

Project Dissertation Report
On
STUDY OF TATA POWER-DDL
COMMITMENT TOWARDS
CUSTOMER SATISFACTION DURING
COVID-19
#PoweringFightAgainstCorona

Submitted BY:

LALIT CHAUHAN

2K18/EMBA/515

Under the Guidance of:

Prof. Pradeep Kumar Suri



DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

BUILDING A CUSTOMER CENTRIC ORGANIZATION

**“STUDY OF TATA POWER-DDL
COMMITMENT TOWARDS
CUSTOMER SATISFACTION DURING
COVID-19”**



TATA POWER-DDL

CERTIFICATE

This is to certify that the work titled '**STUDY OF TATA POWER-DDL COMMITMENT TOWARDS CUSTOMER SATISFACTION DURING COVID 19**' as part of the final year Major Research Project submitted by Lalit Chauhan in the 4th Semester of EMBA, Delhi School of Management, Delhi Technological University during January-May 2020 was conducted under my guidance and supervision.

This work is her original work to the best of my knowledge and has not been submitted anywhere else for the award of any credits/ degree whatsoever.

The project is submitted to Delhi School of Management, Delhi Technological University in partial fulfilment of the requirement for the award of the degree.

Prof. P.K. Suri
Delhi School of Management
Delhi Technological University

Prof. Rajan Yadav
HOD
Delhi School of Management
Delhi Technological University

DECLARATION

I hereby declare that the work titled “**STUDY OF TATA POWER-DDL COMMITMENT TOWARDS CUSTOMER SATISFACTION DURING COVIND 19**” ’ as part of the final year Major Research Project submitted by me in the 4th Semester in EMBA, Delhi School of Management, Delhi Technological University, during January-May 2020 under the guidance of Prof. P.K. Suri is my original work and has not been submitted anywhere else.

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.

LALIT CHAUHAN
Place: New Delhi

ACKNOWLEDGEMENT

I Lalit Chauhan, wish to extend my gratitude to Prof.P.K.Suri, Delhi School of Management (DSM), Delhi Technological University for giving me all the guidance and valuable insights to take up this Semester Project.

The project would not have been completed without their constant support and optimism.

Their constructive criticism for the approach of the problem has helped me to a great extent in bringing my work to its present shape.

I also take this opportunity to convey sincere thanks to all the faculty members for directing and advising during the course.

Finally, yet importantly, I would like to express my heartfelt thanks to my beloved family for their continuous moral support.

Lalit Chauhan

2K18 EMBA 515

EXECUTIVE SUMMARY

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

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 application of **SCADA** to all grid sub-stations and **Smart Grid with Automated response system,**
- **Smart Metering and Roof Top Solar and Demand Side Management**
- Application of **GIS** to distribution network for the requirement to make the system equipped for the **Distribution Management System (DMS) and Distribution Automation (DA) and Outage Management System (OMS) and Field Force Automation.**
- **Customer Management system with Three Tier Grievance Redressal structure** for Registration of complaint/ Request and its Timely resolution and feedback.

And more recent ones like

- On line applications for New connections, Bill payments, Demand Note Payments,
- Mobile application for Customer information regarding Complaints, Requests, Billing
- Ease of Doing Business
- TPPDL's CSR initiatives
 - Potable Drinking water UNDP Disha Project.
 - Mobile dispensaries Abha Programme, Women learning centers

All of the above steps helped to increase the customer satisfaction but during current situation in outbreak of pandemic of COVID-19, there was big challenge for customer satisfaction. During the COVID 19 Pandemic, TPDDL a leading power utility supplying electricity to a populace of 7 million in North Delhi has committed to provide uninterrupted power supply to essential emergency establishments/ sectors / Facilitate social distancing and effective practicing of work from home for lakhs of its world class customers amidst these testing times and taking all necessary precautions to combat the spread of the virus for ensuring safety of its customers.

This project report studies the customer satisfaction level as of now by carrying out a survey of its consumers of different category by a set of questionnaire/ calling feedback and based on these feedback and considering the situation of lockdown, various online services have been recommended to give ease to customers to make the most of digital platforms for online services and stay indoors while practicing social distancing norms and maintain the customers satisfaction and explore the ways to increase it.

The Project reports also discusses the various CSR initiatives taken by Tata Power-DDL during this epidemic which derives its spirit from the Tata Group where caring for the community is a preeminent virtues. In the wake of the Covid-19 outbreak, Tata Power-DDL came forward with a various initiatives to support India's war against the epidemic.

The company sponsored and distributed 2 lakh meals for the underprivileged during the nationwide lockdown, provided meals to the medical staff and patients at major Government hospitals in Delhi, deployed two mobile dispensaries to distribute masks and other essential items to the Delhi Police and community members in the JJ Clusters

TABLE OF CONTENTS

CERTIFICATE	I
DECLARATION	II
ACKNOWLEDGEMENT.....	III
EXECUTIVE SUMMARY.....	IV
TABLE OF CONTENTS	V

Chapter 1. Introduction

1.1 INDUSTRY PROFILE.....	3
1.2 COMPANIES PROFILE.....	6
1.3 OBJECTIVE OF THE STUDY.....	11

Chapter 2. Literature Review

2.1 INTRODUCTION TO CUSTOMER SATISFACTION.....	12
2.2 BACKGROUND OF THE PROBLEM	16
2.3 PROBLEM STATEMENT.....	19
2.4 CONCLUDING REMARKS	19

Chapter 3. Research Methodology

3.1 TYPE OF RESEARCH DESIGN.....	20
3.2 SCALING TECHNIQUE.....	21
3.3 QUESTIONNAIRE DEVELOPMENT	22
3.4 SAMPLING TECHNIQUE	22
3.5 CONCLUDING REMARKS	22

Chapter 4. Data Analysis

4.1 DATA COLLECTION	23
4.2 DATA ANALYSIS	24
4.3 CONCLUDING REMARKS	38

Chapter 5. Findings & Recommendations & Conclusion

5.1 FINDINGS	39
5.2 RECOMMENDATIONS	40
5.3 CONCLUDING REMARKS	47

Chapter 6. Limitations & Future Work.....48

Exhibit50

Awards.....53

Bibliography54

CHAPTER 1. INTRODUCTION

The power sector in India is monitored by the Ministry of Power. There are three major Divisions of power sector which are divided into:

1. Generation,
2. Transmission,
3. Distribution.

The generation sector further divided into three sectors which are

1. Central,
2. State,
3. Private Sectors.

Central Sector Undertakings (PSUs), constitute 25.2% (93,477 MW) of total installed capacity i.e., 370 GW as of 31 March 2020 in India. Major government undertaking companies for Power Generation in India are:

1. National Thermal Power Corporation (NTPC),
2. National Hydro-electric Power Corporation (NHPC)
3. Power Grid Corporation Limited (PGCL)

Below is Installed capacity of Power Stations in India.

Table 1.1 Installed Capacity of Power stations in India

ALL INDIA INSTALLED CAPACITY IN MW OF POWER STATIONS									
REGION	THERMAL					NUCLEAR	HYDRO	RES	TOTAL
	COAL	IGNITE	GAS	DIESEL	TOTAL				
NORTH	53439	1580	5781	0	60801	1620	20085	16868	99373
WESTERN	72935	1540	10806	0	85281	1840	7622	25873	120616
SOUTHERN	44094	3490	6491	433	54509	3320	11774	42406	112008
EASTERN	27285	0	100	0	27385	0	4639	1496	33520
NORTH EASTERN	770	0	1775	36	2581	0	1577	364	4522
ISLANDS	0	0	0	40	40	0	0	18	58
ALL INDIA	198523	6610	24953	509	230597	6780	45697	87025	370097

Source: <http://cea.nic.in/monthlyinstalledcapacity>

There are several state-level government companies which comprises for about 27.9 % (103,322 MW) of overall generation in India called state Discoms such, KSEB , UPPCL ,

MSEB, JVVNL are responsible for the generation and distribution of electricity in their respective states.

Apart from Central and state level, private sector companies also contributes in generation, transmission and distribution, which is about 46.9 % (173509 MW) of total installed capacity.

Maharatna Company i.e. The Power Grid Corporation of India limited also known as POWERGRID, is Central sector enterprise and mainly engaged in Transmission of Power. It transmits about ½ of the total power generated in India through its transmission network. Power System Operation Corporation Limited (POSOCO) (PSU) ensures power management for National Grid and all state transmission Companies. POWERGRID also entered in a telecom business under the name POWERTEL and is the only utility in the India which is having overhead optic fibre network .Currently Shri Kandikuppa Sreekant acts as Chairman and MD of the Power grid corporation.

The Ministry of Power started functioning autonomously with effect from 2nd July, 1992. **Raj Kumar Singh is currently the Minister of State (IC) (Power and New & Renewable Energy)**. The ministry looks after the Electrical Sector in India, its infrastructure development, like generation, transmission, and distribution including the maintenance projects.

Electrical sector in India majorly faces challenges of Power Deficit, Huge Stress on fuel as Thermal accounts 62.8 % for fuel for Generation of electricity in India, Inefficient regulators Delays in Tariff Revision, Higher AT&C Losses of Discoms leading to Power Supply Gap even in Large Cities.

The ministry acts as an intermediary for the central government, state discoms and the private sector company's .This ministry also monitors rural electrification projects thru REC and Finance through Power Finance Corporations PFC. Statuary bodies such as APTEL, CEA, CERC, SERC, BEE, NLDC, RLDC, SLDC, CTU, STU also comes under this ministry. Earlier in 2016, India turn out to be the world's 3rd largest consumer of electricity in the world The country's electricity consumption is now set to go up to 1,894.7 TWh by 2022, the challenges to meet the energy needs of high economic growth & electricity consumption of about 130 million people. The Total generation (Including renewable sources) in the India has been increased from 1110.458 Billion Units during 2014-15 to 1390.467 Billion Units during 2019-20.

The category wise generation performance during the FY 2019-20 was as follows:-

Table 1.2 Category wise Generation performance FY19-20

Thermal increased by	2.59%
Hydro Reduced by	15.62 %
Nuclear increased by	22.66 %
Bhutan import increased by	31.94%
Renewables increased by	8.75%
Overall Growth rate recorded by	1.04%

Source: <http://cea.nic.in/monthlyinstalledcapacity>

India is the 3rd largest in terms of power generation after China and USA, In India about 62.8% of the electricity is generated by thermal power plants, 12.4 % by hydroelectric power plants, and 1.9 % by nuclear power plants and rest by 23.5 % from other alternate sources like RES (Renewable Energy Sources).

India has also financed heavily in recent times on new renewable sources of energy such as Wind Power. As of 29 February 2020 the total installed wind energy capacity was 37.669 GW, which is 4th largest installed wind energy capacity in the whole world.

Moreover, India has highly invested in development of number of nuclear reactors which would generate at least 30,000 MW. India revealed a \$100 billion plan to generate 100 GW of solar power by 2022 under National Solar Mission. The per capita power consumption in India is 1,181 KWh/yr. vs. global average of 2674 KWh/yr.

CAPACITY ADDITION DURING 12Th PLAN

Table 1.3 Capacity addition during 12th plan

Sector	(In MW)							
	Thermal		Hydro		Nuclear		Total	
	Target	Ach.	Target	Ach.	Target	Ach.	Target	Ach.
Central	14,878	15,868.6	6,004	2584	5,300	2,000	26,182	20,452.7
State	13,922	22,201.4	1,608	2276	0	0	15,530	24,477.4
Private	43,540	53,660.5	3,285	619	0	0	46,825	54,279.5
All India	72,340	91,730.5	10,897	5479	5,300	2,000	88,537	99,209.6

Source: CEA Report 2020

1.1 Industry Profile

Electricity Generation

In FY 18-19, the Total electricity produced by utilities in India was 1,372 TWh and the total electricity generation in the country was 1,547 TWh. The gross electricity consumption in 2018-19 was 1,181 kWh per capita. In 2015-16, electric energy usage in agriculture was recorded as being the highest (17.89%) worldwide. The per capita electricity usage is considerable low w.r.t. To most other countries in spite of India having a low electricity price.

Electrical power generation by India's coal fired power plants and non-conventional renewable energy sources has mainly contributed to the progress in the total Electrical power generation whereas the contribution from natural gas, oil and hydro power plants has declined in last five years .

The total electricity production including production from renewable sources in the country during year 2018-19 was 1376.096 BU as against the production of 1308.146 BU during the last year, showing a growth of 5.2%.

Sector wise installed capacity

Table 1.4 Total installed capacity in INDIA as on 31st march 2020

Total Installed Capacity in INDIA as On 31st March 2020		
SECTOR	GW	%
CENTRE	93.477	25.20
STATE	103.322	27.9
PRIVATE	173.308	46.8
TOTAL INSTALLED CAPACITY (in GW)	370.106	

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

Electricity Transmission

Transmission of electricity is defined as huge transmission of power over a longer distance at very high voltage, generally of 132kV and above. The installed length of transmission lines of 66 kV and above is 649,833 km and (HVDC) transmission lines (220kV and above) would be sufficient to form a square matrix of area 266 km² India has been divided into five regions for transmission systems, namely, Northern Region, North Eastern Region, Eastern Region, Southern Region and Western Region.

The transmission system planning in the India, in the past, had been linked to generation projects. Ability of the power system to safely withstand an unforeseen event without generation rescheduling or load-shedding was the main conditions for design of the transmission system.

Due to various reasons such as manifold increase of load on the network, non-commissioning of load center generating units which are originally planned and shortfall in reactive compensation, certain pockets in the power system could not safely function even under usual conditions.

This had compelled backing down of generation and operating at a lower load generation balance in the past. Transmission planning has consequently moved away from the earlier generation evacuation system planning to integrate system planning

While the main technology for electricity transmission and distribution has been AC System. HVDC system has also been used for interconnection among regional grids across the India for bulk transmission of power to over far locations.

As per the provisions in the Electricity Act 2003 such as open access to the T&D 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 estimated to introduce and increase competition in the Electrical Market and expected these methods would result in development of a healthy electrical grid in the country

Electricity Distribution

The total installed generating capacity in the country is 370 GW, and the total number of consumers is over 1.3 Billion. Apart from an extensive transmission network of like 220 kv HVDC and above and from 66kV to 765 kV which has been established to transmit the power from generating station to the grid substations, a vast grid of sub transmission in distribution system has also come up for utilization of the power .

Due to lack of sufficient financial investment on (T&D) works, the T&D losses have been persistently on greater side, and reached to the level of 22% in the year 2018 .The reduction of these losses was essential to bring economic viability to the State Discoms.

High technical losses in the system are mainly due to inadequate investments over the years for system improvement works, which has caused in unintended extensions of the distribution lines, overloading of the system elements like transformers and lines and deficiency of adequate reactive power support.

The commercial losses are mostly due to low metering productivity, theft & pilferages. This may be reduced by improving metering effectiveness, proper energy bookkeeping & assessing and enhanced billing & collection efficiency. Fixing of accountability of the workforces / feeder managers may help significantly reduction of AT&C loss.

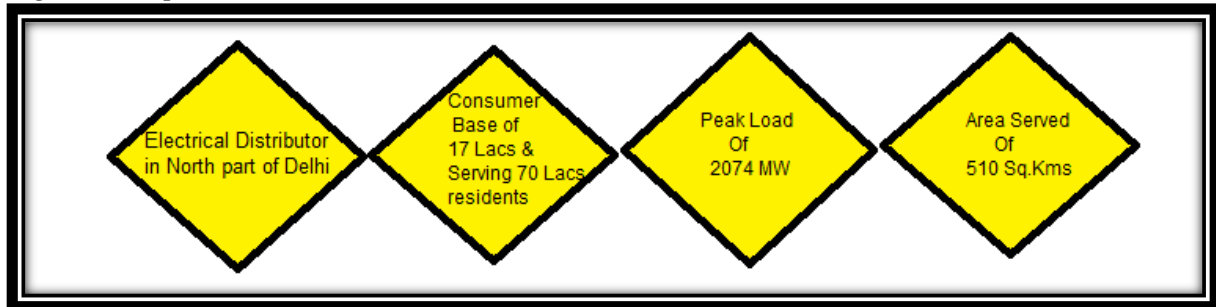
With the Government of India initiatives and of the States, the Accelerated Power Development & Reform Program (APDRP) was launched in 2001. APDRP meant to upgrade the distribution system, minimize T&D losses, improve metering and assign accountability for the realization of user charges —has not been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

The main objective of the program was to bring the AT&C losses below 15% in urban and in high-density areas and ease the burden on discoms of state as well as private.

1.2 Companies Profile

Tata power distribution Limited (TPDDL), took over power distribution system from Government of Delhi, after unbundling of the erstwhile Delhi Vidyut Board which looks after Generation, Transmission, and Distribution in Delhi and formed a 49:51 Joint Venture Company.

Figure 1.1 Tpdll overview



Source: TPDDL Website

Tata Power Delhi Distribution Limited [Tata Power-DDL] which 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. With a registered Customer base of 1.51 million and a peak load of around 2074 MW (July 2019), the company's operations span across an area of 510 sq kms.

Tata Power-DDL has been the leader in commissioning power distribution reforms in the capital city and is known for its Customer friendly practices. Since privatization, the Aggregate Technical & Commercial (AT&C) losses in Tata Power-DDL areas have shown a highest drop. AT&C loss is a measure of overall efficiency of the discoms 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 extraordinary reduction of around 82% from an opening loss level of 53% in July 2002.

On the power supply front too, Tata Power-DDL areas have shown astonishing progress. The company has engaged high-tech automated systems for its entire distribution network. Systems such as, SCADA, Geographical Information System [GIS], Outage Management System [OMS], DMS parts of company's distribution automation project. To fight the nuisance of power theft, modern technologies like HVDS lines and LT ABC have been implemented

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.

- ✚ 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, Silver spring, 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, Ryerson University, IIT Delhi, Punjab Engineering College, Delhi University, Natalia 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

Background to Reforms

The Delhi Government announced Power Sector Reforms in Delhi for improvement of quality of service being offered to the consumers, making electricity available at affordable prices, improving operational productivities through reduction in AT&C losses, attracting investment in all areas through private participation and making the sector self-sufficient and reliable thereby reducing need for Government support /subsidy in the electrical sector, and finally , providing employees better opportunities for career development and higher rewards for their performance in attaining such progress.

While TPDDL is providing Leadership and management expertise, Governance, assistance in raising finances, strategic inputs, etc., the Delhi Govt.’s role as a JV Partner in helping resolve to day to day operational and other local level issues, etc. which has been and continues to be critical for effective running of the business. Some of the key areas where its influence/intervention has been of significant assistance to TPDDL are described below:

AT&C Loss Reduction:

Theft Control

Special electricity courts / CGRF for supporting faster clearance of Theft related cases set up by the Delhi Govt.; it also simplified Delhi Police to assist in theft control; the Government’s positive stance on regulating electricity theft has played a significant role in keeping loss reduction to the current sub 10% loss levels. With losses to such low levels, the further reduction in electricity theft would largely depend upon increased surveillance by means of smart technology, enforcement activity and quick clearance of cases, which requires Delhi Government and its administration full support even more important for reducing the losses.

Assistance in Supporting 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 boosting consumers to start on a clean account and start paying current dues.

Power Allocation from Central Quota:

The Delhi Govt. has played an important role in ensuring optimal share from the Central Quota and from other renewable generations plants and from other states as generation in Delhi is far low compared to the demand.

Land & Clearances for Power Station(s):

Statutory environmental clearances and approvals to provide and develop the area were also accorded by the Delhi Govt.'s environmental panel / DDA / MCD for development of power grids and substations to supply electricity in area.

Road Cutting / Right of Way Clearances:

The required approvals which are necessary for any carrying out infrastructure development/ maintenance work, are approved by the Gov. Officials on priority, so that there is no delay in work being as essential services.

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

Regulatory Framework

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

- i) Past Obligations and Post Losses of DVB not to be passed on to the successor entities
- ii) The reorganised 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
- vii) Incentives and profit sharing mechanism, related to performance, provided to Discoms

VISION

- ✚ **“To be the Most Trusted and Admired Provider of Reliable, Competitive & Sustainable Power & services using technology & innovative Solution & be the utility of choice of all stakeholders “**

Source: TPDDL Website

MISSION

- ✚ **“Innovate To Deliver World Class Services To The Consumers “**
- ✚ **“Creating Benchmarks To Become A Global Utility Leader With Energy Efficient Services And Clean Energy Solutions “**
- ✚ **“Achieve Excellence Through Safety, Technology Adoption, Collaborations And Teamwork”**
- ✚ **“Reach Out And Engage In Community Development Programs & Initiatives”**
- ✚ **“Empower Employees , Enrich Creativity & Enhance Learning”**

Source: TPDDL Website

CORE VALUES

“AGILITY “

“UNITY “

“INTEGRITY”

“UNDERSTANDING”

“EXCELLANCE”

“RESPONSIBILITY”

Source: TPDDL Website

1.3 Objectives of the study

In spite of taking many initiatives towards achieving greater customer satisfaction by TATA Power-DDL but still there is always an ample scope for improvements. In the same line this study tries to study the current satisfaction level in current scenario of lockdown when only limited staff is available and many Offices like customer care centres, commercial offices, zonal offices are closed for customer interaction in order to follow the government guidelines to maintain the social distance. Being an Essential utility to provide Electric supply to various other essential Services like Hospitals and consumers for work from home for safety

Therefore it is needed to take corrective measures and plan future strategies in order to provide customer service taking due precautionary measures issued by Govt. and maintaining power supply and delivery of services to consumer 24*7 even in lockdown situation.

The objective of this project is to understand customers' satisfaction level via various services being offered by Tata Power Delhi Distribution Limited (TPDDL)

- To assess Brand Image of TPDDL
- To understand TPDDL Customers' Satisfaction Level

In context of

- Power quality
- Customer service

And study the feedback from the survey and recommend and plan for enhancing quality and services by providing new services so that social distance norms can be followed and at the same time further customer satisfaction can be achieved.

The Parameters which needs to considered for determination of customer satisfaction:

- Quality and Reliability of electricity supply
- Quality of Metering, Billing, Payment process,
- Quality of complaint / query handling, Ethical Practices, Customer Experience.

Carrying out survey in current situation and study the results will facilitate to figure out whether company has truly achieved the excellence in distribution sector through adoption of world class technology and leadership in consumer's services. This will also provide a glimpse that whether company is prepared to handle even the situation so worse like current scenario and will actually be able to sustain high customer satisfaction level of its consumers.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction to Customer satisfaction

We can describe service concept as a shared understanding of the service nature provided and received. The service concept has to provide information about the essence of the service, service delivery, & 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 utmost broad definition of satisfaction has been presented 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”.

Classifications of Customer Satisfaction and Service Opinion

We can divide customer service expectations into two levels:

1. Desired
2. Adequate.

Desired level of service anticipations is a state of service the customer wants to receive, whereas acceptable 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 Delhi Metro and EMU customers, desired level of customer anticipation would be to go from one location to the other with less 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 congested or the train is not moving too fast.

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

- First stage is assessment stage in which peripheral service is presented 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 accepted.

Levels of Customer Satisfaction

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

Main Concepts 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.

Earlier studies related to Customer satisfaction have majorly lacking the as they depend on qualitative aspects and at the same time do not take into account psychological aspects of customer experiences.

The customers have a set of pre-defined standards in their mind when they are about to bought a product or a service. The level of customer satisfaction is a result of comparison of this standard to the impression of the product bought or the service obtained.

Why Companies s Focus on Customer Satisfaction

Company's Studies customer satisfaction in order to decide how to increase their customer base customer loyalty, profits, earnings, market share and existence. Although greater profit is the primary reason but still company focuses on the customer experience with them. They work to make their customers delighted and believe that customer satisfaction as the key for the increasing revenue and profit. Customer satisfaction in turn depends on the quality and the quality of goods or services they receives.

Customer Satisfaction

The definition of customer satisfaction has been widely argued as companies increasingly attempt to measure it. Customer satisfaction can be experienced in a variety of situations and linked to both goods and services. It is a highly personal valuation that is greatly affected by customer expectations. Some researchers define a satisfied customer within the private sector as “one who receives substantial added value” to his/her bottom line—a definition that may apply just as well to public services. Customer satisfaction varies 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.”⁴ Instead, they focus on the customer’s entire experience with a companies or service contact and the detailed assessment of that experience.

Some definitions are based on the observation that customer satisfaction or dissatisfaction effects from either the confirmation or disconfirmation of individual expectations regarding a service or product. Companies also like to “concentrate on a goal that’s more closely linked to customer equity.” Instead of asking whether customers are satisfied, they encourage companies to decide how customers hold them accountable Customer satisfaction, in 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 his expectation, if preference matches expectations, the customer is satisfied otherwise dissatisfied .Satisfied customers make repeatedly buys products & services.

Depending on the industry and the nature of the bad experience, dissatisfied customers will complain to 10 to 20 friends which is three times more than those with good experiences are. Hence, the negative information is influential, and consumers generally focuses on it while making a decision.

Customers are the best basis for the information in order to improve a current product & service and do firms are required to launch new product and services. Customers are the best source of information. Whether to improve an existing product or service or whether firms are planning to launch something new. When company regularly ask the customers for feedback and involve them in business they, in turn, become devoted to the success of your business.

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

- It must be representative.
- It must be arbitrarily nominated.
- It must be sufficient enough.

Measuring customer satisfaction

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

Customer satisfaction is an intangible concept and the actual expression of satisfaction will vary from person to person and product/service to product/service. The satisfaction depends on a number of both mental and physical parameters which relate 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 companies' products.

Methodologies

American Customer Satisfaction Index (ACSI) is a scientific standard of customer satisfaction. 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 intending to.

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 Types: Attractive, One-Dimensional, Must- Be, Indifferent, Reverse. The Kano model offers some awareness into the product attributes which are supposed to be important to customers. Kano also produced a methodology for recording consumer responses to questionnaires onto his model. SERVQUAL or RATER is a service-quality framework that has been incorporated into customer-satisfaction surveys to show the gap between customer expectations and experience.

Improving Customer Satisfaction

Several standards are available to help companies to enhance their current score of customer satisfaction. The International Customer Service Institute (TICSI) has provided The International Customer Service Standard which help the companies align their attention on achieving the merit in the management of consumer service. It's also helps then to concentrate on delivering better customer satisfaction by helping the company 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 score of customer satisfaction, which in results in retaining the existing consumers and building customer loyalty.

Customer Satisfaction Surveys:

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

- Measure the level of customer satisfaction for product, service
- Ascertain the factors that results to customer satisfaction and dissatisfaction;
- Ascertain the present status or situation of a product or service;
- Relate and rank providers;
- Ascertain the distribution of features in a potential customer population; or
- Help create customer service standards.

Benefits and Challenges:

Surveys allow a companies to rapidly capture important information with respectively low expense and work. A main advantage of this method is its directness: “the purpose is clear and the responses are direct and also the information gathered by surveys can easily be examined and used to identify developments over time. The public views consumer product polls generally in a positive manner compared to political and other polls. One study found that at least 60 % of the public feels that market research about products and services has a positive impact on society. 70% consider the people who conduct such surveys to have positive impacts on society. A major disadvantage of consumer surveys is that the responses may be influenced by the dimension itself through various forms of bias.

2.2 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.

In Current Scenario ,Amidst the Corona Virus pandemic, the challenges is to provide uninterrupted power supply with reduced staff to several essential and critical services like Hospitals, Laboratories, Pharmacies, Grocery Stores, Cooking Gas Bottling Plants, Delhi Jal Board Plants and powering millions of Delhiites who are Working from Home by following the strict social distancing guidelines issued by the Government.

In wake of corona virus crisis, TATA Power-DDL has to make necessary arrangements to ensure uninterrupted power supply to its 7 million consumer's n North Delhi.

During the lockdown the door-to-door meter reading and physical bill distribution have been suspended and therefore increase in losses on account of limited ability to continue with manual reading, bill distribution and collection. Low demand leading to further lower PLFs ~ 30% fall in demand in March. Spot power demand falls 40% on closure of malls, markets, offices.

Increase in subsidized consumption as compared to subsidizing consumption leading to lower revenue. Commercial and industrial shutdown; Work from home in vogue. Delay n Project Execution as the supply chain s mostly China dependent.

Sudden liquidity concerns, in our country the discoms provide lower tariff for domestic and agricultural consumers, sometimes even below the average cost of supply, as compared to that for commercial and industrial consumers due to political scenarios. Several discoms like TPDDL, are having lower tariff-paying consumers are cross-subsidized by commercial and industrial customers.

The COVID-19 lockdown has led to shut down of all but essential Non-Domestic activities across the India. Approximately 130 crores people are made to remain within the limitations of their homes and allowed to work from home. Therefore, the electricity demand from industrial and, commercial customers has reduced considerably while the residential demand is likely to have been increased. According to the Power System Operation Corporation of India (POSOCO), the energy met on March 16th, 2020 –was 3494 MU as compared to 3113 MU on March 23rd, 2020 a day of voluntary curfew.

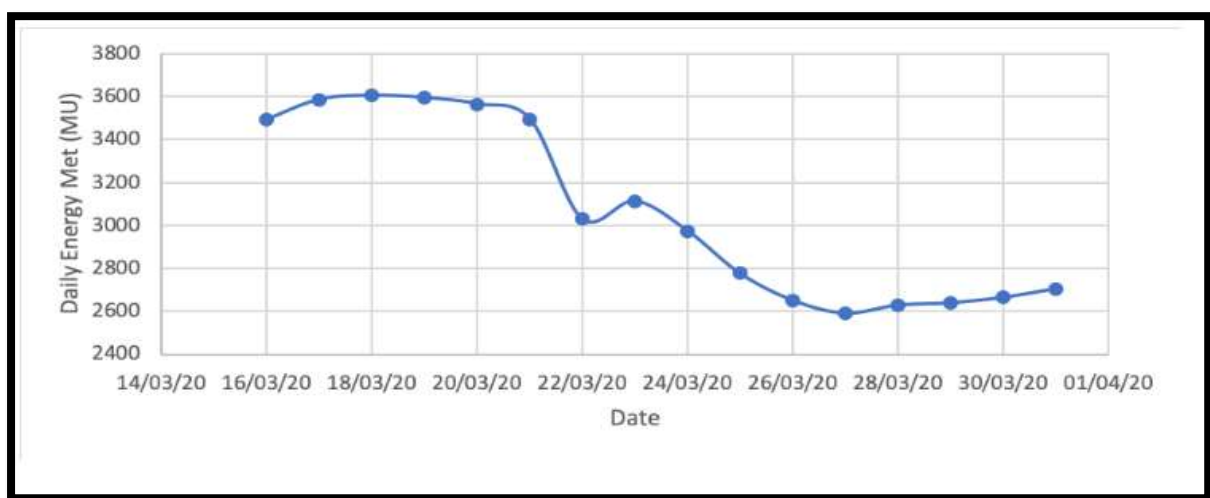


Figure 2.1 Change in Daily Energy during COVID 19

Source: Power Sector at Glance 2020, Ministry of Power, Gov. of India

Firstly, a key risk from the COVID-19 pandemic for the already struggling discoms in India ascends from the loss of revenues due to decrease of demand from the NDLT and SIP consumers as well as the inability to cover the cross-subsidies provided to the lower-tariff paying consumer.

Secondly, the discoms would be accountable for the expense incurred to comply with any ‘must buy’ commitments that they have with generators with long-term power purchase agreements. The true and full extent of this risk would only be known once a quantitative analysis would be conducted.

Thirdly, at an operational level, discoms would be accountable for any abnormality in demand and supply patterns.

Finally, currently all electricity companies would have to work with minimum staff.

Moratorium to consumers: To mitigate the financial suffering of public due to COVID-19, some states such as Delhi, Rajasthan, Uttar Pradesh, and Goa, among others, have provided consumers with a moratorium for electricity bills payments. At the same time, the discoms are informed to continue supplying electricity to the public. This means that the collection for the electricity supplied made in March and April will be overdue leading to financial burden on discoms.

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



Figure 2.2 Source: PPT_Major Reforms, Policies and Overview of Power Sector, TPDDL

2.3 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.

During current situation, these two independent variables which are core fields for a distribution utility to serve its customers are highly effected to Social distancing norms. The Company being a utility needs to provide uninterrupted and reliable supply to all other essential services like Hospitals, Laboratories, Pharmacies, Grocery Stores, Cooking Gas Bottling Plants, Delhi Jal Board Plants and powering millions of Delhiites who are Working from Home by following the strict social distancing guidelines issued by the Government to carry out their duties .

Also for ensuring safety of its employees also, the company has to come with an alternative plan like rotational shifts for employees working in operations and arranging places to stay for its maintenance staff by providing them arrangements for smooth functionality and maintain supply.

Providing various other means by which consumers complaints, requests and query can be handled while they stay safe in their home and needs not to visit the customer care centres to get the request /complaints being processed by developing a mechanism for its call centre operators to work from home.

Introduction of Various online services as early as possible to give ease to consumers

2.4 Concluding Remarks

Customer Satisfaction is an important aspects of Service industry. The companies uses Different methodologies /Surveys for arriving at Customer satisfaction level for their company or industry to retain the existing consumers and how to target new customers based on Feedback and market Study for their products and services and what changes are required for further growth so as to take advantage over the competitors on longer run .This Chapter discusses the Main Theories of Customer Satisfaction and Service commitment and why Customer Satisfaction is important for companies , methodologies and ways to improve customer Satisfaction .This Chapter also includes the TPDDL Initiatives for customer satisfaction and challenges in providing customer satisfaction in current situation .

CHAPTER 3. RESEARCH METHODOLOGY

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

The response was received from 32 customer through Google form and other from calling feedback and then the data was entered in excel to convert it into soft format. This was further used chart format to analyze.

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 the solution to the questions of who, what, when, where, and how related with a specific research problem; a descriptive study cannot finally ascertain answers to why. Descriptive research is used to obtain information regarding the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a particular situation.

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

If the limitations are understood, it can be an important tool in developing a more dedicated study. Descriptive studies can produce rich data that can lead to important recommendations that can be implemented.

This Method collects a huge amount of data for thorough analysis. The results from a descriptive methodology can't be used to determine a decisive answer or to contradict a theory. Because descriptive designs often apply observational methods [as compared to quantitative methods] and these results cannot be replicated.

3.2 Scaling techniques

A Likert scale generally has an odd number of options, usually 5 to 7. One end is labelled as the most negative end while the other end is labelled as the most positive one with the label of 'neutral' in the just between of the two ends of the scale. In this the likert scale is taken with five options

Where option are:

- a. "is most dissatisfied"
- b. "is satisfied"
- c. "is neutral"
- d. "is dissatisfied"
- e. "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: 32 through Google form

Convenience sampling

A convenience sample is a type of non-probability sampling system in which the sample is obtained from a group of community which are easily reachable. For example, standing at a shopping mall or a Goods store and asking people to answer simple questions would be a method of a convenience sample. This type of sampling is also known as availability sampling. There are no other criteria to the sampling method apart from that people be available and willing to participate in the survey. This type of sampling process doesn't require that a simple Random sample is generated, since the only criteria is whether the respondents agree to involve in the survey.

Convenience sampling can be applied to nearly anyone and has been around for many years. One of the reasons being mostly used is due to the numerous advantages it provides. This type of sampling process is particularly quick, simple, readily accessible, and nominal costing.

Advantages of convenient sampling

- Accelerated data collection
- Comfort of research
- Easily Available
- Cost efficiency

3.5 Concluding Remarks

The Chapter includes the research methodology being adopted for carrying out this particular survey to understand the customer perception towards Brand TPDDL and consumer's view towards the services offered by TPDDL like Quality of Power and Services to its consumers. The chapter also includes the Sampling techniques being used for carrying out this survey which is convenience sampling due to restriction in Movement as per norms of current situation. It's also briefly discusses about how to develop the questionnaire for the study to be carried out. Research Methodology adopted should be such that it uses minimum cost and time but at the same time provide the feedback of majority of people with different ages, categories, occupations who are regular user of services.

CHAPTER 4. DATA ANALYSIS

4.1 Data collection

Data collection is mainly done through the

- Information is gathered through questionnaire shared via Google Form to Employees and Customers
- From Calling Feedback due to restriction of Physical interaction in current scenario. This was done with help of Employees and Staff currently working from home .The Details of consumer was shared to them along with contact numbers to get the Survey Completed.

Figure 4.1 Google Survey Form for respondents

The image shows a Google Form interface. At the top, there is a banner with COVID-19 safety tips: 'Cover your mouth with a tissue while sneezing or coughing. Then throw it in trash.', 'Clean your hands often with alcohol-based sanitizer or soap and water.', 'Avoid touching your eyes, nose and mouth often.', 'Avoid holding or participating in meetings.', and 'Avoid coming in close contact with people who are sick.' The main title of the form is 'Study On TATA Power-DDL Commitment Towards Customer Satisfaction During Covid-19'. Below the title, the text reads: 'I am a student of MBA (Sem IV) of Delhi School of Management, I am carrying out a project on "Study On Tata Power-ddl Commitment Towards Customer Satisfaction In Covid-19" in partial fulfillment of requirements of my course. I request you to please spare some of your valuable time for filling the following questionnaire. The information provided by you will be kept confidential and will be used for academic purpose only. The Survey is to measure the customer satisfaction level in current scenario . You are requested to kindly mark your response against each question. Please fill in the below form.' At the bottom left, there is a 'Next' button. At the bottom right, there is a progress bar and the text 'Page 1 of 4'. At the very bottom, there is a disclaimer: 'Never submit passwords through Google Forms.'

Source: Google Form created for survey

4.2 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. Profession
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		35-50		Above 50	
Gender	Male		Female		Others	
Profession	Business		Service		Others	
Rate Category	Domestic		Commercial		JJ Clusters	

Table 4.1

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

Category 1: Age

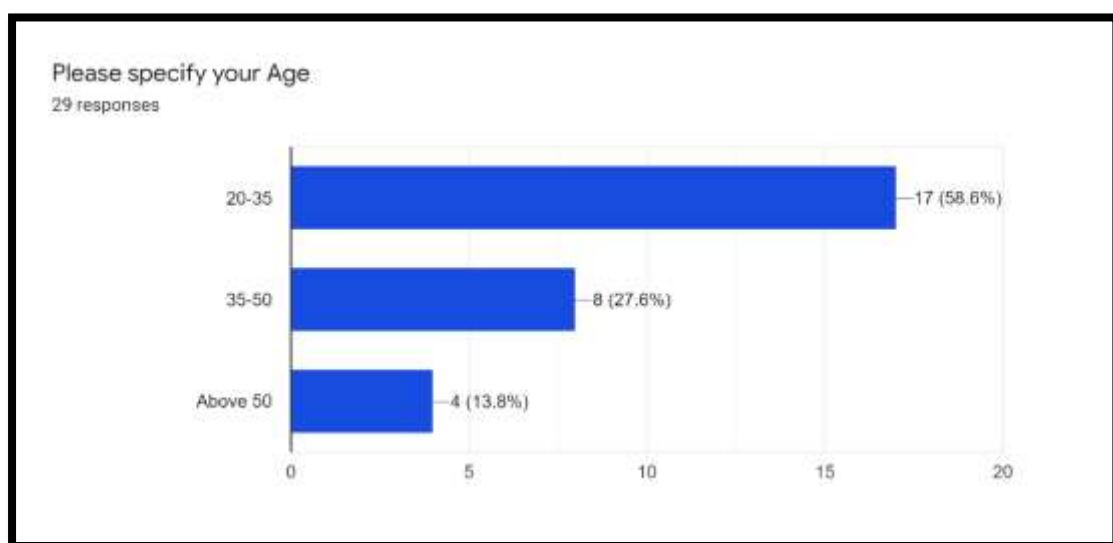


Figure 4.2 Google Survey Form

We can see in above chart that the more than 58.6 % respondents are in the age bracket of 20 to 35 years. The age group of respondents for other two brackets are 27.6 % and 13.8 %.We can say that majority of respondents are from the age group of 20 to 35 years.

Category 2: Profession

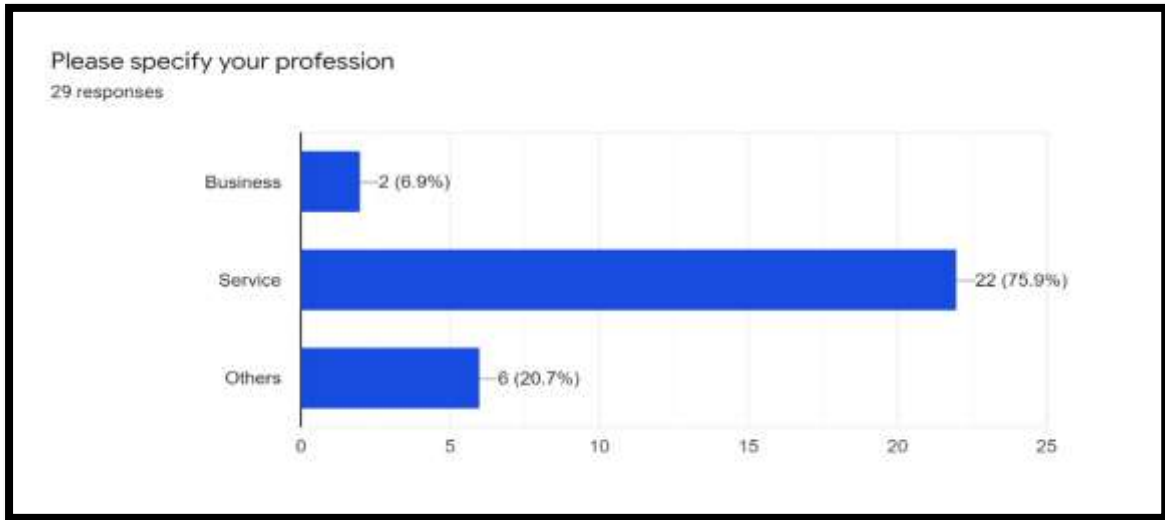


Figure 4.3 Google Survey Form

The Profession detilas category shows that the more than 75.9% respondents are in service industry. The rest 6.9% are in having there own business and the rest 20.7% 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 the the respondents The male respondents make the 72.4 % and the rest 27.6 % is made by the female respondents.

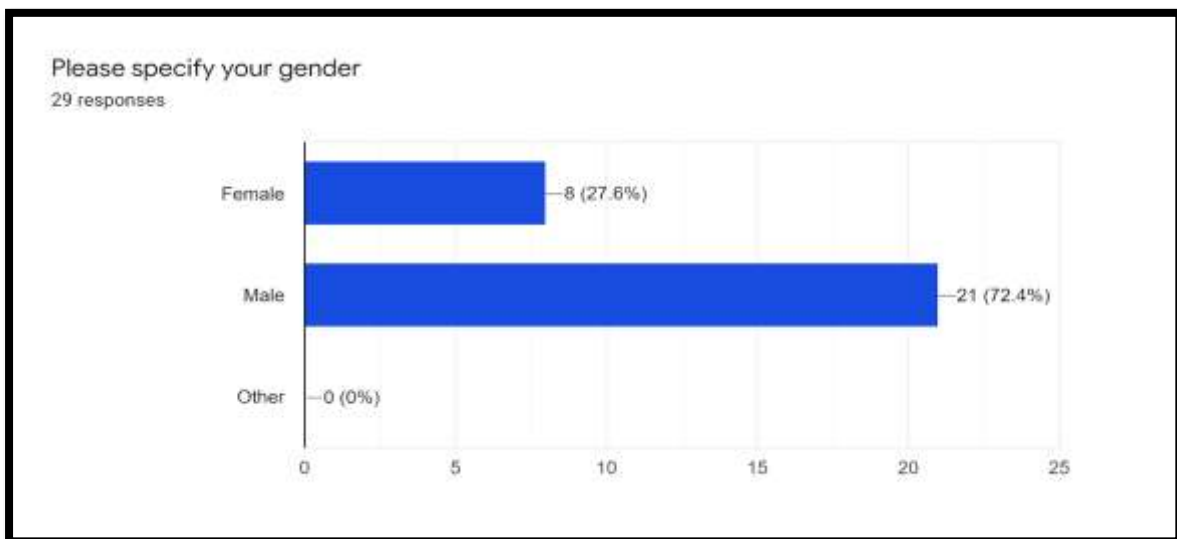


Figure 4.4 Google Survey Form

Category 4: Rate Category

This category of respondents helps to identify the Type 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 in category of consumers (Domestic /Commercial /JJ /Govt.). If we see the percentage sharing of consumers, we find that majority of consumer are from Domestic Category. They make the 86.2 % of the overall respondents. The rest is divide between respondents living in JJ cluster or commercial. The respondents from commercial are only 6.9 %. Whereas the 6.9% are from Govt. & institution.

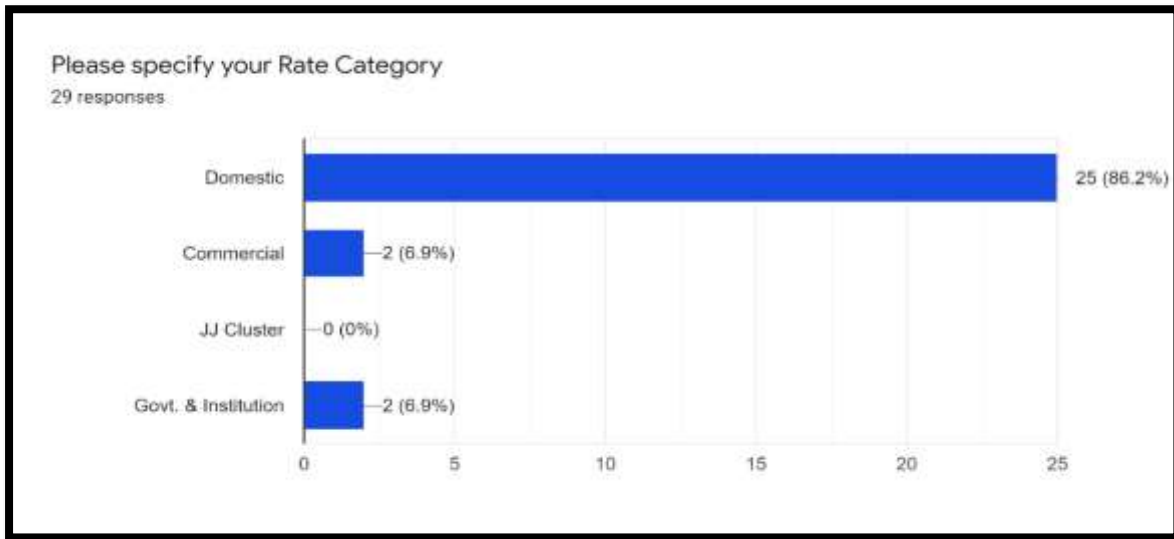


Figure 4.5 Google Survey Form

Almost half of Consumers about 41.4 % have not downloaded TPDDL Mobile App therefore there s further scope of ncrease of digitisation among Consumers .For this Advertisement for ncrease digitisation needs to done by discom which also be a green initiative .

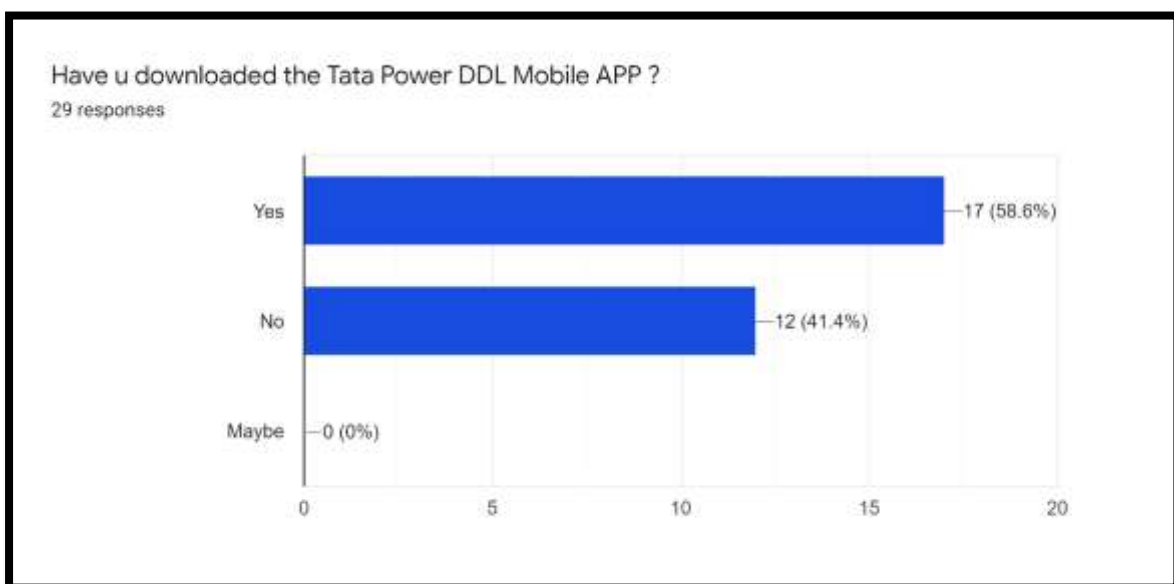


Figure 4.6 Google Survey Form

As the activity has recently started there's need to make consumers aware of the initiative started by discoms for consumer satisfaction as they will be billed on consumption which is exactly used by them .Still 44.8 % are unaware of this .Therefore Sharing of information through various channels like Social Media, Messages, Website, App, Newspaper, Radio Channels needs to be look Into.

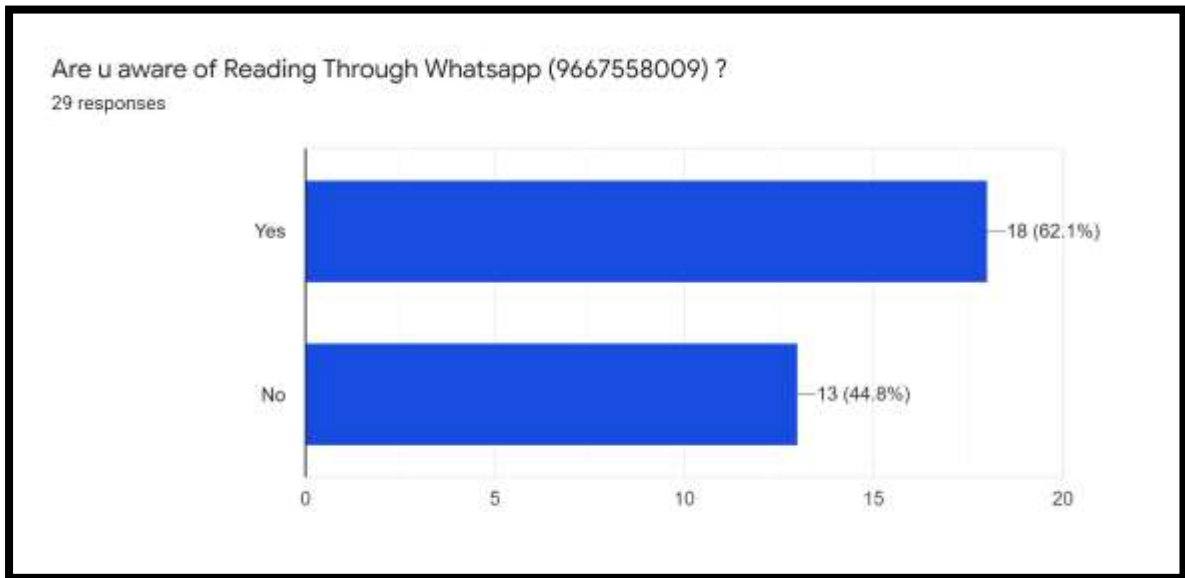


Figure 4.7 Google Survey Form

Even when Consumers are unaware of the What Sapp initiative, they had shown willingness to opt for the same, about 69% showed interest in it, which will definitely as boost up morale for the employees working for consumer services.

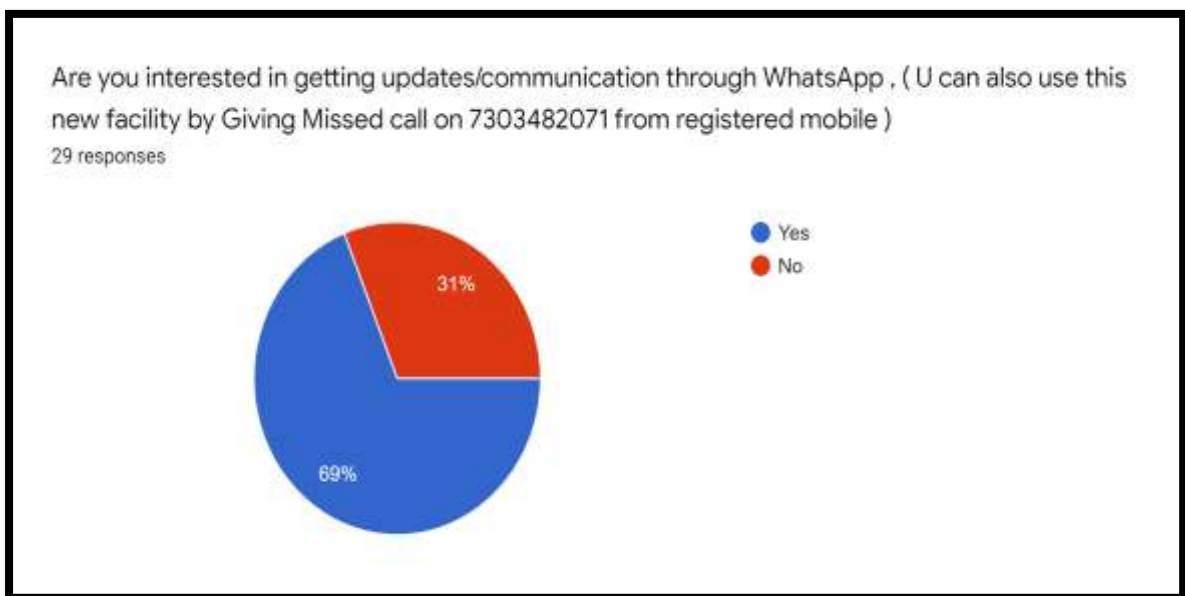


Figure 4.8 Google Survey Form

Being an essential utility services company, we are committed to provide reliable power supply to our consumers amidst these testing times Even in current situation when Discom are working with reduced staff for safety of employees like working on ROTA for maintaining the Social Distance , they are able to provide their consumer electricity uninterrupted .There's considerable 27.6 % of people who satisfied but not very satisfied .Therefore Discom must interact and needs to resolve their concern for further make the consumer satisfied to very much satisfied which will help Discom in situation when Gov. in future will roll out **open access**.

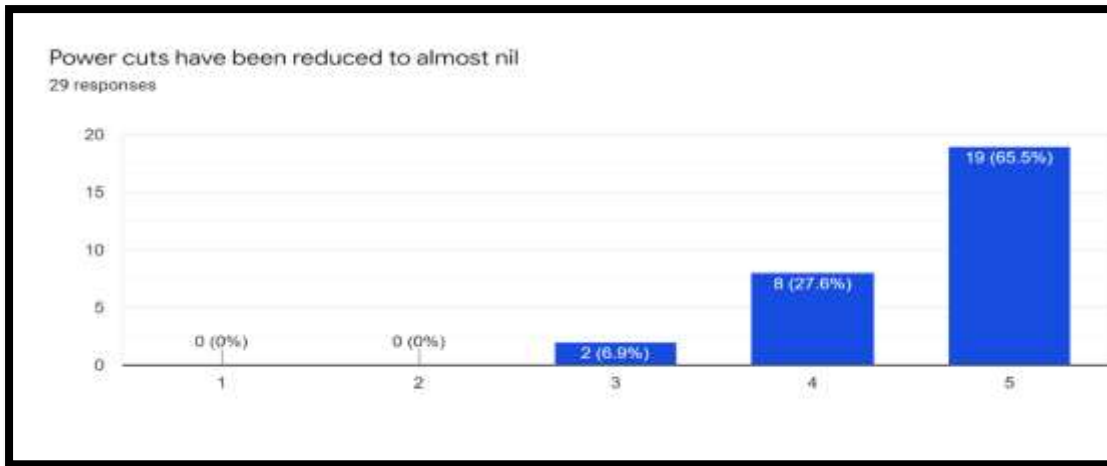


Figure 4.9 Google Survey Form

The 34 % consumer stated that they didn't received the prior information of Power Cut. However we had observed that Power Cut has been reduced but still consumer stated that they are not receiving the prior information.

The Major issue addressed while interaction with some consumers is that either their correct contact number are not updated in discoms data base. Therefore consumer must update their profile details with discoms to Get the updates .Also we has seen that most of consumer has not download the TPDDL App, Once they download they will be able to Receive and check updates through interactive services on app.

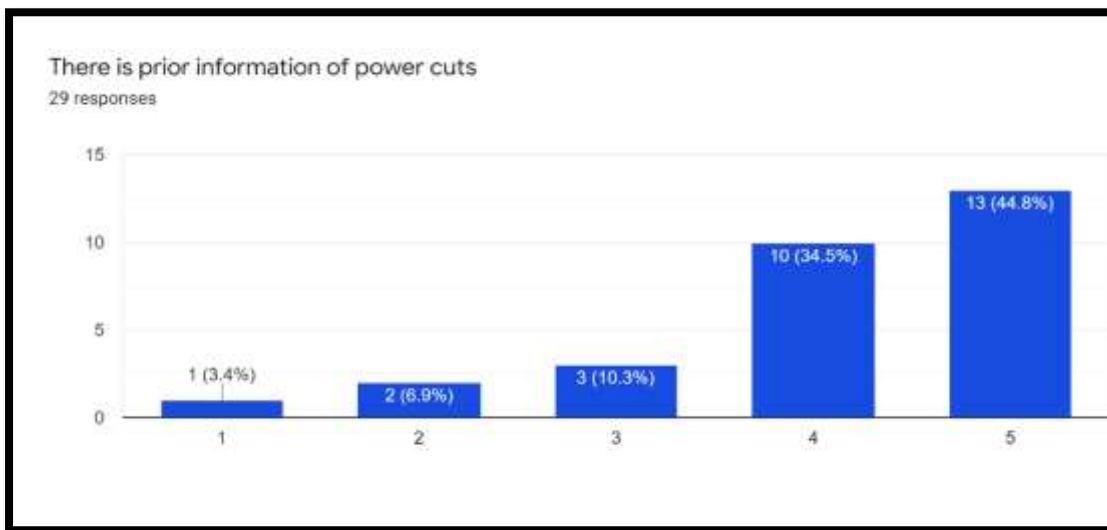


Figure 4.10 Google Survey Form

Most of consumer has satisfied by Serviced of Street light the reason for only satisfied s due to discom working with reduced staff and therefore can't allocate Full potential on Maintenance of street light which can be mostly confirmed n Night duration. Also as people are not moving out, they are unable to provide information of non-working streetlight.

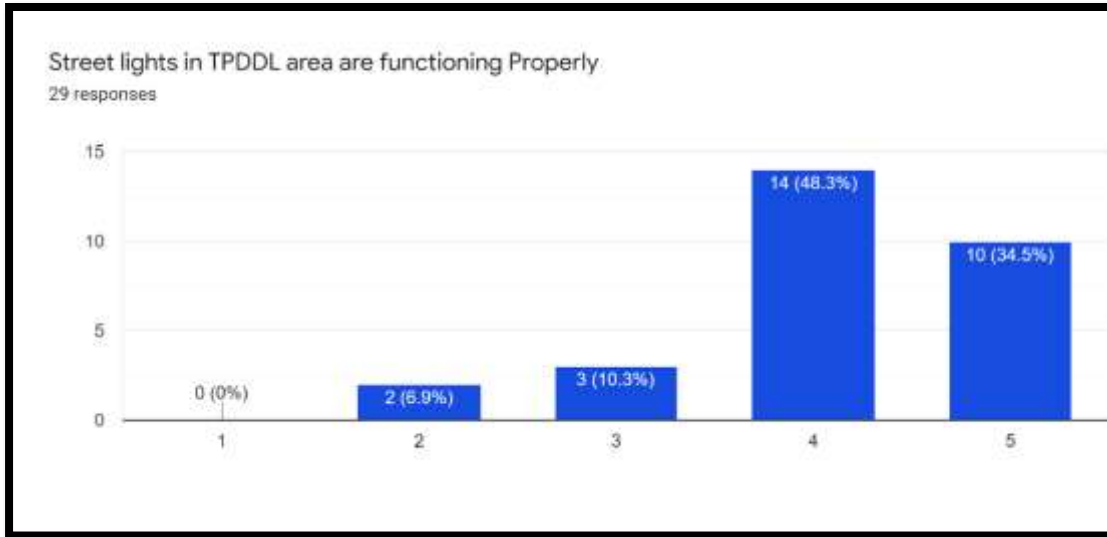


Figure 4.11 Google Survey Form

The Voltage Fluctuations has reduced with 85% consumers are satisfied with services offered by Discom. The duty of Discom s not only to provide electricity but quality of power which s also their Vision and Mission of the company.

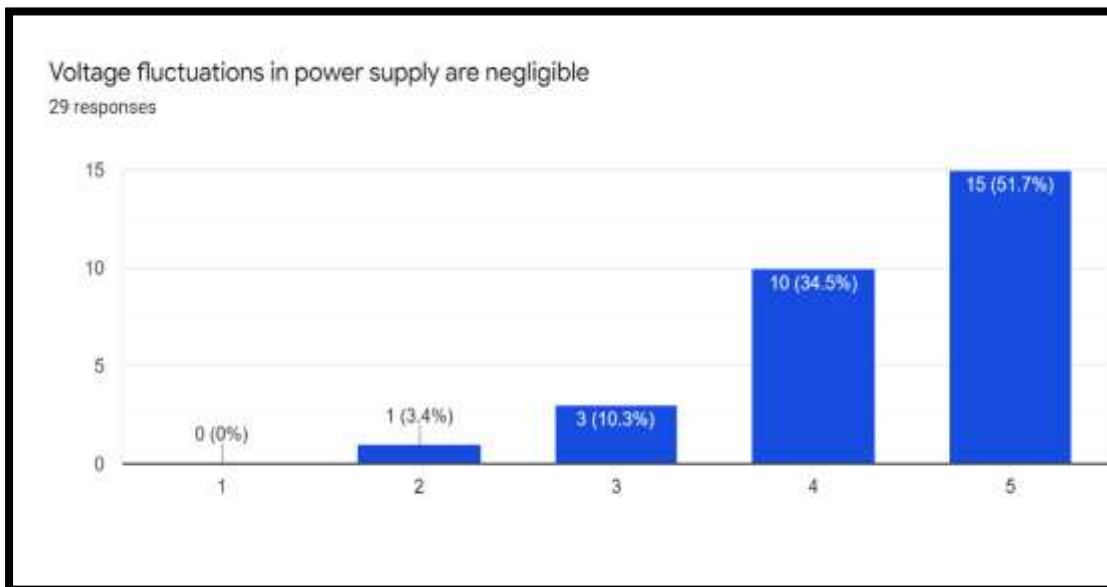


Figure 4.12 Google Survey Form

Most of consumer are satisfied by Behaviour of Discom staff and about 44.8 % are very much satisfied. This shows the Employees are highly motivated and sufficiently paid by discom and takes good care of their needs and requirement.

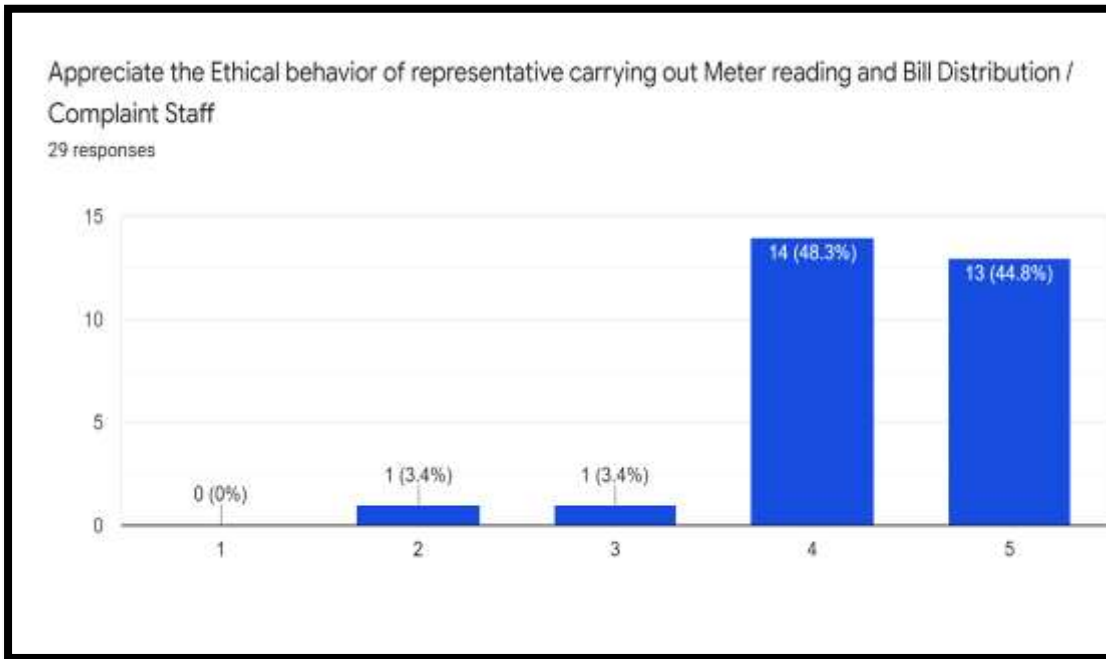


Figure 4.13 Google Survey Form

Discoms are adhere safety guidelines and work towards safety of employees, consumers and society.

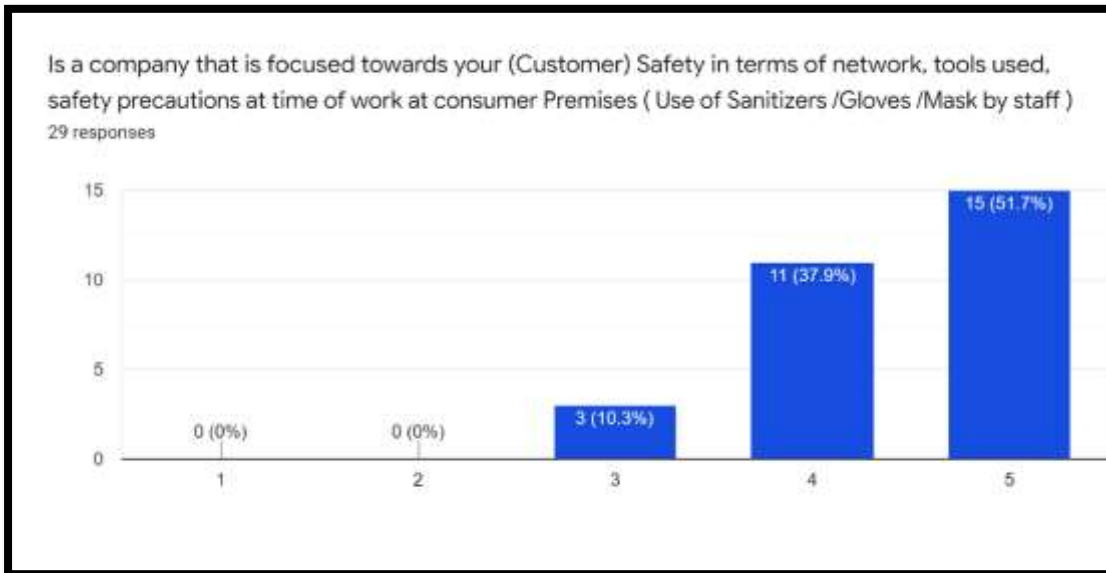


Figure 4.14 Google Survey Form

The Delivery of bills are very much needed to ncrease collection and generating revenue for the company and company had always focussed to deliver this service to their consumers effatively which s shown by Satisfation shown by consumers .

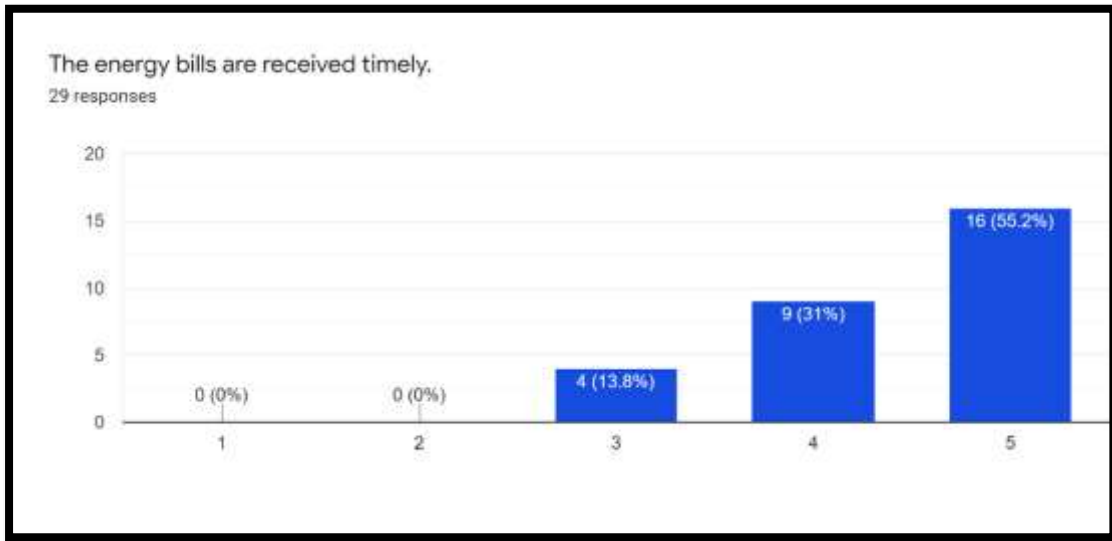


Figure 4.15 Google Survey Form

To mprove this parameters the Discom had ntrocuded two major nitatives n current situation Firstly the Self Meter reading using OCR technology and Secondly the use whatsapp buisness version to capture consumer grievance and reading details and delivery of bill thereafter .

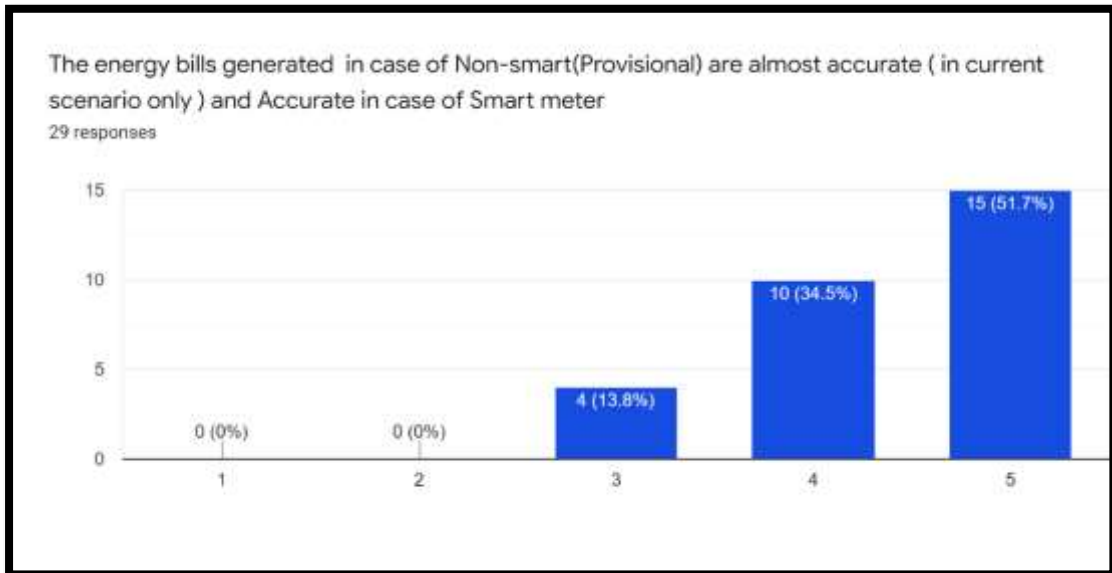


Figure 4.16 Google Survey Form

This also confirms that company has focused on customer satisfaction and adhere to business ethics by displaying the parameters n bills which can be easily understood by consumers and calculations are easy to understand by them and user-friendly.

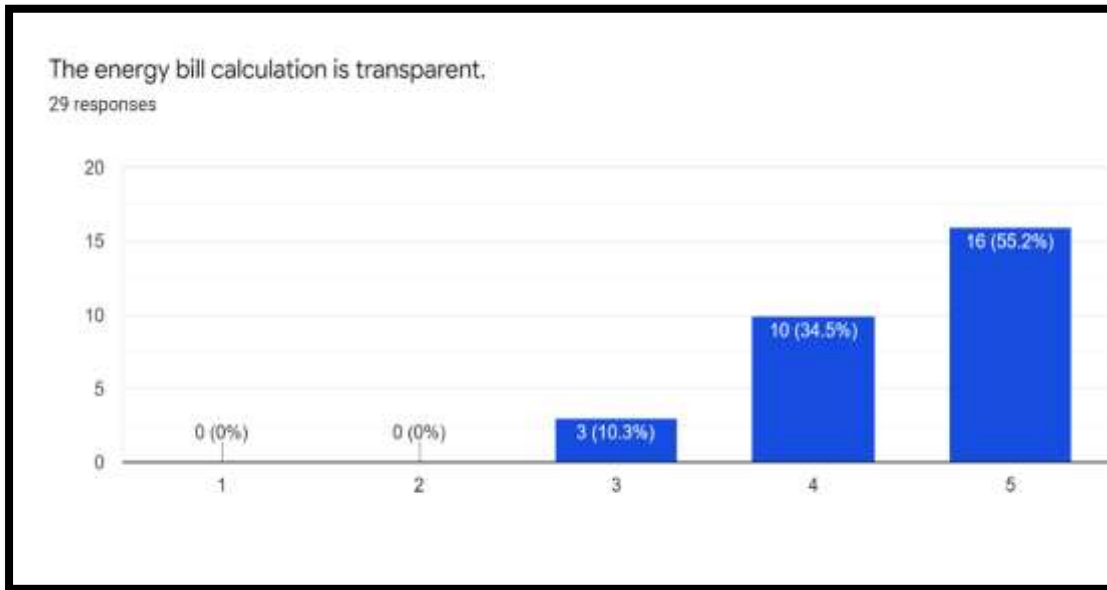


Figure 4.17 Google Survey Form

This always a shows that Discom s working to make their consumers about their rights and provide correct nformation to them as per regulations and changes from time to time through various mediums .This also shows that Discom working towards building a brand mage .

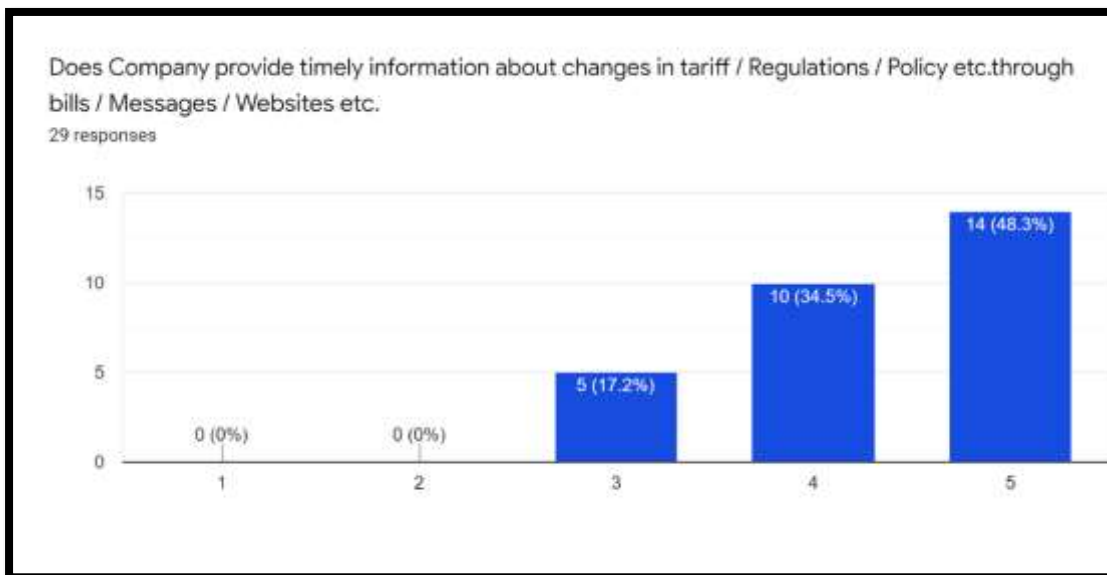


Figure 4.18 Google Survey Form

It means that adequate precautions are being taken to keep the consumers safe and secure by offering them services through digital interface.

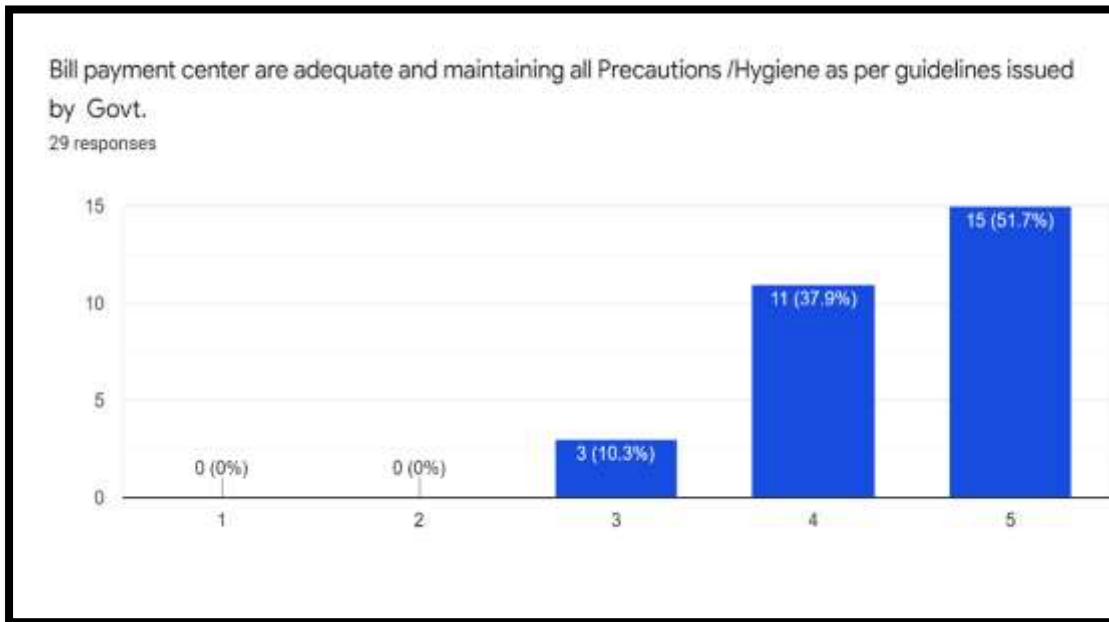


Figure 4.19 Google Survey Form

Tata Power-DDL also appeals to its consumers to opt for digital modes of bill payment. Like Mobile App, E-wallets or UPI. Special prizes will be given to consumers who would be accessing the online modes for paying their bills on time. All the consumers are being advised to stay at home and make bill payments using digital modes

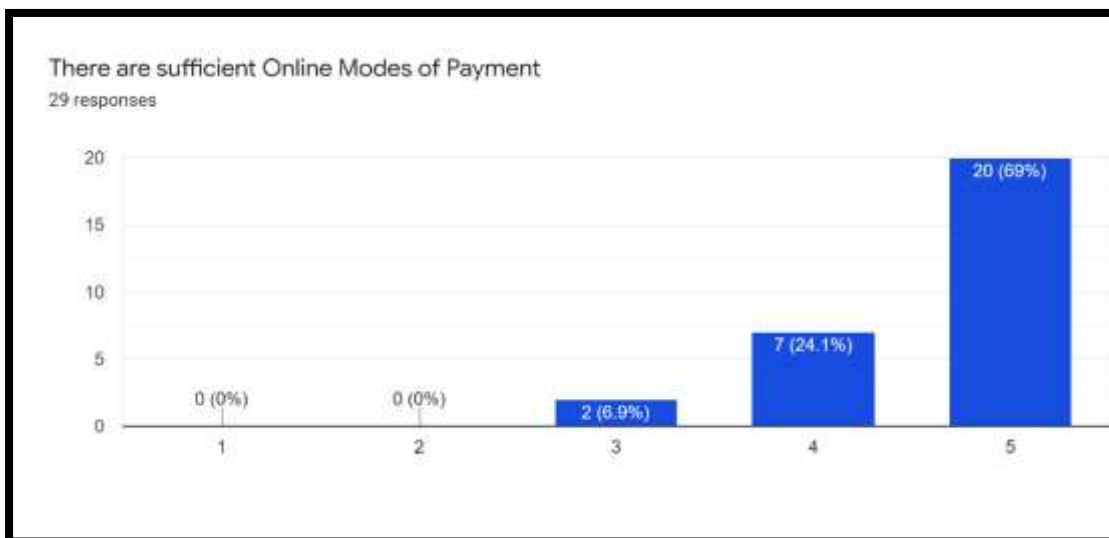


Figure 4.20 Google Survey Form

Most of Consumer are satisfied with user interface of Website and mobile app. This shows that Discom is working towards use of digitisation and consumer centricity.

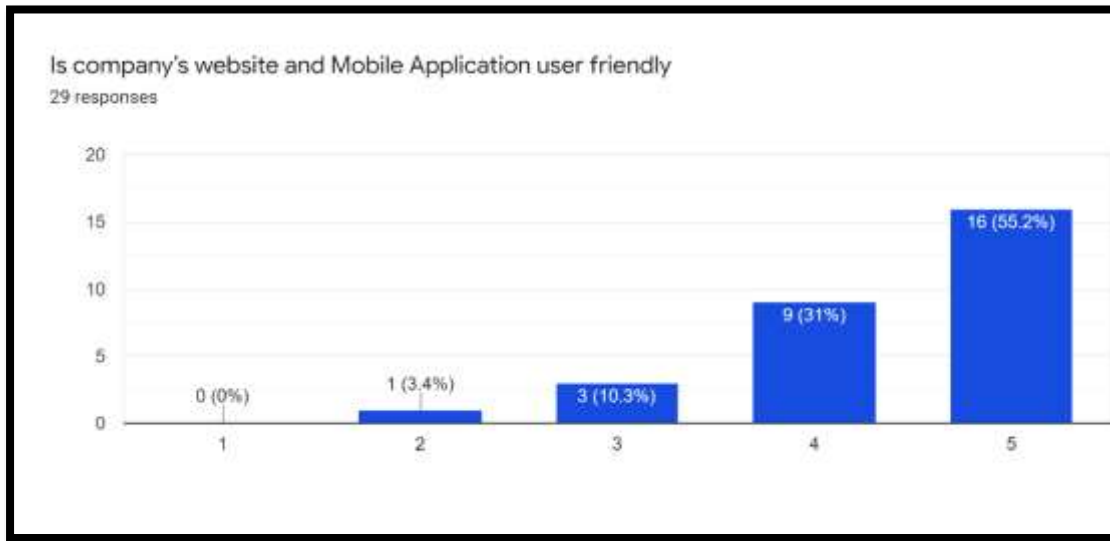


Figure 4.21 Google Survey Form

Discom is keeping a close tab on the situation in its area of operations and is standing with its employees and consumers in these challenging times. Adequate precautions are being taken to keep the consumers safe and secure by offering them services through digital interface. Avail array of services through company's website (www.tatapower-ddl.com) Extensively use TATA Power-DDL's Mobile App in order to raise/ register any service related query or complaint so that consumer can raise concern effectively and comfortable, Websites and App are also equipped with information gathered from authentic sources and providing correct information about safety precautions to be taken in current situation.

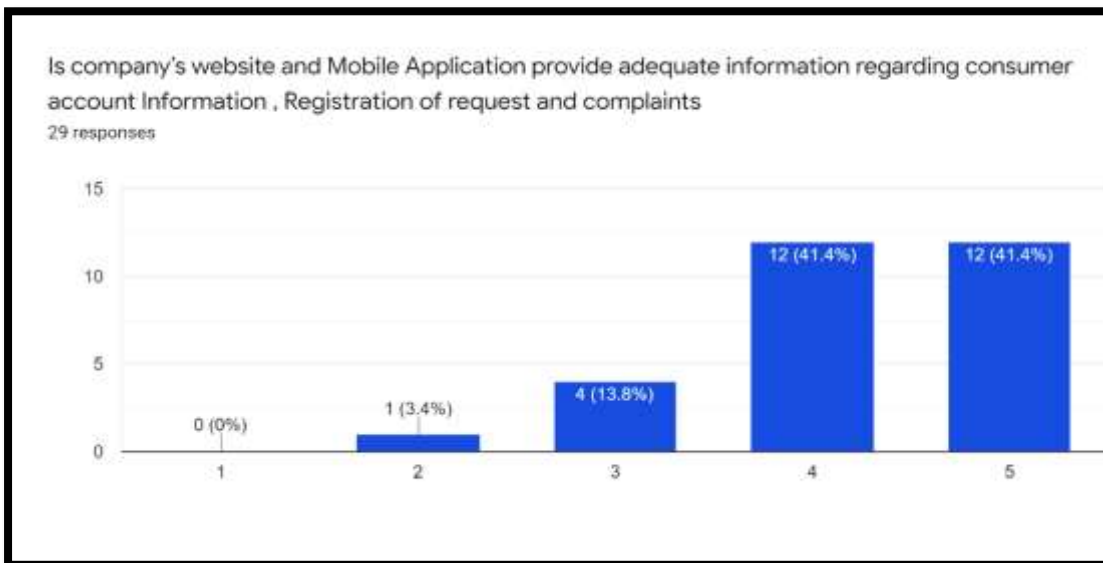


Figure 4.22 Google Survey Form

Definitely the below graph shows that The company s committed to ensure reliable and non-stop power supply to all its consumers, power other essential service sectors/ utilities, facilitate social distancing & effective practicing of work from home for lakhs of its working class consumers.

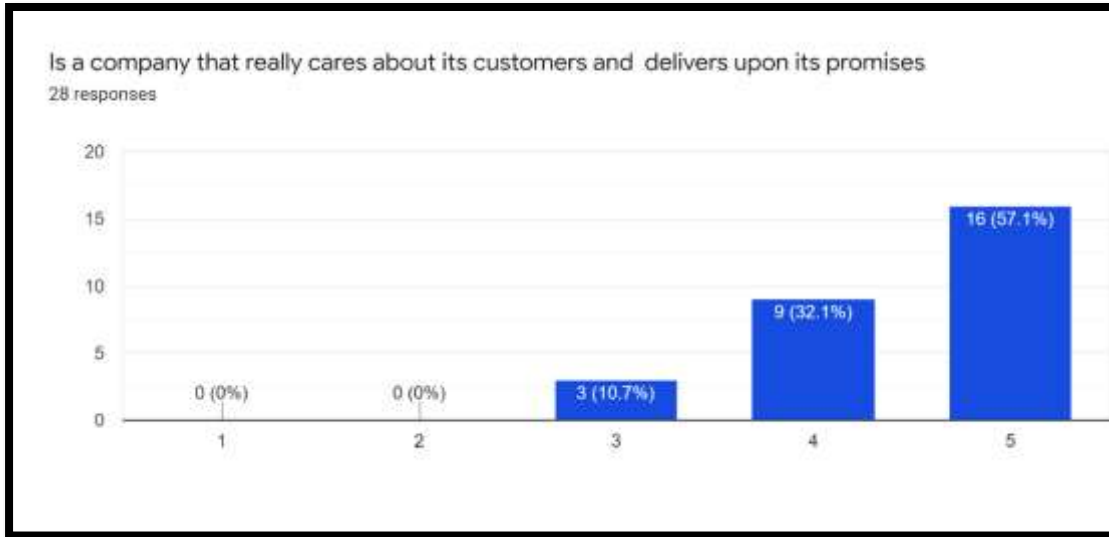


Figure 4.23 Google Survey Form

Tata Power–DDL which has an incorporated complaint management process for logging and tracking customer request / complaints with automated escalation process having three tier complaint handling system .Complaints are registered by providing a exclusive system generated complaint number and all the work related to it are recorded against these corresponding number with which the consumers can pursue the status of their complaint/request from any offices or call centres .

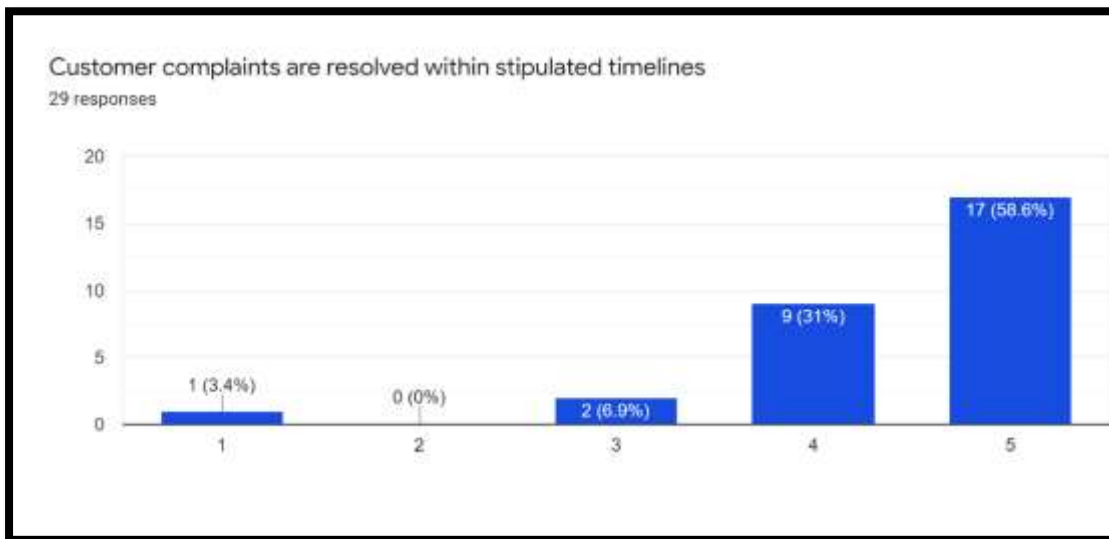


Figure 4.24 Google Survey Form

This Shows that Discom are committed to provide their customers with experience and consumer services comparable to world class and through continuous , reliable supply of power, accurate meter reading and billing including automatic meter reading system (AMR) for high-end consumers.

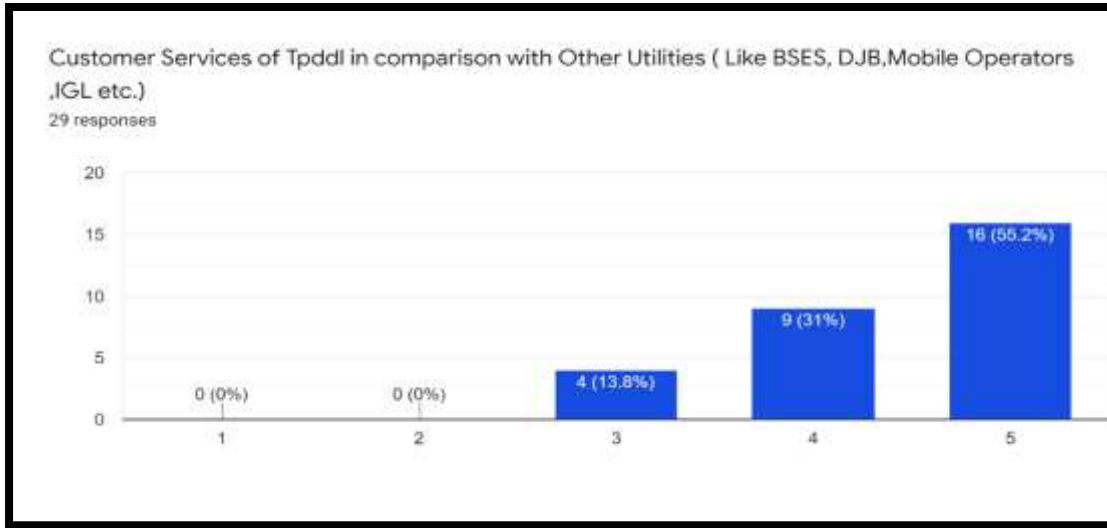


Figure 4.25 Google Survey Form

Tata Power Delhi Distribution (Tata Power-DDL) has launched its popular 'Pay Bill and Win' scheme in a bid to promote digital mode of payments during the ongoing lockdown. Consumers can also avail rebate based on DERC guidelines on bills generated from March 24, 2020 onwards,

- Payment on Day 1 to 7 of the billing date – Rebate of 1% on the bill amount (excluding arrears), not exceeding ₹200
- Payment on Day 8 to 14 of the billing date - Rebate of 0.5% on the bill amount (excluding arrears), not exceeding ₹150



Figure 4.26 Google Survey Form

Supporting the Community during lockdown period due to COVID-19 by providing drinking water through RO plants installed at school converted to Covid centres , spreading Masks and Sanitizers among lower sections of community along with necessary medicines, Food .

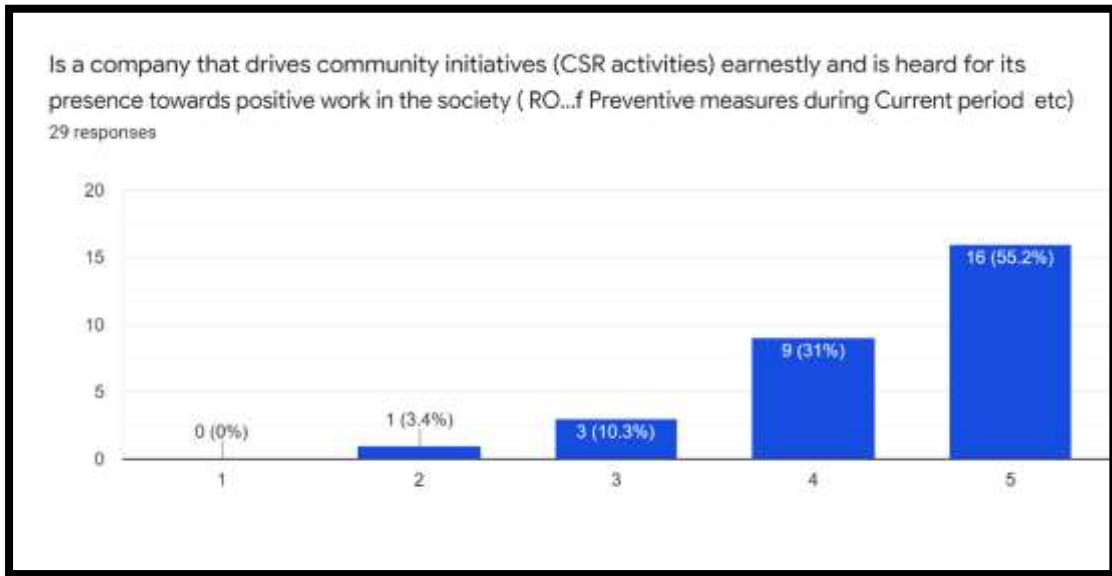


Figure 4.27 Google Survey Form

Customers of TPDDL are much satisfied with overall experience they get from the services offered by the company and the way they accept the feedback from them and work towards delivering the promise committed by them to meet their expectations.

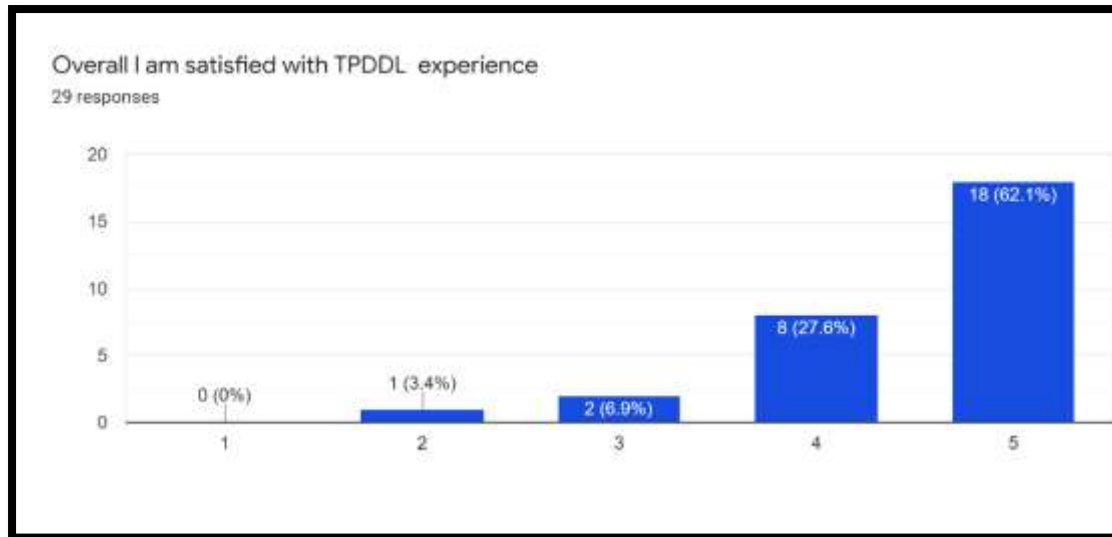


Figure 4.28 Google Survey Form

4.3 Concluding Remarks

In this chapter, data analysis of the Google form was done based on the feedback from the consumers / employees. The analysis is done based on four general parameters such as Age, Gender, Occupation and Rate category of consumers so that the feedback and suggestions can be recommended based on type of consumer's and type of services they use . The Analysis is being to figure out the customer perceptions to each of the services offered by the utility to its consumers on mainly two broad parameters of Quality of Power and other Customer services offered. This will help to recommend the future changes required in the processes for either improvement in current processes or inclusion of new processes and technology for ease of consumers to avail the services at their convenience during the current situation also, so that they can practise social distancing. This will help company to align its processes for better customer satisfaction. From the survey we gathered that TPDDL is still among best among other utilities like BSES, DJB etc in providing services and company is dedicated towards use of new technology by using various online modes for ease of customers.

CHAPTER 5.RECOMMENDATIONS & CONCLUSION

Findings

As per the survey 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 Customers. All type of customers couldn't be covered in this study. 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. Also from the Survey we got to know that that customers experiencing various utility services found TPDDL the BEST.

Customer's perception about Tata Power DDL as a company that “drives community initiatives” has increased significantly. Quality and reliability of Electricity supply” is the still the most important factor but in current situation Quality of billing and its correctness has been the customer's priority.

As company may had invested hugely in Maintenance of Transformers and network and adoption of New technology Like SCADA, DMS , OMS , Distribution Automation But company is Majorly Dependent on Manual Meter reading and distribution of bills for most of its consumers which has impacted the Revenue of the company at large during this Period .

The Company must also work on these parameters and must increase investment by increasing the smart meter installation for Residential consumers also and online platforms for Consumer request and complaints and modes of payments. Consumer Data is not updated with the company as most of the consumers either shifted to new locations or got the contact details changed with also a major concern that company could not able to reach its most of the consumers who are regular users of its services due to incorrect customer details in Data base The company must also encourage its consumers to increase the use of digital platforms and should provide Offers and Concession for getting them used to it initially as provided during recent times. Awareness about “Mobile Dispensary Vans” s highest. However, SCG populace are least aware about “Pay & win scheme. Quality of billing” is the top most priority, followed by “Quality and reliability of electricity supply. As per DERC order the provisional Bills were to be issued

Recommendations

Power tariff was key agenda of all political parties in the recently concluded Delhi Assembly elections and might have influenced expectations/responses of the public. The Consumers are therefore appreciating the company initiatives but are also restricting the use of technology to in view of government order which allowed consumers relaxation in paying the electricity bills but at the same time using the other Benefits provided by Company for registering the complaints and requests. Therefor posing a challenge to continue the services as Revenue has dropped due to consumers restricting payments.

Area of improvement:

- **Training of Employees by Enhancing Knowledge/ability of CCC/CC in providing update/resolution.** There is need for training of employees to handle multitasking so that they can single handily can work for customer satisfactions. Mostly staff is working from Home but they have limited staff access to official Laptop. There is need to upgrade the infrastructure and provide sufficient resources to employees to handle work from any locations. This will Increase productivity of employees and will benefit the companies s also in near future.
- **Correctness of meter reading by Smart meter installation and Automation of Billing** —as currently automation is limited to High end consumers. Industries only, there is need to upgraded to all other consumers also .The Company needs to work on installation of smart meter on faster pace, so that automated reading can be done. During the current situation the major activity which helps in realizing the revenue for the company i.e. Meter reading is deeply hampered due to Manual process and unavailability of manpower due to lockdown. This has resulted in generating the Provisional bills for the period of lockdown and resulted in rise of consumer complaints and less realization of revenue for the company.
- **Correctness of Consumer Data** –While carrying out study it was noticed that the contact numbers /Email ID are mostly incorrect and unavailable in system. Due to which company was unable to contact which is required for rapid dissemination of information. Previously this was Manual Done through Letters and bills being physically delivered to consumer premises or through Munadi System especially in JJ Clusters .But during this period physical delivery of services was not possible. Therefore company must work on capturing the correct and updated information about its customers at regular intervals.
- **Maintenance of electric wires, power lines & infrastructure in the area** –The companies must invest more in operations for maintenance of electrical equipment’s which can withstand Large Fluctuations , however company was successful in handling the light off event organised by PM on 5th April 2020 . With onset of summers the complaints regarding Voltage and Power disruption has increased and also due to thunderstorms in recent past leading broken of wires by falling trees. Therefore

company must work on Underground network by carrying out feasibility study to change the overhead network with underground which are more prone to damage in such thunderstorms. The must also arranges sufficient alternatives for switching the supply in minimum possible time and if possible automate it , so that restoration time can be minimized which has increased in current situation due to limited staff at a particular time due to working in ROTA Shifts .

- **Infrastructure development** : IT companies could able to get the useful work done from their employees , as mostly all there staff possess sufficient skills and Resources to work from any far locations / work from home .But in current situation most of employees are Not having the Laptop's , VPN , Internet connectivity . Therefore they were unable to carry out the work from home and work pressure increased on Employees posing the laptops. Therefor Company should also think in infrastructure development and provide them resources, so that they can work and work towards achievement of companies al goals and customer satisfaction.
- **Online Processing of Request for New Connection/ Name Change /Load change /Category change and other Requests**
- Even during current lockdown and in future consumers are unwilling to come to offices for registering the request and submission of Documents for processing them for getting their request for New Connection/ Name Change /Load change /Category change and other Requests to be processed. Therefore company and regulators must simplify the documentation /formalities involved in processing these requests and must encourage online submission of documents/ Digital Signature for processing their request with minimum / nil visit required by consumers at company customer care centers.

Below are some other recommendations for immediate implementation for enhancing the revenue for the company to maintain the Quality of Power and rendering quality services to its customers so that customer satisfaction level can be enhanced.

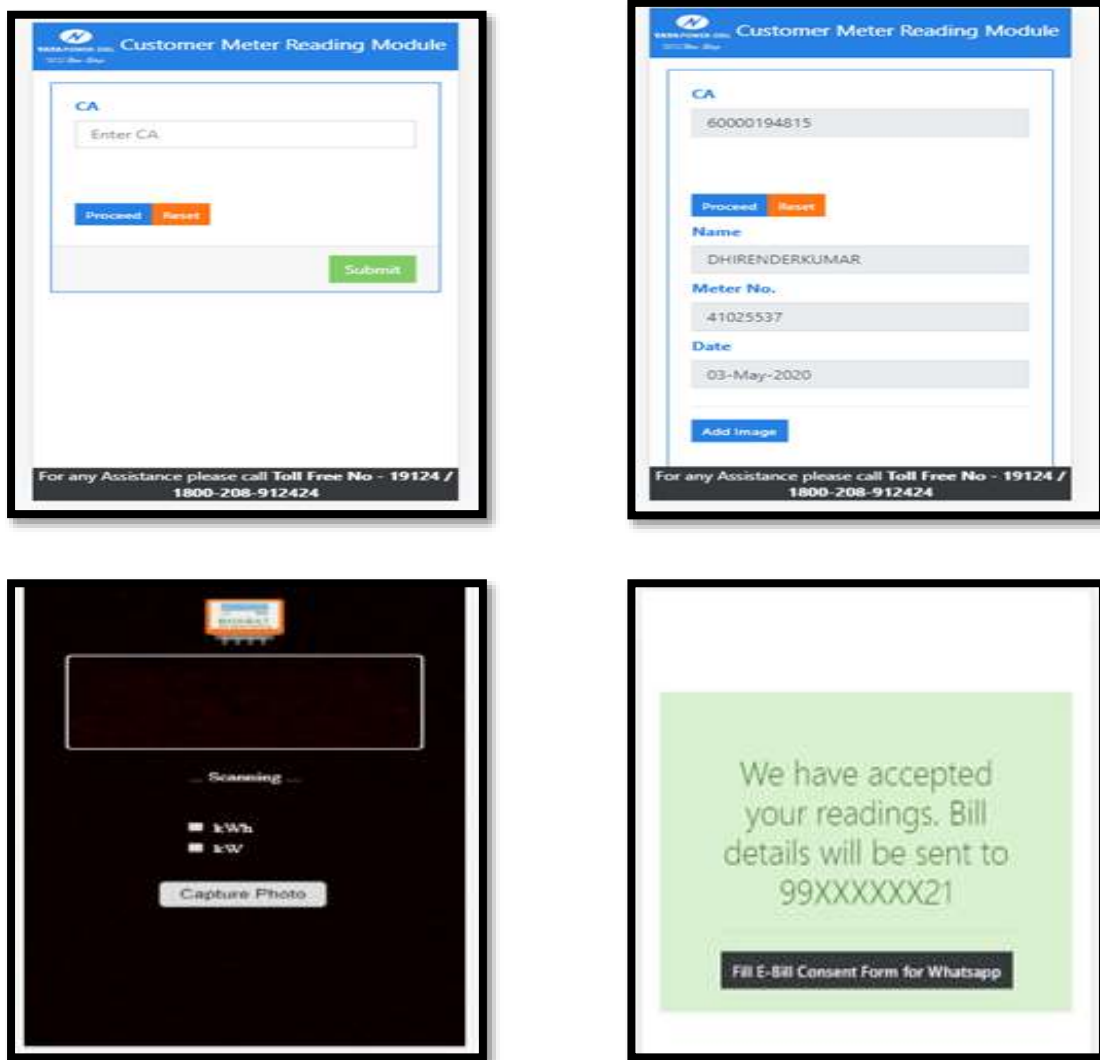
SELF READING CONCEPT

Meter reading is the primary function of discoms for generating the revenue for the company and Current situation had adversely impacted the major revenue cycle .However the regulator of Discoms n Delhi issued the guidelines to provide provisional bills to consumers based on LFY but this also led to major dissatisfaction among the consumers. TPPDL therefore ensuring complete satisfaction for their customers within No time started working on Self Reading Concept and developed and introduced the first technology in India to reading meter with OCR technology.

With This technology, the consumers with this app downloaded will able to record the meter reading automatically while placing their phone n front their meters and The Software will

reading the reading and send to company server for generation of Reading based bill and therefore resolved the issue of the customer at same time benefited the company as now consumer is willing to pay.

Figure 5.1 Sample of OCR reading user interface



Source: TPDDL Mobile Application

WHATSAPP READING AND BILLING

Another major issue arises in current situation was inability of company to distribute physical bill which will impact further collection and loss to revenue but system was developed in response to consumer feedback and What Sapp based Meter reading and Bill Delivery started to enhance customer satisfaction and enhance recovery of bills with customer convenience when other utilities are struggling to generate the revenue and medium to resolve to such issue. Below is the status of Bill Delivery confirmation status. The Major Reason for Non-delivery was consumer prior to this scenario had not updated their contact numbers and email id or the owners had changed.

Table 5.1 Calling Status done by employees from 1st to 25th April 2020

Overall Status from 1st Apr-25th April

Row Labels	Count of CA	%age
Bill Delivered	77568	36.25
Bill Not Delivered	70424	32.91
Phone Not Connected	64236	30.02
Others	953	0.45
Not nterested to Talk	809	0.38
iGrand Total	213990	100

Source: TPDDL Calling Sheet from Employees



Figure 5.2 What Sapp Promotion by TPPDL

Source: Tpddl Website

Around 18605 consumers gave missed call to What Sapp number to register their contact and opted for E-Bill through What Sapp in Month of April.

TPDDL	EXPR	KCG	SCB	HRB	HCB	Grand Total
Grand Total	2	80	829	1787	15907	18605

Table 5.2 Source: TPDDL Survey

In Current situation major revenue providers such as large industries and commercial establishment where not functional, due to which there's huge deficit of revenue and further Gov. have provided consumers with a moratorium for payment of electricity bills during this period but in order to provide the uninterrupted power supply for all, the company brought Pay Bill and win Scheme for benefit of consumer and at same reduce company financial burden.

They also recommended for Rebate n LPSC charges from 18% PA to 12% PA .They also withhold the Supply disconnection on account of Customer satisfaction even f consumer s unable to pay . For Customer safety , they collabrated with various online payemnet avenues so that consumer who are willing to pay need not to step outside their premises for payment of their dues .



Figure 5.3 Pay and Win Scheme by TPDDL,

Source: Tpddl Website



Figure 5.4 Promotion of Electricity payment thru Mobile Wallets by TPDDL

Source: Tpddl Website

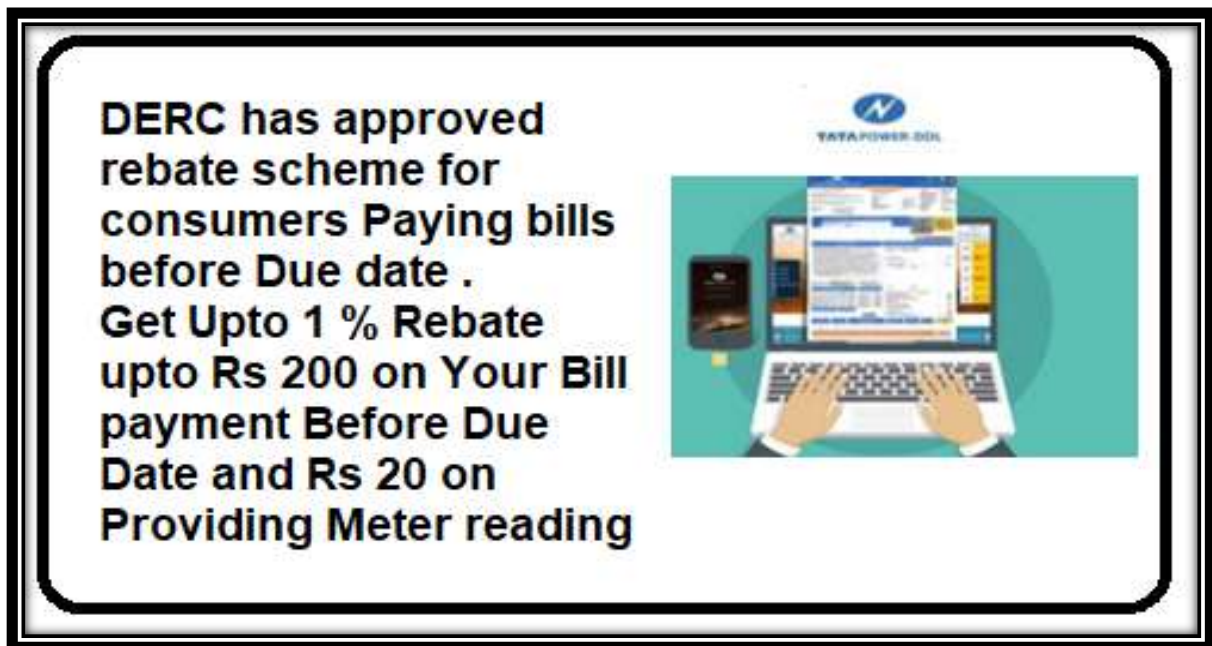


Figure 5.5 Promotion of Rebate Scheme by TPDDL

Source: Tpddl Website

Discoms primary responsibility is to provide uninterrupted power supply to their customers and also help the stay safe in their homes worked continuously .Discoms prepared as necessary plan to supply reliable supply as per their vision and mission.

The Maintenance team worked selflessly to support consumers stay safe at their home and themselves worked to maintain power supply even n summers when tripping's and breakdown increases due to loaded equipment and network .



Figure 5.6 Promotion of Brand Building by TPDDL

Source: Tpddl Website

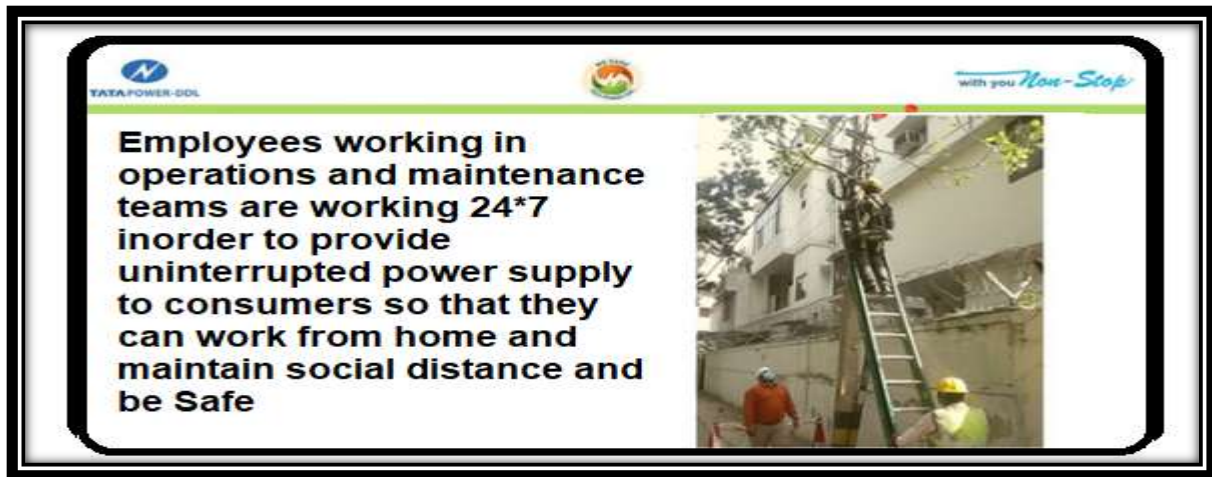


Figure 5.7 Promotion of Brand Building by TPDDL

Source: Tpddl Website

LIGHT OUT EVENT ON 5th April 2020 on appeal of Hon'ble Prime Minister

The appeal of Honable PM announced the LIGHT OUT EVENT on 3rd April 2020 to Switch off lights and light candles and Diyas on 5th April 2020 from 9 PM onwards for 9 minutes to show the nations strength and its commitemnet to fight against the Corona Virus .

The TPDDL who serves around 70 lacs consumers sucessfully handled with advanced technology and employee commitment and planning sucessfully and they elegantly handled the power surge without any major interruption of electricity in there area .

Supporting the Community in the Period of Lockdown due to COVID 19

Currently the world is witnessing a exceptional crises due to sudden occurrence of this Pandemic with around 62 million people are already affected and increasing day by day . The People who are either Below pverty line or earn a daily wage are mostly affected by current situation and many others are loosing their Jobs. This stands a great concern for all the people around the world and urgent action is required .

Inorder to serve the community with over 100 years of his tradition the Tata Group has already pledged Rs 1500 Crores to help the community to fight against the Corona Virus in india and to support the Tata power –DDL has also committed to provide its share of support to the Delhi Governemnet and other services group like Police and community in many ways as following

Food - Even when company was facing financial deficit due to low collection, they even continued their CSR activity and further approached the community to serve them better and in fight with current situation .they came forward to feed 2 Lakhs distressed migrant workers in Delhi. TPDDL area has many large Hospitals functional n their area which are always a high revenue based consumer for them for past many years . Now as per needs of the our they also came forward to help their customers like Healthcare professionals /staff working n these hospitals and also the pateints who may or may not be TPDDL customers by providing 2000 meals everday to them to support fight nfection .

Figure 5.8 Mobile Dispensary



Source: Tpddl Website

Figure 5.9 Food Distribution



Source: Tpddl Website

Water —Providing regular drinking water through commercial RO plants installed inside Government schools which have been converted to isolation centres and Colonies.

Health and Awareness – Two Mobile dispensaries with doctors and staff are working for awareness of health hygiene and are distributing mask and sanitizers to under privileged communities in JJ Clusters and economic weaker sections of Delhi region along with other duties for their welfare. With association of NGO, they are spreading awareness about safety and precautions measures related to Covid 19 and Guidance related to Government Policies and Schemes.

Supporting Self Help Groups – They also supporting the self help groups and women working in company vocational training and learning centres for preparation of cloth masks for their community by providing necessary guidance and support .

Conclusions

From this survey it can be suggested that the company overall has good brand image and high Customer Satisfaction level. But Company in current scenario needs to be more focussed on some factors related to Services like Billing and Metering & Payment related Query which largely dissatisfied the customers. But Discoms quickly administered the issue and worked for improvement in processes and came forward with many new Online Platforms for resolving the consumer Query /Complaints /Requests by Creating New App, using existing wildy used whatsapp platform for consumer convenience by aligning with the Discoms processes. This Chapter also Discusses about the Findings from the Study such as Unavailability of updated consumer data to reach them and passing important information .The Recommendations for future are of improvements were also given to enhance Customer Satisfaction by adopting New technology and infrastructure development an automation of certain Processes for ease of consumer. For getting its customer focus in enhancing Brand image and the company focussed on CSR as well to help community Fight the Epidemic.

CHAPTER 6.LIMITATIONS & FUTURE WORK

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

This survey is different from other surveys being carried out because in current situation the personal interviews with customers and employees could not be done and therefore calling and online Google form can only be used. Also Personal interaction could not be done to better understand the requirement and suggestion for further improvement. Many consumers are not familiar of using these online mediums. Contact numbers of many consumers are incorrect and therefore could not be contacted.

Customers may not feel encouraged to provide accurate, honest answers The satisfaction level of some consumers have gone downward due to sudden panic situation of epidemic and lockdown and there is lack of Disaster management plan in company's process and standard operating procedures to handle such Scenarios. As company was unable to provide new connections and processing of Documents due to offices being closed and limited of staff. Therefore resulted in Negative feedback in some cases.

The time for carrying out survey when most of people are scared for their future, therefore leading to reduced customer satisfaction level as customer adjust their expectations as per recent scenario and not on regular basis.

Consumers may not be fully aware of their reasons for any given answer because of lack of reminiscence on the subject, or even interest.

Future Work

The Company must carry out more surveys to understand the customer requirement from time to time by help to External Agencies and also regular feedback from internal surveys through employees.

- Weightage of Input Parameter can be increased for better assessment of satisfaction level
- To further fine-tune process parameters for preparing questionnaires
- Target respondents currently are mainly residential , therefore respondents must also be included from other category of consumers such as Commercials establishments other utilities services like railways , Hotels , Government offices etc. and High Revenue consumers such as large scale industries and manufacturing plants etc.
- The survey being also be carried out for other stakeholders such as Business associates working for the company , Material Suppliers , Generation plants ,
- Sample Size of survey needs to be increased from each category of consumer's either based on Load , Type of establishments , Class of consumers like Upper class , Middle class , Lower class , educational level of consumer like educated , uneducated to get the broader view of satisfaction level among each category and type of customers ,
- The questionnaires in current study was developed keeping in view the respondents of TPDDL customers only but survey must also be carried out for competition customers of Adani Mumbai , BSES Rajdhani /Yamuna Ltd so that comparison can be carried out. As portability which is currently limited to High end consumers only will be drilled down to low end consumers also. Therefore Company must be prepared for future plan to increase consumer base when regulator will allow in lower category of consumer's also.
- New Methodology and technique must be studied and incorporated whose score will give more accurate results like NPS (Net Promoter Score)

5. EXHIBIT

5.1 Questionnaire and forms

I am a student of MBA (Sem IV) of Delhi School of Management, am carrying out a project on “Study on Tata Power-dcl Commitment towards Customer Satisfaction n Covid-19” n partial fulfilment of requirements of my course. Request you to please spare some of your valuable time for filling the following questionnaire. The information provided by you will be kept confidential and will be used for academic purpose only. The Survey s 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	
-------	--	-------	--	----------	--

2. Respondents Gender

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

3. Respondents Occupation

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

4. Respondents Rate Category

Domestic		Commercial		JJ Clusters	
----------	--	------------	--	-------------	--

		YES	NO
5	Have u downloaded the Tata Power DDL Mobile APP		
6	Are u aware of Reading Through What Sapp (9667558009)		
7	Are you interested in getting updates/communication through What Sapp as a new facility by Giving Missed call on (7303482071)		
8	Would you like to stop physical copy of bill		

Section B

S.no	Parameters	1	2	3	4	5
1	Power cuts have been reduced to almost nil					
2	Voltage fluctuations in power supply are negligible					
3	There is prior information of power cuts					
4	There is no damage to my home appliance due power quality					
5	Street lights in area are proper Functioning					
6	Appreciate the Ethical behaviour of representative carrying out Meter reading and Bill Distribution / Complaint Staff					
7	Is a company that is focused towards your (Customer) Safety in terms of network, tools used, safety precautions at time of work at consumer Premises (Use of Sanitizers					
8	Is a company with Good Ethical conduct and its representatives never asked for bribe for work					
9	The energy bills are received timely.					
10	The energy bills generated in case of Non-smart(Provisional) are almost accurate (in current scenario only) and Accurate in case of Smart meter					
11	The energy bill calculation is transparent.					
12	Does Company provide timely information about changes in tariff / Regulations / Policy etc. Through bills / Messages / Websites etc.					
13	Bill payment centre are adequate and maintaining all Precautions /Hygiene as per guidelines issued by Govt.					

14	There are sufficient Online Modes of Payment					
15	Is company's website and Mobile Application user friendly					
16	Is company's website and Mobile Application provide adequate information regarding consumer account Information , Registration of request and complaints					
17	Is a company that really cares about its customers or delivers upon its promises					
18	Does company provides adequate platforms for complaint registration / (Website, Call Centres, VRS, TPDDL Connect App. etc.)					
19	Customer complaints are resolved within stipulated timelines					
20	Is a company where people are available for superior customer experience					
21	Customer Services of TPDDL in comparison with Other Utilities (Like BSES, DJB, Mobile Operators, and IGL etc.)					
22	Does company provides timely information about payment offers /Schemes (Like Pay & win, UJALA scheme (energy efficient LED lighting Products & Ceiling fans, AC Replacement etc.)					
23	Is a company that drives community initiatives (CSR activities) earnestly and s heard for its presence towards positive work in the society (RO Plants / Mobile Dispensary / Vocational training etc.)					
24	Overall am satisfied with TPDDL experience					

- Question 1 to 5 from Section B are framed to study the impact of customer satisfaction on Power Quality an important parameters for distribution utility and the responses was studied for the feedback on the Quality of power as per vision statement of the company ,
- Question 6 to 24 from Section B are framed to study the customer experience for the services being offered by the company before and during the lockdown period. This will further help to plan for enhancing the quality of services to be offered to consumer in current scenario and in future.

AWARDS

“Tata Power-DDL wins Innovation with Impact Award at Indian Chamber of Commerce’s 13th India Energy Summit for ‘Quality of Service and Customer Empowerment’”

- **“Tata Power-DDL conferred with 'Power Utility of the Year- India' at the Asian Power Awards 2019”**
- **“Tata Power Delhi Distribution Conferred With the 'Best Performing Power Distribution Utility' Award at the Central Board of Irrigation and Power Awards – 2018”**
- **“Tata Power-DDL Conferred with ‘Rooftop Solar Enabler of the Year Award’ at the India Rooftop Solar Congress 2018”**
- **“Tata Power-DDL Becomes the First Utility in the World to be Appraised ‘CMMI Maturity Level 3’”**
- **“Tata Power Delhi Distribution Declared the ‘Most Innovative DISCOM’ at ‘Indian Chamber of Commerce Awards 2017’”**
- **“Tata Power Delhi Distribution Limited Conferred With CII Industrial Innovation Award 2017”**
- **“Tata Power-DDL Wins Safety Innovation Award 2017”**
- **“Tata Power-DDL Conferred With ‘Solar Innovation & Excellence Award-2017’”**
- **“Tata Power Delhi Distribution Limited Wins International Safety Award By the British Safety Council for Robust Safety Practices”**
- **“Shri Piyush Goyal (Hon’ble Minister of Power, Govt. of India) Recognizes Tata Power – DDL for Outstanding Contribution towards the Transformation of Indian Power Sector”**

BIBLIOGRAPHY

1. *TPDDL case study*, 2012, retrieved from http://www.tatapower-ddl.com/UploadedDocuments/TPDDL%20Case%20Study_COMPLETION%20OF%2010%20YRS.pdf
2. John Dudovskiy, July 2012, *concepts of customer services and customer satisfaction introduction*, retrieved from <http://research-methodology.net>
3. Medha Srivastava, Jun 2015, *Influencers of Customer Satisfaction - Customer loyalty Relationship: A Conceptual Research Model*, retrieved from www.iimdr.ac.in/wp-content/uploads/Vol7-7-ICS.pdf
6. Kotler, P. & Keller, K. (2011). *Marketing Management* (14thed). Prentice Hall
7. Executive Summary on power Sector 2020 , retrieved from http://cea.nic.in/reports/monthly/executivesummary/2020/exe_summary-03.pdf
8. Power Sector at a Glance all India , Ministry of Power retrieved from <https://powermin.nic.in/en/content/power-sector-glance-all-india>