



A Study on Customer Satisfaction towards Solar Energy with Special Reference to Coimbatore District

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ABSTRACT

Humanity faces an exclusive and extensive challenge in energy/heat. It has played a pioneering role, but there is a narrowing gap between demand and supply of energy. At present we depended the non-renewable source of energy. These are all having the so many carbon by-products and pollute the environment. So, the man has evolving to and out the alternatives source of clean energy. In such way one of the alternative renewable energies is solar energy. The study is descriptive in nature both primary and secondary data to be considered for this analysis. 192 samples are randomly selected in Coimbatore and analysed for the study. The objectives are framed and required tools to be applied for this study. Through this study customers awareness and attitude towards solar energy have been analysed and provide the suitable suggestions to improve the solar energy utilization.

Keywords: Employee satisfaction, Solar energy, Energy saving, Renewable energy, low cost.

I. INTRODUCTION

India ranks 3rd in renewable energy country attractive index in 2021 and 3rd largest energy consuming country in the world. The country has set an ambitious target to achieve a capacity of 175 GW worth of renewable energy by the end of 2022, which expands to 500 GW by 2030. This is the world's largest expansion plan in renewable energy. India was the second largest market in Asia for new solar PV capacity and third globally (13 GW of additions in 2021). It ranked fourth for total installations (60.4 GW), overtaking Germany (59.2 GW) for the first time. India's installed renewable energy capacity has increased 396% in the last 8.5 years and stands at more than 159.95 Giga Watts (including large Hydro), which is about 40% of the country's total capacity (as on 31st March 2022). The installed solar energy capacity has increased by 19.3 times in the

last 8 years, and stands at 56.6 GW as of 1st June 2022. The installed Renewable energy capacity (including large hydro) has increased from 76.37 GW in March 2014 to 159.95 GW in May 2022, i.e., an increase of around 109.4%. India has achieved its NDC target with total non-fossil based installed energy capacity of 159.95 GW which is 41.4% of the total installed electricity capacity. Renewable energy sources have a combined installed capacity of 150+ GW. As of 30 April 2021, the total installed capacity for renewable energy in India is 151.4 GW. The following is the breakup of total installed capacity for Renewables, as of 30 April 2021

- Wind power: 39.41GW
- Solar Power: 40.5 GW
- Biopower: 10.15 GW
- Small Hydro Power: 4.79 GW
- Large Hydro: 46.21 GW

It involves in manufacturing and delivering of solar products such as solar power plant, solar agricultural water pumping system, setting up Roof top solar power plant(on-Grid & off-Grid) solar lighting solution and rendering related services.

STATEMENT OF THE PROBLEM

In the present scenario, the world is dominated by the Electrical Energy and the Electronic devices. The technological improvement in this field is vast and it plays a vital role in day to day lives of people. Solar energy being a renewable energy available in abundance as the natural source sun emits Photovoltaic energy in the sun rays. Solar cells / panels used to grasp solar energy and converts into electrical energy for usage. Many companies have come in to the market in the commercial sales of solar energy-based devices. In this view the study has been undertaken to find the satisfaction of the consumers towards solar energy products in Coimbatore city.



OBJECTIVES OF THE STUDY

- To evaluate the satisfaction level of consumers towards using solar energy products with special reference to solar photovoltaic system and solar water heater in Coimbatore City.
- To study the factor influencing the customer to purchase solar energy products Coimbatore city.
- To study the Occupational status and the level of the consumer preference towards solar energy products.
- To provide the valuable suggestion to the company based on customer feedback.

II. LITERATURE REVIEW

Dr.A.Gowrishanker (2019)

Basically, any new product or facility will be fruitful if it does a healthier job than current products at fulfilling the wants of a beleaguered consumer group. But rendering to dispersal philosophy, "doing a better job" really has four mechanisms such as Price satisfaction, better benefits, easy usage and easy to buy. If a new creation or facility can exceed current offerings, crossways all four of these mechanisms at once, then we can assurance that the targeted consumer group will prefer it. Consumers aimed at whom all four circumstances apply determine acquisition of solar since there are only benefits and no barriers. Then the closer a solar formation comes to following in all four dimensions, the better the chance that the formation will be an achievement. And, subsequently, the new solar product will be a monetary achievement if these circumstances can be met at a profit. This paper studies about the preference of respondents towards solar energy products based on family monthly income, size of the family and the occupation status of the respondents.

Najeem Olawale Adelakun (2019)

Solar Energy is the prime important source of energy, and it has continued to gain popularity globally. As of 2018, about 486 GW of solar PV was installed worldwide. One of the key requirements for socioeconomic improvement in any nation of the world is the provision of dependable electricity supply systems. Recently, there is a massive growth in access to solar electricity in several Africa countries, notably South Africa, Egypt, Morocco, and Algeria. As a result, it decreases the global population without access to electricity with an appreciable value. This paper review the present state of solar energy capacity in the world also identifies vital.

Abinash Roy (2018)

The study concludes that majority of the customer would like to purchase solar power products and they look for economical factor of the products while purchasing, durability is also one of the important factors. Grinity Intellect is adopting various measures to reach out as much as customers at guwahati by doing a lot of virtual efforts. People of Guwahati are educated enough and they prefer personal interactions from the company. Customers do not face a large amount of time to be spent for the problem of power cuts in their respective areas. Considering the fact that there is a lot middle class family in India, The expenses incurred installing a solar power solution is taken on the higher side but looking at the long term prospect, Solar power is a must and efficient solution in today's world. So there is a huge market in guwahati coming up for solar companies in the near future.

Amal Herz (2016)

Solar energy can be utilized mainly in heat generation and electricity production. International energy agency (IEA) shows, in a comparative study on the world energy consumption that in 2050 solar arrays installation will provide about 45% of world energy demand. Solar energy is one of the most important renewable energy source which plays a great role in providing energy solutions. As known there is wide variety of types of collectors and applications of solar energy. This paper aimed to make a short review on solar energy systems, according to types of collectors and applications used.

III. RESEARCH METHODOLOGY

Research methodology is the specific procedure or technique used to identify, select, process, and analyze information about a topic. In order to achieve the objectives of the study and to analyze the data collected, an appropriate methodology has been developed. A research methodology is a master plan for the conduct of formal investigation. The various aspect of methodology is discussed below.

RESEARCH DESIGN

A research design is the arrangement of condition for collection and analysis of data in manner that aims to combine relevance to the research purpose with economy in procedure. As the objectives are clear and well defined, the design opted in this study is Descriptive Research Design.



PRIMARY DATA

The information consists of data gathered from the different source. Primary data is the refresh data. This has been collected from various sources. The sources adopted to get data is questionnaire and through observation. Questionnaire is designed in such way that every employee can understand.

SECONDARY DATA

The data is collected from published reports, unpublished reports, annual reports, unpublished manuals and materials.

POPULATION SIZE

The population size for the research is 350 respondents. The data have been obtained using questionnaires from the 192 respondents in Coimbatore.

SAMPLING SIZE

In order to get data a sample size of 192 is taken in convenient sampling.

STATISTICAL TOOLS

The following statistical tools are used in the study

- Percentage analysis .
- Chi- square test.

ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

DemographicProfile		No. Of. Respondents	Percentage%
Gender	Male	111	58
	Female	81	42
Age	15-20	19	10
	21-25	38	20
	26-35	86	45
Maintenance cost	above 35	49	25
	A lot	125	65
	Somewhat	29	15
	A little	38	20
Government promote use of renewable energy	Not at all	0	0
	Yes	119	62
	No	73	38
Satisfied with benefits of renewable energy	Yes	42	22



	No	150	78
Years of using solar energy	0-5	87	45
	5-10	48	25
	10-15	38	20
	15-20	19	10
Factors prevent you from installing solar energy	Affordability	48	25
	Inconvenience	15	8
	Lack of awareness	129	67
Interested in solar energy system	Yes	177	92
	No	15	8

Which renewable energy is most extensive scope to successful	Wind energy	48	25
	Solar energy	144	75
Solar energy plant located in which type of geographical area	Center of the city	29	15
	Urban	19	10
	Semi – urban	77	40
	Country side	67	35

INTERPRETATION

The respondents in this survey, 58 % were males, 45% were between (26 - 35) years old, 65% were maintenance cost, 62% were government promote the use of renewable energy 22% were satisfied with the renewable energy , 62,% were lack of awareness , 92% were interested in solar system.

Chi – square test

AGE AND AWARENESS OF CUSTOMERS ON SOLAR ENERGY PRODUCTS

Null Hypothesis (H₀) : No significant relationship between age of the customers and their awareness possessed in utilizing the solar energy products.



Alternative Hypothesis (H₁) : A significant relationship between age of the customers and their awareness possessed in utilizing the solar energy products.

Factor	Calculated χ^2 Value	Table value	D. F	Remarks
Age	16.812	13.277	6	Significant at 1% level

INTERPRETATION

It is understood from the above table that the null hypothesis (H₀) is rejected and the alternative hypothesis (H₁) is accepted. Because the calculated chi-square value is greater than the table value and the result is significant at 1% level. Hence, the hypothesis, “age of the sample customers and their awareness level possessed in utilizing the solar energy products” are associated, holds good. Finally, it is concluded that there is a close relationship between age of the customers and their awareness level possessed in utilizing the solar energy products.

IV. FINDINGS

Renewable energy sources (RES) have potentials to address goals of climate change mitigation at the global level. Generally, young people like to adopt solar energy products. Hence, age-wise analysis inferred that the customers of 25 – 35 years age group have possessed maximum awareness towards utilizing solar energy products. Chi-square test also proved that there is a significant relationship between age of the customers and their awareness possessed in utilizing the solar energy products.

V. SUGGESTION

Based on the above findings the researcher suggested that inviting these influencers into niche is a great way to increase products awareness and hopefully drive sales. When influencers have an established audience that knows and trusts them, once they mention solar energy products and discuss about the benefits in their content, those mentions will expand the reach and increase people’s awareness of solar energy products.

VI. CONCLUSION

The solar energy sector is growing, big time. More and more consumers are switching to solar. At the same time, the solar industry will need stronger support from consumers to pressure policy makers on subsidies, supporting policies, land use and others because solar is still a nascent industry in India. Much effort has been showered by government

departments and other agencies over the past decade in the form of launching various schemes at school, city, and village block levels, but most these have come at abstract timings. Also, the advertising campaigns have been too heavy upon the target audiences leaving them half-baked.

REFERENCE

BIBLIOGRAPHY

REFERENCE

BOOKS

- [1]. C.N. Sontakki, “Marketing Research”, Himalaya Publishing House, New Delhi, 2006.
- [2]. Crosby, Philip, “Quality is free: The art of making quality certain”, McGraw Hill custom Publishing, 1978.
- [3]. Dr S.Gupta, “Statistical Methods”, Sultan Chand & Sons Educational Publishers, New Delhi, 2006.
- [4]. Hitoshi Kume, “Statistical Method for Quality Improvement”, Productivity Press (India) Pvt. Ltd, Madras, 2006.

JOURNALS

- [5]. Anderson Eugene W , and Mary Sullivan, “The Antecedents and Consequences of Customer Satisfaction for Firms”, Marketing Science, Vol. 12 (spring): 1993, pp. 125-143.
- [6]. Anderson , Eugene W., and Vikas Mittal, “Strengthening the Satisfaction- Profit Chain”, Journal of service research, Vol. 3, No.2:2000, pp. 107-120.
- [7]. Anderson, G., “Customer satisfaction and Word-of-Mouth”, Journal of service research ,1(1), 1998, pp. 5-17.
- [8]. Anderson Eugene W , Fornell, C. and Lehmann, D.R., “Customer Satisfaction, Market Share, and Profitability : Findings from Sweden”, Journal of Marketing, Vol. 58, July 1994, pp. 53-66.

ARTICLES

- [9]. Indrajith. P - A Study on Customer satisfaction on Solar Energy Products with



- special Reference to Coimbatore City :
International Journal of Research and
Development, Vol: 5, Issue 11, November
2020. By Department of Commerce,
Dr.N.G.P Arts and Science College,
Coimbatore, India.
- [10]. C. N . Rajendra Prasad , Dr. K. Rajesh kumar
- An Empirical Study on Customer
Satisfaction Towards Solar Energy in
Chennai : Indian Journal of Applied Research
, Vol 7, Issue 6 , June 2017.
- [11]. Bhavna Bhavna Prajapati - Factors Affecting
Customer satisfaction towards Solar Panel :
International Journal of Marketing & Human
Resource Research , Vol 3, Issue 2 , April
2022, ITM University, India.
- [12]. C. Anupama , M. R. Thilakam - Assessment
of the Satisfaction level of Consumers
Towards Energy Efficient solar products in
Coimbatore city: Vol 3 , May 2022. By
Department of Resources management ,
Coimbatore, India.