Chapter 2
Review of Literature

2.0 Study of customer satisfaction level of Power Distribution Companies in various countries:

The researcher has gone through websites of various countries to get insight of related literature. It is observed that in many countries, the customer satisfaction is main focus and efforts are on for customer satisfaction improvements. The information/data available on the subject is collectively exhaustive.

Some of the key issues in this review of literature are given below:

1. World Consumers Right Day was observed on 15th March, 2006. The World consumer movement has recognized that energy is of a fundamental importance to public welfare and wellbeing of consumers Worldwide. The satisfaction of basic needs including an Energy Sustainable Access for all is one of the basic rights was emphasized on this day. Till 2006, nearly two billion consumers had no access at all to electricity.6

This meet also addressed the following three dimensions of energy supply to consumers:

a) Coverage and Continuity.

b) Affordability.

c) Sustainability.

2. In U.S.A. 60 utilities are honoured with National Award for Reliable Electric Operations. The utilities are categorized in to Diamond Level, Platinum Level and Gold Level32.

3. In U.K- According to U.K’s first overall Customer Satisfaction Index- ( NCSI-UK ) –companies do a better job in satisfying their customers than the companies in Japan, Sweden, Finland, Denmark, Singapore, Hongkong, Thailand and South Africa but they lag behind their counterparts in United States, Turkey and Colombia.22 In 2007, Scottish Power was ranked to top in U.K. in both online services and meter reading . Scottish Power has been working continuously to reduce complaints and to improve performance.
In order to increase Customer Satisfaction levels Scottish Power has undertaken the following steps in 2007.

i. Customer Research, out of 70 areas and weighted attributes on which the company gauges customer opinion, 36 have remained steady over the last year, 29 have declined and 05 have shown improvement.

ii. **Quality of Supply**: 

Energy network Performance, Customer Minutes Lost is as given in Table 2.1

<table>
<thead>
<tr>
<th>Distribution network</th>
<th>Change in the Period</th>
<th>2006/07</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP Distribution</td>
<td>+ 16%</td>
<td>77.5</td>
<td>66.7</td>
</tr>
<tr>
<td>SP Manweb</td>
<td>+ 09%</td>
<td>62.7</td>
<td>57.7</td>
</tr>
</tbody>
</table>

*Table 2.1: Energy network Performance, Customer Minutes Lost.*

Customer Interruptions:

Customer interruptions is given in the following Table 2.2

<table>
<thead>
<tr>
<th>Distribution network</th>
<th>Change in the Period</th>
<th>2006/07</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP Distribution</td>
<td>+ 13%</td>
<td>64.9</td>
<td>57.6</td>
</tr>
<tr>
<td>SP Manweb</td>
<td>+ 08%</td>
<td>46.1</td>
<td>42.7</td>
</tr>
</tbody>
</table>

*Table 2.2: Customer interruptions*

iii. Scottish Power monitors the total Customer Minutes Lost and Customer Interruptions on a yearly basis to take a remedial action. It is observed that during January 2007, customers were also impacted by a severe storm (declared the worst on record for 17 years).

iv. Scottish Power was the only U.K. Supplier to meet Governments' EE C2 (Energy Efficiency Commitment) targets a year early, achieving energy savings of 107% of their three year target.

v. Scottish Power continued to offer innovative products including a price freeze tariff that runs until 2011, along with a choice of green energy products and online energy services.

vi. Scottish Power reduced prices to customers in 2007. However, in winter
2007 there was upward pressure on prices again. Pre payment prices of Scottish Power continued to be set below their standard quarterly tariffs.

vii. Performance Targets of Scottish Power in 2007 are shown in Table 2.3-

<table>
<thead>
<tr>
<th>Targets</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resolve 4 out of 5 customer queries on the first contact (80%)</td>
<td>84% of customer queries were resolved on first contact</td>
</tr>
<tr>
<td>To meet quality supply targets</td>
<td>Not achieved</td>
</tr>
</tbody>
</table>

**Table 2.3: Performance Targets of Scottish Power in 2007**

Further steps undertaken by Scottish Power in reducing complaints and to improve performance are:

a) Improving the feedback given to customer service agents by utilising call recording capability for coaching.

b) Improving the way they handle disputed accounts.

c) Establishing root causes of problems and working out solutions, such as changes to their systems, through 6 sigma, a technique widely used in industry to eliminate defects.

d) Using analysis tools to identify customers who have complained and had poor service and proactively contacting them to put things right.

e) Listening to the customers through a Voice of the Customer Research Programme and acting on what they tell to Scottish Power.

f) Harnessing new call routing technology to contact customers or an appropriate agent quickly.

g) Enhancing Scottish Power employees' customer service skills through training - including an increased induction period for new service staff from 5 weeks to 13 weeks.

h) Continuing to invest heavily in their prepayment service through new systems and modern new key meters.

Scottish Power won an award in the European Six Sigma Excellence Awards 2007 and for achieving customer complaint resolution first time in four out of five in bound calls.
Scottish Power was ranked top in U.K. on both online services and meter reading in an independent survey of UK energy suppliers conducted for consumer organisation uSwitch in October 2007. In this survey, Scottish Power was ranked second for offering customers the best available deal and offering value for money. Around 67% of customers said they were "satisfied" or "very satisfied" with the overall service Scottish Power provides, an increase of around 8% compared to the equivalent uSwitch Survey in 2006. 7787 UK energy customers took part in the survey.  

4. Africa, Nigeria and Ghana have perennial power shortage problems.¹  
5. Severe power shortage is faced by South Asian countries like Bangladesh, Pakistan and Nepal.⁸  
6. In Namibia, Northern Electricity Distribution Company carried out customer interaction through a newsletter and radio talks. Northern Electricity Distribution Company in order to curb power loss focused on three core principles: eliminate theft, ensure all meters work correctly and implement a trustworthy administrative system.²⁴  
7. In Australia, there is rising level of customer satisfaction in Australian electricity and gas sector and they are rated higher relative to banks and telecoms.²¹  
8. In East and Central Africa, Electrogaz is the national utility (water & electricity) company. 10 years ago Electrogaz began to replace the conventional billing system to prepayment system.¹²  
9. In U.A.E. and Denmark, Geographic Information System (GIS) used by the utility industry provides more information than visible static map. GIS can answer questions like, “Are the gas leaks near major electrical equipments? “Or “where do transmission lines cross natural gas pipe lines?” GIS can figure out what would happen to transmission lines near epicenter of an earthquake.³⁶  
10. In Brazil, Electro (Electricity Utility Company) works continuously to ensure electric power supply and quality. Electro has won several awards since 2005.³  
11. In China, the demand for electricity surged more than 400 percent during 1980’s due to increase in usage of electrical appliances and by 2000, 98 percent of electrification was carried out.⁶
In 2003-2004, the degree of satisfaction with electric power supplier in the U.S.A and U.K was exceeding Japan in case of reliability, corporate image, customer service and price.  

In Hungary, the most important development was that of the Hungarian 2001Electricity Law. The liberalization and unbundling of electricity supply took place on 1st January 2003. It demanded the reshaping of methods and techniques used for customer satisfaction survey. Dr. Terszty’anszky. T, honorary professor and consultant to Hungarian Energy Office along with Professor. Dr. Rekettye. G and Dr. Ordosdy. B, Associate professor of university of PE’CS in Hungary have carried out Customer Satisfaction Survey in 2003. Such Customer Satisfaction Surveys are carried out since many years.  

In Europe, Vattenfall, an electricity utility company operating in Sweden, Finland, New Zealand, Germany & Poland is a leading company in case of power distribution. Vattenfall has taken following steps in improving customer satisfaction of electricity distribution in Europe.  

a) Vattenfall started a program called "No 1 for the customer" a few years ago. Within the program a number of projects were started to improve the customer service and the customer communication. The project that was started concerned:  

- **Automatic meter reading.**  
- **Billing.** (Improved billing to increase customer satisfaction)  
- **Customer reactions.** (listen to the customers' reactions on the company's service to be able to improve)  
- **Culture and Values.**  

b) In New Zealand Vattenfall has been successful in introducing internal programs in the organisation to change the attitude towards the customer. In 1998, the city business district of Auckland in New Zealand suffered severe outage that lasted for 6 weeks. The reasons for the outage were both technical and organisational, but since the four cables feeding the area were defective, the only solution was to lay a new feeding cable to the area to restore power. This incident was the start of a new approach for the energy companies in New Zealand, who realised that customers' confidence had heavily decreased. The distribution companies started to work together to regain the customers'
trust, and in 2007, most distribution companies had reached a high level of customer satisfaction by adopting more customer focused attitude. This success story of New Zealand has been used by Vattenfall in Sweden to identify the three core values:

1. **Responsibility.**
2. **Effectiveness.**
3. **Openness.**

c) For an electricity distribution company, it is not the customer service department that is communicating with customers, but both technical and commercial personnel have contacts with the customers to offer services and solve problems for the customers. In order to gain customers' trust, Vattenfall has started communicating to the customers during and after the interruptions in the supply. In order to improve customer satisfaction it is also important to the customer to get reliable information, besides an improved communication. The information given to the customer should be honest and accurate to be successful.9

15. In Turkey, prevailing household and industrial customer satisfaction is not at expected levels. Likewise, energy quality and electricity interruptions are creating problem within urban distribution.33

16. In France, Capgemini Energy is awarded business processing outsourcing energy contract. Capgemini Energy Company is tied up to a number of service level arrangements.4 One of which is to achieve 15 second answer times on electric answer calls and to improve customer satisfaction by 30%.

17. In Portugal, EDP Distribuicaio Company has to adapt to new market conditions resulting from liberalization process in the electricity sector. EDP Distribuicaio has set a priority objective of increasing customer satisfaction and loyalty, focusing for improvement of the quality of service provided and the promotion of EDP Distribuicao’s image.26

18. In India, PA consulting group which is leading joint venture sponsored by the US Agency for International Development (USAID) and Indian ministry of Power is appointed to provide technical advice and project management support to the following 4 electricity distribution companies.19
   A. Delhi.
   B. Karnataka.
2.1 Research papers studied:
The research papers in relation to the topic were studied and it was found that work is carried out in UK\textsuperscript{2}, USA\textsuperscript{2}, Japan\textsuperscript{2}, Hungary\textsuperscript{27}, Sweden, Finland, Poland and Germany\textsuperscript{9} in this regard. The details of these research papers are elaborated below-

2.1.1 Residential Consumers’ choice of Electric Power Supplier in the Liberalized Electricity Market. Based on Survey in Japan, USA. and UK.

Toshio A (2006, Feb) has published a research paper on the above subject matter by carrying out telephone survey of residential customers; 2,060 and 1,000 respondents in Japan and UK, respectively in December 2003, and 2,028 in USA in November 2004.\textsuperscript{2}

The findings of this Survey are -

(i) At the introductory stage in 2000, liberalization of the power market in Japan was limited to about 9,000 customers (which contracted power of 2,000 kW or more) such as large factories, however by 2005 this had been expanded to about 750,000 (with contracted power of 50 kW or more) including supermarket and other business. Studies with a view to full liberalization including residential customers will commence in 2007, and competition is expected to intensify further. While acquiring and holding on to customers is an increasingly important issue for electric supplier, it is difficult for residential customers to understand the kinds of changes that will occur and their impact.

(ii) Survey of residential customers:

In the UK where liberalization is already complete including residential customers, more than 50 percent of respondents were aware of electricity liberalization. However, in Japan, where liberalization has yet to be implemented, only about 20 percent knew what it was. On the other hand, those who saw liberalization as bringing benefits such as price reductions accounted for over 40 percent in Japan, exceeding the percentage in the USA and UK. About 4 percent of residential customers in the USA and about half in the UK had changed power supplier at some stage. In Japan, while residential
customers cannot change their electric power supplier yet, about 20 percent responded that they would actively search for a new supplier when liberalization was introduced while over 30 percent indicated that they would consider changing if another supplier made them an offer.

(iii) **Degree of satisfaction with electric power suppliers in USA, UK & Japan**—Subjects were quizzed about their satisfaction with their electric power supplier in four separate areas, with the results showing satisfaction in the USA and UK exceeding that in Japan in all four areas.

In the USA and the UK seven respondents out of 10 indicated that they were satisfied with the supply reliability, corporate image, and customer services of their electric power supplier, while more than a half was satisfied with the price. While there were no significant differences in supply reliability and corporate image among the three countries, the maximum spread in percentage among countries for those satisfied with customer services and price was almost twice that of the smallest. This remarkable spread is probably attributable to significant differences in the services provided and the level of user awareness of methods used by electric power suppliers to calculate electricity charges in each country.

The details of the degree of satisfaction with electric power suppliers in USA, UK & Japan are shown in the Fig. 2.1

![Fig. 2.1: Degree of satisfaction with electric power suppliers in USA, UK & Japan](image-url)
2.1.2 Research paper on Customer Satisfaction in the Hungarian Electricity Distribution:

Rekettye, G and Terszty’anszky, T in their research paper on customer satisfaction in the Hungarian Electricity Distribution\(^\text{27}\) state that:

After a careful review of the international service literature (Gbobadian, Taylor and Baker, Speller and Ghobadian, Cronin and Taylor, Moores, Parasuraman et al. and others), and the local conditions, the following key issues were agreed upon:

a) The satisfaction and importance should be measured separately in the household and business segments.

b) The customer satisfaction index should be comprehensive measuring tool, which expresses not only the satisfaction of the core offering of electricity supplier i.e. electric power; but also the satisfaction with the whole performance of the service providers. It meant that the overall satisfaction should be built on the satisfaction of the different components of service package.

c) Besides the consumers' satisfaction, the relative importance of these components should also be measured. The results of 'satisfaction - importance' analysis would give additional information for the companies themselves for improving their performance.

d) The methods of assessing the distribution companies according to the customer satisfaction should include relative ranking of the satisfaction with the electricity supply among other major utility services.

e) The questionnaire measuring the consumers' satisfaction and importance should use the scale of 1 to 5. The results of the 5 scale answers should be converted into point numbers between 0 to 100. The points of the individual indices add up according to the algorithm of the method to a final figure with, within the continuation of 0 and 100, expresses the overall satisfaction of the customers concerning the services of the given utility company.

2.1.3. Customer Satisfaction Research Work on Electricity Distribution in Hungary:

The survey that gives a comprehensive picture of satisfaction of public utility power customers was conducted for the Hungarian Energy Office (HEO) in 2007.\(^\text{27}\)

**Methodology**:

The survey involves 7200 residential and 1800 non-residential customers in 2007.
The sampling represents the distribution of household according to settlement types. In case of non-residential customers the sample takes into account the measure of power consumption stratified in accordance with the relevant resolution of the HEO, the sampling, the personal interviews conducted by independent research institutes as well as control of the interview has guaranteed the appropriate quality of the outcome. The response given to the questions express perception and needs of the customers. These responses have shown significant stability in subsequent years, which also proves reliability of research.

The responses measured on five degree importance and satisfaction scales have been weighed and transformed into indices between 0 and 100. The more comprehensive indicators standing at a higher level of the indicator hierarchy have been calculated on the aggregation of elementary indices gained.

HEO have matched the evaluation of consumer satisfaction regarding certain services with the importance indices expressing expectations concerning these services. Customers were asked to tell in the case of each question (a) how satisfied they were with the standard of the given service, and (b) how important they found the given service, and the difference of the two indicators was calculated. The difference of two indicators is called 'the gap.'

In case the gap shows a value near 0, the level of satisfaction is adequate with the level of importance. In this system one can speak of underperformance or over performance, depending on whether the difference is positive or negative.

**Critical service elements and over performance:**

A service element is classified as critical, if there is a relatively big a gap between its satisfaction and expectation indices.

The following service elements can be considered as critical:

From among distribution services-
A. Restoration of breakdown.
B. Continuous supply indices.

As per the survey, the most important service elements of distribution (for residential customers) considered are:

a) Continuous supply.
b) Restoration of breakdown.
c) Voltage fluctuations.
d) Accuracy and reliability of invoice.
e) Clarity of invoice.
f) Complaint management.

The following supplementary questions were asked -

For clean energy -

1) Would you be prepared to pay 10% more for energy generated in an environment friendly way?

2) Would you be prepared to pay 5% more for energy generated in an environmental friendly way?

For non-residential customers the following service elements of distribution are considered for the survey -

i) Quality of service.

ii) Continuous supply.

iii) Voltage functions.

iv) Possibility to increase consumption.

v) Restoration of breakdown.

vi) Punctual metering.

vii) Contact with customers.

2.1.4. Comparison and Measurement of Customer Satisfaction by Vattenfall, (a Power Distribution Company in Europe) in Sweden, Finland, Poland and Germany:

Literature review on efforts on measurement of customer satisfaction in Europe reveal that Vattenfall (a power distribution company) has been measuring and monitoring customer satisfaction for power distribution in Sweden, Finland, Germany and Poland since 2004.

The details of Vattenfall's study are as given below:

In 2004 Vattenfall adopted a set of customer satisfaction requirements and targets to measure its performance in fulfilling the strategic ambition to be Number One for the customers.
Customer Satisfaction Indices (2004-2007) are as per the following Table 2.4-

<table>
<thead>
<tr>
<th>Country</th>
<th>Customer Satisfaction Indices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
</tr>
<tr>
<td>Sweden</td>
<td>68</td>
</tr>
<tr>
<td>Finland</td>
<td>64</td>
</tr>
<tr>
<td>Germany</td>
<td>61</td>
</tr>
<tr>
<td>Poland</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 2.4: Customer Satisfaction Indices.

Measurements for Corporate and industrial customers (both SME and Large) has been changed since 2007. Comparable data is therefore not available.

**Targeting and Measuring Customer Satisfaction:**

In 2007 Vattenfall adopted five target areas, one for each strategic option. The target for the strategic ambition to be Number One for the Customer is based on Vattenfall's Customer Satisfaction Index (CSI) for its retail customers. The target is broken down into individual targets for Business Groups; Nordic (Sweden, Finland) and Central Europe (Germany and Finland) as well as for all Groups’ distribution units. The Business Groups draw-up business plans, which describe how the customer satisfaction targets will be reached.

Targets are set in comparison with leading service companies (mainly power, telecom and insurance companies) in Europe and are communicated to the organisation once a year. The long-term targets for customer satisfaction, as measured by Customer Satisfaction Index (CSI) should be on top of the leading competitors in each market. Vattenfall is aiming achieving customer satisfaction levels of leading players in similar industries such as telecom. Vattenfall has therefore set a long-term CSI target of 70 for retail customers and above 65 for corporate and industrial customers.

In order to ensure that figures are comparable with the European Performance Satisfaction Index (EPSI), formal instructions are issued that direct way in which CSI measurements are carried out such as: what are the questions to be asked, scales of the answers, sample size, statistical analysis method used, reporting format and survey timings.

As of 2008, Vattenfall's CSI process has been decentralised in order to improve the quality and comparability of measurements. During 2008, a Group-wide CSI process
co-ordinate at the Group developed including common customer segmentation for CSI purposes, questionnaires, sampling methodology, survey approach, analysis model and reporting and presentation.

In 2008, Vattenfall's Customer Satisfaction Index for the Group as a whole was 64, which is a stable result compared to 2007. However, the trends varied significantly between various markets. In the Nordic region, there was a strong positive development of the CSI results compared to 2007. The Swedish results, in particular, were substantially better for most of the segments compared with 2007. The result indicates an increase of trust for the industry as a whole in Swedish market. On the other hand, Vattenfall's CSI scores in Germany showed decline for retail and SME customers due to combination of poorly managed price increases and a tarnished image caused by problems with nuclear power operations. However, results from additional measurements during the autumn showed that the negative results have been reversed and that CSI scores were slowly improving. In Poland Vattenfall's CSI scores remained at a steady high level, particularly for retail customers. It was also observed that image and price have a very large impact on customer satisfaction scores and a tarnished company image or increase in prices leads to lower customer satisfaction scores in all markets.⁹

2. 2 J.D. Power 2006 UK. Electricity Supplier Customer Satisfaction Study:

Electricity Supplier Performance:

npower ranks highest among electricity suppliers with an index score of 698 points, scoring well on billing and payment, price and value. Scottish and Southern Energy ranks second with 697 points and performs well on customer service and power quality and reliability. The 2006 UK Electricity and gas Customer Satisfaction study is based on 2,605 interviews with domestic electricity customers and 2,008 interviews with domestic gas customers throughout the UK.²⁰

The Customer Satisfaction Index Scores and Customer Satisfaction Components weights are as per Fig.2.2 and Fig.2.3 respectively.
2.3 Developing Preliminary Performance Attributes:
Developing performance attributes for customer of an energy utility is not as straightforward as it may appear. Performance attributes, for example, will differ between residential and business customers. A great deal of variability may exist within each
of these two broad groups. The attribute concept was formulated during a very preliminary stage of performance attribute development for residential customers. Company executives had been interviewed, but customers of the utility services had not yet provided input into the process. The next step was to conduct meeting of focus groups comprised of home owners. The objectives of the focus group comprises of home-owners who have different requirements. The objectives of the focus groups were to (1) discuss the service and satisfaction issues that are important to the customer, and (2) discover ideas that are not represented in the preliminary list of performance attributes. The focus groups discussions revealed that many customers felt that advertising was not appropriate because of monopoly status of utilities. The relevant attributes and the input from the focus group then transformed into a second list of preliminary performance attributes. Next, a telephone survey was conducted to quantify the importance of these attributes, for example, accurate billing and quick response for emergency service were very important to customers. Information and advertising included with bill was viewed as less important. Performance attributes are a central component of all the three major phases of customer satisfaction research:

**Phase 1:**
Determining the performance attributes that generate satisfied and dissatisfied customers.

**Phase 2:**
Measuring satisfaction for an initial period to serve as reference point for future surveys.

**Phase 3:**
Conducting ongoing research to monitor progress.

The results from the telephone survey, which indicated area of both strength and weakness, were used to develop the final set of performance attributes. These were attributes used in customer satisfaction survey.

Since the customers' views of utilities change relatively slow, the survey is repeated on an annual basis rather than quarterly.
Overall Service.
   i. Service quality.
   ii. Service reliability.
   iii. Responsiveness to routine service calls.
   iv. Responsiveness to emergency service calls.
   v. Resolution of service problems.

Price/Rates.
   i. Fairness of price.
   ii. Good value indicated by price.
   iii. Company concern about rates.
   iv. Operating efficiencies implemented to offset rate increases.

Billing.
   i. Accuracy of billing.
   ii. Clarity of billing.
   iii. Method of payment.
   iv. Resolution of billing problems.

Advertising.
   i. Advertising message recall.
   ii. Advertising media recall.
   iii. Advertising believability.
   iv. Usefulness of the message.

Interaction with Customers.
   i. Assistance provided to customers.
   ii. Responsiveness to questions and inquiries.
   iii. Courteousness of employees.

Community Involvement.
   i. Assistance in making the community a better place to live.
   ii. Provision of resources to help solve community problems.

Social Responsibility.
   i. Concern for customer safety.
   ii. Concern for environmental impact.
   iii. Actions to ensure future energy supplies.
   iv. Helping customers who cannot pay their bills.
Competitive Evaluation.

i. Other companies in same field.

ii. Gas, electric, and telephone company comparisons.

2. 4 Basis of Research:

This research study is carried out by comparing performance attributes of electricity distribution companies in various countries (Annexure 7). Research paper on Customer Satisfaction in the Hungarian Electricity Distribution\textsuperscript{27} by Rekettye.G and Tersztya’nszky. T. is the basis of this research.

2.5 Critical issues observed during the study of customer satisfaction levels of MSEDCL customers in Pune city:

During the period under study of the satisfaction levels of MSEDCL customers in Pune city the researcher has observed that there were critical issues such as: erroneous billing, faulty meters, concern for consumer’s safety, frequent power interruptions erratic load shedding and frequent power tariff hikes to both domestic and industrial customers and adverse impact on business performance of industrial customers as well.

These critical issues are elaborated below-

1. On 19.06.2008, around 300 patients at the Sassoon Hospital went through a harrowing time due to six hours power cut. All elevators in the hospital stopped working at noon on 19.06.2008 and with no generator back-up patients were compelled to use stairs.\textsuperscript{51} Those who were not in a position to climb the stair like a nine months pregnant woman were carried by the ward boys on a stretcher. (As shown in Fig.2.4)
One of the doctors of Sassoon Hospital points out that there are times whenever the battery back-up gets exhausted and Doctors have to carry out operations by using torches.

2. Many small businessmen like flour mill owners, caterers, beauty parlours, laundry owners, printers, photocopy shop owners etc. curse the power cuts as it affects their earning and livelihood.38

3. Over 30,000 residents located around Maharashtra Industrial Development Corporation (MIDC) premises at Bhosari suffered under staggering power cut of over 24 hours to get their power through common feeder and also to the industrial units in 2008. While industrial units are well informed about the number of hours of power cuts every week, the residents have no clue about the duration. The worst affected areas are: Yamunanagar, Shanti Nagar, Mohan Nagar and Chikali. One of the residents of Yamunanagar, Padmini Karad said that in 2008, there were excessive power cuts up to 48 hours at a stretch. As a result, right from inability to run water pumps to charging of cell phones, all important activities came to stand still.42

4. Many Pune Municipal Corporation (PMC) School are worst hit due to power cuts. According to Principal Gosavi V., at the Sambhaji Maharaj Primary School in Navi Peth, it gets dark and the children get restless in such a muddy and gloomy atmosphere. Also, since there is no power, it is difficult to fill water in tanks. As a
result; the bathrooms become dirty, which poses a serious hygiene problem. At times there is not enough water to drink, says Gosavi.63

5. Frequent power cuts and diesel shortage in August 2008 turn into a Pensioners' night mare. In Chinchwad, 86 years old Jarandikar, P took 30 minutes and that too with the help of 5 other people to climb down five floors of Sunderbaug Housing Society.57

6. Residents of Khadki had not received electricity bills for nearly four months in October; 2008. The residents feared that MSEDCL will penalise them for no fault of theirs. Bokare, M, executive engineer of MSEDCL admitted to some problems in Khadki area after change of agency which distributes electricity bills.65

7. In December, 2008, Ghaisas, a Karvenagar resident got a bill of Rs 17000/- from MSEDCL, which was later rectified to Rs 3900/-.71

8. Baheti, S made payments, through an Electronic Clearing System (ECS), for electricity bill received for the month of October, 2008. He discovered that the bill for September, 2008 was not cleared and he was liable to pay late fees charges, all for no fault on his part.40

9. In May, 2009, Gadakh, S, a student residing at Sus Road got electricity bill for Rs. 6,98,598/-. After she changed the meter to an electronic one, she got a bill of Rs. 800/-.66

10. On 22-04-2010, MSEDCL, Ganeshkhind staff, refused to accept monthly electricity bills due to disruptions in power supply and with inadequate inverter back up. The customers who kept queuing up through the day to pay their bills were told that MSEDCL could not accept the bills until the power supply was restored. “I came to pay the electricity bill in the scorching heat, but was asked to wait for a long time as the MSEDCL staff at Ganeshkhind could not issue receipts due to power failure. The others like me were asked to wait until the supply was restored,” said a resident of Model Colony. Civic activist Vivek Velankar said in case of power failure, the utility has to issue bill receipts.” It was wrong to ask people to come later”, he said.58

11. Due to power woes workers in small-scale industries in Pimpri-Chinchwad Township have been sitting idle, as shown in Fig. 2.5, during July 2008. Non availability of power has therefore made an adverse impact on business performance of most of the units in PCMC areas during 2008. Small units like plastic, fabrication and engineering workshops at Rupinagar, Triveninagar and
Pradhikaran have also shut their operations from 02.08.2008 for 4 to 5 days due to power cuts.41

Fig2.5: Due to power woes workers in small-scale industries in Pimpri-Chinchwad Township have been sitting idle.

12. There has been an incidence of MSEDCL’s transformer blast at Chikhali which left a couple seriously injured in April, 2010. A complaint has been lodged by Thatte, S, a resident of Samada Housing Society, near Perugate. In this society, the transformer was fitted in the parking space in 1999. There are 29 flats and 6 shops of which about 5 flats are right above the transformer and it is too dangerous to live. It can cause serious harm if the transformer explodes. In order to prevent such incidences the transformer has to be shifted to a safer place as per the order of Public Works Department (PWD).47

13. During 2010, MSEDCL has been implementing power shut down every Thursday for maintenance work. Velankar. V, Pune city based Sajag Nagrik Manch( SNM) has asked MSEDCL in May,2010 to publish feeder wise details of maintenance schedule effected for last 12 Thursdays.”Why power cuts in the name of maintenance? Nowhere in the world a power shut down is done for maintenance.SNM has been receiving complaints from consumers and it is consumers right to know what sort of maintenance is done on every Thursday,” says Velankar. “Consumers have been complaining about power supply not
resuming after the shutdown hours announced in newspapers and also frequent disruptions in supply on Thursdays. Consumers also need an assurance that MSEDCL’s system will not collapse in first showers of monsoon in June, 2010, “states Velankar in a letter sent to MSEDCL chief engineer.70

14. Power tariff has been hiked 6 times from August, 2009 to March, 2010. MSEDCL has proposed 7th price hike of 15 paise per unit for tuning up Maharashtra State Power Generation Company limited. If this revision comes in force after Public hearing of MERC’s members visit to Pune on 19-05-2010, then this will be 7th tariff hike within roughly a year’s time. “On one hand consumers are paying for such increasing power tariff hikes with no relief from erratic load shedding”, said Dixit, S, from Prayas (Energy Group). As per MERC, tariff should be decided for three years and once decided, there should not be any change. Also, this tariff should not include any cost on account of inefficiencies. A significant portion of rise in tariff is on account of various in efficiencies such as excess distribution loss, high cost power purchase, on account of improper planning, failure to adhere to performance trajectories,” says Dixit.48

2. 6. Review of problems faced by MSEDCL in Pune city with regard to domestic and industrial customers:

It was decided to review problems faced by MSEDCL in Pune city with regard to domestic and industrial customers as this is also one of the objectives of this research topic. MSEDCL, Pune, faces the problem of some consumers and other government authorities being negligent in spite of electricity company officials giving them proper information. For example, some people building houses in the Extra High Voltage EHV areas. At times, this causes accidents and persons may receive severe burn injuries due to electric shock. There are also incidences of other civic bodies not conscious of public safety while dumping of garbage’s and debris close to High Tension (H.T.) Lines due to which two consumers received shock. Sometimes problem occur due to road repair works undertaken by municipal civil/ cantonment contractors without any co-ordination with MSEDCL officials. At times, digging of the roads may damage the underground cables or even phase reversal for which consumers start approaching the MSEDCL staff. The consumers are annoyed due to power breakdown and start blaming MSEDCL staff when such a bug is passed on by
some civic body/utility services to MSEDCL. The other major problems faced by MSEDCL are of "Power thefts." Due to power thefts distribution losses go up which hits the bottom line of MSEDCL apart from general image problem. Also, there are instances of government offices/ customers not paying MSEDCL bills, compelling MSEDCL to cut electricity connection.

**Elaboration of problems faced by MSEDCL in Pune city with regard to domestic and industrial customers:**

1. On 26.05.2009 at Ambegaon Pather near Dhankawadi a mother and her two sons (Khedekar's) sustained severe burn injuries when they accidentally received electric shock from the 132 KV extra high voltage (EHV) Line passing over the building. The fact is that such accidents of receiving shocks due to passing of EHV lines close to the building area occur due to growth of slums in the area. Vijaya Mukedkar, Superintending Engineer, EHV Supply, said slums should not have been allowed to come up in the area, which is not residential.49

2. Similar incidence is also reported in local newspaper on 16.07.2009 at Bijlinagar area of the Pimpri-Chinchwad Township. Pramila Razak was putting clothes to dry with the help of iron rod and strayed in the induction zone of the EHV line. The rod pierced her abdomen due to the electric current. It may be noted that induction area near the EHV line can result in a person getting an electric shock, even if he/she does not come in direct contact with the line.68

In Shivnagari and Balwantnagari areas in Bijlinagar, thousands of houses have been built illegally. (As shown in Fig.2.6).
The land belongs to Pimpri-Chinchwad New Township Development Authorities (PCNTDA). Maharashtra State Electricity Transmission Company Ltd (MSETCL) has sent 250 Notices to owners of these illegal constructions in mid 2009. Industrial workers and poor people bought small plots of land measuring 500 Sq.ft to 3,000 Sq.ft from farmers and constructed home on it in the Bijlinagar areas from 1990 onwards”, says Suryavanshi, A, a local resident. The EHV lines have been there well before the land deals were made. Suryavanshi further added that electricity company sent notices to owners of such houses but no action has been taken against the people.49

3. On 30.12.2008, the residents and office goers of M.G. Road in Pune camp area got a rude shock as all the lifts and water pumps started running in reverse mode. This problem occurred as one of the cables was damaged in the area due to the ongoing repair works undertaken by the cantonment. MSEDCL Lineman however fixed the issue.64

4. MSEDCL disconnected power supply to NFAI to the vaults of the National Film Archives of India (NFAI) - home to rare, extremely fragile prints of hundreds of motion pictures, some a century old - went without power over 24 hours on 19.11.2008. Cash strapped NFAI failed to pay MSEDCL's power bills worth Rs. 15 lacs for three consecutive months. Subsequently MSEDCL restored the power on 20.11.2008 evening after some money was deposited by NFAI.54
In early 2008, unpaid bills for the previous one year have led MSEDCL to cut electricity connection issued in the name of Pune police commissioner. MSEDCL was compelled to take such a drastic action as dues worth Rs. 2,08,000 were not paid at the connection of a 24 hours ATM of Axis Bank located in the premises of the police Commissioner's office.

MSEDCL Deputy Executive Engineer, Rai R said, "The bill was generated in the name of Police Commissioner. But the electricity meter was installed at Axis Bank ATM. MSEDCL team contacted Police Officers several times, but there was no response. The Axis Bank authorities had never approached MSEDCL for paying the bills. The MSEDCL was sending the bills to the Police Commissioner's office but Police never directed the bills to us", says Borhade S., Assistant Manager of Axis bank. MSEDCL had no option but to cut the supply which was resumed as soon as the bank authorities paid the bill.

At Chimatavasti, Hadapsar, close to Mula-Mutha canal, there are High Tension Lines of MSEDCL. Also, a few residents live close to H.T. Lines. The irrigation department trucks kept on dumping all the disposables close to H.T. Lines as shown in Fig. 2.7 and due to this act two consumers namely Rakesh Jadhav and Katarnavare received electric shock in June 2008.
Fig. 2.7: The irrigation department trucks kept on dumping all the disposables close to H.T. Lines.

The irrigation department started this activity of dumping derbies may be at night. This disposable has spread to an area of about one kilometer or so. MSEDCL Executive Engineer, Ansari, J said, as this area belongs to work department, we requested this department to take proper action but there is no response from them. He further stated that they are aware that there is a danger to residents of this locality which has prompted MSEDCL to take this step.

7. Power thefts have been a regular activity and the following reports explain the modus of operation of power thefts traced out.

i. In Hadapsar area, at Gondhalenagar, crime has been registered against Shree Ram Engineering Works for stealing power. MSEDCL's Rajdeep, S, Executive Engineer of Bund Garden Division disclosed this information. In Gondhalenagar, Shree Ram Engineers altered and slowed down the electric meter. Power theft of around 81,000 units amounting to Rs. 6.82 lacs was noticed.

ii. In Dec. 2008 MSEDCL along with the Police arrested one. Chatur, a resident of Thite Vasti in Chandannagar. The suspect used to help consumers in
slowing down the power meters. The police conducted the operation on Thursday, 18.12.2008 and seized 35 meters from him. (As shown in Fig.2.8). MSEDCL, Deputy Director (Vigilance, Security and enforcement - Pune Region, Indalkar, S. said that Chatur used to install a circuit which could be operated with remote control. The consumer could switch on the meter when an MSEDCL lineman would come to inspect, otherwise it remained switched off. Assistant Police Inspector - Munde, P said they received tip-off on such power thefts and accordingly informed the MSEDCL officials. Later, the power utility (MSEDCL) carried out the operation with the help of the vigilance flying squads. A company official, in disguise of a consumer, got in touch with Chatur who promised them help. Accordingly, the officials gave Chatur a meter and asked him to make necessary changes, for which Chatur charged Rs. 2,000/-.

Indalkar said Chatur was nabbed when the latter came to handover tampered meters. According to Indalkar, MSEDCL will send the seized meters to their engineering department and then identify the consumer meter numbers and accordingly initiate action against those who have tampered with the meter.44

iii. In June 2008 some smart robbers committed a theft right under the nose of the police and stole electric wire from electric poles located on the Boat Club Road near the Ammunition Factory in Khadki. 39The incident came to light when a junior engineer of the MSEDCL, Khadki Division lodged a complaint at Khadki Police Station. It could be the job of the people who live in the Khadki Railway Station slums or the Patil Road slums to make
a quick money, says Police Sub-Inspector Bagawade, G.

iv. In Dec. 2007 a flying squad of MSEDCL caught an owner of a Stone Crusher (Yashoganga Stone Crusher) in Narhe on Sinhagad Road, who had stolen one lac ninety four thousand four hundred eighty five units of power amounting to Rs. forty lacs seventy one thousand four hundred six during about 15 months. MSEDCL smelled a rat when they suspected that the power drawn by the stone crusher was much higher than the meter readings.

v. In March 2008, 70 feeder pillars in Boat Club and Koregaon Park were broken into by the power thieves which was compounding to citizens’ power woes. The power thieves steal electrical devices containing copper plates and wires of feeder pillars and sell the copper in scrap. Further, many feeder pillars are lying open as their doors have been stolen. This poses a dangerous situation as the contact with the electrical circuit in these feeder pillars can cause electrocution. MSEDCL, Pune has to incur huge expenditure on making these feeder pillar run adding wounds to the injury namely high maintenance costs of the organization.

vi. Civic body are carrying out excavation work for widening roads or lay water and drainage pipelines causing damage to MSEDCL’s underground cables. In, May, 2010, MSEDCL, Pune Chief Engineer, Nagtilak, said that MSEDCL had registered 42 such cable faults in Rasta Peth Urban Circle and 40 in the Ganeshkhind Urban Circle. He further stated that more than 12 FIRS have been filed against Pune Municipal Corporation (PMC) for damaging cables. Once the cable is cut, the power supply in the area is disrupted and it takes two-three hours to repair the fault. Some of PMC contractors pay for the damage when the MSEDCL Engineer rush to the site and explain the situation, but most of them tend to slip away.
The following Fig. 2.9 shows one of such excavation sites.

![Excavation Site](image)

Fig. 2.9: One of such excavation sites.

2.7 Tata Power’s focus on Customer Satisfaction:

In India, Tata Power, Mumbai has viewed Customer Satisfaction very seriously. In order to provide better services to Tata Power’s customers, the company has taken the following steps since 2008:

- **Electronic Cheque Drop Box Machine**: Tata Power has installed an Electronic Drop Box Machine in its consumer’s premises to provide instant receipt for cheque payments and the machine also transmits the data instantly to a central server. Tata Power expects to cover all its locations where there is customer concentration.

  a) In 2008, Customer Information Portal has been revamped by Tata Power to make website more information base, easy-to-navigate.

  b) A separate section on Demand Side Management (D S M) is also included to help consumers to be more energy savvy.

  c) Tata Power as a part of its customer relationship management (CRM) exercise conducts customer meet every year for its various categories of consumers. Such a meeting is addressed by two Executive Directors of Tata Power where consumer segments get an opportunity to interact meaningfully and hear views of the Company Management perspective.35

Tata Power Energy Club (TPEC) is an Energy Conservation initiative that focuses on bringing about a first-hand realisation of energy crisis in Mumbai and country at large, through the enterprise and creativity of Indian Youth! Tata
Power sensitizes school children from Grades VI to VIII from different schools in Mumbai about energy conservation through talks and audio-visual presentations and guided trips to Tata Power Generating Station. These inputs are designed to provide the students with an understanding of:

(i) The importance of energy conservation, and Mumbai’s dependence of electric power.
(ii) Increasing demand of energy and limitations of resources.
(iii) The enormous amount of capital, resources and manpower required to generate electricity for Mumbai.
(iv) The impact on environment and Safeguard to prevent wastage of power in everyday life.

d) Tata Power provides the following variety of services to its customers-
1. Energy audit, energy conservation study and energy management.
3. Fault detection on the distribution cables inside the consumer premises.
4. Assistance and guidance in maintaining safety to the equipment and personnel.
5. Technical training of consumer operation and maintenance staff at companies training centers.
6. Review of the equipment at consumer station for upgrading and modernising to enhance reliability and
7. System protection studies.

"I could spend a day just talking about the kind of work we are doing in New Delhi”, says Mr. Vandrewala, MD, who personally monitors customer satisfaction of Tata Power.

Tata Power is differentiated from other distribution companies in India on the basis of: **reliability, trust and customer satisfaction**. Tata Power introduced performance tracking indices like reliability index, average frequency of interruptions and duration of interruptions and benchmarked them against international standards. Nowhere is its consumer approach demonstrated better than in North-West Delhi where Tata Power distributes power to over eight lacs consumers. Thus consumers are plagued by load shedding, voltage fluctuations, faulty billing, heavy pilferage and non-existent standards. Tata Power introduced a 24x7 call center, a customer service portal, wireless reading meters, SMS alerts of impeding shutdowns, regular consumer forums
and emergency vans. Superior regular consumer services are supplemented by technical advancements. In 2005, Rs 330 crores has been spent by Tata Power to improve reliability. During 2005,” the frequency of consumer interruptions is a mere 1 compared to 2.29 internationally and average duration of interruptions is only 29 minutes, way below international 93 minutes,” says Kukde, P, Executive Director (Technical) of Tata Power.34

2.8 Conclusion:

By going through the data on customer satisfaction of electricity distribution in various countries, the researcher was able to select attributes to be included in the questionnaire. Out of various countries; attributes were mentioned in the data of USA, UK, Japan and Hungary. Also customer satisfaction surveys are carried out in Hungary since many years and research papers are published. The development of low confidence in electricity distribution business is similar in many countries including India. Electricity distribution companies like Scottish Power in U. K. and Vattenfall in Europe are making efforts in marketing their services through improvement in levels of customer satisfaction.

The critical issues observed during the study of customer satisfaction levels of MSEDCL customers in Pune city are: erroneous billing, faulty meters and concern for safety, frequent interruptions and erratic load shedding, frequent power tariff hikes to all types of consumers and adverse impact on business performance to industrial customers as:

MSEDCL, Pune is facing problems like: I) The customers have built houses in H.T. lines areas where there is a danger to receive electric shocks. MSEDCL has sent notices to these customers in the past but at the connivance of other civil authorities, the customers have turned deaf ear to such notices, II) Without informing MSEDCL, the civil authorities have allowed contractors to dig up roads which has damaged underground electric cables causing undesired service calls and customer dissatisfaction and lowering down the overall image, III) Public works department have dumped garbage closed to HT lines and there are incidences of consumers getting shocks while trespassing this area, IV) Power thefts by domestic and industrial customers. There are instances of altering and slowing down the meters and illegal connections directly taken from electric poles, V) Consumers do not pay bills in time.
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