

## A Study on customer preference towards solar products

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**Abstract:** *Solar energy is completely renewable resources. It creates no pollution. Solar cells make absolutely no noise at all. They don't make a single beep while extracting useful energy from the sun. Solar electric energy demand has grown by an average 30% per annum over the past 20 years against a backdrop of rapidly declining costs and prices. Solar technologies are broadly classified as either passive solar or active solar depending on the way they capture, convert and distribute solar energy. Solar powered panels and products are very easy to install.*

### Introduction

Solar Energy has become an essential commodity in our modern day society. Whether a nation is developed or undeveloped it can only function well if energy is prevalent. One of the greatest challenges to the developing nations today is the problem of poor electricity, and this has resulted to a lot of setback ranging from poor production, low level standard of research and technology, hindrance in the opportunities for a better education to poor healthy life-style etc.,. These effects of poor electricity in developing countries have led to the renewed interest in studies of solar lighting systems. Solar energy is a completely renewable resources. These cells make absolutely no noise at all. Over a last several years great improvements have been made in the areas of solar energy collection and storage.

### Objectives of the Study

- ❖ To study the consumer awareness towards various brands of solar products.
- ❖ To study the existing practice of consumers & to know about the major factors which influencing to buy solar products.
- ❖ To study the ideas, opinion and preferences towards various brands of Solar products.

### Review of Literature

Welsch, Heinz KuhlinG made a study on “Determinants of pro-environmental consumption: The role of reference groups and routine behavior”. Their study found that Economic and cognitive factors have significant co variation of all three kinds of pro-environmental consumption. Their influence is greatest in the case of green electricity and also found that the intensity of buying organic food is greater for consumers of these goods.

Garrett, Vicki Koontz, Tomas M<sup>2</sup> made a study on “Breaking the cycle: Producer and consumer perspectives on the non-adoption of passive solar housing in the US.” The objective of the study is to create the technologies to solve energy and pollution problems and also examines the adoption of a low- or no-cost technology, passive solar housing design. The study found that the homebuyers in one region suggest that lack of demand represents not because of disinterest, but rather lack of availability when purchasing a home. Conventional

homeowners are not familiar with passive solar design, but are predisposed to favor it, especially if it can be incorporated into traditional housing styles.

### Statement of the Problem

Marketing is a total system of interacting business activities, assigned to plan, price, promote and distribute, satisfying products and services to existing and potential customer. Most of solar manufacturers produce products with confidence of winning the customers. At the same time, customer's expectation was towards not only basic use of solar products but also with the consideration of brand, quality, price and durability. On the basis, an attempt was made to study the customer preference towards Solar products.

### Methodology

The questionnaire was given to only solar product users. Random sampling method is used for data collection and 100 questionnaires were given to the respondents.

**Table 1: Analysis And Interpretation**

Personal factors		No of the Respondents	Percentage
<b>Gender</b>	Male	60	60
	Female	40	40
<b>Marital status</b>	Unmarried	43	43
	Married	57	57
<b>Age</b>	Below 20 years	2	2
	20-40 years	64	64
	40-60 years	28	28
	60 & above years	6	6
<b>Educational qualification</b>	No formal education	10	10
	Up to school level	28	28
	UG degree/Diploma	42	42
	Post- graduation	14	14
	Professional	4	4
	Others	2	2
<b>Occupational status</b>	Public sector employee	8	8
	Private sector employee	36	36
	Business / Profession	17	17
	Home maker	12	12
	Student	11	11
	Agriculture	14	14
	Others	2	2
<b>Type of family</b>	Nuclear	69	69
	Joint	31	31
<b>Income level</b>	Less than Rs.20,000	26	26
	Rs.20,000-40,000	54	54
	Rs.40,000-60,000	16	16
	Above Rs.60000	4	4

Personal profile of the respondents is presented in table-1. 60% of the respondents were males in the age group between 20-40 years (64%) having an educational qualification up to UG degree/Diploma 42% working as private sector employees (36%) and are in nuclear family (69%).

**Table 2: Comparison between personal factors and source of awareness of solar products by the respondents**

**Hypothesis :** There is no significance between Personal factors and Awareness of Solar Products.

Personal factors	Chi square value	Significant value	S/NS
Gender	8.599	0.126	NS
Age	17.489	0.296	NS
Educational level	42.730	0.062	NS
Occupational status	31.042	0.893	NS
Income level	12.365	0.651	NS

Note : S-Significant(p value<0.05): Ns – No significant(p value>0.05)

From the above table, the hypothesis is accepted(no significant) between Personal factors and awareness of Solar products. It is concluded that there is no significance between Personal factors and Awareness of solar products using by the respondents.

**Table 3: Comparison between Personal factors and frequency of purchase of solar brands**

**Hypothesis :** There is no significance between Personal factors and Frequency of Purchase of Solar brands

Personal factors	Chi square value	Significant value	S/NS
Gender	1.238	0.744	NS
Age	11.073	0.271	NS
Educational Level	16.530	0.348	NS
Occupational status	24.385	0.385	NS
Income	12.58	0.018	S

Note : S-Significant(p value<0.05): Ns – No significant(p value>0.05)

Above table shows that the hypothesis is accepted(no significant) between Gender ,Age, Educational level, Occupational level and frequency of Purchase of Solar brands, and hypothesis

is rejected in one case between income and frequency of Purchase of Solar brands. It is concluded that there is a significant difference between income and frequency of purchase of solar products.

**Table 4: Comparison between Personal factors and no of products purchased**

Personal factors	Chi square value	Significant value	S/NS
Gender	0.926	0.819	NS
Age	9.782	0.368	NS
Educational Level	9.229	0.865	NS
Occupational status	28.571	0.045	S
Income	29.421	0.037	S

Note : S-Significant( $p$  value $<0.05$ ): Ns – No significant( $p$  value $>0.05$ )

**Hypothesis :** There is no significance between personal factors and no of products purchased.

Above table shows that, the hypothesis is accepted(no significant) between Gender, Age, Educational level and Number of products purchased, and the hypothesis is rejected in two cases Occupational status ,Income and Number of Products purchased. It is concluded that there is a significant influence between Occupational status ,Income and Number of Products purchased.

**Table 6: Average Score Method**

**1) Comparison between Income and Price of Solar Products opinion by the respondents**

The table below shows the Comparison between income and Price of Soar products.

Price \ Income	Very High	High	Moderate	Low	Very Low	Score
Below 20,000	15	52	15	6	2	6
20,000-40,000	30	116	51	4	0	13.4
40,000-60,000	15	28	12	4	0	3.93
Above 60,000	0	8	3	2	0	0.86

Majority of the respondents who earn income between 20,000-40,000 think that Price of the Solar products are Very high.

## RANKING ANALYSIS

S. NO	FACTORS		RANK I	RANK II	RANK III	RANK IV	RANK V	RANK VI	RANK VII	RANK VIII	TOTAL	MEAN	RANK
	VALUE		8	7	6	5	4	3	2	1			
1	Environmental protection	NUMBER	14	32	20	16	4	6	6	2	100	15.724	II
		SCORE	112	224	120	80	16	18	12	2	584		
2	Less harm	NUMBER	8	10	26	12	22	10	4	8	100	13.677	III
		SCORE	64	70	156	60	88	54	8	8	508		
3	Quality	NUMBER	8	8	10	16	18	22	6	12	100	11.362	V
		SCORE	64	56	60	80	72	66	12	12	422		
4	Less effort to maintenance	NUMBER	2	10	16	6	18	14	28	6	100	10.44	VI
		SCORE	16	70	96	30	72	42	56	6	388		
5	Affordable cost	NUMBER	18	8	4	12	8	14	12	24	100	13.354	IV
		SCORE	144	56	24	60	32	84	72	24	496		
6	Easy availability	NUMBER	4	6	12	12	14	6	30	16	100	9.585	VIII
		SCORE	32	42	72	60	56	18	60	16	356		
7	Variety of brands	NUMBER	8	4	10	16	10	14	10	28	100	9.746	VII
		SCORE	64	28	60	80	40	42	20	28	362		
8	Safety	NUMBER	38	22	2	10	6	14	4	4	100	16.101	I
		SCORE	304	154	12	50	24	42	8	4	598		

From the above data collected, average ranking scores have been calculated the factors influencing the respondents to choose a particular Solar products. Safety is the first priority, followed by environmental protection, then Less harm , after that Cost, followed by Quality, then Less effort to maintenance, after that Variety of brands and at last Easy availability.

**Hence it can be concluded that Safety has been given top priority for Preferring Solar products**

## Findings

### **Percentage Analysis**

Majority of the respondents were male, they are between the age group of 20-40 years, they are educated upto UG degree/Diploma , private sector employees and they are from nuclear family.

### **Weighted Average Score**

- Majority of the respondents who earn income between 20,000-40,000 think that Price of the Solar products are Very high

### **Chi-Square Test**

- There is no significance between Personal factors and Awareness of solar products using by the respondents.
- There is a significant difference between income and frequency of purchase of solar products.
- There is a significant influence between Occupational status, Income and Number of Products purchased.

### **Ranking Analysis**

- Safety has been given top priority by the majority of the respondents for Preferring Solar products.

### **Suggestions**

#### **Will improve the advertisement of Solar products**

Advertisement in banner, internet and newspaper makes the Solar product capture to all customer's mind easily.

#### **Quality can be increased**

Quality of Solar products need to be very high, It enables even illiterate consumers to buy.

#### **Price of Solar products can be reduced**

Many of the consumers are thinking that the prices of these products are too high. So the poor people cannot buy these products. If the price is reduced all can buy Solar products.

#### **Can develop the Research and Development**

Many new researches have to be conducted for innovating new products by using Solar energy. Because nowadays Solar energy is popular among the people.

### **Conclusion**

The popularity of solar powered products will continue to grow in the future. Over the last several years great improvements have been made in the areas of solar energy collection and storage. New technologies are being researched and developed every day. Although there is growing support for solar energy, the fact is that until advances have been made in the

manufacturing and engineering of solar panels, solar energy will not be a viable alternative to traditional fossil fuels.

### **References**

- Welsch, Heinz Kuhling, Jan<sup>1</sup>, “Determinants of pro-environmental consumption: The role of reference groups and routine behavior”, *Ecological Economics*. Nov2009, Vol. 69 Issue 1, p166-176. 11p.
- Garrett, Vicki Koontz, Tomas M<sup>2</sup>. “Breaking the cycle: Producer and consumer perspectives on the non-adoption of passive solar housing in the US.”, *Energy Policy*. Apr2008, Vol. 36 Issue 4, p1551-1566. 16p.

