



A STUDY ON CONSUMER PERCEPTION AND ACCEPTANCE IN RESPECT OF SOLAR RENEWABLE ENERGY IN TAMILNADU

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Abstract

The aim of the present study is to deal with the customer perception towards the solar energy customers. It is hoped that the research work will enable to understand the factors that influence the complex marketing aspects of the solar energy and dynamics of consumer demand, supply and distribution. The present study is mainly based on primary data. It is a survey because it takes a small part (sample customers) from a large population (Customers of the solar energy) and analyses the sample part in order to make meaningful interpretations and conclusions. It is concluded that the solar energy companies should take some necessary actions to improve their service quality by the way they can introduce some more dealers in all the places. By seeing the overall customer service and the performance of the company, the results indicate that the consumers have positive attitude towards referring others to buy the solar energy.

Introduction

The reforms related to solar energy have deregulated the market to a great extent. It has become necessary to design and execute the best customer oriented practices and to internalize them for providing enhanced satisfaction to the customer through the employees. Customers' service is not merely the compliance with the government's policies or the mechanical adherence to the time frame of services. It is a philosophy and an attitude of professional commitment, which believes in the ultimate satisfaction of each customer 'wants'. Service marketers have really understood that competition can be well managed by differentiating through quality. Significance of service lies in customer service management. In this the complete environment, service quality has become the success mantra in all service sector. In this context, the present study gains significance.

The aim of the present study is to deal with the customer perception towards the solar energy customers. It is hoped that the research work will enable to understand the factors that influence the complex marketing aspects of the solar energy and dynamics of consumer demand, supply and distribution. And it is possible to give a better assessment of the prospects, barriers and critical success factors in the solar energy market in India particularly Tamil Nadu, India.

Review of Literature

Shina. D (2009) highlighted that the sole source of energy for the earth is the sun. 3 per cent of solar energy received is converted into wind energy, which if trappable would be more than sufficient to meet the worldwide energy demand. It is no wonder that wind power has emerged as a major non conventional option for power.

R.V.G. Menon (2009) in his article on Energy won't be easy pointed out that electricity generation is, of course, the major energy sector. Here the importance of Renewable Energy Sources has been well recognized and given ample lip sympathy. We are still hiding behind the excuse of high costs thereby allowing the market to dictate policy.

Kavya Michael (2010)78 in his article on Rural Energy Security and Climate Injustice in India Stated that economic growth doesn't become a reality when it happens at the expense of the marginalized sections of the society. In this context the need for rural energy security to prevent the hazards of climate injustice becomes important. Economic growth in the country has to be de carbonized and at the same time the energy policy of the country should be redrafted.

Need For the Study

The need for using alternative fuels has already been established. However, numerous challenges are faced when considering the increased use of solar energy; these include ensuring adequate supply and accessibility, increasing affordability, effective pricing policies, and reaching the people now dependent on collected biomass.

These are challenges, particularly because of the subsidies already offered. The subsidies do not reach most of the poor as they are not yet users of solar energy there is diversion of subsidized solar energy from domestic to other uses, and there is



also a heavy burden on the central exchequer. While the use of solar energy is beneficial for health and the quality of life, there is no direct impact on poverty alleviation without a link with income generation. Further, questions regarding how the inherent benefits of solar energy or other clean fuels can be extended to the poor remain unanswered. This situation requires a through survey among the customers of the solar energy.

Scope of the Study

The scope of the study is mainly relates to the marketing and consumer behaviour towards the domestic solar energy. It also helps to find out the satisfaction level of consumer. The scope of the study seems to be vast because of its coverage and contents. The study helps the researcher to have a practical exposure in this specific field.

It helps the solar energy companies have to know the problems faced by the customers among their product as well as service. It is useful to the respondents to disclose their opinion and views about the solar energy services. The study results will be of a great help to the government as well as the company in future distribution policy making. It would be useful the student and future research scholars for future studies.

Importance of the Study

The solar energy is an essential one to all in now-a-days. It is the fuel that makes the cooking very easy and part. The solar energy was manufactured and holds by private sector also. Now, the market is full of private companies at large extent. On one hand, the cost of solar energy of is very high so that the general public hesitates to use it. In this situation, the present study gains importance. It is essential to study the market especially the customers of the solar energy by the government companies. As the subsidy is subject to criticism, a radical change may be expected in this context and it may be brought by the Central Government

Hence the present study is made to analyze the consumers' behaviour towards usage pattern of solar energy. The present study helps the researcher to have a practical exposure in this specific field. It helps the solar energy companies to know the customers' attitude and satisfaction level among their product as well as service. It helps the respondents to disclose their opinion and views about the solar energy companies' services. The study results will be of a great help to the government in future price policy making. It would be useful to future research scholars for future studies.

Statement of the Problem

Domestic solar energy today is subsidized and hence is distributed. The use of India's indigenous production of solar energy has not been able to keep pace with increasing demand. For availing the new connection customer has to approach the nearest distributor. Though there is a lot of solar energy innovative service available at the reach of consumers in market in Tamil Nadu, the solar energy distributors concentrate more in prompt delivery service. (Dr.K.Rajeswari & Priya, 2015). The governmental rules and regulations towards the solar energy change frequently.

Many serious constraints and barriers exist and must be carefully identified, understood and solved before rural solar energy market prospects can become a successful reality for both suppliers and users. Supplying affordable and accessible solar energy to poor households in rural areas in an acceptable, economical and sustainable way is a very challenging endeavour – fraught with myriad potential barriers, including poor or no road infrastructure, bandits, LP Gas cylinder theft and abuse, limited ability to pay among poor households, vested interests of traditional fuel suppliers, lack of government support for energy policy, inclement seasonal weather and excessive safety-in-use risks that can quickly render a huge new potential market expansion opportunity unattractive. (World solar energy Association, 2014).

Even though the price is the sensitive mater, the companies have to take the necessary steps to reduce the problem. Consumer satisfaction is the basic truth of modern concept of marketing. It is the basic philosophy of management, which forces the organization to align its actions with the market mandates. In the light of these problems, the present study is taken up.

Objectives of the Study

Following are the objectives of the study:

1. To measure awareness of the customers towards the solar energy in respect of the, usage, economy and safety in the study area.
2. To examine the problems faced by the solar energy customers in the study area.



Limitations of the Present Study

The present study is subject to the following limitations:

1. As the satisfaction, expectation and attitude of the customers are subject to variation the findings may not be appropriate in future.
2. Since the study is based on the primary data collected through questionnaire, the results of the study is subject to all the limitations of the primary data.

Research Methodology

The present study is mainly based on primary data. It is a survey because it takes a small part (sample customers) from a large population (Customers of the solar energy) and analyses the sample part in order to make meaningful interpretations and conclusions. The study was undertaken in six month period i.e. January – June, 2015. This was the period of field survey to collect the primary data from the customers of the solar energy in Tamil Nadu.

Population and Samples of the Study

Population of the study means the domestic customers of the solar energy.

As the size of population is very large, sampling method is adopted. 600 customers are selected at random. Care has been taken to include all types of domestic customers of the solar energy.

Questionnaire and Pre Testing

A structured questionnaire is constructed to get the primary data from the sample customers. Its design is determined on the basis of the objectives of the study and the variables. The questionnaire was formerly pre-tested in order to know the appropriateness and validity of the questions among 120 customers. At the time of pre test of the questionnaire, some practical difficulties were felt by the customers to fill up the questionnaire. So, the questionnaire was simplified further and it was translated into Tamil for the sake of convenience of the customers.

Measurement Scale

The attitude of the customers, awareness of the customers and problems faced by the LPG customers

Scoring

The scoring is an act of allotting marks to each response that is related to scaling. The scores are allotted to each response where the ordinal scale is used. For every response, the customer makes a tick mark the score is given.

Analysis of Data

Apart from the percentage, the study utilizes chi square test and. In the analysis section, the questions of the questionnaire are taken for analysis in the chronological order. Responses of every question are tabulated and then analysed. As the Software Package of Social Sciences (SPSS) is used of statistical process, the primary data collected are firstly codified in the excel worksheet properly.

Discussion and Results

Awareness of the LPG customers

Awareness is one of the major dimensions of the present study. The solar energy customers have to be aware of some issues related to the solar energy, because, the procedure is not so easy at instance. It requires some sorts of regular practices such as. So, the awareness regarding the solar energy equipment purchase procedure, consumption, subsidy, protective measures in usage etc. take an important role in the customer surveys. The present study considers 11 awareness sub-dimensions. All the dimensions are very important that the customers should have adequate knowledge.

Table 1, Awareness of the Solar Energy customers (MEAN & STD. DEVIATION)

Awareness of the Solar Energy customers	Mean	Std. Deviation
Booking through SMS	3.63	1.159
Getting subsidy	3.72	.946
Procedure to shift the LP gas connection to the Solar Energy	3.79	.976
Present Rules and regulations towards the registering for solar energy	3.70	.958
Safety measures to use the Solar Energy	3.70	.913
Economy in usage of Solar Energy	3.60	1.009



Protection from accidents	3.65	.886
Precautionary Steps to avoid accidents	3.72	.843
Availability of accessories from the agent	3.76	.849
Alternative fuel for future	3.83	.914
Governmental policy towards the Solar Energy	3.75	.868

Source: Output generated from SPSS 20

From the above table, it is clear that the 11 sub dimensions of the awareness have different mean values which range from 3.60 (Economy in usage of Solar Energy) to 3.83 (for Alternative fuel for future). The higher mean value (3.83) denotes that the customers of the present study have higher level of awareness towards the alternative fuel for future. This implies that the customers have known the alternative fuel for domestic purpose such as induction stove, micro wave oven etc. It is followed by Procedure to shift the LP gas connection to solar energy (3.79), Availability of additional products (gas tube, lighter, gas stove etc) from the agent (3.76), Governmental policy towards solar energy (3.75), Getting subsidy (3.72), Precautionary Steps to avoid accidents (3.72), Present Rules and regulations towards the registering for the solar energy (3.70), Safety measures to use the solar energy (3.70), Protection from accidents (3.65) and Booking through SMS (3.63). The minimum mean value (3.60) belongs to the dimension of 'economy in usage of solar energy' indicates that the solar energy customers have lower awareness towards the economy in usage. The customers are not informed of the methods for economical consumption of the solar energy. The government / solar energy companies have failed to do so.

While seeing the standard deviation, the minimum value (.843) goes to the dimension of 'Precautionary Steps to avoid accidents'. So, the mean value for the dimension (3.72) is more reliable because of the lower standard deviation. This means that the customers have known the precautionary Steps to be taken to avoid accidents at large. On the other hand, higher standard deviation (1.159) belongs to 'Booking through SMS' and its mean value (3.63) is not so reliable. So, it is clear that the customers do not have adequate awareness towards the process of booking through SMS. The solar energy agencies should help to the illiterate customers to book for solar energy by doing the booking process by the staff of the companies themselves.

Friedman Test for Significant Difference between Mean Ranks towards the Level of the Awareness of The LPG Customers

Null Hypothesis: There is no significant difference between mean ranks towards the level of the awareness of the solar energy customers.

Alternative Hypothesis: There is significant difference between mean ranks towards the level of the awareness of the solar energy customers.

Table – 2, Friedman test for significant difference between mean ranks towards the of level of the awareness of the solar energy

Awareness of the solar energy customers	Mean Rank	Chi-Square value	df	Asymp. Significant
Booking through SMS	5.74	36.661	10	0.000
Getting subsidy	6.06			
Procedure to shift the LP gas connection to solar energy	6.34			
Present Rules and regulations towards the registering for the solar energy	5.94			
Safety measures to use the solar energy	5.99			
Economy in usage of the solar energy	5.71			
Protection from accidents	5.67			
Precautionary to prevent accidents	6.06			
Availability of accessories from the agent	6.08			
Alternative fuel for future	6.33			
Governmental policy towards the solar energy	6.07			

Source: Output generated from SPSS 20



From the above table, it is found out that all the variables related to the level of the awareness of the solar energy customers had significant value less than 0.05 at 1 per cent level of significance, thus the null hypothesis is rejected. Thus, it is concluded that there is significant difference between mean ranks towards the level of awareness of the solar energy customers. Out of the eleven awareness variables of the solar energy customers, the “Procedure to shift the LP gas connection to solar energy” has the highest rank (6.34) so that the awareness of the solar energy customers in respect of this aspect has higher position. This implies that the customers have high level of awareness towards the shift of the gas connection. It is followed by ‘Alternative fuel for future’ (mean rank 6.33); it is implied that the customers have given the next rank as they have alternative fuel for future. As the science and technology grow day by day, it is not wonder that alternatives emerge in due course. So, the customers have known those alternative sources of fuel and they have secured high level of awareness. The lowest mean rank goes to ‘Protection from accidents’ (rank 5.67) and this is implied that the customers have given the lowest rank. The customers do not care the accidents at large level.

As the significant value is less than 0.05, the null hypothesis is rejected. So, it is clear that there is significant relationship between mean ranks towards the level of the awareness of the solar energy customers. As the mean ranks in respect of the awareness of the solar energy customers have significant relationship with the awareness, it is clear that the eleven awareness variables have strong impact on the minds of the customers.

Problems faced by the solar energy customers (MEAN & STD. DEVIATION)

This section comprises of analysis of various problems in consumption of the solar energy. The problems are identified with 15 sub divisions. All the problems are related to buying pattern of the solar energy, booking procedure, cost, waiting period, governmental policies, safety etc. These problems are very common in the context of solar energy and the problems have been identified during the pilot study. The following table shows the mean and standard deviation.

Table 3, Problems faced by the solar energy customers – Mean and Standard Deviation

Problems faced by the solar energy customers	Mean	Std. Deviation
Problem with booking for solar energy	4.58	1.466
Poor communication on booking for solar energy	4.85	1.422
Irregularity of increasing price	5.25	1.393
High Installation and additional cost	5.20	1.371
Delayed supply of accessories	4.95	1.360
Waiting time for service	4.79	1.431
Time of attending grievances	4.81	1.406
Problem with government policies with regard to solar energy usage	5.05	1.383
subsidy form the Government	5.03	1.335
Problem with safety of solar energy	5.09	1.380
Problems due to inadequate supply of accessories	5.11	1.278
Compulsion to buy other related products	4.93	1.389

Source: Output generated from SPSS 20

Among the 12 problems in respect of the solar energy consumption on the part of the customers, maximum mean value belongs to ‘Irregularity of increasing price’ and it implies that the maximum number of customers have felt that this is the major problem. However, the problem is related to the governmental policy decision. The next mean value (5.20) goes to the problems of ‘High Installation and additional cost’. It is a problem related to the period of connection and installation of gas. 5.11 is the mean value that takes next place and it is related to the ‘Problems due to inadequate supply’. This problem arises frequently. There is not role on the part of gas agencies in this regard. Equal mean values i.e., 5.09 go to tow problems such as Problem with safety and unstrained services in agency outlets. These are the common problems but arise occasionally. The solar energy agencies are wholly responsible to these problems. ‘Problem with government policies with regard to usage’ (mean value 5.05) indicates the suffering of the customers. This is a problem to large families and the customers who do not have alternative fuel. ‘Facing difficulty to get subsidy form the Government’ (mean value 5.03) is a recent problem that arises due to the government’s insistence on inclusion of Aadhar card with the solar connection. Intensity of the problem has reduced gradually. Waiting time for service (mean value 4.79), Less quality of accessories (mean value 4.58) and Problem with booking for solar energy (lowest mean value 4.58) are the general problems to all the customers.



Conclusion

"The customer is always right" is a famous business slogan. The underlying truth behind this statement is realizing that, the customers are the life blood for any business. In this competitive environment, quality service has become the secret of success in all service sectors. Quality service means, it is absolutely to satisfy the customer needs. Keeping this in mind, this study has been conducted to identify the customers' attitude and satisfaction towards the domestic solar energy. The findings of the study depict that the customers has faced the irregularity of price increase and delayed supply of solar energy. What this study makes clear is that understanding the consumer behavior of the solar energy and identifying their needs.

With presence of too many solar energy companies, the competition in the industry is cut-throat. The demand for the solar energy is not going to fall and hence a lot of needs to be given on capturing this potential demand. The research has been an eye-opener in terms of retail practices in the market. It has made the researcher as to how in this era of competition, the solar energy companies have to be careful in marketing the solar energy.

It is concluded that the solar energy companies should take some necessary actions to improve their service quality by the way they can introduce some more dealers in all the places. By seeing the overall customer service and the performance of the company, the results indicate that the consumers have positive attitude towards referring others to buy the solar energy. This study emphasizes that the company needs to improve in customer care area, proper communication while booking and delivery through short message service (SMS). Solar energy companies should understand the importance and needs of the customers. It is essential for a healthy business in creating new customers, keeping loyal customers, and developing referrals for future customers.

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