near Mutare.

8. Distribution of PV electrified households is currently strongly influenced by the following factors:

   - Natural farming region of the settlement. Agriculturally richer regions have inhabitants with more disposable income, and thus the households could easily afford solar electrification. A good example are the Sanyati areas of Kadoma where the households grow cash crop cotton, and the Hauna areas of Honde Valley where the people enjoy cash income all year round from various market gardening activities.

   - Professional status of members of the households. Households with members with formal professions are highly likely to use PV power than the general household. In fact, under the GEF solar programme, an arrangement was made to advance installations to members of the teaching profession with deductions made to their monthly cheque. This arrangement is responsible for the vast usage of solar Pvs by teachers in rural areas.

   - Awareness. Not until the benefits associated with Solar Technology, or any new technologies are fully appreciated within the community will members opt to use them. This was the general trend observed as one furthered into the interior of the countryside. Most people interviewed did not fully appreciate how much solar can do for them, let alone put their money into it. In some visited homes, this survey was the first time Solar was introduced to the household.

   - Infrastructure and priorities. It was generally difficult for institutions such as clinics and secondary schools to consider solar as a form of energy before considering aspects of infrastructure such as telecommunications and road net works.

   - Infrastructure. The distribution of solar electrified households is closely linked to the infrastructure of the area in question. It was noted that solar PV power was used mainly by those families close to highways. Two reasons were immediately available: One, the sales persons selling solar products stayed as close as possible to highways, and two; prominent business centres are situated along highways, and it is at these centres that well to do people usually reside. New technologies usually take residence at these centres first.

9. Various electric appliances, or appliances that could use electric power, are at use in the rural areas. The most common of these are radios, TVs, fridges and cooking stoves. Radios and TVs use dry and lead batteries, and where available, solar. After lighting, people see solar power as a ready source of fuel for powering radios and TVs. Solar for rural homes may thus be seen primarily as a fuel for lighting and powering radios and televisions.

10. Compared with Grid electrified Households in terms of electrical and other appliances, rural unelectrified or PV electrified households do not compare well (if at all) with grid electrified ones. It shall be noted that because of the vast difference between PV and grid power, it is

not advisable to use household load characteristics of the two types of power for comparison purposes. Discriminant analyses carried out clearly showed that the lifestyle of grid electrified households was significantly different from all other households, while it was difficult to separate PV electrified from totally unelectrified households.

11. Maintenance fees for PV systems is low, averaging $50 per year, and usually it goes to battery maintenance. General battery care is carried out by a family member for 75% of homes, while paid personnel are only called if the problem persists. Most systems to date are still covered by the guarantee period.

12. The following appliances are the commonest connected to PV:

- Florescent tubes for lighting. Usually 9-11 watt lamps are the most common. 100% of solar powered homes use solar lighting.
- Radios and radio cassettes. More than 90% of homes have either a radio, cassette player, or radiogram.
- A large percentage (>80%) of solar powered homes own black and white TV sets. Very few homes convert to AC current, thus the level of usage of color TVs is small.

13. The following are the most common type of faults, and therefore future installations may seek to address these:

- Inclination, break down of stem (pole) for solar panel
- Fluctuation of voltage when in use
- Disconnection, loose connection of wire at the terminal of battery
- Corrosion of the battery terminal
- Level down of pure water in the battery
- Theft

14. Operating Costs for Public Institutions and Satisfaction

Schools

The ordinary rural school in Zimbabwe is run from fees collected from the pupils and a small grant from the Government. Operating costs range from Z$20 000 to Z$ 500 000 for large secondary schools Almost no schools (none in sample) have been solar electrified yet. Arrangement for installation of solar may be made directly with the school in question, or through the rural council if the installation is a donation. Despite the apparent large demand for solar power in schools, little has been done to date because of focus on other priorities for the school.

Clinics

Clinics are run from a central location, usually the District council. All the Solar installations occurring at various clinics have been donation. On discussion with District councillors responsible for running

the clinics, it was generally felt that arrangement could be made so that the council may meet part of the costs for installations. They however made it clear that they would not be able to meet anything over Z$2000 (10% of the JICA systems) per clinic.

Appendix 1

The Southern Centre for Energy and the Environment (Southern Centre)

The Southern Centre is an independent research facility registered in Zimbabwe. The main objective of the Centre is to obtain well researched and documented information for use by policy makers in government and the private sector. The objectives are targeted at obtaining strategic information required for sustainable development.

The Southern Centre employs a team of well qualified experts in the fields of energy, economics, electrical engineering, mechanical engineering, social sciences, and development policy. This team spearheads the Southern Centre's objectives through participation in various activities within the Southern Centre's programmes. Through its Natural resources and Industry Programmes the Centre has carried out various studies on the socio-economic implications of energy use on the environment.

The Southern Centre team is made up of research fellows based at the Centre's premises, and various other associate members from government, private sector and the academia. For any project within each programme, the most suitably qualified team is drawn to carry out the project.

As an energy and environment research facility, field surveys form a pivotal part of the Southern Centre's research methodologies. The Centre carries out field surveys on income and expenditure, energy consumption patterns, and all other indicators of wealth or poverty. The most recent of these surveys include:

- a survey on household income, consumption and expenditure patterns for rural business centre households for the evaluation of the socio-economic aspects of the Zimbabwe Rural Electrification Masterplan, conducted during April to June 1996
- a survey carried out for JICA to evaluate the feasibility of introducing coal briquettes as a household fuel carried out in November 1996.
- Energy and environment interactions project carried out for Government of Zimbabwe, with funding from African Development Bank. The exercise included a national household survey for energy and income characteristics
- Incremental cost study for the feasibility of substituting low-grade ethanol for paraffin and coal carried out in Murewa District.

For this household income, expenditure and fuel consumption study, the employed team is as follows:

Dr. R.S. Maya, **Team Leader and Economist**
BSc Industrial Engineering Univ. N. Carolina Wisconsin
BA Hon. International Relations Univ. Wisconsin
MSc Energy Analysis and Policy Univ. Wisconsin
PhD Energy Analysis and Policy Univ. Wisconsin

Mr T. Kureya **Vice Team Leader. Expert, Field Surveys, Computer Analyst, report writing and Supervisor for Enumerators.**
BSc Honours Statistics. University of Zimbabwe.
MSc Statistics University of Zimbabwe. (current)

Mr L. Dhliwayo, **Leade:, Enumerators**
BSc Honours Statistics. University of Zimbabwe.
MSc Statistics University of Zimbabwe. (current)

Mr N. Nziramasanga **Expert, Field Surveys and Computers.**
BSEE University of Michigan: Power Systems and Energy Conversion
Member: IEEE, Member: IEE

Mr B. Batidzirai **Expert, Field Surveys and Reporting.**
Bsc Electrical Engineering (UZ)
Graduate Member: ZIE

The employed team has been drawn with special consideration being given to the kind of work covered, and the various stages that had to be completed in order to deliver a good job.

Appendix 2
Confidential Household Energy Survey
Coding for Selected Variables Introduced at Data Entry (These do not appear on the Questionnaire)

Surveyor/Enumerator:

TK for Tendayi Kureya
CZ for Cynthia Zengeni
KB for Kiswell Basira
KM for Kingsthone Mutsonziwa
MK for Macdonald Kwarayi
LD for Lawrence Dhliwayo
PC for Peter Chinofunga
EM for Emson Marova

Appl1,2...
1. Radio
2. TV
3. Fridge
4. Lights
5. Other

Power

1 Grid
2 Solar
3 Generator

mainsource
1 Piped Inside
2 Piped Outside
3 River/Stram/Dam
4. Communal Tap
5 Well Protected
6. Well Unprotected
7. Other

Province
1. Manicaland
2. Masvingo
3. Mash West
4. Midlands
5. Mash Central
6. Mash East

Hours1
1. 0-10
2. 10-20
3. 20+

Power1 (Watt)
1. 0-10
2. 10-20
3. 20+

Hours2
1. 0-4
2. 4-6
3. 6+

Power2 (Watt)
1. 0-15
2. 15-20
3. 20+

Power5 (Watt)
1. 0-5
2. 5-1000
3. 1000+

Woodcost
1. Z$0
2. Z$1-Z$50
3. Z$ 50+

Woodcook: Kgs per month
1. 0-100
2. 100-1000
3. 1000+

Paracost Z$
1. 0-10
2. 10-20
3. 20-40
4. 40-80
5. 80-100

Volt (Volts)
1. 0-20
2. 20-50
3. 50+

Amp (Amps)
1. 0-2
2. 2-4
3. 4+

Watt (Supplied W)
1. 0-40
2. 40-100
3. 100+

Volume (litres)
1. 0-99
2. 100-200
3. 200-300
4. 300-400
5. 400-500
6. 500+

Cost 96 Z$
1. Z$0
2. Z$1-100
3. Z$100+

Capacity (Watt)
1. 0-20
2. 20-50
3. 50+

Investnt (Investment for PV System Z$)
1. 0-5000
2. 5000-10000
3. 10000+

Repayrte (Z$/month)
1. 0-200
2. 200-500
3. 500+

GTAI (Z$)
1. 0-500
2. 500-1000
3. 1000-5000
4. 5000-10000
5. 10000+

PayMax, Cheap, Tooexp, Tocchp Payable (Z$)
1. 0-100
2. 100-500
3. 500+

Iinvest Z$
1. 0-500
2. 500-1000
3. 1000+

Food, Water, Electricity, Z$
1. 0-100
2. 100-500
3. 500+

Fuel Z$
1. 0-20
2. 20-100
3. 100+

Battery Z$
1. 0-20
2. 20-100
3. 100+

Clothing Z$ per month
1. 0-100
2. 100-500
3. 500+

Education Z$ per month
1. 0-100
2. 100-500
3. 500+

Joy Z$ per month
1. 0-50
2. 50-200
3. 200+

Others Z$
1. 0-100
2. 100-500
3. 500+

Appendix 3 : Computer Output for Frequency Tables Households Data

List of Variables and codes used in the Analysis

Most Codes are as coded on the Questionnaire, and codes introduced at data entry are as given above.

Question & Variable	*Explanation*
3 Sex:	Sex of the responded
4 Age:	Age of representative
6 District:	Name of district where the respondent lives
7 Province:	Name of province of the respondent
8 Sector:	Sector of the respondent's village
9 Electric:	Type of electrification of the household
11 Fsize:	Family size
111 EActive:	Number of family member who are economically active
112Worksep:	Member of family who work seperatelyout of village
12 HHjob:	Job category of family household head
13 Fjob1,2,3,4,5:	Job of family members other than family head
141 Tradhse:	Total number of traditional houses
142 Mordenhse:	Total number of other type/modern type house
143 Rooms:	Total number of rooms of other type houses
144 Wall:	Main material of wall of other type houses
145 Roof:	Main material of roof of other type houses
15 Appl1,2,....:	Electric appliance
15 Numb1,2,....:	Number of eletric appliances
15 Hours1,2,...:	Number of hours used by the electric appliance
15 Power1,2,...:	Energy used by the electric appliance in watts
15 Source1,2,..:	Source of power of the electric appliance
16 Woodcost:	Cost of firewood used per month
16 Woodhrs:	Average time(Hr) spend using firewoood per day
16 Wodcook:	Mass (Kg) of firewood used for cooking per month
16 Woodgen:	Mass (Kg) of firewood used for generating per month
16 Paracost:	Cost of parrafin used per month
16 Parahrs:	Average time (Hr) spend using parrafin
16 Paralight:	Litres of parrafin used for lighting per month
16 Paraothr:	Litres of parrafin used for other per month
16 Diescost:	Cost of diesel used per month
16 Dselhrs:	Average time spend using diesel per day
16 Dseltruck:	Litres of diesel used for trucks/cars per month
16 Dseloth:	Litres of diesel used for other purposes per month
16 Ptrlcost:	Cost of petrol used per month
16 Ptrlhrs:	Average time spend using petrol per day
16 Ptrlcar:	Litres of petrol used for cars per month
16 Ptrloth:	Litres of petrol used for other purposes per month
16 Gascost:	Cost of gas used per month
16 Gashrs:	Average time spend using gas per month
16 Gascook:	Volumes of gas used for cooking

16 Gasoth:	Volumes of gas used for other purposes
16b1:	Average life of a gas boottle
16b2:	Mass of a gas bottle
16b3:	Number of gas bottles used/day
16 Phase1:	Single phase electrified households
16 Phase3:	Three phase electrified households
16 Power:	Supply of electricity
16 Volt:	Supplied voltage
16 Amp:	Supplied Ampere
16 Watt:	Supplied wattage
17 Volume:	Quantity of water spent a day
17 Cost96:	Total cost of water in 1996
17 Mainsce:	Main source of water
17 Distance:	Distance of water source from premises
181 FPriot1,2...:	Priorities of the family
182 EPriot1,2...:	Energy priorities of the family
1901 PVMonth:	Month of PV Installations
1901PVYear:	Year oof PV installations
1902 Capacity:	Capacity of PV system installed
1903 Arrangnt:	Arrangement for buying PV system
1904 Investnt:	Investment amount of the whole PV system
1905 Repayyr:	Years of total repayment
1905 Repamth:	Month of total repayment
1906 Repaystg:	Repayment stage
1907 Repayrte:	Rate of repayment of loan
1907 Reayper:	Frequence of repayment
1908 Maintyear:	Yearly amount of maintainance
1908 Maintmth:	Monthly amount of maintainance
1909 Applc1,2..:	Appliances connected to PV system
1910 Lightfrom:	Time light is switched on
1910 Lightingto:	Time light is switched off
1911 Maintby:	Maintainance of PV system
1912 Flttotal:	Total number of faults
1913 Fltfreq:	Frequence of faults
1914 Lvoltage:	Total number days of low voltage of the PV
1915 Flttype1%w..:	Type of faults experienced
1916 Change1,2...:	Daily life changes whch occurred after installation
1917 Satisfn:	Extend of satisfaction
20 FInstall1,2..:	Future Installation plans
21 FPriorit:	Priority in future PV electrification
22 Paymax:	Expensive price for solar PV system
22 Cheap:	Cheap price for solar PV system
22 Tooexp:	Too Expensive price for solar PV system
22 Toochp:	Too Cheap price for solar PV system
22 Payable:	Payable price for solar PV system
22 IInvest:	Payable initial investment
22 FPV:	Willing to purchase PV system in future
24 TendGTAI:	Tendency of the gross total annual income

25 TendCE:	Tendency of the gross total annual expenditure
26 GTAI:	Gross Total Annual Income
27 ISource1,2...:	Sources of Family income
28 Food:	Average Mothly Consumption expenditure on food
28 Water:	Average Monthly Consumption expenditure on water
28 Electy:	Average Monthly Consumption expiture on Electricity
28 Fuel:	Aerage Monthly Consumption expenditure on fuel
28 Photov:	Average Monthly Consumption expenditure on PV
28 Battery:	Average Monthly Consumption expenditure on Battery
28 Clothing:	Average Monthly Consumption expenditure on Clothing
28 Education:	Aerage Monthly Consumption expenditure on Education
28 Joy:	Average Monthly Consumption exp on Entertainment
28 Others:	Average Mothly Consumption expenditure on Other
28 Total:	Total Mothly Consumption expenditure
29 Save:	Whether Savings were made to date
29 Savg96:	Amount saved at the end of 1996
29 Savgmay:	Amount saved at the end of May 1997
29 Deposit:	Where the money is deposited

Frequency Tables

```
Freq    = Frequency
Percent = Percentage
Cum.    = Cumulative Percentage
```

SURVEYOR	Freq	Percent	Cum.
cz	49	11.1%	11.1%
em	68	15.4%	26.5%
kb	65	14.7%	41.3%
km	70	15.9%	57.1%
ld	54	12.2%	69.4%
mk	60	13.6%	83.0%
pc	45	10.2%	93.2%
pm	21	4.8%	98.0%
tk	9	2.0%	100.0%
Total	441	100.0%	

SEX	Freq	Percent	Cum.
1.0	234	52.9%	52.9%
2.0	208	47.1%	100.0%
Total	442	100.0%	

AGE	Freq	Percent	Cum.
1.0	118	26.7%	26.7%
2.0	135	30.5%	57.2%
3.0	97	21.9%	79.2%
4.0	52	11.8%	91.0%
5.0	33	7.5%	98.4%
6.0	7	1.6%	100.0%
Total	442	100.0%	

DISTRICT	Freq	Percent	Cum.
bikita	24	5.4%	5.4%
bindura	23	5.2%	10.6%
chimanimani	13	2.9%	13.8%
gokwe	72	16.3%	30.1%
goromonzi	4	0.9%	31.0%
gutu	48	10.9%	41.9%
kadoma	102	23.1%	64.9%
madziwa	2	0.5%	65.4%
makoni	9	2.0%	67.4%
murewa	62	14.0%	81.4%
mutare	27	6.1%	87.6%
mutasa	43	9.7%	97.3%
shamva	11	2.5%	99.8%
zimunya	1	0.2%	100.0%
Total	442	100.0%	

PROVINCE	Freq	Percent	Cum.
1.0	97	21.9%	21.9%
2.0	71	16.1%	38.0%
3.0	103	23.3%	61.3%
4.0	75	17.0%	78.3%
5.0	37	8.4%	86.7%
6.0	59	13.3%	100.0%
Total	442	100.0%	

SECTOR	Freq	Percent	Cum.
1.0	3	0.7%	0.7%
2.0	39	8.8%	9.5%
3.0	7	1.6%	11.1%
5.0	358	81.0%	92.1%
6.0	35	7.9%	100.0%
Total	442	100.0%	

ELECTRIC	Freq	Percent	Cum.
1.0	195	44.1%	44.1%
2.0	185	41.9%	86.0%
3.0	62	14.0%	100.0%
Total	442	100.0%	

FSIZE	Freq	Percent	Cum.
1.0	7	1.6%	1.6%
2.0	13	2.9%	4.5%
3.0	31	7.0%	11.5%
4.0	51	11.5%	23.1%
5.0	57	12.9%	36.0%
6.0	58	13.1%	49.1%
7.0	52	11.8%	60.9%
8.0	46	10.4%	71.3%
9.0	33	7.5%	78.7%
10.0+	94	21.3%	100.0%
Total	442	100.0%	

EACTIVE	Freq	Percent	Cum.
1.0	58	13.1%	13.1%
2.0	141	31.9%	45.0%
3.0	71	16.1%	61.1%
4.0	67	15.2%	76.2%
5.0	45	10.2%	86.4%
6.0	18	4.1%	90.5%
7.0+	42	9.5%	100.0%
Total	442	100.0%	

WORKSEP	Freq	Percent	Cum.
0.0	239	54.1%	54.1%
1.0	89	20.1%	74.2%
2.0	65	14.7%	88.9%
3.0	27	6.1%	95.0%
4.0	19	4.3%	99.3%
5.0	1	0.2%	99.5%
6.0	1	0.2%	99.8%
7.0	1	0.2%	100.0%
Total	442	100.0%	

HHJOB	Freq	Percent	Cum.
1.0	163	36.9%	36.9%
3.0	6	1.4%	38.2%
5.0	40	9.0%	47.3%
6.0	8	1.8%	49.1%
7.0	8	1.8%	50.9%
8.0	95	21.5%	72.4%
9.0	33	7.5%	79.9%
10.0	10	2.3%	82.1%
11.0	5	1.1%	83.3%
12.0	8	1.8%	85.1%
13.0	17	3.8%	88.9%
14.0	13	2.9%	91.9%
15.0	13	2.9%	94.8%
16.0	23	5.2%	100.0%
Total	442	100.0%	

FJOB1	Freq	Percent	Cum.
1.0	133	40.8%	40.8%
2.0	2	0.6%	41.4%
3.0	8	2.5%	43.9%
4.0	1	0.3%	44.2%
5.0	38	11.7%	55.8%
6.0	5	1.5%	57.4%
7.0	13	4.0%	61.3%
8.0	65	19.9%	81.3%
9.0	13	4.0%	85.3%
10.0	9	2.8%	88.0%
11.0	6	1.8%	89.9%
12.0	7	2.1%	92.0%
13.0	4	1.2%	93.3%
14.0	3	0.9%	94.2%
15.0	5	1.5%	95.7%
16.0	14	4.3%	100.0%
Total	326	100.0%	

FJOB2	Freq	Percent	Cum.
1.0	32	18.9%	18.9%
2.0	13	7.7%	26.6%
3.0	3	1.8%	28.4%
4.0	1	0.6%	29.0%
5.0	33	19.5%	48.5%
6.0	7	4.1%	52.7%
7.0	12	7.1%	59.8%
8.0	15	8.9%	68.6%
9.0	9	5.3%	74.0%
10.0	8	4.7%	78.7%
11.0	5	3.0%	81.7%
12.0	8	4.7%	86.4%
13.0	12	7.1%	93.5%
14.0	2	1.2%	94.7%
15.0	7	4.1%	98.8%
16.0	2	1.2%	100.0%
Total	169	100.0%	

FJOB3	Freq	Percent	Cum.
1.0	16	20.5%	20.5%
2.0	4	5.1%	25.6%
3.0	1	1.3%	26.9%
5.0	10	12.8%	39.7%
6.0	4	5.1%	44.9%
7.0	8	10.3%	55.1%
8.0	8	10.3%	65.4%
9.0	7	9.0%	74.4%
10.0	4	5.1%	79.5%
11.0	3	3.8%	83.3%
12.0	3	3.8%	87.2%
14.0	2	2.6%	89.7%
15.0	5	6.4%	96.2%
16.0	3	3.8%	100.0%
Total	78	100.0%	

FJOB4	Freq	Percent	Cum.
1.0	5	16.7%	16.7%
5.0	5	16.7%	33.3%
6.0	1	3.3%	36.7%
7.0	1	3.3%	40.0%
8.0	7	23.3%	63.3%
9.0	1	3.3%	66.7%
10.0	1	3.3%	70.0%
12.0	2	6.7%	76.7%
13.0	1	3.3%	80.0%
14.0	2	6.7%	86.7%
15.0	2	6.7%	93.3%
16.0	2	6.7%	100.0%
Total	30	100.0%	

FJOB5	Freq	Percent	Cum.
1.0	5	50.0%	50.0%
5.0	1	10.0%	60.0%
7.0	2	20.0%	80.0%
9.0	1	10.0%	90.0%
12.0	1	10.0%	100.0%
Total	10	100.0%	

TRADHSE	Freq	Percent	Cum.
0.0	200	45.2%	45.2%
1.0	85	19.2%	64.5%
2.0	89	20.1%	84.6%
3.0	40	9.0%	93.7%
4.0+	28	6.3%	100.0%
Total	442	100.0%	

MORDENHSE	Freq	Percent	Cum.
0.0	23	5.2%	5.2%
1.0	251	56.8%	62.0%
2.0	104	23.5%	85.5%
3.0	37	8.4%	93.9%
4.0	16	3.6%	97.5%
5.0	6	1.4%	98.9%
6.0	3	0.7%	99.5%
7.0	1	0.2%	99.8%
8.0+	1	0.2%	100.0%
Total	442	100.0%	

ROOMS	Freq	Percent	Cum.
0.0	23	5.2%	5.2%
1.0	3	0.7%	5.9%
2.0	11	2.5%	8.4%
3.0	49	11.1%	19.5%
4.0	77	17.4%	36.9%
5.0	121	27.4%	64.3%
6.0	51	11.5%	75.8%
7.0	37	8.4%	84.2%
8.0+	70	15.8%	100.0%
Total	442	100.0%	

WALL	Freq	Percent	Cum.
1.0	423	98.4%	98.4%
2.0	1	0.2%	98.6%
3.0	3	0.7%	99.3%
4.0	3	0.7%	100.0%
Total	430	100.0%	

ROOF	Freq	Percent	Cum.
1.0	1	0.2%	0.2%
2.0	38	8.8%	9.1%
3.0	379	88.1%	97.2%
5.0	12	2.8%	100.0%
Total	430	100.0%	

APPL1	Freq	Percent	Cum.
1.0	397	100.0%	100.0%
Total	397	100.0%	

NUMB1	Freq	Percent	Cum.
1.0	329	83.9%	83.9%
2.0	46	11.7%	95.7%
3.0	7	1.8%	97.4%
4.0	6	1.5%	99.0%
6.0	4	1.0%	100.0%
Total	392	100.0%	

HOURS1	Freq	Percent	Cum.
1.0	67	17.6%	17.6%
2.0	180	47.2%	64.8%
3.0	134	35.2%	100.0%
Total	381	100.0%	

POWER1	Freq	Percent	Cum.
1.0	90	26.4%	26.4%
2.0	116	34.0%	60.4%
3.0	135	39.6%	100.0%
Total	341	100.0%	

SOURCE1	Freq	Percent	Cum.
1.0	56	14.6%	14.6%
2.0	162	42.2%	56.8%
4.0	166	43.2%	100.0%
Total	384	100.0%	

APPL2	Freq	Percent	Cum.
2.0	253	100.0%	100.0%
Total	253	100.0%	

NUMB2	Freq	Percent	Cum.
1.0	232	95.9%	95.9%
2.0	7	2.9%	98.8%
3.0	1	0.4%	99.2%
4.0	1	0.4%	99.6%
6.0	1	0.4%	100.0%
Total	242	100.0%	

HOURS2	Freq	Percent	Cum.
1.0	8	3.3%	3.3%
1.5	2	0.8%	4.1%
2.0	39	16.2%	20.3%
3.0	53	22.0%	42.3%
3.5	4	1.7%	44.0%
4.0	57	23.7%	67.6%
4.5	1	0.4%	68.0%
5.0	22	9.1%	77.2%
6.0	38	15.8%	92.9%
7.0	5	2.1%	95.0%
8.0	7	2.9%	97.9%
10.0	4	1.7%	99.6%
12.0	1	0.4%	100.0%
Total	241	100.0%	

POWER2	Freq	Percent	Cum.
1.0	2	1.0%	1.0%
2.0	73	36.9%	37.9%
3.0	123	62.1%	100.0%
Total	198	100.0%	

SOURCE2	Freq	Percent	Cum.
1.0	56	23.6%	23.6%
2.0	139	58.6%	82.3%
4.0	42	17.7%	100.0%
Total	237	100.0%	

APPL3	Freq	Percent	Cum.
3.0	38	100.0%	100.0%
Total	38	100.0%	

NUMB3	Freq	Percent	Cum.
1.0	32	84.2%	84.2%
2.0	3	7.9%	92.1%
3.0	3	7.9%	100.0%
Total	38	100.0%	

HOURS3	Freq	Percent	Cum.
24.0	38	100.0%	100.0%
Total	38	100.0%	

POWER3	Freq	Percent	Cum.
90.0	1	5.0%	5.0%
95.0	1	5.0%	10.0%
100.0	1	5.0%	15.0%
138.0	2	10.0%	25.0%
150.0	2	10.0%	35.0%
169.0	1	5.0%	40.0%
190.0	1	5.0%	45.0%
200.0	3	15.0%	60.0%
250.0	2	10.0%	70.0%
340.0	1	5.0%	75.0%
350.0	2	10.0%	85.0%
400.0	2	10.0%	95.0%
440.0	1	5.0%	100.0%
Total	20	100.0%	

SOURCE3	Freq	Percent	Cum.
1.0	22	57.9%	57.9%
5.0	16	42.1%	100.0%
Total	38	100.0%	

APPL4	Freq	Percent	Cum.
4.0	133	100.0%	100.0%
Total	133	100.0%	

NUMB4	Freq	Percent	Cum.
1.0	26	19.7%	19.7%
2.0	44	33.3%	53.0%
3.0	18	13.6%	66.7%
4.0	21	15.9%	82.6%
5.0	5	3.8%	86.4%
6.0	12	9.1%	95.5%
7.0	2	1.5%	97.0%
8.0	2	1.5%	98.5%
10.0	2	1.5%	100.0%
Total	132	100.0%	

HOURS4	Freq	Percent	Cum.
1.0	2	1.6%	1.6%
2.0	13	10.2%	11.7%
2.5	1	0.8%	12.5%
3.0	27	21.1%	33.6%
4.0	55	43.0%	76.6%
4.5	1	0.8%	77.3%
5.0	8	6.3%	83.6%
6.0	15	11.7%	95.3%
8.0	1	0.8%	96.1%
9.0	1	0.8%	96.9%
10.0	1	0.8%	97.7%
11.0	1	0.8%	98.4%
12.0	2	1.6%	100.0%
Total	128	100.0%	

POWER4	Freq	Percent	Cum.
1.0	32	43.2%	43.2%
2.0	24	32.4%	75.7%
3.0	18	24.3%	100.0%
Total	74	100.0%	

SOURCE4	Freq	Percent	Cum.
1.0	17	13.6%	13.6%
2.0	106	84.8%	98.4%
4.0	2	1.6%	100.0%
Total	125	100.0%	

APPL5	Freq	Percent	Cum.
5.0	103	100.0%	100.0%
Total	103	100.0%	

NUMB5	Freq	Percent	Cum.
1.0	74	71.8%	71.8%
2.0	19	18.4%	90.3%
3.0	4	3.9%	94.2%
4.0	2	1.9%	96.1%
5.0	3	2.9%	99.0%
24.0	1	1.0%	100.0%
Total	103	100.0%	

HOURS5	Freq	Percent	Cum.
0.3	2	2.3%	2.3%
1.0	13	14.8%	17.0%
1.5	2	2.3%	19.3%
2.0	8	9.1%	28.4%
2.5	1	1.1%	29.5%
3.0	10	11.4%	40.9%
4.0	15	17.0%	58.0%
4.5	1	1.1%	59.1%
5.0	1	1.1%	60.2%
6.0	12	13.6%	73.9%
8.0	4	4.5%	78.4%
10.0	4	4.5%	83.0%
14.0	2	2.3%	85.2%
15.0	1	1.1%	86.4%
24.0	12	13.6%	100.0%
Total	88	100.0%	

POWER5	Freq	Percent	Cum.
1.0	14	22.2%	22.2%
2.0	19	30.2%	52.4%
3.0	30	47.6%	100.0%
Total	63	100.0%	

SOURCE5	Freq	Percent	Cum.
1.0	53	57.0%	57.0%
2.0	5	5.4%	62.4%
4.0	28	30.1%	92.5%
5.0	4	4.3%	96.8%
6.0	2	2.2%	98.9%
7.0	1	1.1%	100.0%
Total	93	100.0%	

WOODCOST	Freq	Percent	Cum.
1.0	291	65.8%	65.8%
2.0	89	20.1%	86.0%
3.0	62	14.0%	100.0%
Total	442	100.0%	

WOODHRS	Freq	Percent	Cum.
0.8	1	0.3%	0.3%
1.0	9	2.5%	2.7%
1.3	1	0.3%	3.0%
1.5	1	0.3%	3.3%
2.0	18	4.9%	8.2%
2.3	1	0.3%	8.5%
2.5	4	1.1%	9.6%
3.0	37	10.2%	19.8%
4.0	60	16.5%	36.3%
4.5	2	0.5%	36.8%
5.0	48	13.2%	50.0%
6.0	94	25.8%	75.8%
7.0	17	4.7%	80.5%
8.0	40	11.0%	91.5%
9.0	4	1.1%	92.6%
10.0	9	2.5%	95.1%
12.0	16	4.4%	99.5%
15.0	2	0.5%	100.0%
Total	364	100.0%	

WOODCOOK	Freq	Percent	Cum.
1.0	36	11.1%	11.1%
2.0	199	61.4%	72.5%
3.0	89	27.5%	100.0%
Total	324	100.0%	

WOODGEN	Freq	Percent	Cum.
3.0	1	50.0%	50.0%
1800.0	1	50.0%	100.0%
Total	2	100.0%	

WOODOTHR	Freq	Percent	Cum.
1.0	3	11.5%	11.5%
2.0	12	46.2%	57.7%
3.0	2	7.7%	65.4%
20.0	5	19.2%	84.6%
25.0	1	3.8%	88.5%
50.0	1	3.8%	92.3%
200.0	2	7.7%	100.0%
Total	26	100.0%	

PARACOST	Freq	Percent	Cum.
1.0	141	42.5%	42.5%
2.0	114	34.3%	76.8%
3.0	42	12.7%	89.5%
4.0	21	6.3%	95.8%
5.0	14	4.2%	100.0%
Total	332	100.0%	

PARAHRS	Freq	Percent	Cum.
0.5	2	0.7%	0.7%
1.0	26	9.3%	10.0%
1.5	3	1.1%	11.1%
2.0	53	19.0%	30.1%
2.5	1	0.4%	30.5%
3.0	71	25.4%	55.9%
3.5	1	0.4%	56.3%
4.0	48	17.2%	73.5%
5.0	18	6.5%	79.9%
6.0	26	9.3%	89.2%
7.0	4	1.4%	90.7%
8.0	4	1.4%	92.1%
10.0	1	0.4%	92.5%
24.0	21	7.5%	100.0%
Total	279	100.0%	

PARALIGHT	Freq	Percent	Cum.
0.8	6	2.7%	2.7%
1.0	10	4.4%	7.1%
1.5	5	2.2%	9.3%
2.0	37	16.4%	25.8%
2.5	6	2.7%	28.4%
3.0	24	10.7%	39.1%
4.0	5	2.2%	41.3%
5.0	98	43.6%	84.9%
6.0	3	1.3%	86.2%
7.0	3	1.3%	87.6%
7.5	1	0.4%	88.0%
10.0	16	7.1%	95.1%
13.0	1	0.4%	95.6%
15.0	1	0.4%	96.0%
20.0	5	2.2%	98.2%
25.0	1	0.4%	98.7%
28.0	1	0.4%	99.1%
45.0	1	0.4%	99.6%
68.0	1	0.4%	100.0%
Total	225	100.0%	

PARAOTHR	Freq	Percent	Cum.
0.5	1	1.7%	1.7%
1.0	5	8.5%	10.2%
2.0	11	18.6%	28.8%
3.0	7	11.9%	40.7%
5.0	7	11.9%	52.5%
6.0	1	1.7%	54.2%
7.0	2	3.4%	57.6%
8.0	2	3.4%	61.0%
10.0	3	5.1%	66.1%
14.0	1	1.7%	67.8%
15.0	1	1.7%	69.5%
19.0	1	1.7%	71.2%
20.0	4	6.8%	78.0%
23.0	1	1.7%	79.7%
24.0	3	5.1%	84.7%
25.0	2	3.4%	88.1%
30.0	1	1.7%	89.8%
32.0	1	1.7%	91.5%
40.0	1	1.7%	93.2%
50.0	1	1.7%	94.9%
80.0	1	1.7%	96.6%
85.0	1	1.7%	98.3%
200.0	1	1.7%	100.0%
Total	59	100.0%	

DIESCOST	Freq	Percent	Cum.
119.0	1	14.3%	14.3%
130.0	1	14.3%	28.6%
500.0	1	14.3%	42.9%
945.0	1	14.3%	57.1%
1000.0	1	14.3%	71.4%
2500.0	1	14.3%	85.7%
3000.0	1	14.3%	100.0%
Total	7	100.0%	

DSELHRS	Freq	Percent	Cum.
0.5	1	14.3%	14.3%
3.0	1	14.3%	28.6%
8.0	2	28.6%	57.1%
9.0	1	14.3%	71.4%
12.0	2	28.6%	100.0%
Total	7	100.0%	

DSELTRUCK	Freq	Percent	Cum.
8.0	1	50.0%	50.0%
30.0	1	50.0%	100.0%
Total	2	100.0%	

DSELOTH	Freq	Percent	Cum.
15.0	2	66.7%	66.7%
25.0	1	33.3%	100.0%
Total	3	100.0%	

PTRLCOST	Freq	Percent	Cum.
150.0	3	20.0%	20.0%
153.0	1	6.7%	26.7%
200.0	2	13.3%	40.0%
300.0	2	13.3%	53.3%
350.0	1	6.7%	60.0%
400.0	1	6.7%	66.7%
500.0	3	20.0%	86.7%
525.0	1	6.7%	93.3%
3000.0	1	6.7%	100.0%
Total	15	100.0%	

PTRLHRS	Freq	Percent	Cum.
1.0	3	20.0%	20.0%
1.2	1	6.7%	26.7%
2.0	2	13.3%	40.0%
5.0	1	6.7%	46.7%
6.0	3	20.0%	66.7%
8.0	1	6.7%	73.3%
10.0	1	6.7%	80.0%
12.0	2	13.3%	93.3%
16.0	1	6.7%	100.0%
Total	15	100.0%	

PTRLCAR	Freq	Percent	Cum.
1.0	1	5.0%	5.0%
5.0	5	25.0%	30.0%
10.0	1	5.0%	35.0%
20.0	1	5.0%	40.0%
30.0	4	20.0%	60.0%
40.0	1	5.0%	65.0%
60.0	2	10.0%	75.0%
100.0	3	15.0%	90.0%
150.0	1	5.0%	95.0%
900.0	1	5.0%	100.0%
Total	20	100.0%	

PHASE1	Freq	Percent	Cum.
1.0	22	88.0%	88.0%
2.0	3	12.0%	100.0%
Total	25	100.0%	

PHASE3	Freq	Percent	Cum.
1.0	3	13.0%	13.0%
2.0	20	87.0%	100.0%
Total	23	100.0%	

POWER	Freq	Percent	Cum.
1.0	35	16.2%	16.2%
2.0	181	83.8%	100.0%
Total	216	100.0%	

VOLT	Freq	Percent	Cum.
1.0	81	67.5%	67.5%
2.0	9	7.5%	75.0%
3.0	30	25.0%	100.0%
Total	120	100.0%	

AMP	Freq	Percent	Cum.
1.0	30	28.6%	28.6%
2.0	24	22.9%	51.4%
3.0	51	48.6%	100.0%
Total	105	100.0%	

WATT	Freq	Percent	Cum.
1.0	100	48.1%	48.1%
2.0	84	40.4%	88.5%
3.0	24	11.5%	100.0%
Total	208	100.0%	

VOLUME	Freq	Percent	Cum.
1.0	154	35.7%	35.7%
2.0	135	31.3%	67.1%
3.0	82	19.0%	86.1%
4.0	29	6.7%	92.8%
5.0	16	3.7%	96.5%
6.0	15	3.5%	100.0%
Total	431	100.0%	

COST96	Freq	Percent	Cum.
1.0	357	80.8%	80.8%
2.0	31	7.0%	87.8%
3.0	54	12.2%	100.0%
Total	442	100.0%	

MAINSCE	Freq	Percent	Cum.
1.0	72	16.6%	16.6%
2.0	23	5.3%	21.9%
3.0	18	4.1%	26.0%
4.0	28	6.5%	32.5%
5.0	256	59.0%	91.5%
6.0	37	8.5%	100.0%
Total	434	100.0%	

DISTANCE	Freq	Percent	Cum.
1.0	175	40.1%	40.1%
2.0	116	26.6%	66.7%
3.0	115	26.4%	93.1%
4.0	30	6.9%	100.0%
Total	436	100.0%	

FPRIOT1	Freq	Percent	Cum.
1.0	170	38.9%	38.9%
2.0	73	16.7%	55.6%
3.0	48	11.0%	66.6%
4.0	3	0.7%	67.3%
5.0	12	2.7%	70.0%
6.0	36	8.2%	78.3%
7.0	1	0.2%	78.5%
8.0	2	0.5%	78.9%
10.0	37	8.5%	87.4%
11.0	23	5.3%	92.7%
12.0	10	2.3%	95.0%
14.0	3	0.7%	95.7%
15.0	3	0.7%	96.3%
17.0	2	0.5%	96.8%
18.0	4	0.9%	97.7%
19.0	7	1.6%	99.3%
20.0	3	0.7%	100.0%
Total	437	100.0%	

FPRIOT2	Freq	Percent	Cum.
1.0	40	9.1%	9.1%
2.0	147	33.6%	42.7%
3.0	50	11.4%	54.1%
4.0	11	2.5%	56.6%
5.0	19	4.3%	61.0%
6.0	49	11.2%	72.1%
7.0	5	1.1%	73.3%
8.0	18	4.1%	77.4%
9.0	1	0.2%	77.6%
10.0	18	4.1%	81.7%
11.0	41	9.4%	91.1%
12.0	7	1.6%	92.7%
14.0	4	0.9%	93.6%
15.0	1	0.2%	93.8%
17.0	1	0.2%	94.1%
18.0	8	1.8%	95.9%
19.0	16	3.7%	99.5%
20.0	2	0.5%	100.0%
Total	438	100.0%	

FPRIOT3	Freq	Percent	Cum.
1.0	47	10.8%	10.8%
2.0	73	16.7%	27.5%
3.0	100	22.9%	50.3%
4.0	6	1.4%	51.7%
5.0	20	4.6%	56.3%
6.0	48	11.0%	67.3%
7.0	5	1.1%	68.4%
8.0	32	7.3%	75.7%
10.0	17	3.9%	79.6%
11.0	43	9.8%	89.5%
12.0	10	2.3%	91.8%
13.0	4	0.9%	92.7%
14.0	3	0.7%	93.4%
15.0	1	0.2%	93.6%
16.0	1	0.2%	93.8%
17.0	2	0.5%	94.3%
18.0	2	0.5%	94.7%
19.0	21	4.8%	99.5%
20.0	2	0.5%	100.0%
Total	437	100.0%	

FPRIOT4	Freq	Percent	Cum.
1.0	33	7.9%	7.9%
2.0	37	8.8%	16.7%
3.0	68	16.2%	32.9%
4.0	14	3.3%	36.3%
5.0	29	6.9%	43.2%
6.0	77	18.4%	61.6%
7.0	3	0.7%	62.3%
8.0	27	6.4%	68.7%
9.0	2	0.5%	69.2%
10.0	24	5.7%	74.9%
11.0	48	11.5%	86.4%
12.0	9	2.1%	88.5%
13.0	5	1.2%	89.7%
14.0	6	1.4%	91.2%
15.0	8	1.9%	93.1%
16.0	2	0.5%	93.6%
17.0	6	1.4%	95.0%
18.0	1	0.2%	95.2%
19.0	18	4.3%	99.5%
20.0	2	0.5%	100.0%
Total	419	100.0%	

FPRIOT5	Freq	Percent	Cum.
1.0	26	6.9%	6.9%
2.0	14	3.7%	10.6%
3.0	34	9.0%	19.6%
4.0	9	2.4%	22.0%
5.0	28	7.4%	29.4%
6.0	54	14.3%	43.7%
7.0	15	4.0%	47.6%
8.0	28	7.4%	55.0%
9.0	1	0.3%	55.3%
10.0	13	3.4%	58.7%
11.0	52	13.8%	72.5%
12.0	20	5.3%	77.8%
13.0	8	2.1%	79.9%
14.0	7	1.9%	81.7%
15.0	8	2.1%	83.9%
17.0	5	1.3%	85.2%
18.0	10	2.6%	87.8%
19.0	36	9.5%	97.4%
20.0	10	2.6%	100.0%
Total	378	100.0%	

EPRIOT1	Freq	Percent	Cum.
1.0	59	13.6%	13.6%
2.0	12	2.8%	16.4%
3.0	158	36.5%	52.9%
4.0	188	43.4%	96.3%
5.0	8	1.8%	98.2%
7.0	8	1.8%	100.0%
Total	433	100.0%	

EPRIOT2	Freq	Percent	Cum.
1.0	69	16.2%	16.2%
2.0	67	15.7%	31.9%
3.0	85	19.9%	51.8%
4.0	137	32.1%	83.8%
5.0	38	8.9%	92.7%
6.0	12	2.8%	95.6%
7.0	10	2.3%	97.9%
8.0	7	1.6%	99.5%
9.0	2	0.5%	100.0%
Total	427	100.0%	

EPRIOT3	Freq	Percent	Cum.
1.0	107	27.4%	27.4%
2.0	88	22.5%	49.9%
3.0	36	9.2%	59.1%
4.0	48	12.3%	71.4%
5.0	63	16.1%	87.5%
6.0	19	4.9%	92.3%
7.0	24	6.1%	98.5%
8.0	6	1.5%	100.0%
Total	391	100.0%	

EPRIOT4	Freq	Percent	Cum.
1.0	61	18.2%	18.2%
2.0	89	26.5%	44.6%
3.0	26	7.7%	52.4%
4.0	28	8.3%	60.7%
5.0	47	14.0%	74.7%
6.0	46	13.7%	88.4%
7.0	29	8.6%	97.0%
8.0	8	2.4%	99.4%
9.0	2	0.6%	100.0%
Total	336	100.0%	

EPRIORT5	Freq	Percent	Cum.
1.0	37	13.8%	13.8%
2.0	48	17.8%	31.6%
3.0	9	3.3%	34.9%
4.0	11	4.1%	39.0%
5.0	46	17.1%	56.1%
6.0	41	15.2%	71.4%
7.0	50	18.6%	90.0%
8.0	21	7.8%	97.8%
9.0	6	2.2%	100.0%
Total	269	100.0%	

PVMONTH	Freq	Percent	Cum.
1.0	4	2.4%	2.4%
2.0	12	7.2%	9.6%
3.0	10	6.0%	15.7%
4.0	13	7.8%	23.5%
5.0	13	7.8%	31.3%
6.0	14	8.4%	39.8%
7.0	34	20.5%	60.2%
8.0	13	7.8%	68.1%
9.0	9	5.4%	73.5%
10.0	16	9.6%	83.1%
11.0	7	4.2%	87.3%
12.0	21	12.7%	100.0%
Total	166	100.0%	

PVYEAR	Freq	Percent	Cum.
89.0	2	1.0%	1.0%
90.0	5	2.5%	3.5%
91.0	3	1.5%	5.1%
92.0	5	2.5%	7.6%
93.0	11	5.6%	13.1%
94.0	20	10.1%	23.2%
95.0	39	19.7%	42.9%
96.0	52	26.3%	69.2%
97.0	61	30.8%	100.0%
Total	198	100.0%	

CAPACITY	Freq	Percent	Cum.
1.0	28	14.9%	14.9%
2.0	110	58.5%	73.4%
3.0	50	26.6%	100.0%

ARRANGNT	Freq	Percent	Cum.
1.0	91	46.7%	46.7%
2.0	101	51.8%	98.5%
3.0	3	1.5%	100.0%
Total	195	100.0%	

INVESTNT	Freq	Percent	Cum.
1.0	86	48.9%	48.9%
2.0	90	51.1%	100.0%
Total	176	100.0%	

REPAYYR	Freq	Percent	Cum.
1.0	19	19.0%	19.0%
2.0	31	31.0%	50.0%
3.0	15	15.0%	65.0%
5.0	35	35.0%	100.0%
Total	100	100.0%	

REPAYMTH	Freq	Percent	Cum.
1.0	4	15.4%	15.4%
2.0	5	19.2%	34.6%
3.0	3	11.5%	46.2%
4.0	2	7.7%	53.8%
5.0	1	3.8%	57.7%
6.0	9	34.6%	92.3%
8.0	1	3.8%	96.2%
9.0	1	3.8%	100.0%
Total	26	100.0%	

REPAYSTG	Freq	Percent	Cum.
1.0	55	44.7%	44.7%
2.0	60	48.8%	93.5%
3.0	8	6.5%	100.0%
Total	123	100.0%	

REPAYRTE	Freq	Percent	Cum.
1.0	36	37.1%	37.1%
2.0	37	38.1%	75.3%
3.0	24	24.7%	100.0%
Total	97	100.0%	

PEAYPER	Freq	Percent	Cum.
1.0	75	76.5%	76.5%
3.0	2	2.0%	78.6%
4.0	19	19.4%	98.0%
5.0	2	2.0%	100.0%
Total	98	100.0%	

MAINTYEAR	Freq	Percent	Cum.
10.0	1	3.2%	3.2%
20.0	1	3.2%	6.5%
30.0	3	9.7%	16.1%
50.0	5	16.1%	32.3%
60.0	5	16.1%	48.4%
70.0	1	3.2%	51.6%
90.0	1	3.2%	54.8%
100.0	9	29.0%	83.9%
200.0	1	3.2%	87.1%
240.0	1	3.2%	90.3%
300.0	2	6.5%	96.8%
400.0	1	3.2%	100.0%
Total	31	100.0%	

MAINTMNTH	Freq	Percent	Cum.
8.0	1	12.5%	12.5%
10.0	2	25.0%	37.5%
40.0	2	25.0%	62.5%
100.0	3	37.5%	100.0%
Total	8	100.0%	

APPLC1	Freq	Percent	Cum.
1.0	121	64.0%	64.0%
2.0	26	13.8%	77.8%
3.0	35	18.5%	96.3%
4.0	7	3.7%	100.0%
Total	189	100.0%	

APPLC2	Freq	Percent	Cum.
2.0	20	11.6%	11.6%
3.0	126	73.3%	84.9%
4.0	25	14.5%	99.4%
5.0	1	0.6%	100.0%
Total	172	100.0%	

APPLC3	Freq	Percent	Cum.
2.0	8	6.2%	6.2%
3.0	8	6.2%	12.4%
4.0	109	84.5%	96.9%
5.0	4	3.1%	100.0%
Total	129	100.0%	

APPLC4	Freq	Percent	Cum.
1.0	1	7.7%	7.7%
4.0	1	7.7%	15.4%
5.0	1	7.7%	23.1%
6.0	9	69.2%	92.3%
7.0	1	7.7%	100.0%
Total	13	100.0%	

LIGHTFROM	Freq	Percent	Cum.
1700.0	4	2.5%	2.5%
1730.0	2	1.2%	3.7%
1800.0	131	80.9%	84.6%
1830.0	7	4.3%	88.9%
1900.0	8	4.9%	93.8%
2000.0	2	1.2%	95.1%
2100.0	2	1.2%	96.3%
2200.0	3	1.9%	98.1%
2230.0	1	0.6%	98.8%
2300.0	2	1.2%	100.0%
Total	162	100.0%	

LIGHTINGTO	Freq	Percent	Cum.
1030.0	1	0.7%	0.7%
1130.0	2	1.3%	2.0%
1900.0	4	2.6%	4.6%
1930.0	3	2.0%	6.6%
2000.0	11	7.2%	13.8%
2030.0	2	1.3%	15.1%
2100.0	46	30.3%	45.4%
2130.0	3	2.0%	47.4%
2200.0	59	38.8%	86.2%
2230.0	2	1.3%	87.5%
2300.0	16	10.5%	98.0%
2330.0	1	0.7%	98.7%
2400.0	2	1.3%	100.0%
Total	152	100.0%	

MAINTBY	Freq	Percent	Cum.
1.0	93	75.6%	75.6%
3.0	13	10.6%	86.2%
4.0	17	13.8%	100.0%
Total	123	100.0%	

FLTTOTAL	Freq	Percent	Cum.
1.0	23	85.2%	85.2%
2.0	2	7.4%	92.6%
3.0	1	3.7%	96.3%
4.0	1	3.7%	100.0%
Total	27	100.0%	

FLTFREQ	Freq	Percent	Cum.
1.0	13	72.2%	72.2%
2.0	1	5.6%	77.8%
3.0	1	5.6%	83.3%
5.0	1	5.6%	88.9%
6.0	1	5.6%	94.4%
12.0	1	5.6%	100.0%
Total	18	100.0%	

LVOLTAGE	Freq	Percent	Cum.
0.0	50	49.0%	49.0%
1.0	7	6.9%	55.9%
2.0	3	2.9%	58.8%
3.0	1	1.0%	59.8%
4.0	1	1.0%	60.8%
5.0	5	4.9%	65.7%
6.0	2	2.0%	67.6%
7.0	2	2.0%	69.6%
9.0	1	1.0%	70.6%
10.0	8	7.8%	78.4%
12.0	2	2.0%	80.4%
14.0	1	1.0%	81.4%
15.0	4	3.9%	85.3%
20.0	1	1.0%	86.3%
30.0	4	3.9%	90.2%
35.0	1	1.0%	91.2%
60.0	7	6.9%	98.0%
90.0	2	2.0%	100.0%
Total	102	100.0%	

FLTTYPE1	Freq	Percent	Cum.
1.0	6	6.5%	6.5%
2.0	6	6.5%	13.0%
3.0	3	3.3%	16.3%
4.0	6	6.5%	22.8%
5.0	24	26.1%	48.9%
6.0	14	15.2%	64.1%
7.0	5	5.4%	69.6%
9.0	9	9.8%	79.3%
10.0	9	9.8%	89.1%
11.0	1	1.1%	90.2%
12.0	9	9.8%	100.0%
Total	92	100.0%	

FLTTYPE2	Freq	Percent	Cum.
1.0	2	3.6%	3.6%
2.0	3	5.4%	8.9%
3.0	1	1.8%	10.7%
4.0	4	7.1%	17.9%
5.0	6	10.7%	28.6%
6.0	3	5.4%	33.9%
7.0	2	3.6%	37.5%
8.0	3	5.4%	42.9%
9.0	23	41.1%	83.9%
10.0	5	8.9%	92.9%
12.0	4	7.1%	100.0%
Total	56	100.0%	

FLTSTYPE3	Freq	Percent	Cum.
2.0	4	12.9%	12.9%
3.0	1	3.2%	16.1%
5.0	5	16.1%	32.3%
6.0	1	3.2%	35.5%
7.0	4	12.9%	48.4%
8.0	1	3.2%	51.6%
9.0	6	19.4%	71.0%
10.0	9	29.0%	100.0%
Total	31	100.0%	

FLTTYPE4	Freq	Percent	Cum.
5.0	1	10.0%	10.0%
6.0	1	10.0%	20.0%
7.0	1	10.0%	30.0%
9.0	4	40.0%	70.0%
10.0	1	10.0%	80.0%
12.0	2	20.0%	100.0%
Total	10	100.0%	

FLTTYPE5	Freq	Percent	Cum.
0.0	2	12.5%	12.5%
1.0	4	25.0%	37.5%
2.0	2	12.5%	50.0%
4.0	2	12.5%	62.5%
5.0	1	6.3%	68.8%
9.0	2	12.5%	81.3%
10.0	2	12.5%	93.8%
13.0	1	6.3%	100.0%
Total	16	100.0%	

CHANGE1	Freq	Percent	Cum.
1.0	56	31.3%	31.3%
2.0	39	21.8%	53.1%
3.0	7	3.9%	57.0%
4.0	33	18.4%	75.4%
5.0	31	17.3%	92.7%
6.0	5	2.8%	95.5%
8.0	2	1.1%	96.6%
9.0	1	0.6%	97.2%
12.0	3	1.7%	98.9%
13.0	2	1.1%	100.0%
Total	179	100.0%	

CHANGE2	Freq	Percent	Cum.
1.0	4	2.4%	2.4%
2.0	40	23.5%	25.9%
3.0	16	9.4%	35.3%
4.0	37	21.8%	57.1%
5.0	44	25.9%	82.9%
6.0	14	8.2%	91.2%
7.0	3	1.8%	92.9%
8.0	1	0.6%	93.5%
9.0	6	3.5%	97.1%
10.0	1	0.6%	97.6%
12.0	1	0.6%	98.2%
13.0	3	1.8%	100.0%
Total	170	100.0%	

CHANGE3	Freq	Percent	Cum.
1.0	1	0.7%	0.7%
2.0	5	3.6%	4.4%
3.0	12	8.8%	13.1%
4.0	20	14.6%	27.7%
5.0	41	29.9%	57.7%
6.0	36	26.3%	83.9%
7.0	7	5.1%	89.1%
8.0	11	8.0%	97.1%
9.0	3	2.2%	99.3%
13.0	1	0.7%	100.0%
Total	137	100.0%	

CHANGE4	Freq	Percent	Cum.
1.0	3	3.2%	3.2%
2.0	4	4.3%	7.4%
3.0	1	1.1%	8.5%
4.0	12	12.8%	21.3%
5.0	16	17.0%	38.3%
6.0	28	29.8%	68.1%
7.0	4	4.3%	72.3%
8.0	12	12.8%	85.1%
9.0	5	5.3%	90.4%
10.0	1	1.1%	91.5%
11.0	1	1.1%	92.6%
13.0	7	7.4%	100.0%
Total	94	100.0%	

CHANGE5	Freq	Percent	Cum.
1.0	3	4.7%	4.7%
2.0	4	6.3%	10.9%
3.0	1	1.6%	12.5%
4.0	3	4.7%	17.2%
5.0	13	20.3%	37.5%
6.0	19	29.7%	67.2%
7.0	2	3.1%	70.3%
8.0	10	15.6%	85.9%
9.0	7	10.9%	96.9%
13.0	2	3.1%	100.0%
Total	64	100.0%	

SATISFN	Freq	Percent	Cum.
1.0	120	64.5%	64.5%
2.0	46	24.7%	89.2%
3.0	1	0.5%	89.8%
4.0	8	4.3%	94.1%
7.0	11	5.9%	100.0%
Total	186	100.0%	

FINSTALL1	Freq	Percent	Cum.
1.0	154	42.3%	42.3%
2.0	24	6.6%	48.9%
3.0	1	0.3%	49.2%
4.0	93	25.5%	74.7%
5.0	3	0.8%	75.5%
6.0	2	0.5%	76.1%
7.0	8	2.2%	78.3%
8.0	2	0.5%	78.8%
9.0	25	6.9%	85.7%
10.0	15	4.1%	89.8%
11.0	25	6.9%	96.7%
12.0	2	0.5%	97.3%
13.0	10	2.7%	100.0%
Total	364	100.0%	

FINSTALL2	Freq	Percent	Cum.
1.0	10	2.8%	2.8%
2.0	20	5.6%	8.4%
4.0	90	25.2%	33.6%
5.0	28	7.8%	41.5%
6.0	10	2.8%	44.3%
7.0	11	3.1%	47.3%
8.0	14	3.9%	51.3%
9.0	59	16.5%	67.8%
10.0	41	11.5%	79.3%
11.0	38	10.6%	89.9%
12.0	11	3.1%	93.0%
13.0	25	7.0%	100.0%
Total	357	100.0%	

FINSTALL3	Freq	Percent	Cum.
1.0	10	3.3%	3.3%
2.0	13	4.3%	7.6%
3.0	2	0.7%	8.3%
4.0	27	9.0%	17.3%
5.0	21	7.0%	24.3%
6.0	10	3.3%	27.6%
7.0	10	3.3%	30.9%
8.0	19	6.3%	37.2%
9.0	25	8.3%	45.5%
10.0	48	15.9%	61.5%
11.0	75	24.9%	86.4%
12.0	13	4.3%	90.7%
13.0	28	9.3%	100.0%
Total	301	100.0%	

FINSTALL4	Freq	Percent	Cum.
1.0	4	1.7%	1.7%
2.0	6	2.5%	4.2%
4.0	39	16.5%	20.8%
5.0	11	4.7%	25.4%
6.0	6	2.5%	28.0%
7.0	5	2.1%	30.1%
8.0	15	6.4%	36.4%
9.0	17	7.2%	43.6%
10.0	23	9.7%	53.4%
11.0	55	23.3%	76.7%
12.0	32	13.6%	90.3%
13.0	23	9.7%	100.0%
Total	236	100.0%	

FINSTALL5	Freq	Percent	Cum.
1.0	3	1.7%	1.7%
2.0	13	7.3%	9.0%
4.0	17	9.6%	18.5%
5.0	15	8.4%	27.0%
6.0	3	1.7%	28.7%
7.0	3	1.7%	30.3%
8.0	11	6.2%	36.5%
9.0	3	1.7%	38.2%
10.0	7	3.9%	42.1%
11.0	24	13.5%	55.6%
12.0	36	20.2%	75.8%
13.0	43	24.2%	100.0%
Total	178	100.0%	

FPRICRIT	Freq	Percent	Cum.
1.0	53	15.2%	15.2%
2.0	230	66.1%	81.3%
3.0	15	4.3%	85.6%
4.0	50	14.4%	100.0%
Total	348	100.0%	

PAYMAX	Freq	Percent	Cum.
1.0	81	22.6%	22.6%
2.0	244	68.2%	90.8%
3.0	33	9.2%	100.0%
Total	358	100.0%	

CHEAP	Freq	Percent	Cum.
1.0	179	50.6%	50.6%
2.0	175	49.4%	100.0%
Total	354	100.0%	

TOOEXP	Freq	Percent	Cum.
1.0	12	3.4%	3.4%
2.0	155	43.3%	46.6%
3.0	191	53.4%	100.0%
Total	358	100.0%	

TOOCHP	Freq	Percent	Cum.
1.0	303	86.1%	86.1%
2.0	47	13.4%	99.4%
3.0	2	0.6%	100.0%
Total	352	100.0%	

PAYABLE	Freq	Percent	Cum.
1.0	136	38.0%	38.0%
2.0	222	62.0%	100.0%
Total	358	100.0%	

IINVEST	Freq	Percent	Cum.
1.0	124	36.7%	36.7%
2.0	128	37.9%	74.6%
3.0	86	25.4%	100.0%
Total	338	100.0%	

FPV	Freq	Percent	Cum.
1.0	335	96.3%	96.3%
2.0	13	3.7%	100.0%
Total	348	100.0%	

TENDGTAI	Freq	Percent	Cum.
1.0	347	79.6%	79.6%
2.0	56	12.8%	92.4%
3.0	33	7.6%	100.0%
Total	436	100.0%	

TENDCE	Freq	Percent	Cum.
1.0	377	86.3%	86.3%
2.0	43	9.8%	96.1%
3.0	17	3.9%	100.0%
Total	437	100.0%	

GTAI	Freq	Percent	Cum.
1.0	17	4.2%	4.2%
2.0	38	9.4%	13.5%
3.0	117	28.8%	42.4%
4.0	129	31.8%	74.1%
5.0	105	25.9%	100.0%
Total	406	100.0%	

INCOMESOUR	Freq	Percent	Cum.
1.0	245	56.5%	56.5%
2.0	4	0.9%	57.4%
3.0	163	37.6%	94.9%
4.0	8	1.8%	96.8%
5.0	6	1.4%	98.2%
6.0	2	0.5%	98.6%
7.0	3	0.7%	99.3%
10.0	3	0.7%	100.0%
Total	434	100.0%	

ISOURCE2	Freq	Percent	Cum.
1.0	59	21.1%	21.1%
2.0	5	1.8%	22.9%
3.0	122	43.7%	66.7%
4.0	40	14.3%	81.0%
5.0	25	9.0%	90.0%
6.0	5	1.8%	91.8%
7.0	6	2.2%	93.9%
8.0	3	1.1%	95.0%
9.0	7	2.5%	97.5%
10.0	7	2.5%	100.0%
Total	279	100.0%	

ISOURCE3	Freq	Percent	Cum.
1.0	15	14.0%	14.0%
3.0	4	3.7%	17.8%
4.0	14	13.1%	30.8%
5.0	31	29.0%	59.8%
6.0	10	9.3%	69.2%
7.0	9	8.4%	77.6%
8.0	4	3.7%	81.3%
9.0	10	9.3%	90.7%
10.0	10	9.3%	100.0%
Total	107	100.0%	

ISOURCE4	Freq	Percent	Cum.
3.0	1	3.4%	3.4%
4.0	2	6.9%	10.3%
5.0	2	6.9%	17.2%
7.0	4	13.8%	31.0%
8.0	5	17.2%	48.3%
9.0	13	44.8%	93.1%
10.0	2	6.9%	100.0%
Total	29	100.0%	

ISOURCE5	Freq	Percent	Cum.
5.0	1	12.5%	12.5%
8.0	3	37.5%	50.0%
9.0	4	50.0%	100.0%
Total	8	100.0%	

FOOD	Freq	Percent	Cum.
1.0	18	4.1%	4.1%
2.0	229	52.8%	56.9%
3.0	187	43.1%	100.0%
Total	434	100.0%	

WATER	Freq	Percent	Cum.
0.0	292	77.9%	77.9%
1.0	64	17.1%	94.9%
2.0	16	4.3%	99.2%
3.0	3	0.8%	100.0%
Total	375	100.0%	

ELECTY	Freq	Percent	Cum.
30.0	3	4.8%	4.8%
40.0	1	1.6%	6.3%
50.0	6	9.5%	15.9%
60.0	7	11.1%	27.0%
65.0	2	3.2%	30.2%
70.0	7	11.1%	41.3%
75.0	3	4.8%	46.0%
78.0	1	1.6%	47.6%
80.0	5	7.9%	55.6%
100.0	5	7.9%	63.5%
113.0	2	3.2%	66.7%
120.0	4	6.3%	73.0%
133.0	1	1.6%	74.6%
140.0	1	1.6%	76.2%
162.0	1	1.6%	77.8%
184.0	2	3.2%	81.0%
200.0	2	3.2%	84.1%
250.0	2	3.2%	87.3%
300.0	2	3.2%	90.5%
400.0	2	3.2%	93.7%
500.0	1	1.6%	95.2%
550.0	1	1.6%	96.8%
900.0	1	1.6%	98.4%
960.0	1	1.6%	100.0%
Total	63	100.0%	

FUEL	Freq	Percent	Cum.
1.0	216	53.5%	53.5%
2.0	124	30.7%	84.2%
3.0	64	15.8%	100.0%
Total	404	100.0%	

PHOTOV	Freq	Percent	Cum.
0.0	289	87.3%	87.3%
1.9	1	0.3%	87.6%
26.0	1	0.3%	87.9%
30.0	5	1.5%	89.4%
32.0	2	0.6%	90.0%
40.0	3	0.9%	90.9%
50.0	3	0.9%	91.8%
60.0	2	0.6%	92.4%
64.0	2	0.6%	93.1%
70.0	2	0.6%	93.7%

75.0	10	3.0%	96.7%
90.0	1	0.3%	97.0%
100.0	1	0.3%	97.3%
120.0	1	0.3%	97.6%
150.0	1	0.3%	97.9%
200.0	1	0.3%	98.2%
275.0	1	0.3%	98.5%
329.0	1	0.3%	98.8%
344.0	1	0.3%	99.1%
350.0	1	0.3%	99.4%
400.0	1	0.3%	99.7%
500.0	1	0.3%	100.0%
Total	331	100.0%	

BATTERY	Freq	Percent	Cum.
0.0	223	61.1%	61.1%
1.0	35	9.6%	70.7%
2.0	76	20.8%	91.5%
3.0	31	8.5%	100.0%
Total	365	100.0%	

CLOTHING	Freq	Percent	Cum.
1.0	56	13.5%	13.5%
2.0	281	67.7%	81.2%
3.0	78	18.8%	100.0%
Total	415	100.0%	

EDUCATION	Freq	Percent	Cum.
1.0	159	38.2%	38.2%
2.0	169	40.6%	78.8%
3.0	88	21.2%	100.0%
Total	416	100.0%	

JOY	Freq	Percent	Cum.
1.0	124	29.9%	29.9%
2.0	163	39.3%	69.2%
3.0	128	30.8%	100.0%
Total	415	100.0%	

OTHERS	Freq	Percent	Cum.
1.0	144	42.9%	42.9%
2.0	147	43.8%	86.6%
3.0	45	13.4%	100.0%
Total	336	100.0%	

GTAI	Freq	Percent	Cum.
1.0	25	5.7%	5.7%
2.0	80	18.3%	24.1%
3.0	156	35.8%	59.9%
4.0	91	20.9%	80.7%
5.0	28	6.4%	87.2%
6.0	56	12.8%	100.0%
Total	436	100.0%	

SAVE	Freq	Percent	Cum.
1.0	353	81.3%	81.3%
2.0	81	18.7%	100.0%
Total	434	100.0%	

SAVG96	Freq	Percent	Cum.
0.0	33	9.6%	9.6%
1.0	10	2.9%	12.5%
2.0	19	5.5%	18.1%
3.0	42	12.2%	30.3%
4.0	40	11.7%	42.0%
5.0	42	12.2%	54.2%
6.0	157	45.8%	100.0%
Total	343	100.0%	

SAVGMAY	Freq	Percent	Cum.
0.0	74	21.4%	21.4%
1.0	42	12.1%	33.5%
2.0	66	19.1%	52.6%
3.0	36	10.4%	63.0%
4.0	48	13.9%	76.9%
5.0	17	4.9%	81.8%
6.0	63	18.2%	100.0%
Total	346	100.0%	

DEPOSIT	Freq	Percent	Cum.
0.0	2	0.5%	0.5%
1.0	360	90.2%	90.7%
3.0	35	8.8%	99.5%
4.0	2	0.5%	100.0%
Total	399	100.0%	

Cross Tabulation Analysis

Area 1 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\GTAI	1	2	3	4	5	Total
1	3	6	14	12	2	37
2	1	0	0	0	0	1
Total	4	6	14	12	2	38

Area 1 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Expenditure	1	2	3	4	5	6	Total
1	7	9	11	7	2	3	37
2	1	0	0	0	0	0	1
Total	8	9	11	7	2	3	38

Area 2 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\GTAI	1	2	3	4	5	6	Total
1	0	3	6	9	6	0	24
2	0	0	1	0	0	0	1
Total	0	3	7	9	6	0	25

Area 2 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Consumption	1	2	3	4	5	6	Total
1	3	10	4	5	1	4	27
2	0	1	1	0	0	0	2
Total	3	11	5	5	1	4	29

Area 3 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\GTAI	1	2	3	4	5	6	Total
1	0	2	13	10	5	0	30
2	0	0	0	0	0	0	0
Total	3	11	5	5	1	4	30

Area 3 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Consumption	1	2	3	4	5	6	Total
1	0	4	17	4	1	4	30
Total	0	4	17	4	1	4	30

Area 4 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\GTAI	1	2	3	4	5	6	Total
1	2	5	8	6	4	0	25
2	0	0	1	0	1	0	2
Total	2	5	9	6	5	0	27

Area 4 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Consumption	1	2	3	4	5	6	Total
1	1	10	10	4	1	1	27
2	0	0	1	1	0	0	2
Total	1	10	11	5	1	1	29

Area 5 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\GTAI	1	2	3	4	5	6	Total
1	1	2	2	7	4	0	16
2	0	0	0	0	0	0	0
Total	1	2	2	7	4	0	16

Area 5 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Total	1	2	3	4	5	6	Total
1	2	4	8	1	2	0	17
2	0	0	0	0	0	0	0
Total	2	4	8	1	2	0	17

Area 6 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Gross Total Annual Income (GTAI)

FPV\Total	1	2	3	4	5	6	Total
1	1	3	8	4	2	0	18
2	0	0	0	0	0	0	0
Total	1	3	8	4	2	0	18

Area 6 Unelectrified Households: Needs for electrification (Future PV Installations (FPV)) versus Consumption Expenditure

FPV\Total	1	2	3	4	5	6	Total
1	2	4	10	1	0	1	18
2	0	0	0	0	0	0	0
Total	1	3	8	4	2	0	18

All Unelectrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
1	1	0	2	1	0	0	4
2	2	7	13	7	6	0	35
3	1	6	11	5	3	0	26
4	1	3	5	8	1	0	18
5	3	4	11	16	8	0	42
6	0	2	13	8	7	0	30
Total	8	22	55	45	25	0	155

All Unelectrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
1	0	0	3	1	0	0	4
2	6	11	11	4	1	0	35
3	2	10	12	3	1	0	26
4	4	6	8	1		0	18
5	3	11	17	4		0	42
6	0	5	12	10		0	30
Total	15	43	63	23		0	155

All Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1	1	0	0	0	1	1	0	3
2	5	4	2	5	5	2	11	34
3	2	1	3	4	2	2	6	20
4	1	0	1	3	4	1	4	14
5	5	0	4	6	2	4	10	31
6	1	0	4	4	3	5	14	31
Total	15	5	14	22	17	15	45	133

All Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
1	2	0	0	1	0	0	0	3
2	6	8	6	3	2	0	10	35
3	6	4	4	2	1	1	1	19
4	2	1	4	1	2	1	2	13
5	10	5	8	3	7	1	2	36
6	8	4	5	3	1	1	4	26
Total	34	22	13	13	13	4	19	132

Area 1 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
1	0	0	0	0	0	0	0
2	1	20	3	3	0	0	7
3	0	12	2	1	0	0	5
4	1	21	0	2	1	0	5
5	2	12	2	4	0	0	10
6	0	1	6	2	1	0	10
Total	4	6	13	12	2	0	37

Aeal Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure.

Payable\Expenditure	1	2	3	4	5	6	Total
1	0	0	0	0	0	0	0
2	2	2	2	1	0	0	7
3	1	2	1	1	0	1	6
4	2	1	1	1	0	0	5
5	2	2	3	1	1	2	11
6	0	2	4	3	1	0	10
Total	7	9	11	7	2	3	39

Area 1 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1	0	0	0	0	0	0	0	0
2	2	2	0	2	0	1	0	7
3	0	0	0	2	1	0	1	4
4	0	0	0	2	1	0	0	3
5	2	0	0	1	0	1	1	5
6	0	0	2	3	1	0	3	9
Total	4	2	2	10	3	2	5	28

Area 1 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
1	0	0	0	0	0	0	0	0
2	2	4	0	0	0	0	0	6
3	1	2	0	0	1	0	0	4
4	1	0	0	0	0	1	0	2
5	2	2	1	0	0	0	2	7
6	1	4	2	0	0	0	1	8
Total	7	12	3	0	1	1	3	27

Area2 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
2		3	1	1	4		9
3		0	2	0	0		2
4		0	2	0	0		2
5		0	2	4	1		7
6		0	0	4	1		5
Total		3	7	9	6		25

Area2 Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure

Payable\Expenditure	1	2	3	4	5	6	Total
2	2	3	0	1	1	3	10
3	1	1	0	0	0	0	2
4	0	2	1	0	0	0	3
5	0	3	3	0	0	1	7
6	0	2	1	4	0	0	7
Total	3	11	5	5	1	4	29

Area 2 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	1	1	1	1	0	0	5	9
3	0	1	1	0	0	0	0	2
4	1	0	0	0	0	0	1	2
5	0	0	0	2	1	1	1	5
6	0	0	1	0	2	1	3	7
Total	2	2	3	3	3	2	10	25

Area 2 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	1	3	2	0	2	0	2	10
3	0	0	1	1	0	0	0	2
4	1	0	1	0	0	0	0	2
5	0	2	0	1	1	1	0	5
6	2	0	2	1	0	0	1	6
Total	4	5	6	3	3	1	3	25

Area 3 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
1		0	2	1	0		3
2		2	8	1	1		12
3		1	1	2	1		5
4		0	1	3	0		4
5		0	3	1	2		6
6		0	1	0	1		2
Total		3	16	8	5		32

Area 3 Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure

Payable\Expenditure	1	2	3	4	5	6	Total
1		0	2	1	0	0	3
2		4	7	2	0	0	13
3		2	2	1	0	0	5
4		0	3	0	0	1	4
5		0	3	0	1	1	5
6		0	1	0	0	1	2
Total		6	18	4	1	3	32

Area 3 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1	1		0	0	1	0	0	2
2	2		0	0	5	0	4	11
3	1		1	0	1	2	0	5
4	0		1	0	1	0	2	4
5	1		0	1	0	0	3	5
6	0		0	0	0	1	1	2
Total	5		2	1	8	3	10	29

Area 3 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
1	1		0	1	0		0	2
2	0		2	3	0		7	12
3	2		2	0	0		0	4
4	0		2	0	2		0	4
5	2		0	1	2		0	5
6	0		0	1	0		1	2
Total	5		6	6	4		8	29

Area 4 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
2	0	1	0	0	1		2
3	1	1	2	0	0		4
4	0	2	1	1	0		4
5	1	1	1	3	1		7
6	0	0	5	2	3		10
Total	2	5	9	6	5		27

Area 4 Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure

Payable\Expenditure	1	2	3	4	5	6	Total
2	0	1	1	0	0	0	2
3	0	4	1	0	0	0	5
4	1	1	2	0	0	0	4
5	0	3	3	2	0	0	8
6	0	1	4	3	1	1	10
Total	1	10	11	5	1	1	29

Area 4 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	0		0	1	0	1	0	2
3	1		0	0	0	0	0	1
4	0		0	0	2	0	0	2
5	1		0	1	0	1	3	6
6	1		1	1	0	2	5	10
Total	3		1	3	2	4	8	21

Area 4 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	0		1	0	0	0	1	2
3	2		0	0	0	0	0	2
4	0		0	1	0	0	1	2
5	2		1	1	3	0	0	7
6	4		1	0	1	1	1	8
Total	8		3	2	4	1	3	21

Area 5 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
1	1	0	0	0	0		1
2							
3	0	1	0	1	0		2
4	0	0	0	2	0		2
5	0	0	2	4	4		10
6	0	1	0	0	1		2
Total	1	2	2	7	5		17

Area 5 Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure

Payable\Expenditure	1	2	3	4	5	6	Total
1	0	0	1	0	0		1
2							
3	0	0	2	0	0		2
4	1	1	1	0	0		3
5	1	3	3	1	2		10
6	0	0	1	0	1		2
Total	1	4	8	1	3		18

Area 5 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1			0	0	0	1	0	1
3			1	0	0	0	1	2
4			0	0	0	1	1	2
5			4	0	1	1	2	9
6			0	1	0	1	1	2
Total			5	1	1	4	5	16

Area 5 Unelectrified Households: Payable fees for the propo2sed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
1	1	0	0	0	0	0	0	1
3	0	1	0	0	0	1	0	2
4	0	0	1	0	0	0	1	2
5	2	1	6	0	1	0	0	10
6	0	0	0	1	0	0	0	1
Total	3	2	7	1	1	1	1	16

Area 6 Unelectrified Households: Payable fees for the proposed PV system VS Gross Total Annual Income

Payable\Income	1	2	3	4	5	6	Total
2	1	1	1	2	0		5
3	0	1	4	1	2		8
4	0	0	1	0	0		1
5	0	1	1	0	0		2
6	0	0	1	0	0		1
Total	1	3	8	3	2		17

Area 6 Unelectrified Households: Payable fees for the proposed PV system VS Total Expenditure

Payable\Expenditure	1	2	3	4	5	6	Total
2	2	1	1	0		1	5
3	0	1	6	1		0	8
4	0	1	0	0		0	1
5	0	0	2	0		0	2
6	0	0	1	0		0	1
Total	2	3	10	1		1	17

Area 5 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	0	1	1	1			2	5
3	0	0	0	2			4	6
4	0	0	0	1			0	1
5	1	0	0	0			0	1
6	0	0	0	0			0	1
Total	1	1	1	4			7	14

Area 6 Unelectrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	3	1	1	0			0	5
3	1	1	1	1			1	5
4	0	1	0	0			0	1
5	2	0	0	0			0	1
6	1	0	0	0			0	1
Total	7	3	2	1			1	14

PV Electrified Households: Consumption Expenditure for Lighting (or fuel) vs Installed Capacity of the PV system

Fuel\Capacity	1	2	3	4	5	6	Total
0	1	7	1	1	1	2	13
1	1	43	1	8	14	15	82
2	2	10	0	3	3	8	26
3	0	5	2	0	1	5	13
4	0	2	0	0	4	1	7
5	0	1	0	1	1	1	4
6	1	5	0	1	1	5	13
Total	5	73	4	14	25	37	158

PV Electrified Households: Ranking of satisfaction vs Installed Capacity of the PV system

Satisfaction\Capacity	1	2	3	4	5	6	Total
1	3	41	3	9	15	27	98
2	3	14	0	5	10	4	36
3	0	1	0	0	0	0	1
4	0	5	0	0	0	2	7
7	0	7	1	1	1	1	11
Total	6	68	4	15	26	34	153

Area 1 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
2	0		3	1	1		5
3	0		0	2	1		3
4	0		2	1	0		3
5	1		3	4	0		8
6	1		3	2	3		9
Total	2		11	10	5		28

Area 1 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
2	0	1	1	0	0	3	5
3	0	0	1	1	0	1	3
4	0	1	2	0	0	0	3
5	0	0	5	2	1	0	8
6	1	1	1	5	0	3	11
Total	1	3	10	8	1	7	30

Areal Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	1			0	0	0	2	3
3	0			0	0	0	2	2
4	0			1	1	1	0	3
5	1			1	1	0	2	5
6	0			1	1	1	4	7
Total	2			3	3	2	10	20

Area 1 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	1	0	1	0	1		0	3
3	0	0	2	0	0		0	2
4	0	2	0	0	0		0	2
5	1	0	1	1	0		1	4
6	0	1	1	1	3		0	6
Total	2	3	5	2	4		1	17

Area 2 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
1	0		1	0	0		1
2	0		1	0	1		2
3	0		1	1	0		2
4	1		0	1	0		2
5	0		3	2	1		6
6	0		1	1	7		9
Total	1		7	5	9		22

Area 2 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
1	0	1	0	0	0	0	1
2	0	0	2	0	0	0	2
3	0	1	1	0	0	0	2
4	0	0	0	2	0	0	2
5	1	0	3	2	0	0	6
6	1	0	1	1	2	4	9
Total	2	2	7	5	2	4	22

Area 2 Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1	0				1	0	0	1
2	0				0	0	1	1
3	0				0	1	1	2
4	0				0	0	1	1
5	0				0	2	4	6
6	1				1	2	5	9
Total	1				2	5	12	20

Area 2 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
1	0	1	0	0	0	0	0	1
2	0	0	1	0	0	1	0	2
3	0	0	0	0	0	0	2	2
4	0	0	0	1	0	0	0	1
5	0	0	0	2	1	1	2	6
6	1	1	2	1	2	0	2	9
Total	1	2	3	3	3	2	6	21

Area 3 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
2		2	13	6	0		21
3		1	3	5	0		9
4		0	1	1	3		5
5		1	0	2	2		5
6		0	1	4	2		7
Total		4	18	18	7		47

Area 3 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
2	0	3	13	5	0	1	22
3	1	1	4	3	0	0	9
4	0	1	1	2	0	1	5
5	1	0	3	0	0	1	5
6	0	1	3	2	1	1	8
Total	2	6	24	12	1	4	49

Area 3 Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	0	1	1	4	2	3	8	19
3	1	0	0	1	0	0	4	6
4	1	0	0	0	0	0	4	5
5	0	0	0	0	0	1	2	3
6	0	1	1	0	0	2	4	8
Total	2	2	2	5	2	6	22	41

Area 3 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	3	0	2	1	5	1	5	17
3	1	0	0	0	1	0	4	6
4	1	1	0	0	0	0	3	5
5	0	0	0	0	2	0	1	3
6	0	0	1	0	5	2	0	8
Total	5	1	3	1	13	3	13	39

Area 4 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
2	1		0	0	2		3
5	0		2	4	6		12
6	0		0	2	6		8
Total	1		2	6	14		23

Area 4 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
2		0	1	1	0	1	3
5		1	5	1	1	4	12
6		1	1	4	2	0	8
Total		2	7	6	3	5	23

Area 4 Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	0			1	0	0	2	3
5	4			0	0	1	4	9
6	1			0	1	1	5	8
Total	5			1	1	2	11	20

Area 4 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	0	0	0	0	0	2	0	2
5	3	1	0	2	0	1	4	11
6	1	0	3	1	1	1	1	8
Total	4	1	3	3	1	4	5	21

Area 5 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
2		0	0	0	1		1
3		1	2	0	0		3
4		0	0	1	0		1
5		0	1	0	1		2
6		0	0	0	3		3
Total		1	3	1	5		10

Area 5 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
2		0	0	0	0	1	1
3		0	1	1	1	0	3
4		0	0	1	0	0	1
5		0	0	1	1	0	2
6		1	1	1	0	0	3
Total		1	2	4	2	1	10

Area 5 Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
2	0			0	0	0	1	1
3	1			0	1	0	0	2
4	0			0	0	0	1	1
5	0			1	0	1	0	2
6	0			0	0	0	3	3
Total	1			1	1	1	5	9

Area 5 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	0	0	0	0	1		0	1
3	0	0	1	0	1		0	2
4	0	1	0	0	0		0	1
5	2	0	0	0	0		0	2
6	0	0	0	1	0		2	3
Total	2	1	1	1	2		2	9

Area 6 Electrified Households: Payable fees for the proposed PV system VS gross total annual income

Payable\Total Income	1	2	3	4	5	6	Total
2		0	1	2	2		5
3		0	1	3	2		6
4		0	1	2	0		3
5		0	2	1	3		6
6		1	0	2	3		6
Total		1	5	10	10		26

Area 6 Electrified Households: Payable fees for the proposed PV system VS consumption expenditure

Payable\Total	1	2	3	4	5	6	Total
1							
2		0	3	1	0	1	5
3		1	2	3	0	0	6
4		0	0	2	1	0	3
5		1	1	1	2	1	6
6		2	2	1	0	1	6
Total		4	8	8	3	3	26

Area 6 Electrified Households: Payable fees for the proposed PV system VS savings at the end of 1996

Payable\Savings	0	1	2	3	4	5	6	Total
1								
2	1	1	0	0	0	0	2	4
3	0	0	0	2	1	1	2	6
4	1	0	1	0	0	0	0	2
5	0	0	0	1	0	0	2	3
6	0	0	0	0	0	2	1	3
Total	2	1	1	3	1	3	7	18

Area 6 Electrified Households: Payable fees for the proposed PV system VS savings at the end of May 1997

Payable\Savings	0	1	2	3	4	5	6	Total
2	1	0	1	0	1			3
3	1	2	3	0	0			6
4	2	0	0	0	0			2
5	0	2	0	1	0			3
6	0	0	1	1	3			5
Total	4	4	5	2	4			19

PV electrified Households: Extend of Satisfaction versus Disposable Incoome (Savings at the end of 1996)

Satisfn\Savg96	0	1	2	3	4	5	6	Total
1	7	2	2	7	5	11	44	78
2	3	1	1	4	3	3	13	28
3	0	0	0	0	1	0	0	1
4	1	0	0	0	1	3	2	7
7	2	0	0	1	2	1	4	10
Total	13	3	3	12	12	18	63	124

PV electrified Households: Extend of Satisfaction versus Disposable Income (Savings at the end of May 1997)

Satisfn\Savg96	0	1	2	3	4	5	6	Total
1	8	6	11	8	16	7	20	76
2	7	3	3	5	6	1	4	29
3	0	0	0	0	1	0	0	1
4	2	0	3	0	1	1	0	7
7	1	3	3	1	2	0	0	10
Total	18	12	20	14	26	9	24	123

PV electrified Households: Extend of Satisfaction versus Coonsumption Expenditure

Satisfn\Consumption	1	2	3	4	5	6	Total
1	3	12	34	27	8	17	101
2	1	5	15	10	4	4	39
3	0	0	0	0	1	0	1
4	0	1	4	1	0	1	7
7	0	0	4	4	0	3	11
Total	4	18	57	42	13	25	159