

**Project Report on**

**A Study on customer satisfaction towards**

**Tata Power-DDL**

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**A Study on customer satisfaction  
towards Tata Power-DDL**

## DECLARATION

I, Ranpal Singh, student of MBA (E) 2015-2017 batch of Delhi School of Management, Delhi Technological University, Bawana road, Delhi, declare that term project "**A Study on customer satisfaction towards Tata Power-DDL**" submitted in partial fulfilment of Executive MBA program is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University for award of any other Degree, Award and Fellowship.

Name of candidate

Place: New Delhi

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **ACKNOWLEDGEMENT**

I feel proud and privileged in expressing my deep sense of gratitude to all those who have helped me in presenting this project. I am very thankful to Dr. Rajan Yadav in Delhi School of Management, Delhi Technological University, Delhi, for his guidance, constant encouragement and sincere support for this project work.

The knowledge and values inculcated have proved to be of immense help at the very start of our career.

## EXECUTIVE SUMMARY

The objective of this project is to study the customer satisfaction in context of power quality and customer service.

TPDDL has been in operation since 2002 in the North and northwest area of Delhi. The company have overcome many obstacles to provide quality power to its consumers. The company has taken many initiative for this:

- The implementation of **Supervisory Control and Data Acquisition (SCADA)** across all grid stations
- GIS was implemented for the Distribution network which was also a prerequisite for making the system ready for the **Distribution Management System (DMS)**.
- **GIS** provided a platform to the engineering and planning team to enhance their efficacy by getting an accurate view of the geography and network
- **Customer Care Module (CCM)** for Complaint/Request registering / tracking and closing mechanism

And more recent ones like

- On line applications
- Mobile application
- Reduced complaint attending time
- New connection and disconnection in reduces time.
- TPPDL's CSR initiatives
  - Health check ups
  - Mobile dispensaries
  - Women learning centers
  - Skill enhancing course etc.

All of the above steps helped to increase the customer satisfaction but still a long distance needs to be covered.

In near future there would be many service providers in the same area. So customer satisfaction plays very critical factor in retaining the current customer base and increasing it further.

This project report studies the customer satisfaction level as of now and explore the ways to increase it.

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# 1. INTRODUCTION

The power sector in India is mainly governed by the Ministry of Power. There are three major pillars of power sector these are Generation, Transmission, and Distribution. As far as generation is concerned it is mainly divided into three sectors these are Central Sector, State Sector, and Private Sector.

Central Sector or Public Sector Undertakings (PSUs), constitute 29.78% (62826.63MW) of total installed capacity i.e, 210951.72 MW (as on 31/12/2012) in India. Major PSUs involved in the generation of electricity include NHPC Ltd., NTPC Ltd. and Nuclear Power Corporation of India (NPCIL).

## Major Generating stations

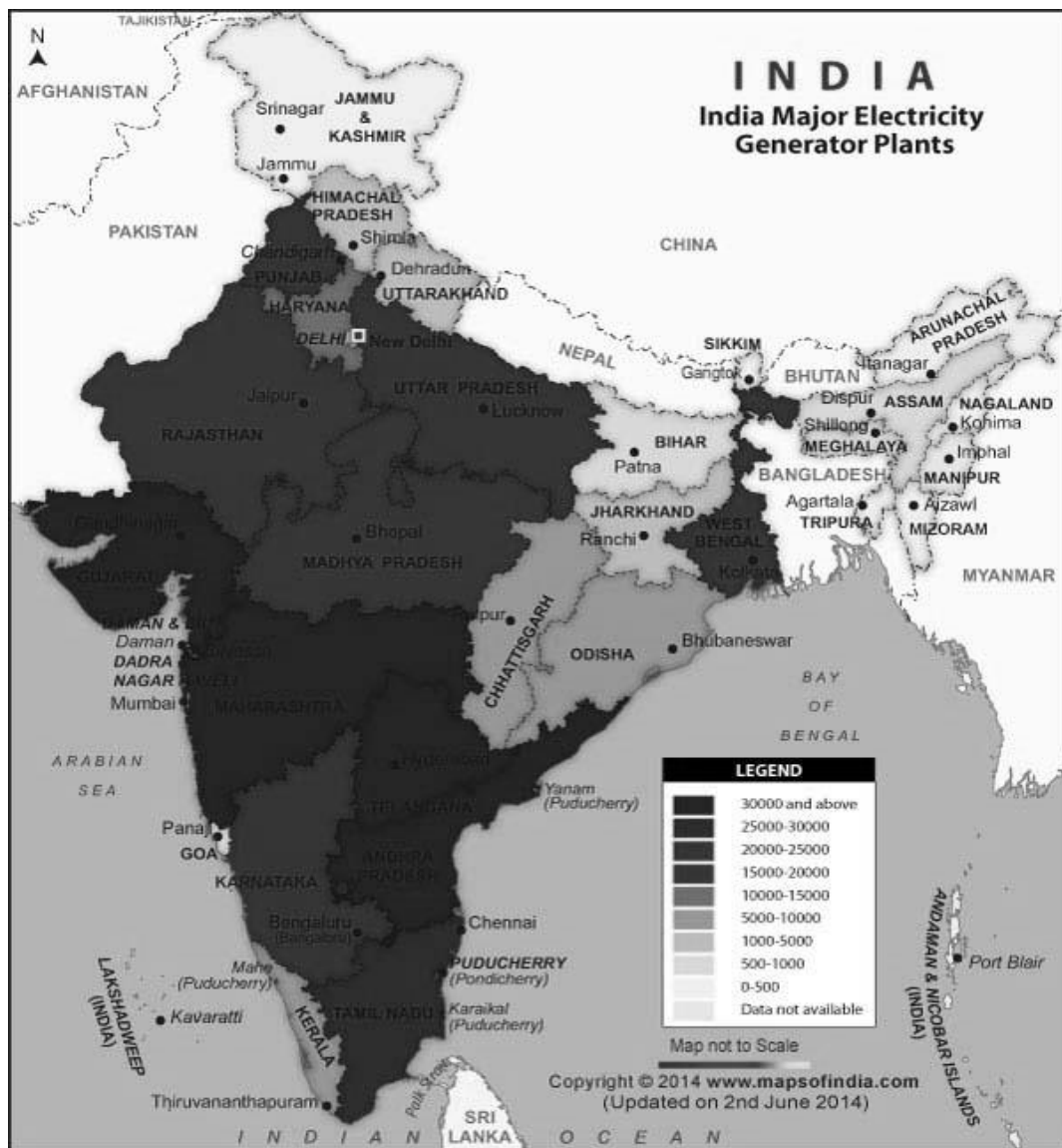


Figure 1.1

Besides PSUs, several state-level corporations are there which accounts for about 41.10% of overall generation, such as Jharkhand State Electricity Board (JSEB), Maharashtra State Electricity Board (MSEB), Kerala State Electricity Board (KSEB), in Gujarat (MGVCL, PGVCL, DGVCL, UGVCL four distribution Companies and one controlling body GUVNL, and one generation company GSEC), are also involved in the generation and intra-state distribution of electricity.

Other than PSUs and state level corporations, private sector enterprises also play a major role in generation, transmission and distribution, about 29.11%(61409.24MW) of total installed capacity is generated by private sector.

The PowerGrid Corporation of India is responsible for the inter-state transmission of electricity and the development of national grid. The Ministry of Power is the apex body responsible for the development of electrical energy in India. This ministry started functioning independently from 2 July 1992; earlier, it was known as the Ministry of Energy. The Union Minister of Power at present is Sushil Kumar Shinde and Minister of State for Power is K.C Venugopal.

India is world's 6th largest energy consumer, accounting for 3.4% of global energy consumption, with Maharashtra as the leading electricity generator among Indian states. Due to India's economic rise, the demand for energy has grown at an average of 3.6% per annum over the past 30 years. At the end of December 2012, the installed power generation capacity of India stood at 210951.72MW, while the per capita energy consumption stood at 733.54 KWh (2008-09). The Indian government has set an ambitious target to add approximately 78,000 MW of installed generation capacity by 2012. The total demand for electricity in India is expected to cross 950,000 MW by 2030.

India is the sixth largest in terms of power generation. About 65% of the electricity consumed in India is generated by thermal power plants, 22% by hydroelectric power plants, 3% by nuclear power plants and rest by 10% from other alternate sources like solar, wind, biomass etc. 53.7% of India's commercial energy demand is met through the country's vast coal reserves.

The country has also invested heavily in recent years on renewable sources of energy such as wind energy. As of March 2011, India's installed wind power generation capacity stood at about 12000 MW.

Additionally, India has committed massive amount of funds for the construction of various nuclear reactors which would generate at least 30,000 MW. In July 2009, India unveiled a \$19 billion plan to produce 20,000 MW of



solar power by 2020 under National Solar Mission. The per capita power consumption in India is 733.54KWh/yr, which is very minimal as compared to global average of 2340KWh/yr.

## 1.1 Industry Profile

### Electricity Generation

India's electricity generation from 1950 to 1985 were very low when compared to developed nations. Since 1990, India has recorded faster growth in electricity generation. India's electricity generation has increased from 179 TW-hr in 1985 to 1,057 TW-hr in 2012.



*Figure 1.2*

Power generation by coal fired plants and non-conventional renewal energy sources (RES) has mainly contributed to the growth in the total electricity generation whereas the contribution from natural gas, oil and hydro plants has decreased in last five years (2012-2017).

The gross utility electricity generation (excluding imports from Bhutan) is 1,236 billion kWh during the year 2016-17 against the corresponding actual generation of 1,168 billion Kwh during the year 2015-16 with 5.81% annual growth.[60]

The CEA generation data is nearly 5% more than the NLDC data which is based on prompt data on daily basis

State wise installed capacity

1.Total Installed Capacity:(As on 31.03.2017)		
Sector	MW	% of Total
State Sector	103,967	32.53%
Central Sector	80,257	25.11%
Private Sector	135,382	42.36%
<b>Total</b>	<b>319,606</b>	

Table 1.1

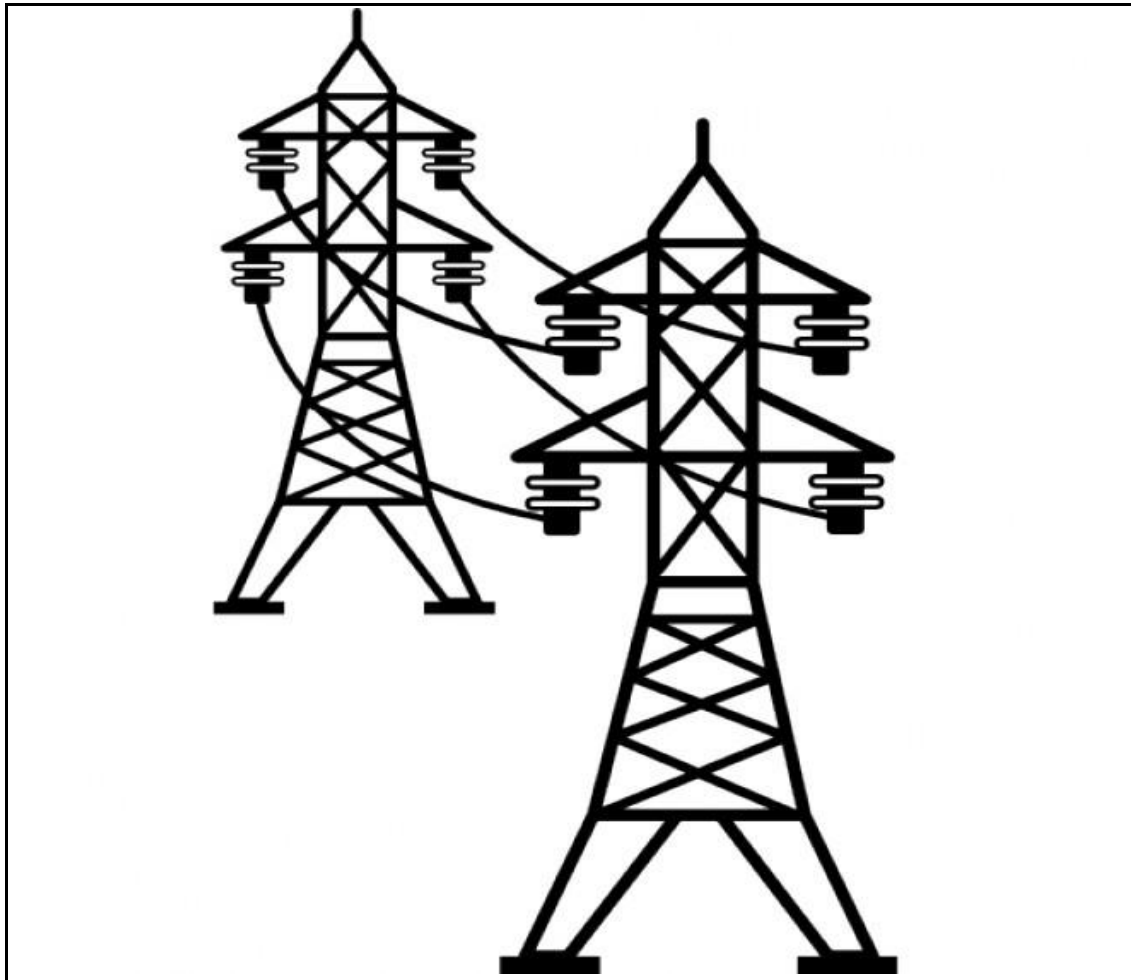
Source: <http://powermin.nic.in/en/content/power-sector-glance-all-india>

Electricity Transmission

Transmission of electricity is defined as bulk transfer of power over a long distance at high voltage, generally of 132kV and above. In India bulk transmission has increased from 3,708 ckm in 1950 to more than 166000ckm, out of which 75556ckm is transmitted by Power Grid Corporation of India (as on 30 Sep. 2010 ). The entire country has been divided into five regions for transmission systems, namely, Northern Region, North Eastern Region, Eastern Region, Southern Region and Western Region. The Interconnected transmission system within each region is also called the regional grid.

The transmission system planning in the country, in the past, had traditionally been linked to generation projects as part of the evacuation system. Ability of the power system to safely withstand a contingency without generation rescheduling or load-shedding was the main criteria for planning the transmission system.

However, due to various reasons such as spatial development of load in the network, non-commissioning of load center generating units originally planned and deficit in reactive compensation, certain pockets in the power system could not safely operate even under normal conditions. This had necessitated backing down of generation and operating at a lower load generation balance in the past. Transmission planning has therefore moved away from the earlier generation evacuation system planning to integrate system planning



*Figure 1.3*

While the predominant technology for electricity transmission and distribution has been Alternating Current (AC) technology, High Voltage Direct Current (HVDC) technology has also been used for interconnection of all regional grids across the country and for bulk transmission of power over long distances.

Certain provisions in the Electricity Act 2003 such as open access to the transmission and distribution network, recognition of power trading as a distinct activity, the liberal definition of a captive generating plant and

provision for supply in rural areas are expected to introduce and encourage competition in the electricity sector. It is expected that all the above measures on the generation, transmission and distribution front would result in formation of a robust electricity grid in the country.

### Electricity Distribution

The total installed generating capacity in the country is 210951.72MW, and the total number of consumers is over 146 million. Apart from an extensive transmission system network at 500kV HVDC, 400kV, 220kV, 132kV and 66kV which has developed to transmit the power from generating station to the grid substations, a vast network of sub transmission in distribution system has also come up for utilization of the power by the ultimate consumers.

However, due to lack of adequate investment on transmission and distribution (T&D) works, the T&D losses have been consistently on higher side, and reached to the level of 28.44% in the year 2008-09. The reduction of these losses was essential to bring economic viability to the State Utilities.

### *Power Distribution Model*

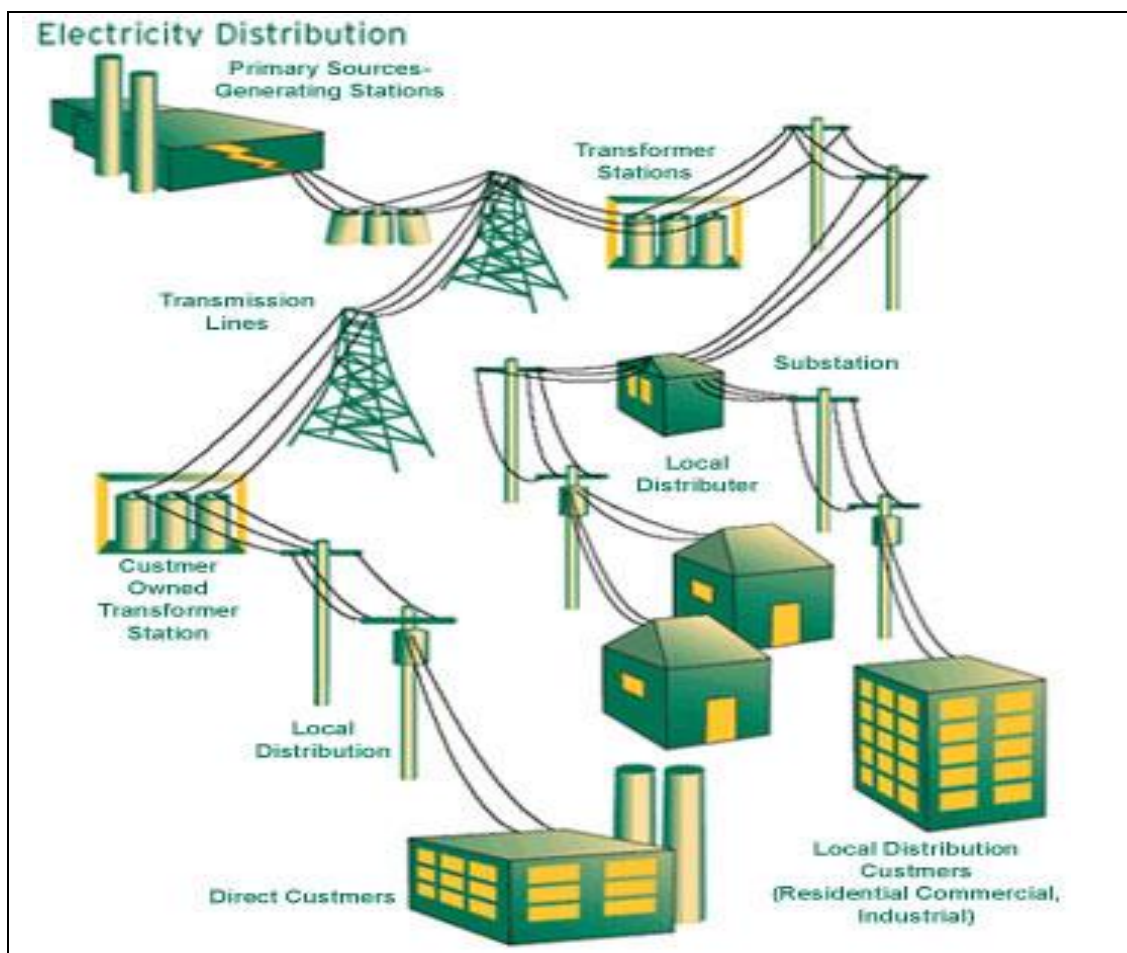


Figure 1.4

High technical losses in the system are primarily due to inadequate investments over the years for system improvement works, which has resulted in unplanned extensions of the distribution lines, overloading of the system elements like transformers and conductors, and lack of adequate reactive power support.

The commercial losses are mainly due to low metering efficiency, theft & pilferages. This may be eliminated by improving metering efficiency, proper energy accounting & auditing and improved billing & collection efficiency. Fixing of accountability of the personnel / feeder managers may help considerably in reduction of AT&C loss.

With the initiative of the Government of India and of the States, the Accelerated Power Development & Reform Program (APDRP) was launched in 2001. APDRP meant to upgrade the distribution system, minimize transmission and distribution losses, improve metering and assign responsibility for the realization of user charges —has not been able to bring down losses to 15% by the end of 2007, as originally targeted in 2000-01.

The APDRP program is being restructured by the Government of India, so that the desired level of 15% AT&C loss could be achieved by the end of 11th plan.(estimated plan cost – Rs 50000 crore)

The main objective of the program was to bring Aggregate Technical & Commercial (AT&C) losses below 15% in five years in urban and in high-density areas. The program, along with other initiatives of the Government of India and of the States, has led to reduction in the overall AT&C loss from 38.86% in 2001-02 to 28.44% in 2008-09.

## **1.2 Organisation profile**

Tata power distribution Limited (TPDDL), earlier known as NDPL (North Delhi power limited), took over power distribution system from Government of Delhi, after unbundling and corporatization of the erstwhile Delhi Vidyut Board (State owned vertically integrated Electricity Board) constituents (Generation, Transmission, Distribution), formed a 49:51 Joint Venture Company.

The Delhi Model of Public Private Partnership (PPP) in Distribution (TPDDL – JV of Tata Power (51%) and Govt. of Delhi (49%)) is probably one of the very few PPP successes in the Indian infrastructure space, and definitely the only one so far as the Power Distribution is concerned. The Delhi Distribution PPP Model, while giving full functional autonomy to the Private Investors to manage the Business, provides complete Government Oversight through its

representation in the Board of the Discom. Additionally, by virtue of being a Distribution Licensee, the Delhi Discoms are also fully regulated by the State Regulator (Delhi Electricity Regulatory Commission), be it in terms of tariff determination, approval of capital schemes, conditions of supply and consumer service delivery, etc. The PPP Framework of Delhi Discoms has worked exceedingly well with both JV partners playing an equally critical role in the smooth functioning of the distribution companies. The Shareholders Agreement between Tata Power, Govt. Holding Co. – DPCL and TPDDL, allows for a maximum of 12 Directors on the Board of TPDDL with Tata Power (majority shareholder) having the right to appoint at-least one Director more than DPCL. Right to appoint Chairman and MD/ CEO and all Executive Directors lie with Tata Power.

In addition to the above, the Agreement fully protects the interest of the Government and citizens/consumers through provisions on Constitution of the Board, Quorum for Meetings, Specific consent of Holding Co. Directors required on critical issues, etc. The salient features of Shareholders Agreement are as follows:

i) Majority shareholder shall be entitled to appoint Managing Director/ Chief Executive Officer and all other Executive Directors of the Company.

ii) Govt. Nominees on Discoms' Board of Directors – One less than the Majority Shareholder

iii) Quorums for Board Meetings – at least one Govt. Nominee Director to be present

iv) Certain issues such as Alteration in Charter, Restructuring – Merger, Amalgamation, Liquidation, Winding-up etc., Investment in other businesses, etc. not without Govt. Director approval.

v) Approval of Govt. Nominee Director essential in following critical matters till Holding Company holds 10% or more of the Equity of Discom.

- Any amendment to the Memorandum or Article of Association
- Dissolution, liquidation or winding up
- Merger or amalgamation with any other Company or split/division internally
- Closure of business or activities or sale or transfer of any of its undertaking
- Subscription for or acquisition of any shares, debentures or securities or interest in any other entity except to the extent of short term investment upto Rs, 5.0 Cr.
- Material change in any significant accounting policy
- Write-off or cancellation of any investment/money deposit exceeding Rs. 5.0 Crore, and
- Giving Corporates Guarantee for any other person or business

vi) Holding Company entitled to examine Discom's books and accounts and to be supplied with all relevant information including quarterly management account and operating statistics.

vii) Prior intimation to Holding Company for transfer of shares in excess of 26 percent of total equity share capital of Company.

viii) First Right of Refusal on Sale of Shares with both Shareholders

While Tata Power is providing, amongst others, Leadership and management expertise, Governance, assistance in raising finances, strategic inputs, etc., the Delhi Govt.'s role as a JV Partner in facilitating resolution of day to day operational and other local level issues, etc. which has been and continues to be critical for successful running of the company. Some of the key areas where its influence/intervention has been of significant assistance to TPDDL are enumerated below:

AT&C Loss Reduction:

- Theft Control and Prosecution:

Special Courts for facilitating faster disposal of Theft related cases set up by the Delhi Govt.; it also facilitated availability of Central Security forces and Delhi Police to assist in theft control; the Government's pro-active and positive stance on controlling electricity theft has played a significant role in ensuring loss reduction to the current sub 10% loss levels. With losses reaching these low levels, the balance loss reduction would largely depend upon increased surveillance, enforcement and quick disposal of cases, which would make the Delhi Government and its administrative machinery's full support even more critical.

- Assistance in shoring up realizations of past dues:

The Delhi Govt. cleared up its past departmental dues thereby helping in loss reduction; it also wrote off its past dues (pre takeover period), thereby encouraging consumers to start on a clean slate and start paying current dues. Equitable

- Power Allocation from Central Quota:

The Delhi Govt. has played a key role in ensuring optimal allocation from the Central Quota

- Land & Clearances for Power Station(s):

NDPL's single largest differentiator vis-à-vis BSES (Captive Power Plant at Rithala), has been facilitated by the Delhi Govt. by pursuing TPDDL's case for change in Land Use; Statutory environmental clearances were also accorded by the Delhi Govt.'s environmental panel.

- Road Cutting / Right of Way Clearances:

All such clearances, which are mandatorily required for any development/maintenance work, are granted by the State Govt. machinery.

The salient features of the Delhi Distribution PPP Model are elucidated below:

#### Background to Reforms

The Delhi Government initiated Power Sector Reforms in Delhi with a view to improving quality of service to the consumers, making electricity available at competitive prices, improving operational efficiencies through reduction in AT&C losses, attracting investment in all areas through private participation and making the sector self-sustained, thereby reducing need for Government funding/subsidy in the electricity sector, and lastly, providing employees better opportunities for career development and higher rewards for performance.

#### Regulatory Framework

The key principles that had been kept in mind while building the framework were as follows:

- i) Past Liabilities and Post Losses of DVB not to be passed on to the successor entities
- ii) The restructured entities should start with clean opening balance sheets
- iii) No retail tariff shocks to the consumers
- iv) Govt. to provide transition support in initial years till Discoms becomes self-sustainable
- v) Mitigation of uncertainty, regulatory or other-wise to the extent possible
- vi) Consumers to get maximum benefit from the privatization exercise
- vii) Incentives and profit sharing mechanism, related to performance, provided to Discoms



## Geographical area of Discom

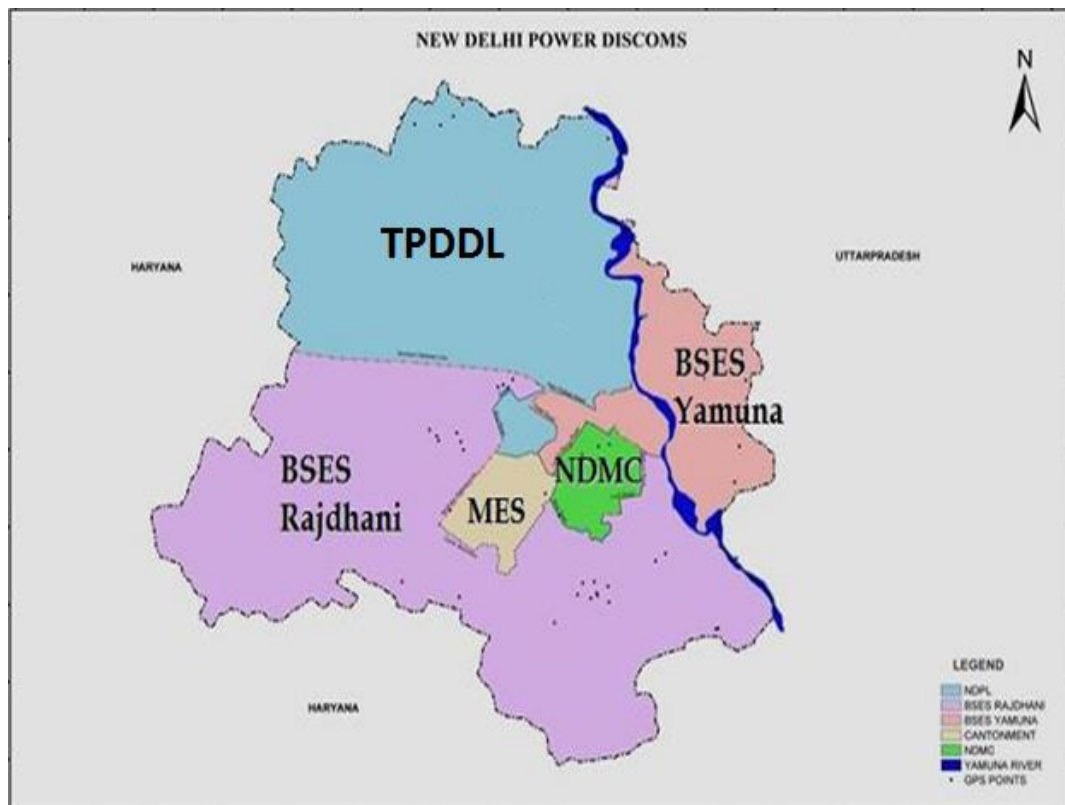


Figure 1.5

### Distributed Leadership

Since inception, TPDDL has believed in the concept of “Distributed Leadership”. The entire operational area is divided into 5 circles, 12 districts and 46 zones and senior officers have been appointed and empowered to run these as individual business units. Competition amongst them has been Institutionalized through creation of Performance Scorecards and its regular review and monitoring. Both Reward & Recognition as well as knowledge sharing platforms have been established to recognize the best performers and to replicate the best practices with agility across the remaining work units.

In order to address the apprehensions and expectations of all concerned stakeholders and to mitigate the operational and human challenges that it faced at the time of takeover, the senior leadership team adopted a three pronged strategy.

1. Co creating a Vision & Mission with its stakeholders which gave a statement and purpose to the organization and aligned all towards the organizational objectives; the vision was then parameterized which enabled the organization to track its progress on the reforms path. The Vision was cascaded through the Balanced Scorecard approach to the last individual in the organization to make him or her aware of their role and contribution to organizational objectives and to make them accountable for their performance.

2. Inclusive Social Engineering approach was used to engage with the consumers, society and employees at large; primarily to assess their needs and expectations, so as to involve them as a collaborative partner to the reforms process. Separate satisfaction surveys for consumers and employees through reputed third parties were initiated right from the inception so that the leadership could gauge its success of delivering value to its stakeholders which was promised at the time of privatization. The continuous improvement in these indices over the past ten years' stand testimony that the leadership has not only met the expectations of these stakeholders but have surpassed them in several cases.

3. The Leadership team had to build bridges of understanding with all connected groups be they Employees representatives, Trade unions, Resident Welfare Associations, Political leaders etc. We are thankful to the leadership of these connected groups for supporting our efforts.

Above all, the concept of leadership a practiced in TATA POWER-DDL has been all about TEAMWORK.



*Figure 1.6*

The objective was to improve quality of service to its Customers, making electricity available at competitive prices and improving operational efficiencies – in short, making the Sector self-sustainable.

The sector was facing heavy loss, with bleak chances of revival. Tata Power Delhi Distribution Limited [Tata Power-DDL] is a joint venture between Tata Power and the Government of NCT of Delhi with the majority stake being held by Tata Power Company (51%). Tata Power-DDL distributes electricity in North & North West parts of Delhi and serves a populace of 7 million. The

company started operations on July 1, 2002 post the unbundling of the erstwhile Delhi Vidyut Board (DVB). With a registered Customer base of 1.51 million and a peak load of around 1764 MW (May 2016), the company's operations span across an area of 510 sq kms.

Tata Power-DDL has been the frontrunner in implementing power distribution reforms in the capital city and is acknowledged for its Customer friendly practices. Since privatization, the Aggregate Technical & Commercial (AT&C) losses in Tata Power-DDL areas have shown a record decline. AT&C loss is a measure of overall efficiency of the distribution business which is the difference between units input into the system and the units for which the payment is collected. Today, AT&C losses stand at 8.88% which is an unprecedented reduction of around 82% from an opening loss level of 53% in July 2002.

### Home page of TPDDL



Figure 1.7

On the power supply front too, Tata Power-DDL areas have shown remarkable improvement. The company has implemented high-tech automated systems for its entire distribution network. Systems such as, SCADA, Geographical Information System [GIS], Outage Management System [OMS], DMS and OTS are the cornerstone of the company's distribution automation project. To fight the menace of power theft, modern

technologies like High Voltage Distribution (HVDS) System and LT Aerial Bunch Conductor have been adopted.

Tata Power-DDL has to its credit several firsts in Delhi:

- SCADA controlled Grid Stations, Automatic Meter Reading, GSM based Street Lighting system and SMS based Fault Management System. Tata Power-DDL's Smart Grid initiative with Automated Demand Response (ADR) is another first. To ensure complete transparency, Tata Power-DDL has also provided online information on billing and payment to all its 1.51 million Customers.
- As a step towards captive generation, Tata Power-DDL has also established a new 108MW gas based combined cycle power generating facility at Rithala, North Delhi. Tata Power-DDL has also added solar generation as a part of sustainable initiative since 2008. With fifteen (15) Solar Plants installed at its license area the total capacity till FY 2015-16 is 1.76 MW
- Tata Power-DDL is also a member of a Global Intelligent Utility Network Coalition (GIUNC) which is working towards accelerating the development of common standards, technology solutions and processes for intelligent networks. Tata Power-DDL is the first Indian utility to join the IUN Coalition which also includes utilities from North America, Europe and Asia-Pacific regions.
- Tata Power-DDL is the only utility in the Country to have been empanelled by the Power Finance Corporation, Govt. of India's nodal implementation agency for its Restructured Accelerated Power Development and Reforms Program (R-APDRP), as IT Consultant and SCADA Consultant. Tata Power-DDL is also empanelled with the Rural Electrification Corporation as System Consultant/IT and Energy Auditing and is currently providing consultancies to various National and International utilities on IT/ SCADA implementation e.g. Haryana, Uttar Pradesh etc. Tata Power-DDL has been assigned with consultancy service project with newly privatized utility in Nigeria.
- Tata Power-DDL's change management experience, distributed leadership system, adoption of latest technology; robust competence development process and innovative & open work culture are the key strategic boosters which helped in building and sustaining competitive advantage in the changing business scenario.
- Tata Power-DDL has created several milestones in its journey so far; it is now focused and committed to the road ahead and is exploring new opportunities to replicate its experience of distribution reforms both in India and abroad. It is leveraging its unique learning and skillsets solely and in collaboration with leading utilities and technology providers like GE, IBM, Honeywell, Enel, Silverspring, Omron,

Raychem, 3M etc. in the areas of communications & smart grid technology, change management, Customer service delivery and business process re-engineering.

- Tata Power-DDL have also collaborated with leading international and national Institutions like MIT, UCLA, Reyrson University, IIT Delhi, Punjab Engineering College, Delhi University, Netaji Subhas Institute of technology etc. to carry out research activities in emerging technologies.

A journey which began a decade ago for empowering the Customers in Delhi now holds the potential to transform the distribution sector in India and similarly help utilities across the globe. Today, Tata Power-DDL is providing project management and consultancy services to the states of Haryana and Uttar Pradesh. It is also exploring opportunities in Chhattisgarh and Punjab. The company is providing a technical and management support to a Distribution Company in Nigeria and is also looking for consultancy assignments in Kurdistan, Turkey and Iraq.

Tata Power-DDL is sensitive to the aspect of Climate Change and is committed to introduce energy efficient and greener technologies. As a part of the Tata Group, Tata Power-DDL carries forward the Group's ethos of giving back to society.

In fact, '**Reaching out to communities Tata Power-DDL operates in**' is an integral part of the company's mission statement. Tata Power-DDL has a dedicated Social Innovation Group that drives a wide array of Corporate Social Responsibility efforts of the company. Tata Power-DDL's CSR Policy rests on four main pillars – Employability, Entrepreneurship, Education and Employment.

### **1.3 Objective of the study**

In spite of taking many initiatives towards achieving greater customer satisfaction, TATA Power-DDL has ample scope for improvements. In the same line this study tries to study the current satisfaction level. This is needed to take corrective measures and plan future strategies

The objective of this project is to study the customer satisfaction in context of power quality and customer service

## **2. LITERATURE REVIEW**

### **2.1 Background to the problem**

TPDDL has taken many initiatives to enhance the customer experience and give them a world class power supply along with equally good services. In that line the company has taken many initiative and most of the customer are happy.

Many customer feel that the power quality and related services have improved a lot. But if look into the future the regulatory body is planning to bring competition in the power supply and services area.

The regulatory body is planning to bring many players to increase the competition and hence the power supplied and related service have to be of top most quality. This will help to ensure that the current consumer base do not slip away. At the same time the customer data base should also grow with time

So this study becomes very important for TPDDL to measure the current customer satisfaction level and plan for its further improvement.

## **2.2 Problem Statement**

The study tries to see the impact on the dependent variable i.e. customer satisfaction based on the values of two independent variables

1. Power quality
2. Supply service.

### **3. RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The method used to do this research is mainly surveys. A questionnaire was prepared for the survey purpose and response was taken from TATA POWER-DDL consumer.

The questionnaire consisted of 23 question. The response was mostly obtained on print out of the questionnaire.

The response was received from 72 customers and then the data was entered in excel to convert it into soft format. This was further used in statistical tool (SPSS) to analyze the complete data

#### **3.1 Type of research design**

Research design mainly guides the collection and analysis of data. This research mainly used the descriptive research methodology to obtain the results

Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation.

Descriptive research is often used as a pre-cursor to more quantitative research designs with the general overview giving some valuable pointers as to what variables are worth testing quantitatively.

If the limitations are understood, they can be a useful tool in developing a more focused study. Descriptive studies can yield rich data that lead to important recommendations in practice.

Approach collects a large amount of data for detailed analysis. The results from a descriptive research cannot be used to discover a definitive answer or to disprove a hypothesis. Because descriptive designs often utilize observational methods [as opposed to quantitative methods], the results cannot be replicated. The descriptive function of research is heavily dependent on instrumentation for measurement and observation.

#### **3.2 Scaling techniques**

A Likert scale typically contains an odd number of options, usually 5 to 7. One end is labelled as the most positive end while the other one is labelled

as the most positive one with the label of 'neutral' in the middle of the scale. In this the likert scale is taken with five options

Where option

1 is most satisfied

2 is satisfied

3 is neutral

4 is dissatisfied

5 is very dissatisfied.

### **3.3 Questionnaire development**

The questionnaire was developed in many phases. It has been revised many times before being finalised. The questionnaire first developed had very less questions. Then after the discussion with the guide the number of questions were increased.

The main thing that was kept in mind while designing the questionnaire was

1. The time taken to respond to the questionnaire should be as minimum possible.
2. The question carry all questions related to both service and quality of power being served to customer.
3. The language used be as simple as possible.

### **3.4 Sampling techniques**

Sampling method is getting more and more popular in research. This may be due to the ease of doing the research and it giving a fairly overall picture of the problem.

Sampling is the most commonly used to analyse the few chosen samples in context to the complete picture of the real world problem.

Sample size: 72.

Random sampling

It is the purest form of probability sampling. Each member of the population has an equal and known chance of being selected.



Sampling is concerned with choosing a subset of individuals from a statistical population to estimate characteristics of a whole population

### Simple Random Sampling

In a simple random sample (SRS) of a given size, all such subsets of the frame are given an equal probability. Each element has an equal probability of selection. Furthermore, any given pair of elements has the same chance of selection as any other pair. This minimizes bias and simplifies analysis of results. In particular, the variance between individual results within the sample is a good indicator of variance in the overall population, which makes it relatively easy to estimate the accuracy of results.

However, SRS can be vulnerable to sampling error because the randomness of the selection may result in a sample that doesn't reflect the makeup of the population.

### Systematic Sampling

Systematic sampling relies on arranging the target population according to some ordering scheme, a random start, and then selecting elements at regular intervals through that ordered list. As long as the starting point is randomized, systematic sampling is a type of probability sampling. It is easy to implement and the stratification can make it efficient, if the variable by which the list is ordered is correlated with the variable of interest.

However, if periodicity is present and the period is a multiple or factor of the interval used, the sample is especially likely to be unrepresentative of the overall population, decreasing its accuracy. Another drawback of systematic sampling is that even in scenarios where it is more accurate than SRS, its theoretical properties make it difficult to quantify that accuracy. As described above, systematic sampling is an EPS method, because all elements have

### Stratified Sampling

Where the population embraces many distinct categories, the frame can be organized by these categories into separate "strata". Each stratum is then sampled as an independent sub-population, out of which individual elements can be randomly selected. In this way, researchers can draw inferences about specific subgroups that may be lost in a more generalized random sample. Additionally, since each stratum is treated as an independent population, different sampling approaches can be applied to different strata, potentially enabling researchers to use the approach best suited for each

identified subgroup. Stratified sampling can increase the cost and complicate the research design.

### Cluster Sampling

Sometimes it is more cost-effective to select respondents in groups ("clusters"). Sampling is often clustered by geography or by time periods. Clustering can reduce travel and administrative costs. It also means that one does not need a sampling frame listing all elements in the target population. Instead, clusters can be chosen from a cluster-level frame, with an element-level frame created only for the selected clusters.

Cluster sampling generally increases the variability of sample estimates above that of simple random sampling, depending on how the clusters differ between themselves, as compared with the within-cluster variation.

### Quota Sampling

In quota sampling, the population is first segmented into mutually exclusive subgroups, just as in stratified sampling. Then judgment is used to select the subjects or units from each segment based on a specified proportion. For example, an interviewer may be told to sample 200 females and 300 males between the age of 45 and 60. In quota sampling the selection of the sample is non-random. The problem is that these samples may be biased because not everyone gets a chance of selection.

## **4. DATA ANALYSIS & RECOMMENDATIONS**

### **4.1 Introduction to case**

We can define service concept as a shared understanding of the service nature provided and received. They also state that service concept has to provide information about the essence of the service, service experience, and service outcome.

"The terms customer satisfaction and perception of quality are labels we use to summarize a set of observable actions related to the product or service"

The most comprehensive definition of satisfaction has been offered by Kotler and Keller who define satisfaction as "person's feeling of pleasure or disappointment which resulted from comparing a product's perceived performance or outcome against his/ her expectations". "Perception is

defined as consumer's belief, concerning the service received or experienced".

### **Categorisations of Customer Satisfaction and Service Perception**

We can divide customer service expectations into two levels:

1. Desired
2. Adequate.

Desired level of service expectations is a state of service the customer desires to receive, whereas adequate level of customer expectation is the level of service the customer can only "accept" without being too satisfied with it.

If desired and adequate levels of service expectations are to be explained in case of London Underground and National Rail Services customers, desired level of customer expectation would be to go from one destination to the other with no crowded train as quick as possible, whereas, adequate level of customer expectation would be just to go to destination even if the train carriage is crowded, and the train is not moving too fast.

Walker (1995) offers conceptualised service encounter model that is divided into three disconfirmation stages:

- First stage is evaluation stage in which peripheral service is offered before the consumption of the core service.
- Second stage involves intensive anticipation of core service by consumer.
- Third stage is the final in which delivery interaction is undertaken.

### Levels of Customer Satisfaction

When discussing categories of customer satisfaction levels, that divides potential customer satisfaction levels into three categories:

- First, negative disconfirmation happens when the level of service turns out to be worse than expected by the customer.

- Second, Positive disconfirmation, is the case where the service is better than expected by the customer.
- Third, simple disconfirmation, happens when the level of service matches the level of service expectations.

### Main Theories of Customer Satisfaction and Service Perception

Customer satisfaction = Customer Perception of the Service Received – Customer Expectation of Customer Service

In this way it is easy to generalise that if the perception of the service received has exceeded the expectations of the service customer satisfaction will be positive; on the other hand, if the perception of the of the service received is less than the level of expectation of the service it would lead to customer dissatisfaction.

A set of earlier studies on the topic of customer satisfaction and service perceptions were mainly undertaken on the basis of studying the relationships between three or four variables

The main shortcomings of such studies are that they rely on qualitative aspects increasingly and at the same time do not take into account psychological aspects of customer experiences. When related to the current research such customer experience psychological aspects will be stress associated with the longer waiting times in London Underground and National Rail Services terminals and stress and pressure caused by train carriages being overcrowded. This, study, on the other hand addresses the psychological aspects of service sector organisation customer experiences as well.

Confirmation/disconfirmation framework when discussing the issues of customer satisfaction. According to the framework customers have a set of pre-established standards in their mind when they are about to purchase a product or a service. The level of customer satisfaction is a result of comparison of this standard to the perception of the product bought or the service received.

If the level of perception of product or service bought does match the established customer standards this will result in customer satisfaction, and if it fails to meet customer standards customers will be left dissatisfied.

Czepiel et al maintain the validity of two factor theory in relation to analysing customer satisfaction. Two factor theory states that customers can be satisfied and dissatisfied with a product or a service at the same time, because satisfaction and dissatisfaction will be about different aspects of the product or service, thus, they will be unrelated.

The dual factor theory was further developed by Swan and Combs to change the names of the factors to instrumental performance and expressive performance. According to this theory instrumental performance relates to physical aspects of the product or service, whereas expressive performance refers to psychological aspects. The theory specifies expressive performance as a necessary component of customer satisfaction. Customers will be left unsatisfied if they are not satisfied with expressive performance of products and services, regardless of the fact that their instrumental performance have been satisfactory or not.

### Why Organizations Focus on Customer Satisfaction

Businesses monitor customer satisfaction in order to determine how to increase their customer base customer loyalty, revenue, profits, market share and survival. Although greater profit is the primary driver, exemplary businesses focus on the customer and his/her experience with the organization. They work to make their customers happy and see customer satisfaction as the key to survival and profit. Customer satisfaction in turn hinges on the quality and effects of their experiences and the goods or services they receive.

### Customer Satisfaction

The definition of customer satisfaction has been widely debated as organizations increasingly attempt to measure it. Customer satisfaction can be experienced in a variety of situations and connected to both goods and services. It is a highly personal assessment that is greatly affected by customer expectations. Satisfaction also is based on the customer's experience of both contact with the organization (the "moment of truth" as it is called in business literature) and personal outcomes. Some researchers define a satisfied customer within the private sector as "one who receives significant added value" to his/her bottom line—a definition that may apply just as well to public services. Customer satisfaction differs depending on the situation and the product or service. A customer may be satisfied with a product or service, an experience, a purchase decision, a salesperson, store, service provider, or an attribute or any of these. Some researchers completely avoid "satisfaction" as a measurement objective because it is "too

fuzzy an idea to serve as a meaningful benchmark.”<sup>4</sup> Instead, they focus on the customer’s entire experience with an organization or service contact and the detailed assessment of that experience.

For example, reporting methods developed for health care patient surveys often ask customers to rate their providers and experiences in response to detailed questions such as, “How well did your physicians keep you informed?” These surveys provide “actionable” data that reveal obvious steps for improvement.

Customer satisfaction is a highly personal assessment that is greatly influenced by individual expectations

Some definitions are based on the observation that customer satisfaction or dissatisfaction results from either the confirmation or disconfirmation of individual expectations regarding a service or product. To avoid difficulties stemming from the kaleidoscope of customer expectations and differences, some experts urge companies to “concentrate on a goal that’s more closely linked to customer equity.” Instead of asking whether customers are satisfied, they encourage companies to determine how customers hold them accountable. Customer satisfaction, a business term, is a measure of how products and services supplied by a company meet or surpass customer expectation. It is seen as a key performance indicator within business

Customer satisfaction depends on the product’s performance relative to a buyer’s expectation, the customer is dissatisfied. If preference matches expectations, the customer is satisfied. If preference exceeds expectation, the customer is highly satisfied or delighted. Outstanding marketing insurance companies go out of their way to keep their customer satisfied. Satisfied customers make repeat purchases insurance products and tell other about their good experiences with the product. The key is to match customer expectations with company performance. Smart insurance company’s aim to delight customers by promising only what they can deliver, then delivering more than the promise. Consumers usually face a broad array of products and services that might satisfy a given need. How do they choose among these many marketing makers offers? Consumers make choices based on their perception of the value and satisfaction that various products and services deliver.

Customer value is the difference between the values the customer gains from owning and using a product and the costs of obtaining the products customers from expectations about the value of various marketing offers and buy accordingly. How do buyers form their expectations? Customer expectations are based on past buying experiences, the opinion of friends and marketer and competitor information and promises

Customer satisfaction with a purchase depends on how well the product's performance lives up to the customers' expectations. Customer satisfaction is a key influence on future buying behaviour. Satisfied customers buy again and tell others about their good experiences. Dissatisfied customers switch to competitors and disparage the products to others. An insurance provider open only to active duty, retired and separated military members and their immediate families and therefore not included in the rankings, achieved a satisfaction ranking equal to that of any insurance company.

In general, customer satisfaction with auto insurance providers decreased significantly, with 20 of the 21 companies surveyed decreasing in satisfaction from the previous year. Insurance is the only carrier that did not experience a decline in satisfaction. Though consumers report their insurance carriers are resolving their claims and problems faster. Businesses survive because they have customers who are willing to buy their products or services. However, many businesses fail to "check in" with their customers to determine whether they are happy or not and what it will take to make or keep them happy.

According to U.S. consumers' affairs department, it costs five times more to gain a new customer than to retain an existing one. Other studies have repeated that with just a five percent increase in Customer retention's a firm can raise its profitability. Customers spend money at first, but with succeeding years of good experience, they will spend increasingly more.

Depending on the industry and the nature of the bad experience, dissatisfied customers will complain to 10 to 20 friends and acquaintances, which is three times more than those with good experiences are. Hence, the negative information is influential, and consumers generally place significant weight on it when making a decision. If that is not the reason enough, fierce competition is needed more and more to differentiate firms from one another. With technology available to virtually every one today, the traditional features and cost advantages are no longer relevant. Still product and service quality provides an enormous opportunity to distinguish a firm from the rest. The Japanese have recognized this and have taught us to expect quality. Today's consumers do, and they know more about products and services than they ever did.

Customers are the best source of information. Whether to improve an existing product or service or whether firms are planning to launch something new. There is no substitution for "getting it from horse's mouth" When you talk to your customer directly, to increase your odds for achieving success you "mistake proof" your decisions and work on what really matters. When you routinely ask the customers for feedback and involve them in business they, in turn, become committed to the success of your business.

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Two main factors determine the accuracy of CMS. The first is the asking the right question and the second is the asking them to the right people sample of customers which accurately reflects the customer base. Three things decide the accuracy of a sample. They are:

- It must be representative.
- It must be randomly selected.
- It must be adequate enough.

#### Measuring customer satisfaction

Organizations need to retain existing customers while targeting non-customers. Measuring customer satisfaction provides an indication of how successful the organization is at providing products and/or services to the marketplace.

Customer satisfaction is an abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service. The state of satisfaction depends on a number of both psychological and physical variables which correlate with satisfaction behaviours such as return and recommend rate. The level of satisfaction can also vary depending on other factors the customer, such as other products against which the customer can compare the organization's products.

Work done by Parasuraman, Zeithaml and Berry (Leonard L) delivered SERVQUAL which provides the basis for the measurement of customer satisfaction with a service by using the gap between the customer's expectation of performance and their perceived experience of performance. This provides the researcher with a satisfaction "gap" which is semi-quantitative in nature. Cronin and Taylor extended the disconfirmation theory by combining the "gap" described by Parasuraman, Zenithal and Berry as two different measures (perception and expectation) into a single measurement of performance relative to expectation. The usual measures of customer satisfaction involve a survey with a set of statements using a Linker



Technique or scale. The customer is asked to evaluate each statement in terms of their perception and expectation of performance of the service being measured

### Methodologies

American Customer Satisfaction Index (ACSI) is a scientific standard of customer satisfaction. Academic research has shown that the national ACSI score is a strong predictor of Gross Domestic Product (GDP) growth, and an even stronger predictor of Personal Consumption Expenditure (PCE) growth. On the microeconomic level, research has shown that ACSI data predicts stock market performance, both for market indices and for individually traded companies. Increasing ACSI scores has been shown to predict loyalty, word-of-mouth recommendations, and purchase behaviour. The ACSI measures customer satisfaction annually for more than 200 companies in 43 industries and 10 economic sectors.

In addition to quarterly reports, the ACSI methodology can be applied to private sector companies and government agencies in order to improve loyalty and purchase intent. Two companies have been licensed to apply the methodology of the ACSI for both the private and public sector: CFI Group, Inc. applies the methodology of the ACSI offline, and Foresee Results applies the ACSI to websites and other online initiatives. ACSI scores have also been calculated by independent researchers, for example, for the mobile phones sector, higher education, and electronic mail.

The Kano model is a theory of product development and customer satisfaction developed in the 1980s by Professor Noriaki Kano that classifies customer preferences into five categories: Attractive, One-Dimensional, Must- Be, Indifferent, Reverse. The Kano model offers some insight into the product attributes which are perceived to be important to customers. Kano also produced a methodology for mapping consumer responses to questionnaires onto his model. SERVQUAL or RATER is a service-quality framework that has been incorporated into customer-satisfaction surveys (e.g., the revised Norwegian Customer Satisfaction Barometer) to indicate the gap between customer expectations and experience.

J.D. Power and Associates provides another measure of customer satisfaction, known for its top-box approach and automotive industry rankings. J.D. Power and Associates' marketing research consists primarily of consumer surveys and is publicly known for the value of its product awards. Other research and consulting firms have customer satisfaction solutions as well. These include A.T. Kearney's Customer Satisfaction Audit process, which incorporates the Stages of Excellence framework and which helps define a company's status against eight critically identified dimensions.

For Business to Business (B2B) surveys there is the Info Quest box. This has been used internationally since 1989 on more than 110,000 surveys (Nov '09) with an average response rate of 72.74%. The box is targeted at "the most important" customers and avoids the need for a blanket survey.

### Improving Customer Satisfaction

Published standards exist to help organizations develop their current levels of customer satisfaction. The International Customer Service Institute (TICSI) has released The International Customer Service Standard (TICSS). TICSS enables organizations to focus their attention on delivering excellence in the management of customer service, whilst at the same time providing recognition of success through a 3<sup>rd</sup> Party registration scheme. TICSS focuses an organization's attention on delivering increased customer satisfaction by helping the organization through a Service Quality Model. TICSS Service Quality Model uses the 5 P's - Policy, Processes People, Premises, Product/Services, as well as performance measurement. The implementation of a customer service standard should lead to higher levels of customer satisfaction, which in turn influences customer retention and customer loyalty

### Customer Satisfaction Surveys:

Surveys and questionnaires are the most common marketing research methods. Typically, they are used to:

- Assess the level of customer satisfaction with a particular product, service or experience
- Identify factors that contribute to customer satisfaction and dissatisfaction;
- Determine the current status or situation of a product or service;
- Compare and rank providers;
- Estimate the distribution of characteristics in a potential customer population; or
- Help establish customer service standards.

### Benefits and Challenges:

Surveys allow an organization to quickly capture vital information with relatively little expense and effort. A primary advantage of this method is its directness: "the purpose is clear and the responses straightforward."

Additionally, the information gathered by surveys can easily be analyzed and used to identify trends over time. The public views consumer product polls and pollsters in a generally positive manner compared to political and other polls. One study found that at least sixty percent of the public feels that market research about products and services has a positive impact on society. Seventy percent consider the people who conduct such surveys to have positive impacts on society. A major disadvantage of customer surveys is that the responses may be influenced by the measurement itself through various forms of bias.

#### 4.2 Data collection

Data collection is mainly done through the

1. Primary sources
  - Information is gathered through questionnaire
  - Direct interviews with employees and customers

#### 4.3 Data analysis

The table below shows the details of the people who have responded to the questionnaire. There are mainly 4 category related to their demographic profile. These are

1. Age
2. Gender
3. Occupation
4. Supply address.

The above 4 parameters have been again divided into 3 sub categories. The details of respondents in each above mentioned category is as below:

Parameter	Category 1	Count	Category 2	Count	Category 3	Count
Age	20-35	23	35-50	37	Above 50	12
Gender	Male	40	Female	32	Others	0
Occupation	Business	28	Service	38	Others	6
Supply Location	City	50	JJ Cluster	12	Village	10

*Table4.1*

If we see the percentage wise distribution of respondents then it's as below:

Category 1: Age

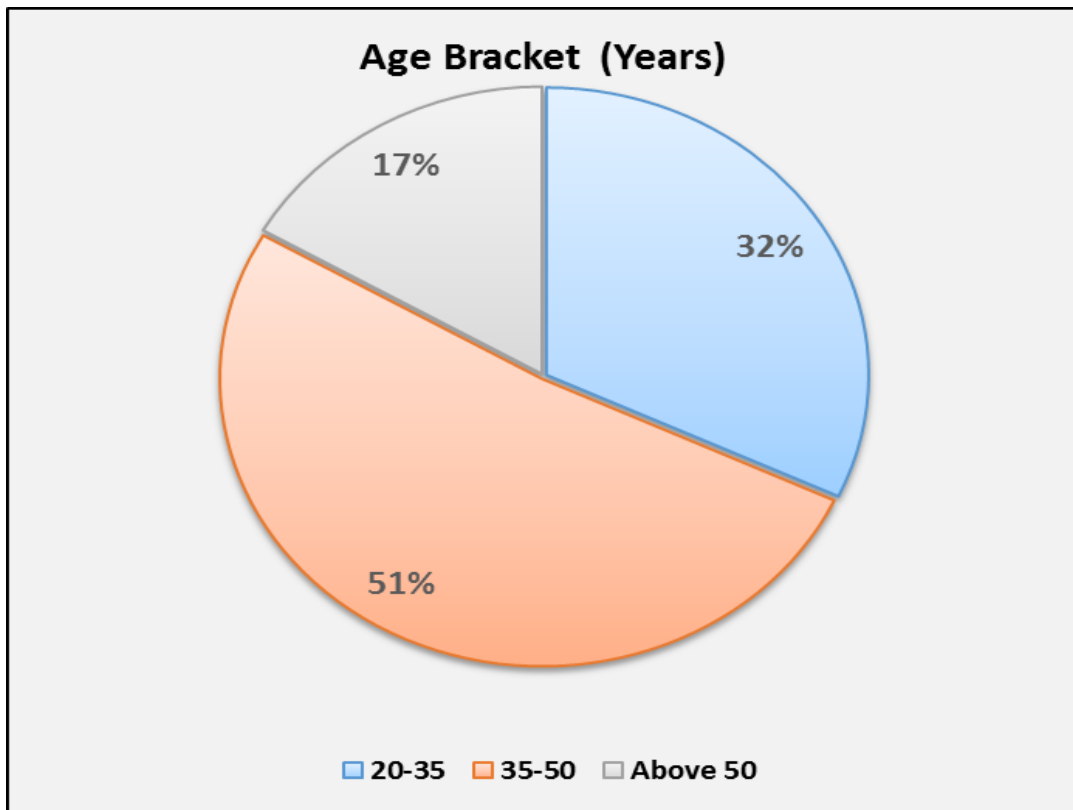


Figure 4.1

We can see in above pie chart that the more than 51 % respondents are in the age bracket of 35 to 50 years. The age group of respondents for other two brackets are 32 % and 17%.

We can say that majority of respondents are from the age group of 35to 50 years.

Category 2: Occupation

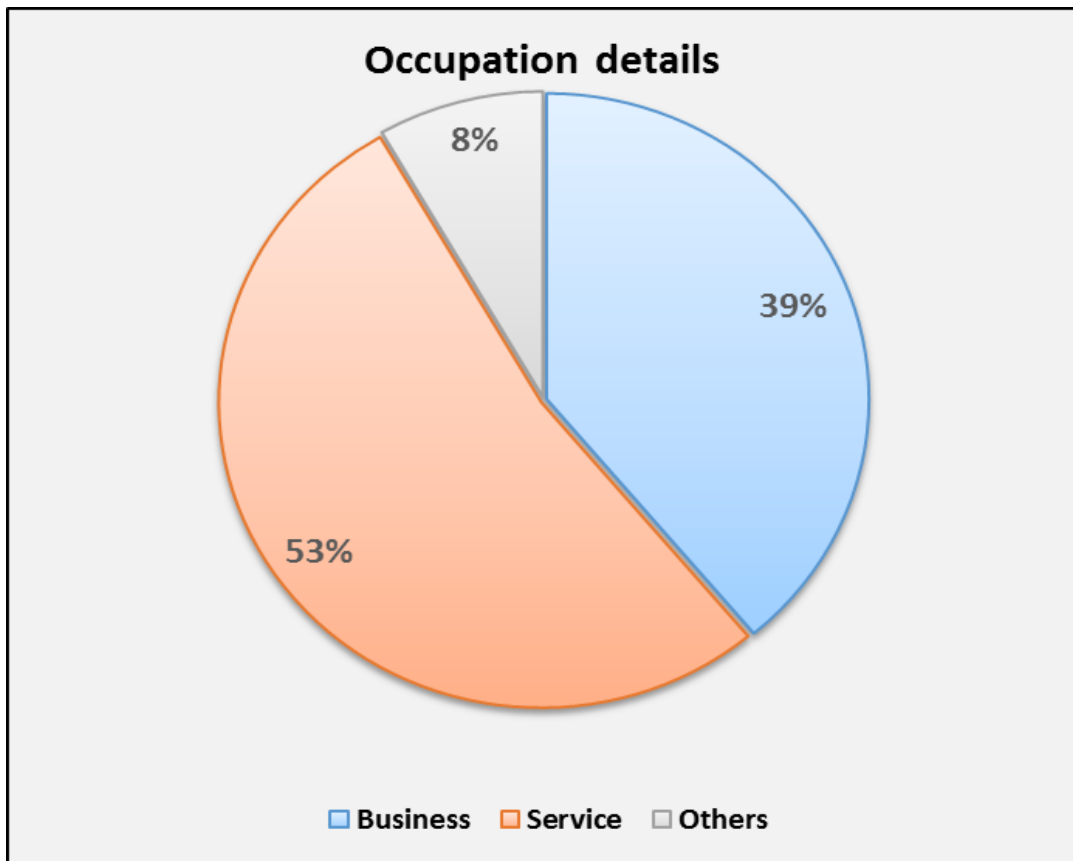


Figure 4.2

The occupation details category shows that the more than 50% respondents are in service industry. The rest 39% are in having their own business and the rest 8 percent are in the other category.

Here again the major chunk of the respondents are in service class and plays the major role in finalising the Customer satisfaction level.

### Category 3: Gender

If we see the gender distribution then we can see in the figure below that the respondents are almost equally divided. The male respondents make up 56% and the rest 44% is made up by the female respondents.

There is no clear cut majority as was in the case of above 2 categories.

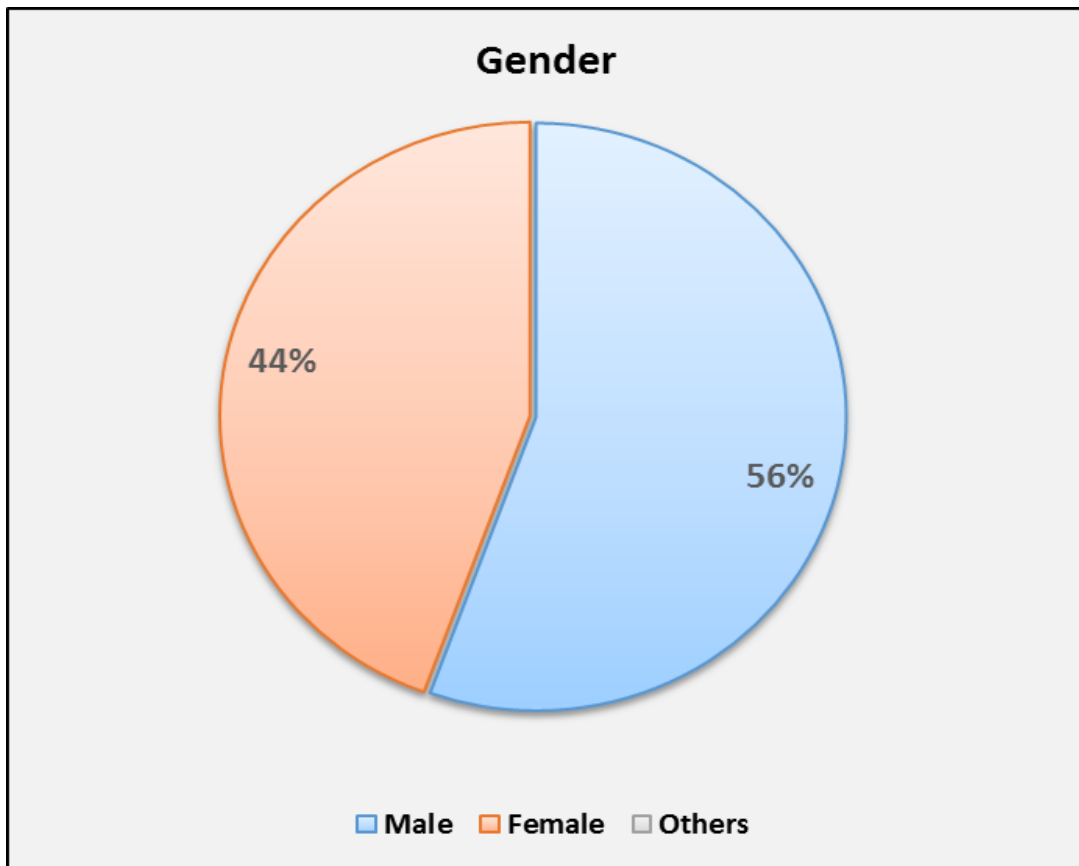


Figure 4.3

#### Category 4: Supply location

This category of respondents helps to identify the location of people who are satisfied or unsatisfied by the services provided by the TATA Power- DDL. This helps to further identify that if the dissatisfaction/satisfaction is area dependent or not

If we see the percentage sharing of consumers, we find that majority of consumer are from City. They make the 69% of the overall respondents. The rest is divide between respondents living in JJ cluster or villages. The respondents from Villages are only 14%. Whereas the 17% are from JJ clusters.

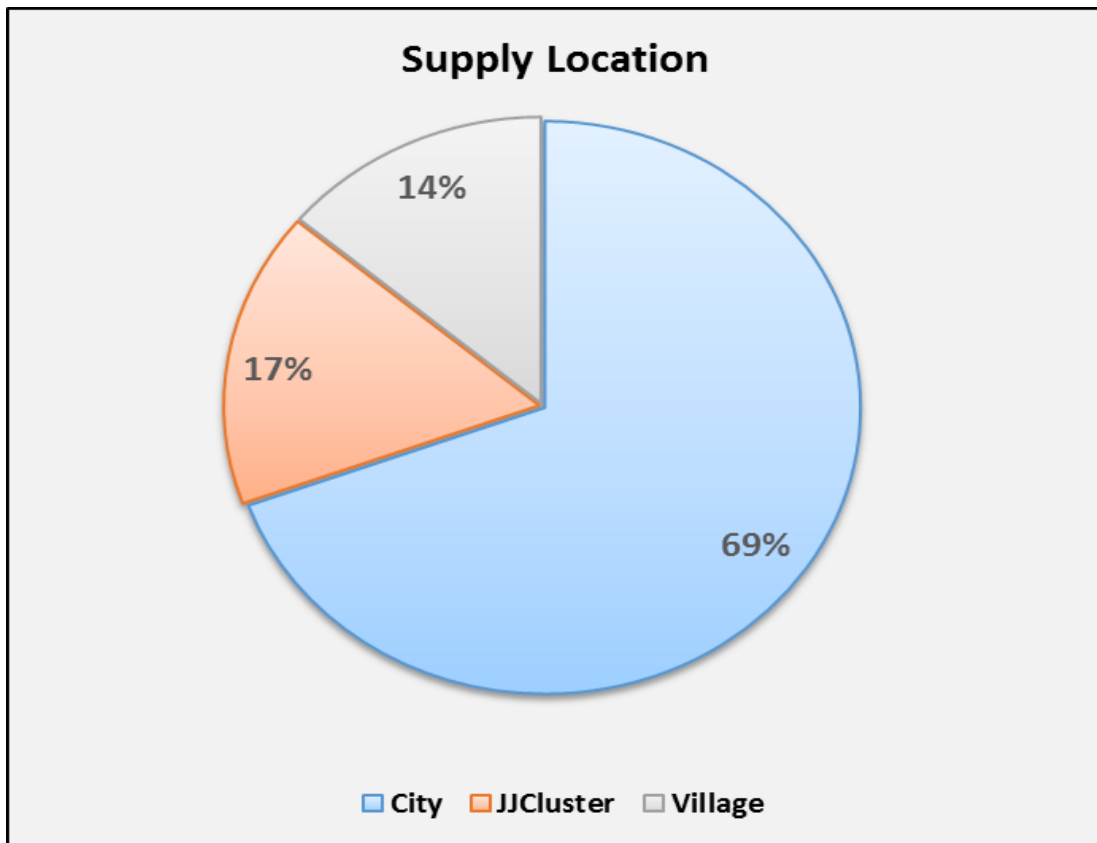


Figure 4.4

Carrying forward the data analysis multiple regression was used to study the dependency of Customer satisfaction on the two independent variables chosen i.e. supply service and power quality.

### Null hypothesis

HYPOTHESIS 0 – there is no significance dependence of overall customer satisfaction on supply services and power quality.

To test the above hypothesis, multiple regression is run and the results were obtained to conclude our findings. The results are as following -

The p values for the results is .000, which indicates that the variables power quality and supply services have substantial impact on the overall customer satisfaction.

Since the p value is very less than .05, we reject the null hypothesis.

#### **4.4 Findings and Recommendations**

Above tests statistically shows that the overall satisfaction is majorly dependent on the power quality and supply of service. The test was started with survey to get the response of the consumer. The response was designed to be covered by different age groups, different gender, customer living in different geographical areas, having different occupations etc.

The study got the response form 72 customers. All type of customers couldn't be covered in this study. The results of the survey were tested in multiple regression.

To conclude we can say that the two variable – power quality and supply services are significantly impact on the overall satisfaction of the customer.

The study recommends that TATA Power-ddl should keep their maximum focus on these two parameters. Further capital investment and planning should be in the direction of strengthening these two parameters majorly.

#### **4.5 Limitations of study**

The study targets to cover as many customers as possible to cover all or maximum type of diverse customer base. This would have helped to reduce the sampling error. But due to shortage of time and difficulty of getting response from all, this study has been kept focused to residential customers only.

The customer database is divided into many categories like:

1. KCG (Key consumer base)
2. HCB (High consumer base)
3. HRB (High revenue base)
4. SCG (Special consumer group)

The overall satisfaction of the customer is studied on the basis of two parameters only and they are

1. Power quality
2. Supply services.



## 5. EXHIBIT

### 5.1 Questionnaire and forms

We are conducting a survey on behalf of TPDDL to measure the customer satisfaction level. We have designed a simple questionnaire for this. You are requested to kindly mark your response against each question.

There are two section of this questionnaire.

Section A:

Which ask about your general information and has 4 questions. Tick Mark only one response against each question in the box next to the option.

Section B:

Which ask you about power quality and has 22 questions. Kindly rate your experience on a five point scale from 1 to 5. Where 1=Very satisfied, 2=satisfied, 3=neutral, 4=dissatisfied and 5=very dissatisfied.

You have to mark only one option against each question. It will only take 5 minutes to complete the form

#### **Section A**

1. Respondents Age in years

20-35		35-50		Above 50	
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2. Respondents Gender

Male		Female		Others	
------	--	--------	--	--------	--

3. Respondents Occupation

Business		Service		Others	
----------	--	---------	--	--------	--

4. Respondents Supply location

City		JJ Cluster		Village	
------	--	------------	--	---------	--

**Section B**

S.no	Parameters	1	2	3	4	5
1	Voltage fluctuations in power supply are negligible					
2	Power cuts have been reduced to almost nil					
3	There is prior information of power cuts					
4	There is no damage to my equipment due to power quality					
5	The bills generated are accurate.					
6	The energy bills are received timely					
7	The bill calculation is transparent					
8	Any changes in bill details are well explained					
9	Bill payment centre are adequate					
10	Online bill payment works well					
11	Customer service representative are well trained					
12	Customer service representative are well supervised					
13	Customer service representative adhere to professional conduct					
14	Customer service representative act in my best interest.					
15	Customer service representative are polite.					
16	Customer service centre are well maintained					
17	Customer service centre have adequate waiting arrangement					
18	Customer service centre are provided with air conditioner, water cooler etc.					
19	Customer service centre have good queue management					
20	Customer service centre have displayed important information					
21	Customer complaints are well managed.					
22	Overall I am satisfied with front desk experience					
23	Over level of satisfaction to TPDDL					

## 5.2 Statistical output

### Determining how well a regression model fits

The first table of interest is the **Model Summary** table. This table provides the R, R<sup>2</sup>, adjusted R<sup>2</sup>, and the standard error of the estimate, which can be used to determine how well a regression model fits the data. This table provides the R, R<sup>2</sup>, adjusted R<sup>2</sup>, and the standard error of the estimate, which can be used to determine how well a regression model fits the data

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.967 <sup>a</sup>	0.936	0.934	0.2757	0.936	504.066	2	69	0	0.338
a. Predictors: (Constant), SupplyServices, PowerQuality										
b. Dependent Variable: OverallSatisfaction										

A value of 0.967, in this example, indicates a good level of prediction. The "R Square" column represents the R<sup>2</sup> value (also called the coefficient of determination), which is the proportion of variance in the dependent variable that can be explained by the independent variables (technically, it is the proportion of variation accounted for by the regression model above and beyond the mean model)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.630	2	38.315	504.066	.000 <sup>b</sup>
	Residual	5.245	69	0.076		
	Total	81.875	71			
a. Dependent Variable: OverallSatisfaction						
b. Predictors: (Constant), SupplyServices, PowerQuality						

Coefficients <sup>a</sup>											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
		1	(Constant)	0.278			0.116		2.391	0.020	0.046
	PowerQuality	0.095	0.128	0.100	0.747	0.458	-0.160	0.351	0.947	0.090	0.023
	SupplyServices	0.854	0.132	0.869	6.463	0.000	0.590	1.117	0.967	0.614	0.197

a. Dependent Variable: OverallSatisfaction

Unstandardized coefficients indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant

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