Major Research Project

Determinants of Customer Satisfaction in Power Distribution Services: A Study of Consumers in North and North-West Delhi

Submitted By

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CERTIFICATE

This is to certify that Srishti, 24/DMBA/239 has submitted the project dissertation report titled " Determinants of Customer Satisfaction in Power Distribution Services: A Study of Consumers in North and North-West Delhi" in partial fulfilment of the requirements for the award of the degree of Master of Business Administration (MBA) from Delhi School of Management, Delhi Technological University, New Delhi during the academic year 2025-26.

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DECLARATION

I, Srishti, student of Delhi School of Management, Delhi Technological University, hereby declare that the Project Dissertation Report on "Determinants of Customer Satisfaction in Power Distribution Services: A Study of Consumers in North and North-West Delhi" submitted in partial fulfilment of the requirements for the award of the degree of Master of Business Administration (MBA) is the original work conducted by me. I also confirm that neither I nor any other person has submitted this project report to any other institution or university for any other degree or diploma. I further declare that the information collected from various sources has been duly acknowledged in this project.

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I would like to acknowledge that this project was completed entirely by me and not by someone else.

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ABSTRACT

In India, The Electricity distribution sector plays a significant role, majorly at the intersection of Public welfare and Commercial service delivery. In past decade, the dependence on uninterrupted power supply has grown largely in the urban cities, making it necessary for distribution companies to offer quality service in order to sustain in market. Thus, understanding what drives consumer satisfaction becomes equally essential for both utility providers as well as the regulatory bodies.

Therefore, this study aims to identify the determinants of customer satisfaction among the consumers located primarily in North and North-West Delhi. The primary service provide in this region is Tata Power Delhi Distribution Limited (TPDDL). The study uses a structured questionnaire and captures the consumer perception across four key dimensions: Power Reliability, Billing Accuracy, Staff Behaviour and Complaint Handling. Demographic variables includes gender, age group, area of residence, connection type, and tenure with the provider were also recorded.

The findings of the study reveal that power reliability stands as the most critical driver of dissatisfaction, with larger share of consumers reporting frequent power cuts, no advance communication regarding shutdowns, and extended duration of power cuts. The another dimension with larger share in terms of dissatisfaction is Billing accuracy, with major concern about unexplained hikes. The Complaint handling too, remains a concern due to resolution deadlines. However, Staff Behaviour stands as a satisfaction factor with more favourable responses about polite and professional conduct of customer care personnel and field staff. communication.

The analysis of overall satisfaction variable (Q19) reveal that most of the respondents reported their experience as either "as expected" or "slightly worse", suggesting the gap between consumer expectation and actual service delivery.

The study draws on the SERVQUAL framework, and the Kano Model as its theoretical base. The research concludes with recommendations directed at service providers.

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1. PROBLEM BACKGROUND

1.1 Introduction to India's Power Distribution Sector

Access to reliable electricity stands as one of the key prerequisites for economic development and quality life. In India, power sector has went through a substantial transformation over past two decades, moving from largely government controlled to more privatised sector. In this transformation, The Electricity Act of 2003, played pivotal role, including reforms aimed at breaking apart the generation, transmission and distribution function, further opening doors for private sector investment.

Despite these reforms, the distribution vertical continues to face challenges, including technical and commercial losses, infrastructure damages in older urban areas, overload during peak summer months, and inadequate grievance redressal mechanism. The gap between expected service quality and actual delivery, remained the alarming concern.

Delhi being India’s capital and one of most populated urban city, has witnessed rapid electricity privatisation through the entry of power distribution companies like, Tata Power Delhi distribution limited in north and north west zones, and, BSES Rajdhani and BSES Yamuna in south and east. The performance of these units plays an essential role in public welfare and corporate sustainability, especially in terms of customer satisfaction.

1.2 Overview of Power Distribution in North and North-West Delhi

The North and North-West Delhi, is primarily covered by densely populated colonies, markets and small industrial clusters across areas such as Rohini, Pitampura, Model Town, Shalimar Bagh, and nearby localities. TPDDL has served as the primary distributor in the region since the privatisation in 2002.

Since past 2 decades, it has considerably contributed in reducing AT&C losses, and improving network reliability. However, the consumer facing vertical possess scope for improvement in terms of complaint resolution, billing accuracy and prior outage communication.

1.3 Importance of Customer Satisfaction in Public Utilities

Customer satisfaction plays more critical role in utility service as compared to the traditional service industries. Unlike traditional industries, who compete directly to attract consumer due to multiple options available with customer making it easy for them to switch, the utility sector primarily focuses on technical and financial aspect as they often work under licensed monopoly, prioritizing the consumer vertical less.

Though, with the evolving regulations driven by bodies such as Delhi Electricity Regulatory Commission (DERC), which has mandate utility providers to report complaint resolution rates, supply hours and consumer redressal rates to DISCOMs, has effectively incorporated consumer satisfaction as primary objective in these regulatories. This further supports the argument that the utility's long term efficiency is closely linked with how well they treat their consumers.

Consumer satisfaction is not just a regulatory compliance but a necessary driver for operational efficiency. The Satisfied customers are more likely to cooperate with metering initiatives and less likely to default bills or engage in electricity theft. Therefore, understanding these drivers of satisfaction in necessary to streamline the process.

1.4 Service Quality Dimensions in Electricity Distribution

Service quality judgements are often shaped through customer expectations, prior experiences and norms. In power distribution context, the service dimensions consists 4 broad categories.

The first dimension is power reliability, typically analysing duration of outage and advance notice for shutdowns. The another dimension is billing accuracy, which evaluated whether the monthly bills reflect actual consumption or if there are any unexpected hikes, as well as convenient payment options. The next important dimension is the staff behaviour which includes professionalism pf customer care staff, respectfulness of field staff and clarity of information provided by them. The final dimension covers complaint handling, the resolution time, registration process and timely communication.

These four dimensions together create a holistic service experience for the consumer, further aligning there practices to customer expectations.

1.5 Challenges in Urban Power Distribution - North Delhi Context

The power distribution industry in North and North-West Delhi faces various structural and operational challenges, such as:

One of the prominent challenge of the same is Infrastructure ageing. The maximum of regions in the study area, were constructed decades ago, where the electrical infrastructure still is not well developed in order to keep pace with the increasing load. The peak summer months faces frequent power cuts and transformer overloading due to high demand for air conditioning.

Billing stands as a second major challenge, while smart metering has been extensively implemented, larger consumers still continue to be served by conventional meters. Therefore, discrepancies between meter readings and bill amount along with irregular physical verification leads to continuous grievances. Although, the introduction of online billing and digital payment modes has become convenient for tech savy cosumer, but has also given rise to accessibility barriers.

The another concern is the grievance redressal mechanism. Though it improved a lot, however the consumer handling capacity could not match the proportion of consumer base. One of the most reported concern here is the response time, causing dissatisfaction, making complaint handling as critical segment.

1.6 Policy and Regulatory Context

The Delhi Electricity Regulatory Commission (DERC), is regulatory body for electricity distribution in Delhi and exercise control of tariff deductions, service standard and consumer protection. As per regulations of DERC, the distribution companies are required to meet defined benchmark regarding timely new connections, meter replacement, complaint resolution, and theft. In case of failure to meet these standards, DISCOMs are liable to pay compensation to affected consumers.

The Ministry of Power's scheme "UJALA" as well as the implementation of smart grid, played a critical role in service quality improvement in urban areas. The smart grids introduced the advance metering infrastructure for reducing billing disputes, load management and outage detection. Many respondents in the study demanded for smart meter installation, reflecting growing consumer awareness.

Further, The Government of India's Revamped Distribution Sector Scheme (RDSS) 2021, provides financial support to DISCOMs for infrastructure upgradation, AT&C loss reduction, and the separation of feeder.

1.7 Macroeconomic and Socio-Demographic Relevance

Delhi's consumer presents a varied profile and patterns, specifically in North and North West Delhi, includes young professionals in new apartments in Rohini and Pitampura, the established middle class families in Model Town and Shalimar Bagh, Shopkeepers and business owners and industrial consumer in some major corridors. This diverse demographics shaped consumer expectations.

Younger consumers are more inclined towards responsiveness and digital convenience, for them these factors hold higher importance however, the older consumer demands the supply reliability over everything else. Moving forward, Commercial consumer is more concerned about affect of frequent outages leading to operational issues, while industrial consumer invested in backup power instead of totally relying upon the supply reliability. The survey further analysis the consumer expectations on the grounds of these demographic variables.

1.8 Problem Statement

The power distribution sector in India, specifically in Delhi, plays a critical role in between the commercial service delivery as well as the public welfare. Despite huge investment in the infrastructure and regulations, the service quality gap persists between what consumer expect and what they actually experience. This gap could be seen in multiply dimensions, from the reliability of supply to billing accuracy and staff behaviour.

Therefore, the absence of primary data based research, makes it challenging for the distributor companies, regulators and policy makers to introduce effective interventions, in order to measure the gaps. Thus, this study addresses these gaps with evidence regarding the factors that determine the customer satisfaction in the power distribution sector, while primarily focusing on the North and North West Delhi.

1.9 Objectives of the Study

The following are the specific objectives for the current study:

- To find out the degree of consumer satisfaction related to reliability of power supply to consumers of electricity in North and North-West parts of Delhi.

- To determine the consumers' perception about billing accuracy and ease of making payments through the payment systems provided by the distribution utility.
- To find out consumer satisfaction with the attitude of employees, including customer care personnel and field employees.
- To examine the effectiveness of the complaint handling procedure from the consumers' point of view.
- To determine the service aspect which consumers most commonly perceive as needing enhancement.
- To determine whether the consumer experience is up to, better than, or below expectations.
- To provide suggestions to TPDDL and other relevant regulatory agencies for enhancing consumer satisfaction outcomes.

1.10 Scope of the Study

The research was conducted for North and North-West Delhi, particularly among the consumers supplied power by Tata Power Delhi Distribution Limited (TPDDL). The respondents include domestic, commercial, and industrial consumers, thus offering diversity in consumers. Questionnaires were distributed online using Google forms, generating 120 responses.

It should be noted that BSES Rajdhani and BSES Yamuna distribution zones as well as Rural and Semi Rural area are excluded from the research. In addition, the analysis of the collected information will be based on primary survey data, with no consideration of secondary data.

2. LITERATURE REVIEW

2.1.1 The SERVQUAL Model (Parasuraman, Zeithaml & Berry, 1988)

The SERVQUAL model is one of the most essential contributions in order to evaluate the service quality. As per, Parasuraman, Zeithaml, and Berry (1988), service quality is discrepancy netween consumer's expectations and the actual service received. There model provides five dimensions of service quality: tangibles (physical facilities and equipment), reliability (the ability to perform the promised service dependably), responsiveness (willingness to help customers promptly), assurance (knowledge and courtesy of employees and their ability to inspire trust), and empathy (the degree of caring and individual attention provided to customers). While the model was primarily developed for commercial service, many scholars have successfully connected it to public utility services. In the context of electricity distribution, reliability stands very closely to power supply and billing accuracy, assurance and empathy relates to the staff behaviour and communication , while responsiveness aligns with the complaint handling.

2.1.2 Expectation-Disconfirmation Theory (Oliver, 1980)

Oliver's (1980) Expectation-Disconfirmation Theory (EDT) talks about the process oriented satisfaction. It states that consumer usually have pre-formed expectations on the basis of prior experience, as well as the marketing communications. Thus, the consumer, tend to to compare their pre conceived notions to what is actually provided. If performance exceeds the pre formed expectations than consumer register satisfaction, if not than it causes dissatisfaction and if its same than it leads to neutral satisfaction. The EDT, seems to suit the present context, because Delhi has been served by the same supplier since a long duration now, this means that consumer ny now have some established expectations which form their satisfaction, thus the answer to Q19 of the survey evaluates the overall satisfaction.

2.1.3 The Kano Model (Kano, 1984)

The Kano Model of customer satisfaction provides a more deep categorisation of service attributes than the linear SERVQUAL approach. Kano (1984) provided three categories of service features: basic (or "must-be") attributes, which are not considered that much when present and causes dissatisfaction when absent., performance (or "one-dimensional") attributes, where satisfaction increases with performance, and excitement (or "delight") attributes, whose presence is extremely satisfying but dissatisfaction does not cause that much dissatisfaction. In the electricity distribution context, uninterrupted supply is a basic attribute, comsumers do no express that much satisfaction when present but extreme dissatisfaction in absence. Billing

accuracy and complaint handling are performance attributes. Communication channels such as SMS alerts or app-based complaint tracker comes under excitement attributes.

2.1.4 Pal, Chaudhuri and Chattopadhyay (2009): Indian Power Sector Consumer Satisfaction

In one of the study on Electricity consumer satisfaction in India, Pal Chaudhuri and Chattopadhyay analysed rural and semi urban consumer satisfaction and experiences. As per their findings supply reliability stands as one of the strongest contributor in customer satisfaction. They also identified that billing transparency and meter reading practices comes under secondary factors for the same. The study also examined that customer service process needs to addressed for meaningful improvement.

2.1.5 Singh (2016): DISCOM Performance and Consumer Perceptions in Delhi

Singh (2016) conducted a study examining consumer perceptions of DISCOM performance in Delhi. The study was based on a survey conducted on consumers across various distribution zones and concluded that although supply hours has imporved but customer satisfaction has not. This was because of the rise of expectations after privatisation and by the marketing communications of DISCOM, leading to gap between the expectations and reality.

2.3 Variable Framework

Table 2.1: Independent Variables

Variable	Service Dimension	Survey Questions	Theoretical Support
Power Reliability	Technical Quality / Reliability (SERVQUAL)	Q6, Q7, Q8	Parasuraman et al. (1988); Pal et al. (2009)
Billing Accuracy	Technical Quality / Tangibles	Q9, Q10, Q11	Gronroos (1984); Singh (2016)
Staff Behaviour	Functional Quality / Assurance / Empathy	Q12, Q13, Q14	Parasuraman et al. (1988); Jamal & Naser (2002)
Complaint Handling	Responsiveness / Process Quality	Q15, Q16, Q17	Zeithaml et al. (1996); Singh (2016)

Source: Own Creation

Table 2.2: Dependent Variable

Variable	Operationalisation	Survey Item	Theoretical Basis
Overall Customer Satisfaction	Comparison of actual experience against initial expectations	Q18 (priority area), Q19 (expectation comparison)	Oliver (1980) EDT; Kano (1984)

Source: Own Creation

Table 2.3: Control Variables

Variable	Measurement	Relevance
Gender	Male / Female / Prefer not to say (Q1)	Assesses differential satisfaction patterns by gender
Age Group	Below 25 to Above 55 (Q2)	Captures generational differences in expectations
Area of Residence	North Delhi / NW Delhi / Other (Q3)	Accounts for geographic variation in infrastructure quality

Variable	Measurement	Relevance
Connection Type	Domestic / Commercial / Industrial (Q4)	Reflects different usage patterns and service priorities
Tenure with Provider	Less than 1 year to more than 5 years (Q5)	Controls for experience-based expectation formation

Source: Own Creation

3. RESEARCH METHODOLOGY

3.1 Research Design

The study is based upon a descriptive research specifically in North and North west Delhi region. As this study is based on examining the various dimensions of consumer perceptions the descriptive research turns out to be the most suitable choice. Further, study is based on analysis on the basis defined hypothesis rather than the experimental manipulation. Additionally, the research is guided by theoretical framework SERVQUAL along with the questionnaire design.

The study analysis the primary data because the theorectical frameworks does capture operational metrics but do not reflect upon the subjective consumer experiences. Therefore, it uses standardised Linkert-scale items too.

3.2 Data Collection

Data was collected using a structured questionnaire via Google Forms. The questionnaire comprised 20 questions organised across three sections. Section A captured five demographic variables: gender, age group, area of residence, type of electricity connection, and duration with the current provider. Section B contained 12 Likert-scale items (rated on a five-point scale from Strongly Disagree to Strongly Agree) measuring perceptions across the four service dimensions. Section C included two overall satisfaction items, one asking respondents to identify the service area most in need of improvement and another asking them to compare their overall experience against initial expectations as well as an open-ended comments field.

The questionnaire was distributed to contacts residing in North Delhi (including areas such as Pitampura, Rohini, Model Town, and Shalimar Bagh) and North-West Delhi through social networks, residential community groups, and direct outreach. A total of 120 complete responses were collected and analysed. All responses were voluntarily provided.

3.3 Sampling

In this case, the sampling process was a combination of convenience and purposive sampling , where the main aim is to have proper representation across various categories. In consideration of the nature of the current research, which is descriptive and exploratory, it is important that a convenient sample size of 120 individuals be selected. Those involved should have had an active connection with TPDDL for a minimum period of one month to ensure that they could offer some insights into the experiences acquired through using TPDDL services.

The sample includes five age groups (below 25 years old, between 25 and 35 years, between 36 and 45 years, between 46 and 55 years, and above 55 years old), three gender categories, three types of connections (domestic, commercial, and industrial), four tenure periods, among others.

3.4 Demographic Profile of Respondents

Characteristic	Category	Number	Percentage (%)
Gender	Male	66	55.0
	Female	51	42.5
	Prefer not to say	3	2.5
Age Group	Below 25	22	18.3
	25–35	39	32.5
	36–45	28	23.3
	46–55	21	17.5
	Above 55	10	8.3
Connection Type	Domestic	82	68.3
	Commercial	26	21.7
	Industrial	12	10.0
Tenure	Less than 1 year	9	7.5
	1–3 years	16	13.3
	3–5 years	24	20.0
	More than 5 years	71	59.2
Area	North Delhi	52	43.3
	North-West Delhi	47	39.2
	Other (Pitampura/Rohini/Shalimar Bagh/Model Town)	21	17.5

Source: Primary Survey Data (2025)

3.5 Measurement Scale

Part B of the questionnaire uses a five-point Likert Scale with the following response categories: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). This type of scale has become very common in studies of attitude and satisfaction because it offers a good compromise between detail and simplicity. In analysis, the answers were scored numerically (from 1 to 5) to compute means and frequencies of the answers.

Higher means imply higher consumer satisfaction, whereas low means suggest consumer dissatisfaction or disagreement. A mean of less than 3.00 means that consumers are not satisfied; a mean ranging from 3.00 to 3.50 shows that consumers have no opinion about the issue but might be a little satisfied or dissatisfied; and finally, a mean greater than 3.50 suggests that consumers are very satisfied.

3.6 Analytical Approach

Four methods of analysis have been used in this study. The first method of analysis is the frequency distribution where the distribution of the responses in relation to the five options on the Likert scale will be analyzed for each of the questions to see how many consumers indicated each degree of agreement and disagreement. The second method of analysis involves using descriptive statistics where the mean score and standard deviation will be determined for each of the Likert statements and each of the service quality dimensions using the average of the mean scores for all the individual statements under each dimension. The third method of analysis is cross-tabulation of the responses.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter, will have analysis of the 120 responses that were collected using the structured questionnaire. This analysis shall be done using the four service dimensions namely power reliability (questions Q6-Q8), billing accuracy (questions Q9-Q11), behavior of staff (Q12-Q14) and handling of complaints (Q15-Q17).

4.2 Dimension 1: Power Reliability (Q6, Q7, Q8)

Power reliability was assessed through three items examining outage frequency (Q6), manageability of outage duration (Q7), and advance communication of scheduled shutdowns (Q8).

Table 4.1: Frequency Distribution – Power Reliability

Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean
Q6: Outages are infrequent	15.0	28.3	30.0	21.7	5.0	2.74
Q7: Duration is manageable	14.2	25.8	27.5	25.8	6.7	2.85
Q8: Advance notice given	17.5	22.5	25.8	25.0	9.2	2.86

Source: Primary Survey Data (2025)

The means of the reliability questions all fall under the neutral point of 3.00, which implies a negative perception of power reliability among all respondents. Question number six obtains the least mean of 2.74, proving again that frequency of outages remains the major reliability issue. Close to 43 percent of the total population disagree that outages were rare, and only about 26.7 percent concur. Questions seven and eight do slightly better, although both obtain means below neutrality. An interesting finding in question number eight is the wide distribution of respondents' answers. While some of them received prior notification regarding their outages, quite a number did not.

From the results of cross tabulation, we find that those people belonging to the age group of 36-55 years had most of the disputes in question no. 6, probably because of the effect that

power cuts have on work done from home and other household chores. Those individuals who were linked with industries showed their dissatisfaction regarding question no. 7 due to high risk involved in disruption of power supply. In terms of geography, those places where Pitampura and Model Town were found mentioned faced reliability problems.

4.3 Dimension 2: Billing Accuracy (Q9, Q10, Q11)

Billing accuracy was measured across three items: whether bills accurately reflect consumption (Q9), whether unexplained spikes or errors occur (Q10), and whether payment options are convenient (Q11).

Table 4.2: Frequency Distribution – Billing Accuracy

Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean
Q9: Bills reflect actual consumption	10.0	20.8	28.3	30.0	10.8	3.11
Q10: No unexplained spikes or errors	14.2	22.5	21.7	26.7	15.0	3.06
Q11: Payment options are convenient	7.5	11.7	19.2	38.3	23.3	3.59

Source: Primary Survey Data (2025)

In contrast, the billing dimension shows some differentiation from power reliability. Question 11, on payment convenience, emerges with the highest mean value among all surveyed questions, amounting to 3.59, indicating consumers' satisfaction with the increasing trend of digital payment systems and the establishment of multi-channel payment services. Indeed, this dimension represents the focus of TPDDL, and their successful efforts are manifested in the survey results.

Questions 9 and 10 provide a rather contradictory response. On the one hand, both questions show values slightly higher than the neutral point; yet, there is a long tail that indicates customer dissatisfaction. Thirty percent of the population disagreed or strongly disagreed with question 9 on bills matching consumption, while 36.7% did not agree with question 10,

referring to the absence of unexplained peaks. These percentages indicate consumers' dissatisfaction and can be supported by additional mentions of metering problems found in question 20 responses.

4.4 Dimension 3: Staff Behaviour (Q12, Q13, Q14)

Staff behaviour was assessed through items on customer care staff professionalism (Q12), field staff conduct (Q13), and the clarity and helpfulness of information provided (Q14).

Table 4.3: Frequency Distribution – Staff Behaviour

Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean
Q12: Customer care staff are polite and professional	5.8	13.3	19.2	38.3	23.3	3.60
Q13: Field staff behave respectfully	8.3	12.5	26.7	33.3	19.2	3.43
Q14: Staff provide clear and helpful information	11.7	18.3	30.0	29.2	10.8	3.09

Source: Primary Survey Data (2025)

Staff behavior becomes the highest-ranking dimension according to the survey results. The mean for Q12 (Professionalism in customer care) stands at 3.60, the highest figure in line with Q11. It is clear that consumers find their dealing with the customer-oriented staff of TPDDL satisfying. Furthermore, the average value of Q13 (Field staff behavior) stands at 3.43, pointing to the fact that the majority of respondents perceive meter readers and technicians as polite persons. This is good news for the company as it testifies to the effectiveness of its efforts aimed at the improvement of field staff training.

The lowest score obtained in the survey is recorded for Q14 (Clarity of information) at 3.09. In other words, staff members' politeness does not coincide with the quality of information provided by them. Such a phenomenon, as noted above, is not rare in service encounters studies and corresponds to the conceptual distinction made by Gronroos (1984).

4.5 Dimension 4: Complaint Handling (Q15, Q16, Q17)

Complaint handling was assessed across three items: ease of registering a complaint (Q15), timely resolution of complaints (Q16), and ongoing communication about complaint status (Q17).

Table 4.4: Frequency Distribution – Complaint Handling

Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean
Q15: Registering a complaint is easy	10.8	18.3	25.0	32.5	13.3	3.19
Q16: Complaints resolved within reasonable time	15.8	25.8	25.0	25.0	8.3	2.84
Q17: Kept informed about complaint status	15.8	25.8	21.7	22.5	14.2	2.94

Source: Primary Survey Data (2025)

Complaint handling stands out as being highly heterogeneous concerning to variation within each individual question. Q15 (registration of the complaint) has a mean of 3.19, suggesting that registration by way of phone call and online registration are equally available to the consumers. Some respondents noted that registering their complaints via the TPDDL mobile application was easy. In contrast, the problem solving and communication phase of complaint handling process (Q16 and Q17), scoring under 3.00 with means of 2.84 and 2.94 respectively, suggest an apparent gap between the two phases of the complaint handling process.

The implication of this is clear – while adequate mechanisms have been put in place for complaint handling, they remain poorly managed with no communication protocol put in place. This is clearly evident from the most common answer given to Q20: “Response time for complaints is too slow”.

4.6 Dimension Summary: Mean Scores

Table 4.7: Mean Scores Across Service Dimensions

Service Dimension	Items	Mean Score	Interpretation
Power Reliability	Q6, Q7, Q8	2.82	Below neutral — net dissatisfaction
Billing Accuracy	Q9, Q10, Q11	3.25	Just above neutral — mixed perception
Staff Behaviour	Q12, Q13, Q14	3.37	Above neutral — generally positive
Complaint Handling	Q15, Q16, Q17	3.00	Exactly neutral — concerns around resolution
Overall (Q19)	—	3.08	Slight positive lean but expectation gap persists

Source: Primary Survey Data (2025)

The dimension which achieves the lowest mean rating (2.82) is power reliability, and this is indicative of the role which this dimension plays in causing customer dissatisfaction. Staff behavior stands out as having the highest rating (3.37), followed by accurate billing (3.25). Complain handling receives an exact mean of 3.00, despite the marked difference in rating mentioned earlier between easy registration and efficient handling of complaints. This overall analysis reveals that while the human and administrative dimensions are performing well, the technical and back office process dimensions remain a cause for concern.

4.7 Overall Satisfaction: Q18 — Priority Area for Improvement

Table 4.5: Area Needing Most Improvement (Q18)

Response Category	Number of Respondents	Percentage (%)
Power Reliability	46	38.3
Complaint Handling	35	29.2
Billing Accuracy	30	25.0
Staff Behaviour	9	7.5

Source: Primary Survey Data (2025)

There exists a similarity in the pattern of response to Q18 and ranking of mean scores of each of the dimensions. The area with the highest frequency of response as a is power reliability, reported by 38.3% of the participants. Second in order is complaint handling at 29.2% followed by billing accuracy at 25%. It emerges that the behavior of staff, which is ranked as the best-performing dimension, is only cited by 7.5% of the participants as their priority area.

4.8 Overall Satisfaction: Q19 — Experience vs Expectations

Table 4.6: Satisfaction vs Expectations (Q19)

Response	Number of Respondents	Percentage (%)
Much better than expected	8	6.7
Slightly better than expected	23	19.2
As expected	37	30.8
Slightly worse than expected	33	27.5
Much worse than expected	19	15.8

Source: Primary Survey Data (2025)

The analysis of answers to question number 19 highlights the expectation gap that exists among the subjects of the research. When combining two categories, namely, "slightly worse" and "much worse," 43.3% of the survey participants claim that the experience has failed to meet the expectations. Those respondents who found the experience "as expected" are represented by 30.8%. Finally, those who had either "slightly better" or "much better" experiences total 25.9%.

Such findings give evidence that the Expectation-Disconfirmation Theory adopted as a basis for the research fits the results obtained. The balance between negative disconfirmation (when the actual performance level falls below expectations) is confirmed by the results of the research as well as qualitative comments related to the inability to live up to the aspirations regarding improved supply quality, specifically in relation to a private distribution company. Furthermore, the sizeable share of "as expected" indicates that many consumers have reduced their expectations to the current levels of services offered.

4.9 Qualitative Analysis: Open-Ended Responses (Q20)

Of the 120 respondents, 58 provided responses in the open-ended comments field (Q20). Content analysis of these responses revealed six themes, listed below:

- Long power outages during summer season: By far the most frequently occurring theme from open-ended questions was outages during the peak summer period, with respondents explaining that power outage during peak summer period posed a critical challenge. Examples of comments included prolonged power outages during peak summer period and difficulty coping during peak summer period because of disruption of power supply.
- Voltage fluctuations and appliance breakages: Voltage fluctuations, as opposed to power outages, were noted by many respondents as another important challenge posed by the utility company. Several respondents pointed out damage to home appliances due to power supply problems, which adds to the seriousness of the reliability problem.
- Low efficiency in complaints handling: The second major recurring theme regarding open ended comments relates to handling of complaints. Comments such as “response to complaints is very slow” and “please improve the response time on your helpline number” occur frequently.Demand for smart meters: A noteworthy number of respondents proactively requested the installation of smart meters across all areas, reflecting awareness of the technology and its potential to address both billing and reliability concerns. This is an encouraging signal for TPDDL's ongoing smart metering rollout.
- Pleasant billing application experience subject to limitations: Some respondents indicated that the billing application is very helpful and convenient, yet there is still room for improvement. Feedback varies from general praise of making payments through the Internet to suggestions about app development.
- Alerts for outages: Quite a few respondents called for an advance alert sent via SMS or the app itself concerning outages. It is noteworthy that quantitative results from Q8 showed a deficiency in advance communication with consumers.

5. FINDINGS

5.1 Summary of Key Findings

Analysis of 120 consumer responses to four service dimensions, two measures of overall satisfaction, and open-ended responses produces the following results.

Reliability of power supply is seen as the key factor causing consumer dissatisfaction. As evidenced by the low mean score of the corresponding dimension of 2.82, which is lower than in all other dimensions, consumers are dissatisfied with power supply reliability. In particular, about 43% of consumers disagree or even strongly disagree that outages are rare. Also, reliability of power supply is rated as the most important area to be improved by 38.3% of respondents.

Billing accuracy is a matter of mixed feelings but the dimension has its own problem. Thus, the convenience of payment dimension has the highest score of 3.59, implying consumers' positive evaluation of payment options offered to them. Nevertheless, the items assessing billing accuracy (Q9 and Q10) score somewhat higher than the neutral point, with quite a considerable number of consumers not satisfied with the respective aspect of TPDDL's activities. Therefore, billing accuracy can be viewed as an intermediate source of service problems, not a major one.

The highest performing category in the service performance evaluation is staff behavior. Customer care staff professionalism (Q12, average rating 3.60) as well as field staff behavior (Q13, average rating 3.43) score highly among respondents. The lowest performer within the category is the information provision by staff (Q14, average rating 3.09).

The complaint handling dimension reveals a particularly relevant pattern of structure and performance gaps. Complaint intake (Q15, average rating 3.19) receives a relatively good rating, thus indicating that complaints via digital media and telephone channels are easily available. However, complaint resolution time (Q16, average rating 2.84) and complaint status communication (Q17, average rating 2.94) do not pass the neutral point, which means that problems emerge once complaints are submitted.

There is an existence of expectation gap and it is a significant issue. Based on Q19 results, 43.3% of respondents indicate that their overall service experience is worse than what was anticipated. Such a perception, when evaluated using EDT, implies that consumer expectations were quite reasonable or even high from the outset based on communications regarding the company's performance capabilities, but such expectations have failed to materialize in terms of the quality of service offered.

Consumer segments may vary based on the priorities of the consumers. Industrial and commercial consumers put greater emphasis on power outage duration and voltage regulation issues since these relate directly to business operations. On the other hand, younger consumers are more pleased with the process of making payments and filing complaints online, although they do feel that complaints need addressing urgently. Older consumers and those living in old colonies show greater dissatisfaction with power supply.

5.2 Hypothesis Summary

Table 5.1: Summary of Hypothesis Assessment

Hypothesis	Assessment	Evidence
H1: Power reliability positively influences customer satisfaction	Supported	Lowest dimension mean (2.82); selected as #1 priority by 38.3% of respondents
H2: Billing accuracy positively influences customer satisfaction	Partially Supported	Mixed scores (Q9: 3.11, Q10: 3.06, Q11: 3.59); billing cited as priority by 25% of respondents
H3: Staff behaviour positively influences customer satisfaction	Strongly Supported	Highest dimension mean (3.37); only 7.5% cite as priority area for improvement
H4: Complaint handling positively influences customer satisfaction	Partially Supported	Registration acceptable (3.19) but resolution (2.84) and communication (2.94) below neutral
H5: Overall experience tends to fall short of initial expectations	Supported	43.3% rate experience as slightly or much worse than expected

Source: Own Creation

6. CONCLUSION AND SUGGESTIONS

6.1 Conclusion

The objective of this study was to identify the factors determining customer satisfaction levels amongst consumers of electricity in North & North-West Delhi on four factors – power reliability, billing accuracy, staff conduct, and complaints handling. Based on primary survey conducted by 120 respondents, and applying theoretical background drawn from existing service quality frameworks such as SERVQUAL, there have been insights into the perceptions of consumers regarding the same.

It can be concluded that even though TPDDL has done fairly well in some consumer facing parameters like convenience in payments and professionalism amongst staff members, the more basic parameter of power reliability remains the most crucial factor contributing to consumer dissatisfaction. Complaints management, which includes complaints handling, resolving issues, and communicating back, constitute another vital factor. Together these two factors explain the disconfirmation experienced by 43.3% respondents in comparison to their expectations.

Another significant finding from this study was that, although not being the top priority, billing accuracy includes a particular issue of billing errors and sudden peaks which can result in a disproportionate amount of dissatisfaction among the customers impacted. However, high results in terms of payment convenience demonstrate the success the DISCOM has achieved due to its investments into customer-oriented digital platforms.

Not only do these results provide useful insights into the current state of TPDDL as an organisation; they also highlight the major issues facing the privatized power distribution sector in India in general. It should be noted that improving network performance will have to be complemented by a better communication strategy towards the consumer in order for privatisation to bear fruit.

7. LIMITATIONS OF THE STUDY

A number of limitations affect the results generated through this study, and these need to be acknowledged.

- Non-probability sampling: The choice to rely upon non-probability sampling technique, while convenient for a student research paper, precludes making claims regarding statistical representation, as the consumer base is likely to contain an overrepresentation of individuals who are technologically savvy, belong to a community group, and/or are concerned about service quality issues.
- Cross-sectional analysis: The results capture a cross-sectional point in time analysis. Given the seasonal nature of service delivery in electricity supply and distribution, the results may be skewed as a function of the date on which the data was collected rather than reflecting a stable consumer satisfaction profile.
- Respondent self-reporting: Self-reported Likert-type response sets tend to suffer from social desirability bias, acquiescence bias, and central tendency bias. All three biases affect the quality of the response, and while common to survey based research, pose a limit upon the reliability of the results obtained.
- Lack of secondary operational data: The study does not incorporate any secondary data in terms of TPDDL's own operational statistics, e.g., AT&C losses, power outage and restoration times, and complaint resolution times. This omission reduces the validity of the analysis.
- Specificity in geography: The results are relevant specifically for North and North-West Delhi as well as for the TPDDL distribution region only. This may not be easily generalisable to other urban distribution regions, to other regions under BSES control, or to any other city in India unless the methodology is suitably altered.
- Limitations in statistical inference: The sample size of 120 respondents, although sufficient for descriptive and exploratory study, cannot be considered large enough to conduct inferential statistics like Structural Equation Modelling (SEM), Confirmatory Factor Analysis (CFA) or similar tests.

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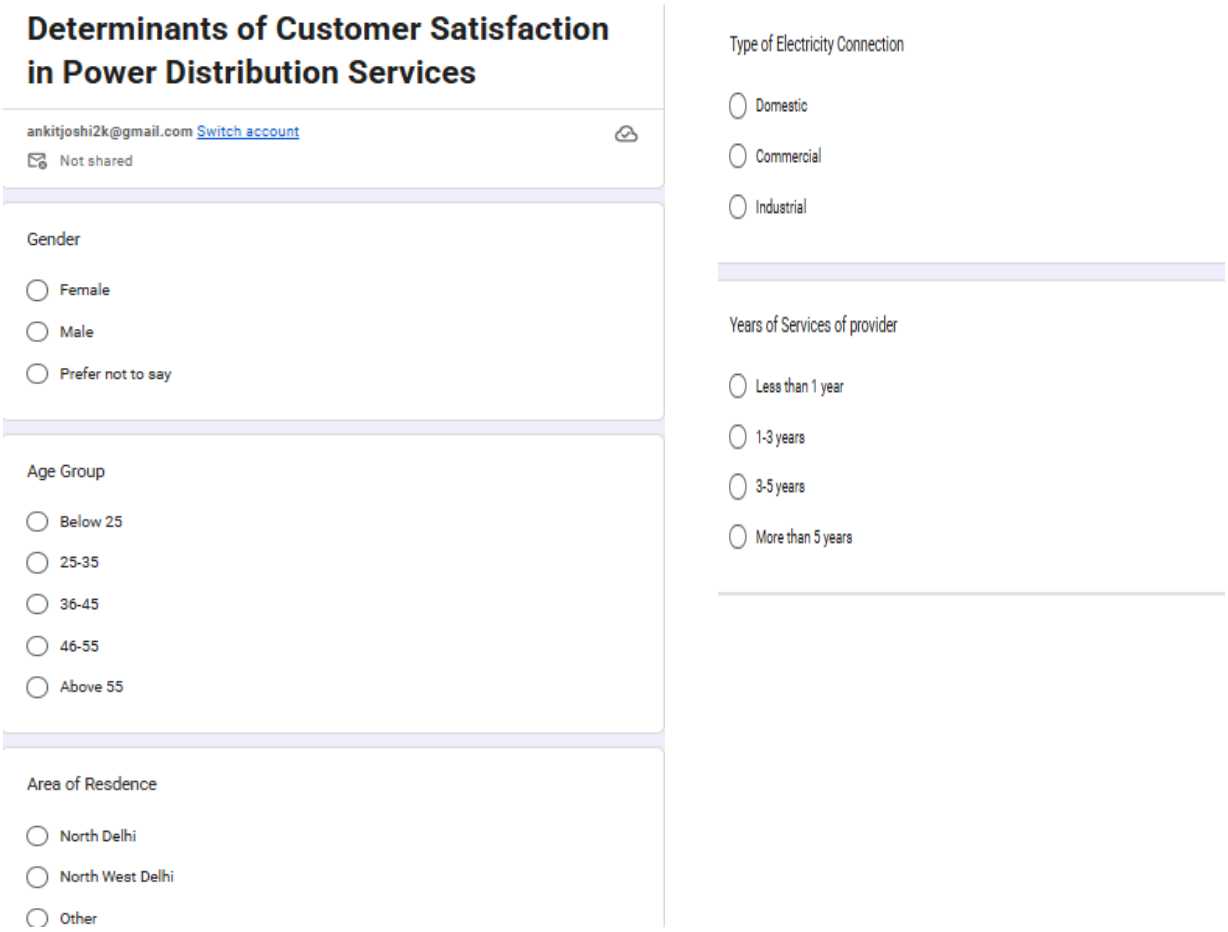
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Annexure

Questionnaire



Determinants of Customer Satisfaction in Power Distribution Services

ankitjoshi2k@gmail.com Switch account

Not shared

Gender

- Female
- Male
- Prefer not to say

Age Group

- Below 25
- 25-35
- 36-45
- 46-55
- Above 55

Area of Resdence

- North Delhi
- North West Delhi
- Other

Type of Electricity Connection

- Domestic
- Commercial
- Industrial

Years of Services of provider

- Less than 1 year
- 1-3 years
- 3-5 years
- More than 5 years

Service Quality Evaluation

Power outages in my area are infrequent.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The duration of power cuts is usually short and manageable.

1	2	3	4	5
○	○	○	○	○

Scheduled outages are communicated to me in advance.

1	2	3	4	5
○	○	○	○	○

My electricity bills are accurate and reflect actual consumption.

1	2	3	4	5
○	○	○	○	○

I have not faced unexplained spikes or errors in my electricity bill.

1	2	3	4	5
○	○	○	○	○

The payment options available to me are convenient (online/offline/app).

1	2	3	4	5
○	○	○	○	○

Customer care staff are polite and professional in their interaction.

1	2	3	4	5
○	○	○	○	○

Field staff (meter readers, technicians) behave respectfully during visits.

1	2	3	4	5
○	○	○	○	○

Staff provide clear and helpful information when contacted.

1 2 3 4 5

Registering a complaint is easy (via app, helpline, or office).

1 2 3 4 5

My complaints are resolved within a reasonable timeframe.

1 2 3 4 5

I am kept informed about my complaint status and satisfied with resolution provided.

1 2 3 4 5

Overall Satisfaction

In your opinion, which area needs the most improvement?

- Power reliability
- Billing Accuracy
- Staff behaviour
- Customer handling

Compared to your expectations when you first became a customer, your experience has been

- Much better
- Slightly better
- As expected
- Slightly worse
- Much worse

Overall satisfaction

1 2 3 4 5 6 7 8 9 10

Any additional comments or suggestions for improvement?

Your answer