Annual Energy Audit Accounting 2020-21



Designated Consumer

TATA POWER DELHI DISTRIBUTION LIMITED,

NDPL House, Hudson Lines, Kingsway Camp, Delhi-110009 (India)

APRIL-2022

Conducted by



A-Z Energy Engineers Private Limited

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ACKNOWLEDGEMENT

A-Z Energy Engineers Pvt. Ltd. is grateful to the Tata Power Delhi Distribution Limited, for giving us an opportunity to conduct of Energy Audit Accounting of their DISCOM, under the Bureau of Energy efficiency 2021 Scheme.

We also express sincere thanks to the management of Tata Power DDL, Delhi, which is a Designated Consumers in the DISCOM sector for extending necessary co-operation and providing relevant information to us for the successful completion of the audit. Our sincere thanks to the entire working group comprising of:

- Mr. Ganesh Srinivasan CEO
- Mr. HC Sharma General Manager, Nodal Officer
- Md. Shadab Ahmad Sr. Manager, Energy Manager
- Ms. Sameeksha Raina Head of Group, Energy Audit
- Mr. Krishna M Chaitanya Senior Manager, Energy Audit
- Mr. Akshay Kumar Gera Assistant Manager, Energy Audit

A-Z Energy Engineers Pvt. Ltd. looks forward to their continued support in all future endeavours as well.

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List of Abbreviations

AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AT & C	Aggregate Technical and Commercial
BEE	Bureau of Energy Efficiency
ckt	Circuit Kilometer
СТ	Current Transformer
DC	Designated Consumer
DEEP	Discovery of Efficient Electricity Price
DISCOM	Electricity Distribution Company
DT	Distribution Transformer
EA	Energy Auditor
EHT	Extra High Tension
EHV	Extra High Voltage
EM	Energy Manager
FY	Financial Year
HT	High Tension
HVDS	High Voltage Distribution System
KVA	Kilo Volt Ampere
LT	Low Tension
MoP	Ministry of Power
MU	Million Units
MW	Mega Watt
NO	Nodal Officer
OA	Open Access
POC	Point of Connection
PT	Potential Transformer
PX	Power Exchange
RE	Renewable Energy
RLDC	Regional Load Dispatch Centre
SDA	State Designated Agency
SLD	Single Line Diagram
SLDC	State Load Dispatch Centre
T & D	Transmission and Distribution

Executive Summary

Tata Power-DDL is a joint venture between Tata Power Company and the Government of NCT of Delhi with the majority stake being held by Tata Power. It distributes electricity in North & North West parts of Delhi. The company started operations on July 1, 2002 post the unbundling of erstwhile Delhi Vidyut Board initially with a registered consumer base of around 12 lakh and a peak load of around 1350 MW, the company's operations span across an area of 510 sq kms.

Key information as per current scenario:

- Distributes electricity in: North & North-West Delhi
- Serving a populace of 7 million
- A customer base of 1.88 million
- Peak load of 2106 MW (as of Mar 2022)
- Distribution area of 510 sq. km.

Tata Power–DDL has implemented several world-class technologies such as Advance Distribution Management system or ADMS which is designed to replace the conventional SCADA-DMS-OMS system with features like real-time integration of Smart Meter Data / Distributed Generation integration and single data model from GIS , Integrated Geographical Information System (GIS) for instant services, Advanced Metering Infrastructure (AMI), Automated Demand Response (ADR), Smart Street Light Management system, Field Force Automation, Upgraded Network, Integrated Toll Free Helpline No. 19124, etc.

Tata Power-DDL is the first Indian utility to be a member of Global Intelligent Utility Network Coalition (GIUNC) which is a coalition of 14 power utilities worldwide and is working towards accelerating the development of common standards, technology solutions and processes for intelligent networks.

Tata Power-DDL provides various facilities and services to its consumers for their ease and convenience such as 24X7 Integrated Helpline, Mobile Application for both iOS and Android users, bilingual website, Multiple Payment Avenue, End to End online services for New Connection, etc.

Some key details regarding company's distribution for FY 20-21 are mentioned below:

- 1. Source of Input Energy
- 2. Consumer wise connections & energy consumptions for FY 2020-21
- 3. Technical Parameters For FY 2020-21

1. Source of Input Energy

The source of input energy with generation station and generation capacity & contract period is given the table:

Name of Generation station	Generation Capacity (MW)	Type of station based on fuel	Type of contract in Year	Type of Grid
NTPC Dadri GPS	28.0	Gas	25 Years	Inter State
NTPC Auriya GPS	22.0	Gas	35 Years	Inter State
NTPC ANTA GPS	14.0	Gas	30 Years	Inter State
Pragati- I	63.6	Gas	25 Years	Intra State
Pragati III	298.0	Gas	25 Years	Intra State
IPGCL GT	82.0	Gas	20 Years	Intra State
NHPC Dulhasti	15.0	Hydro	35 Years	Inter State
NHPC Parbati III	20.0	Hydro	40 Years	Inter State
NHPC Bairasiul	6.0	Hydro	25 Years	Inter State
NHPC Tanakpur	3.2	Hydro	35 Years	Inter State
NHPC Chamera -I	13.0	Hydro	35 Years	Inter State
NHPC Chamera-II	12.0	Hydro	35 Years	Inter State
NHPC Chamera-III	9.0	Hydro	35 Years	Inter State
NHPC URI-I	16.0	Hydro	35 Years	Inter State
NHPC Uri-II	10.0	Hydro	40 Years	Inter State
NHPC Dhauliganga	11.0	Hydro	35 Years	Inter State
NHPC Sewa II	5.0	Hydro	35 Years	Inter State
Tala HEP	9.0	Hydro	35 Years	Inter State
Nathpa Jhakri HPS	44.0	Hydro	35 Years	Inter State
Tehri HPP	19.0	Hydro	35 Years	Inter State
Koteshwar HEP	12.0	Hydro	35 Years	Inter State
Narora APS	14.0	Nuclear	43 Years	Inter State
RAPP 5&6	17.0	Nuclear	43 Years	Inter State
NTPC Singrauli Small Hydro	2.0	RE	35 Years	Inter State
SECI Solar (Renewable)	20.0	RE	35 Years	Inter State
Delhi Municipal Solid Waste Solutions Ltd. (Bawana) (Renewable)	7.0	RE	20 Years	Intra State
Nanti Hydro Power Pvt. Ltd. (Renewable)	13.5	RE	20 Years	Inter State
Suryakanta Hydro energies Pvt. Ltd. (Renewable)	14.0	RE	20 Years	Inter State
Timarpur Okhla Waste management co. Ltd. (Renewable)	6.0	RE	20 Years	Intra State
Sun Edison	180.0	RE	20 Years	Inter State
Taranda	12.7	RE	20 Years	Inter State
SECI WIND	50.0	RE	25 Years	Inter State
NTPC Aravali Jhajjar	613.8	Coal	25 Years	Inter State

Table 1: Generation station, generation capacity & contract period

Name of Generation station	Generation Capacity (MW)	Type of station based on fuel	Type of contract in Year	Type of Grid
NTPC Dadri NCTPS(Th.) Stage II	10.0	Coal	25 Years	Inter State
NTPC Dadri NCTPS(Th) Stage I	10.0	Coal	25 Years	Inter State
NTPC Kahalgaon II	48.3	Coal	25 Years	Inter State
NTPC Singrauli STPS	46.0	Coal	30 Years	Inter State
NTPC Rihand STPS-II	39.0	Coal	25 Years	Inter State
NTPC Rihand STPS-I	31.0	Coal	28 Years	Inter State
NTPC Kahalgaon I	15.6	Coal	25 Years	Inter State
NTPC Unchahaar-II TPS	14.0	Coal	25 Years	Inter State
NTPC Unchahaar-III TPS	9.0	Coal	25 Years	Inter State
NTPC Unchahaar-I TPS	7.0	Coal	27 Years	Inter State
NTPC Farakka	7.0	Coal	25 Years	Inter State
CLP Jhajjar	132.0	Coal	25 Years	Inter State
Maithon Power Limited	300.0	Coal	30 Years	Inter State
CTPS 7 & CTPS 8	92.0	Coal	25 Years	Inter State
MTPS 6	31.0	Coal	25 Years	Inter State
Sasan	27 MW to 136 MW	Coal	25 Years	Inter State

Type of Fuel	Generation Capacity (MW)
Gas	507.6
Renewable Energy	305.2
Hydro	204.2
Nuclear	31.0
Coal	1541.7

2. Consumer wise connections & energy consumptions for FY 2020-21

Table 2: Energy consumption with type of consumers

Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	Voltage Level (V)	No of Consumer S	Total Consumption (In MU)
Domestic	HT/LT	11/.22/.4	1540657	4534.71
Commercial	LT		236046	942.86
Water Supply			1311	257.98
Public Lighting			4907	118.48
HT Industrial			384	239.84
HT Commercial			471	276.37
Others-1 (if any , specify in				
remarks)			40255	1939.91
Total 1824031				8310.16

3. Technical Parameters For FY 2020-21

Tata Power DDL supplies power to north & north-west part of Delhi. Distribution area of Tata Power DDL is divided into five circles, twelve divisions & the overall purchased Energy, consumptions & AT &C losses for the FY-2020-2021 is shown in table below the AT&C losses for FY2020-2021 is 6.48% & the T&D losses of the sector is 7.15%.

Technical Details (FY2020-21)				
Energy Input Details	UoM	Value		
Input Energy Purchase (From Generation Source)	Million kwh	10085.62		
Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kwh	8950.12		
Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kwh	8310.43		
Transmission and Distribution (T&D) loss	Million kwh	639.68		
Details	%	7.15%		
Collection Efficiency	%	101%		
Aggregate Technical & Commercial Loss	%	6%		

Table 3: Technical Details (FY2020-21)

The total purchased power by Tata Power-DDL is 10085.62 million kWh and the net energy after adjusting the transmission losses and energy sales is 8950.12 million kWh, The total energy billed or net energy billed after all the adjustment is 8310.43 million kWh. The total T&D losses for FY 2020-21 was 639.68 million kWh, the overall collection efficiency of the Tata Power-DDL was 101% & AT&C losses was 6.48% .

4. Details of Input Energy & Infrastructure

The Input energy, consumption & transmission losses of the Tata Power-DDL are shown in table below:

Parameters	FY 2020-21
Input Energy purchased (MU)	10085.6
Transmission loss (%)	3.22%
Transmission loss (MU)	324.35
Energy sold outside the periphery (MU)	811.16
Open access sale (MU)	68.64
EHT sale	90

Table 4: The Input energy, consumption & transmission losses of the Tata Power DDL

Parameters	FY 2020-21
Net input energy (received at DISCOM periphery or at distribution point)-(MU)	0.00
Is 100% metering available at 66/33 kV (Select yes or no from list)	Yes
Is 100% metering available at 11 kV (Select yes or no from list)	Yes
% of metering available at DT	90%
% of metering available at consumer end	100%
No of feeders at 66kV voltage level	134
No of feeders at 33kV voltage level	108
No of feeders at 11kV voltage level	1280
No of LT feeders' level	15539
Line length (ckt. km) at 66kV voltage level	536.92
Line length (ckt. km) at 33kV voltage level	477.11
Line length (ckt. km) at 11kV voltage level	4999.2
Line length (km) at LT level	7354.1
Length of Aerial Bunched Cables	5556.2
Length of Underground Cables	5832
HT/LT ratio	0.8177

5. Energy Conservation measures already taken

Tata Power DDL has done various energy conservation measures to reduce the energy consumptions in FY-2020-21. Some of them are mentioned below:

- > Replacement of the old inefficient ACs with energy efficient AC's
- > Replacement of inefficient old fan with energy efficient BLDC Fans
- Replacement of non-conventional light with energy efficient light (LED's)

Table 5: AC Replacement Program, BLDC Fan's & (LED's) Energy saving

DSM Program	FY	Quantity (Nos)	Load reduction (MW)	Energy Saving (MU)	CO2 reducti on (mTon)
AC Replacement Program	FY-20-21	1350	0.63	1.36	1.1
BLDC Ceiling Fan	FY-20-21	30	0	0	0
LED Lighting Scheme	FY-20-21	58242	1	2	2

Apart from the above-mentioned Demand Side Management related measures, some critical initiatives adopted for technical loss reduction are mentioned below:

- Thermo-scanning of assets for hotspot detection to perform conditional-based monitoring for sustainable energy conservation to ensure efficiency and effectiveness of equipment and systems.
- Using Wedge connectors for Jumpers to prevent degradation and achieves significantly lower resistance values to reduce heating losses.
- Implementation of HVDS (High Voltage Distribution System) for distribution of electricity.
- Replacement of 1.1 kV 4 core X 70 sq. mm LT Cable with 1.1 kV 4 core X 150 sq. mm cable and introduction of 11 kV 3 core x 400 sq. mm cable in place of 3 core X 300 sq. mm cable to reduce resistance and increase capacity.
- > Replacement of 2 core X 10 sq. mm service cable with 2 core X 16 / 25 sq.mm cable
- Usage of Low Tension pole capacitors for lengthy LT Feeders to better manage voltage regulation and power factor.
- Planning of new LT feeders up to 400 meters to limit technical losses at low voltage level.
- Replacement of static electronic meters with digital smart meters at the consumers as well as DT ends so that identification of high loss feeders can be made.

DSM Program	FY	Quan tity (Nos)	Load reducti on (MW)	Energy Savi ng (MU)	CO2 reducti on (mTon)
AC Replacement Scheme	FY-21-22	2148	1	1.64	1.3
BLDC Ceiling Fan	FY-21-22	620	0.03	0.12	0.1
LED Lighting Scheme	FY-21-22	9900 6	1	2	2
Behavioural Demand Response (BDR)	FY-21-22	2044	7.69	-	-

6. Energy Conservation measures Proposed for Future

Critical Analysis

- Tata Power Delhi Distribution Limited is an electricity distribution company which is spread over 510 sq. KM and providing power supply to North & North-West Delhi which is serving a populace of 7 million. Tata Power DDL is having a peak load of 2106 MW and customer base of 1.88 million.
- Verified transmission losses, distribution (T&D) losses, collection efficiency & aggregate technical & commercial losses of Tata Power Delhi Distribution Limited for FY20-21, i.e., 1st April'2020 to 31st March'2021 was 3.22%, 7.15 %, 101 % & 6.48 % respectively.
- The electrical energy is supplied by various interstate and intrastate generating stations at 400 KV, 220 KV, 66 KV, 33 KV and same is supplied to customers at 66 KV, 33 KV, 11 KV, 6.6KV, 400V and 230 V single phase.
- Tata Power–DDL has implemented several world-class technologies such as Advance Distribution Management system or ADMS which is designed to replace the conventional SCADA-DMS-OMS system with features like real-time integration of Smart Meter Data / Distributed Generation integration and single data model from GIS
 , Integrated Geographical Information System (GIS) for instant services, Advanced Metering Infrastructure (AMI), Automated Demand Response (ADR), Smart Street Light Management system, Field Force Automation, Upgraded Network etc.
- All the feeders (66/33/11 kV) & consumers of Tata Power DDL are metered. However, for DTs, metering is generally done at DT above 250 kVA capacity. The Discom has a very huge population of DTs of capacity 250 kVA & below. Besides, the installation capacity of DTs rated 250 kVA & below is insignificant as compared to total installation capacity of all DTs (~10%). Expanding metering infrastructure for all DTs would require intensive capital expenditure, therefore, the Discom has requested for exemption for metering at DTs rated 250 kVA & below
- Tata Power DDL has implemented various energy conservation measures under DSM programme i.e., AC Replacement Scheme, BLDC Ceiling Fan, LED Lighting Scheme, Behavioural Demand Response (BDR) etc.
- Tata Power Delhi a very vast distribution network having 5 numbers of circles, 12 numbers of divisions, 37 numbers of sub-division, 1280 number of feeders, 7248 number of DTs and 1824031 numbers of consumers.
- 12 % of its total generation requirement has been met via renewable energy towards compliance of renewable purchase obligation (RPO) for the Discom.

I. Background

1.1 Extant Regulation & Role of BEE

The Objectives of BEE

- To develop policies and programmes on efficient use of energy and its conservation with the involvement of stakeholders.
- To plan, manage and implement energy conservation programmes as envisaged in the EC Act.
- To assume leadership and provide policy framework and direction to national energy efficiency and conservation efforts and programmes.
- To demonstrate energy efficiency delivery mechanisms, as envisaged in the EC Act, through Public-Private Partnership (PPP).
- To establish systems and procedures to measure, monitor and verify energy efficiency results in individual sectors as well as at the national level.
- To leverage multi-lateral, bi-lateral and private sector support in implementation of programmes and projects on efficient use of energy and its conservation.
- To promote awareness of energy savings and energy conservation.

Role of BEE

- BEE coordinates with designated agencies, designated consumers and other organizations working in the field of energy conservation/efficiency to recognize and utilize the existing resources and infrastructure in performing the functions assigned to the Bureau under the Energy Conservation Act.
- The Act provides regulatory mandate for: standards & labelling of equipment and appliances; energy conservation building code for commercial buildings; and energy consumption norms for energy intensive industries.
- The EC Act was amended in 2010 to incorporate few additional provisions required to better equip BEE to manage ever evolving sphere of energy efficiency in the country.

The main amendments made to the original Act are given below:

- The Central Government may issue the energy savings certificate to the designated consumer whose energy consumption is less than the prescribed norms and standards in accordance with the procedure as may be prescribed.
- The designated consumer whose energy consumption is more than the prescribed norms and standards shall be entitled to purchase the energy savings certificate to comply with the prescribed norms and standards

- The Central Government may, in consultation with the Bureau, prescribe the value of per metric ton of oil equivalent of energy consumed
- Commercial buildings which are having a connected load of 100 kW or contract demand of 120 kVA and above brought under the purview under the EC Act.

Promotional Role

The major Promotional Role of BEE includes:

- Create awareness and disseminate information on energy efficiency and conservation.
- Arrange and organize training of personnel and specialists in the techniques for efficient use of energy and its conservation.
- Strengthen consultancy services in the field of Energy Efficiency.
- Promote research and development.
- Develop testing and certification procedures and promote testing facilities.
- Formulate and facilitate implementation of pilot projects and demonstration projects.
- Promote use of energy efficient processes, equipment, devices and systems.
- Take steps to encourage preferential treatment for use of energy efficient equipment or appliances.
- Promote innovative financing of energy efficiency projects.
- Give financial assistance to institutions for promoting efficient use of energy and its conservation.
- Prepare educational curriculum on efficient use of energy and its conservation.
- Implement international co-operation programmers relating to efficient use of energy and its conservation.

1.2 Purpose of Audit & Accounting Report

The annual energy audit accounting has been conducted for FY 2020-21 based on the notification no. 18/1/BEE/Discom/2021 from BUREAU OF ENERGY EFFICIENCY, New Delhi dated 6th October, 2021 which says:

(1) Every electricity distribution company shall conduct an annual energy audit for every financial year and submit the annual energy audit report to the Bureau and respective State Designated Agency and also made available on the website of the electricity distribution company within a period of four months from the expiry of the relevant financial year:

Provided that on the commencement of these regulations, the first annual energy audit of every electricity distribution company shall be conducted within six months from the date of such commencement, by taking into account the energy accounting of electricity distribution company for the financial year immediately preceding the date of the commencement of these regulations.

(2) Where a new electricity distribution company is established after the commencement of these regulations, such electricity distribution company shall conduct its first annual energy audit on completion of the first financial year from the date of being notified as designated consumer.

The Annual Energy Audit (Accounting) is conducted with the following Objectives:

- Verification of existing pattern of energy distribution across periphery of electricity distribution company
- Verification of accounted energy flow submitted by electricity distribution company at all applicable voltage levels of the distribution network
- Verification of the accuracy of the data collected and analyse and process the data with respect to consistency, improvement in accounting and reducing loss of DISCOM
- Verification of the information submitted by DC to the SDA/BEE about status of energy input, Output and loss for the previous two year
- > Access the past performance of the establishment
- > Quantification of Energy Losses, and Energy Saving Potential

1.3 Period of Energy Audit & Accounting

Period of energy audit and accounting for TATA POWER DELHI DISTRIBUTION LIMITED, New Delhi is from April'2021 to May 2022. The period of information has been gathered from FY20-21, 1st April, 2020- 31st March, 2021.

II. Introduction of Designated Consumer

2.1 Sector

Tata Power Delhi Distribution Limited belongs to the Electricity Distribution Sector.

2.2 Name and Address of Designated Consumer

Table 6: General Information

	General Information					
1	Name of the DISCOM	TATA POWER DELHI DISTRIBUTION LIMITED				
2	i) Year of Establishment	2002-03				
	ii) Government/Public/Priva te			Joint venture		
3	DISCOM's Contact details	& Address				
i	City/Town/Village			New Delhi		
ii	District			Delhi	1	
iii	State	Delhi		Pin	110009	
iv	Telephone	011-66112	202	Fax	011-27468042	
4	Registered Office	ſ				
i	Company's Chief			Ganesh Srinivasan		
-	Executive Name					
ii	Designation			CEO		
iii	Address	NDPL House	e, Huo	dson Lines, Kingsway	Camp, Delhi-09	
iv	City/Town/Village	Delhi		P.O.	GTB Nagar	
V	District					
vi	State	Delhi		Pin	110009	
vi i	Telephone	011-66112	202	Fax	011-27468042	
5	5 Nodal Officer Details*					
	Nodal Officer Name			Mr. HC Sharma		
	(Designated at DISCOM's)					
ii	Designation			General Manager		
iii	Address	NDPL House	e, Huo	dson Lines, Kingsway	Camp, Delhi-09	
iv	City/Town/Village	Delhi		P.O.	GTB Nagar	
V	District					
vi	State	Delhi		Pin	110009	
vi i	Telephone	91-1166050595 Fax				
6	Energy Manager Details*					
i	Name			Md. Shadab Ahmad		
ii	Designation	Sr. Manac	ler	Whether EA or EM	EM	
iii	EA/EM Registration No.		<u>,</u>	EM-5062		
iv	Telephone	91-1166050)613	Fax		
v	Mobile	971799195 7	E- mai I ID	mdshadab.ahmad ddl.co	d@tatapower- m	

2.3 Name and details of energy manager and Authorised signatory of DC

PARTICULARS	DETAILS			
Energy Manager	Md. Shadab Ahmad (Sr. Manager)			
	EM - 5062			
	Ph: 91-1166050613			
	Mobile: 9717991957			
	Email: mdshadab.ahmad@tatapower-ddl.com			
Authorized Signatory	Mr. HC Sharma (General Manager)			
	Ph: 91-1166050595			

Table 7: Name and details of energy manager and Authorised signatory of DC

2.4 Summary profile of DC's

Tata Power Delhi Distribution Limited [Tata Power-DDL] is a joint venture between Tata Power and the Government of NCT of Delhi with the majority stake being held by Tata Power Company (51%).

Tata Power-DDL is acknowledged for its consumer-friendly practices. Since privatization, the Aggregate Technical & Commercial (AT&C) losses in Tata Power-DDL areas have shown a record decline.

Table 8: Customer Database

Distribute Electricity	Service a Populace	Customer Base	Peak Load (MW)	Distribution Area
North & North West Delhi	7 million	1.88 million	2106	510 Sq. M

To ensure reliable power supply and to provide best in class service to its consumers, Tata Power–DDL has implemented several world-class technologies such as Advance Distribution Management system or ADMS which is designed to replace the conventional SCADA-DMS-OMS system with features like real-time integration of Smart Meter Data / Distributed Generation integration and single data model from GIS , Integrated Geographical Information System (GIS) for instant services, Advanced Metering Infrastructure (AMI), Automated Demand Response (ADR), Smart Street Light Management system, Field Force Automation, Upgraded Network, Integrated Toll Free Helpline No. 19124, etc.

Tata Power-DDL is the first Indian utility to be a member of Global Intelligent Utility Network Coalition (GIUNC) which is a coalition of 14 power utilities worldwide and is working towards accelerating the development of common standards, technology solutions and processes for intelligent networks. Tata Power-DDL provides various facilities and services to its consumers for their ease and convenience such as 24X7 Integrated Helpline, Mobile Application for both iOS and Android users, bilingual website, Multiple Payment Avenue, End to End online services for New Connection, etc.

Tata Power-DDL's contribution towards improving the ease of getting electricity connection through process simplification improving India's ranking twice, from 138 in 2015 to 22 in 2019. TATA Power-DDL has also added solar generation as a part of its sustainable initiatives since 2008, and has installed fifteen (15) Solar Plants in its Licensed Area with a total generation capacity is 1.8 MW. It has a total of 1420 Rooftop solar plants under net metering with a cumulative capacity of 43MWp. The company is now working on setting up a Smart Grid with the integration of Roof Top Solar, Energy Storage, E-charging of Electric Vehicles, Home Automation etc. in its network.

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. A journey which began a decade ago for empowering the consumers in Delhi now holds the potential to transform the distribution sector in India and similarly help utilities across the globe. Tata Power-DDL has a presence in India in nearly 20+ States and working with 30+ Discoms including Goa, Haryana, Uttar Pradesh, Chhattisgarh etc. as well as in international cities such as Benin, Eko, Kaduna, Kano etc.

Tata Power-DDL is 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, Enel, Omron, 3M, Panasonic, AES, Mitsubishi etc. in the areas of communications & smart grid technology, change management, consumer service delivery and business process re-engineering. Tata Power-DDL has also collaborated with leading international and national Institutions like Harvard, MIT, Ryerson University, IIT Delhi, Punjab Engineering College, Delhi University, Netaji Subhas Institute of Technology etc. to carry out research activities in energy space.

Key parameters regarding Tata Power DDL are mentioned below:-

Source of Input Energy

The source of input energy with generation station and generation capacity & contract period is given the table:

Name of Generation station	Generation Capacity (MW)	Type of station based on fuel	Type of contract in Year	Type of Grid
NTPC Dadri GPS	28.0	Gas	25 Years	Inter State
NTPC Auriya GPS	22.0	Gas	35 Years	Inter State
NTPC ANTA GPS	14.0	Gas	30 Years	Inter State
Pragati- I	63.6	Gas	25 Years	Intra State
Pragati III	298.0	Gas	25 Years	Intra State
IPGCL GT	82.0	Gas	20 Years	Intra State
NHPC Dulhasti	15.0	Hydro	35 Years	Inter State
NHPC Parbati III	20.0	Hydro	40 Years	Inter State
NHPC Bairasiul	6.0	Hydro	25 Years	Inter State
NHPC Tanakpur	3.2	Hydro	35 Years	Inter State
NHPC Chamera -I	13.0	Hydro	35 Years	Inter State
NHPC Chamera-II	12.0	Hydro	35 Years	Inter State
NHPC Chamera-III	9.0	Hydro	35 Years	Inter State
NHPC URI-I	16.0	Hydro	35 Years	Inter State
NHPC Uri-II	10.0	Hydro	40 Years	Inter State
NHPC Dhauliganga	11.0	Hydro	35 Years	Inter State
NHPC Sewa II	5.0	Hydro	35 Years	Inter State
Tala HEP	9.0	Hydro	35 Years	Inter State
Nathpa Jhakri HPS	44.0	Hydro	35 Years	Inter State
Tehri HPP	19.0	Hydro	35 Years	Inter State
Koteshwar HEP	12.0	Hydro	35 Years	Inter State
Narora APS	14.0	Nuclear	43 Years	Inter State
RAPP 5&6	17.0	Nuclear	43 Years	Inter State
NTPC Singrauli Small Hydro	2.0	RE	35 Years	Inter State
SECI Solar (Renewable)	20.0	RE	35 Years	Inter State
Delhi Municipal Solid Waste Solutions Ltd. (Bawana) (Renewable)	7.0	RE	20 Years	Intra State
Nanti Hydro Power Pvt. Ltd. (Renewable)	13.5	RE	20 Years	Inter State
Suryakanta Hydro energies Pvt. Ltd. (Renewable)	14.0	RE	20 Years	Inter State
Timarpur Okhla Waste management co. Ltd. (Renewable)	6.0	RE	20 Years	Intra State
Sun Edison	180.0	RE	20 Years	Inter State
Taranda	12.7	RE	20 Years	Inter State
SECI WIND	50.0	RE	25 Years	Inter State
NTPC Aravali Jhajjar	613.8	Coal	25 Years	Inter State
NTPC Dadri NCTPS(Th.) Stage II	10.0	Coal	25 Years	Inter State

Table 9: Generation station and generation capacity

Name of Generation station	Generation Capacity (MW)	Type of station based on fuel	Type of contract in Year	Type of Grid
NTPC Dadri NCTPS(Th) Stage I	10.0	Coal	25 Years	Inter State
NTPC Kahalgaon II	48.3	Coal	25 Years	Inter State
NTPC Singrauli STPS	46.0	Coal	30 Years	Inter State
NTPC Rihand STPS-II	39.0	Coal	25 Years	Inter State
NTPC Rihand STPS-I	31.0	Coal	28 Years	Inter State
NTPC Kahalgaon I	15.6	Coal	25 Years	Inter State
NTPC Unchahaar-II TPS	14.0	Coal	25 Years	Inter State
NTPC Unchahaar-III TPS	9.0	Coal	25 Years	Inter State
NTPC Unchahaar-I TPS	7.0	Coal	27 Years	Inter State
NTPC Farakka	7.0	Coal	25 Years	Inter State
CLP Jhajjar	132.0	Coal	25 Years	Inter State
Maithon Power Limited	300.0	Coal	30 Years	Inter State
CTPS 7 & CTPS 8	92.0	Coal	25 Years	Inter State
MTPS 6	31.0	Coal	25 Years	Inter State
Sasan	27 MW to 136 MW	Coal	25 Years	Inter State

Table 10: Type of Fuel for Generation

Type of Fuel	Generation Capacity (MW)
Gas	507.6
Renewable Energy	305.2
Hydro	204.2
Nuclear	31.0
Coal	1541.7





Consumer wise connections & energy consumptions for FY 2020-21

Energy consumption with type of consumers is given in the table:

Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	Voltage Level (V)	No of Consumers	Total Consumption (In MU)
Domestic	HT/LT	11/.22/.4	1540657	4534.71
Commercial	LT		236046	942.86
Water Supply			1311	257.98
Public Lighting			4907	118.48
HT Industrial			384	239.84
HT Commercial			471	276.37
Others-1 (if any , specify				
in remarks)			40255	1939.91
		Total	1824031	8310.16

Table 11: Energy consumption with type of consumers

• Technical Parameters for FY 2020-21

Tata Power DDL supply to north & north-west part of Delhi, It is divided into five circles, twelve divisions & the overall purchased Energy, consumptions & AT &C losses for the FY-2020-2021 is sown in table below the AT&C losses for FY2020-2021 is 6.48% & the T&D losses of the sector is 7.15%.

Table 12:	Technical	Details	(FY 2020-21)
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Technical Details (FY2020-21)						
Energy Input Details	UoM	Value				
Input Energy Purchase (From Generation Source)	Million kwh	10085.62				
Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kwh	8950.12				
Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kwh	8310.43				
Transmission and Distribution (T&D) loss	Million kwh	639.68				
Details	%	7.15%				
Collection Efficiency	%	101%				
Aggregate Technical & Commercial Loss	%	6%				

The total purchased power by Tata Power-DDL is 10085.62 million kWh and the net energy after adjusting the transmission losses and energy sales is 8950.12 million kWh, The total energy billed or net energy billed after all the adjustment is 8310.43 million kWh. The total T & D loss for FY 2020-21 is 639.68 million kWh.

• Details of Input Energy & Infrastructure

The Input energy, consumption of the Tata Power-DDL & transmission losses of the Tata Power-DDL is shown in table below:

Table 13: Input energy & transmission losses

Parameters	FY 2020-21
Input Energy purchased (MU)	10085.6
Transmission loss (%)	3.22%
Transmission loss (MU)	324.35
Energy sold outside the periphery(MU)	811.16
Open access sale (MU)	68.64
EHT sale	90
Net input energy (received at DISCOM periphery or at distribution point)-(MU)	0.00
Is 100% metering available at 66/33 kV (Select yes or no from list)	Yes
Is 100% metering available at 11 kV (Select yes or no from list)	Yes
% of metering available at DT	90%
% of metering available at consumer end	100%
No of feeders at 66kV voltage level	134
No of feeders at 33kV voltage level	108
No of feeders at 11kV voltage level	1280
No of LT feeders level	15539
Line length (ckt. km) at 66kV voltage level	536.92
Line length (ckt. km) at 33kV voltage level	477.11
Line length (ckt. km) at 11kV voltage level	4999.2
Line length (km) at LT level	7354.1
Length of Aerial Bunched Cables	5556.2
Length of Underground Cables	5832
HT/LT ratio	0.8177

• Number of Consumers

The Distribution network of Tata Power-DDLis divided into five numbers of circles, twelve number of divisions & thirty-seven numbers of sub divisions The numbers of feeders, DT's & number of consumers is 1280,7248 &1824031 respectively.

Table 14: Number of Consumers

Parameters	Values
Number of circles	5
Number of divisions	12
Number of sub-divisions	37
Number of feeders	1280
Number of DTs	7248
Number of consumers	1824031

• Voltage wise Meter & Unmetered Consumers

The voltage wise meter types of meter values given table:

 Table 15: Voltage wise meter types

Parameters	66kV and above	33kV	11/22kV	LT
Number of conventional metered consumers	0	0	0	1569119
Number of consumers with 'smart' meters	0	0	0	210285
Number of consumers with 'smart prepaid' meters	0	0	0	0
Number of consumers with 'AMR' meters	4	2	1012	43601
Number of consumers with 'non-smart prepaid' meters	0	0	0	5077
Number of unmetered consumers	0	0	0	
Number of total consumers	4	2	1012	1823013

• Numbers of Distribution Transformers(above 250kVA)

Table 16: Number of Distribution Transformers

Parameters	66kV and above	33kV	11/22kV	LT
Number of conventionally metered Distribution Transformers	0	0	0	252
Number of DTs with communicable meters	0	0	0	3868
Number of unmetered DTs	0	0	0	474
Number of total Transformers	0	0	0	4594

• Numbers of Feeders

Table 17: Numbers of Feeders

Parameters	66kV and above	33kV	11/22kV	LT
Number of metered feeders	134	108	1280	15539
Number of feeders with communicable meters	134	108	1280	0

Parameters	66kV and above	33kV	11/22kV	LT
Number of unmetered feeders	0	0	0	0
Number of total feeders	134	108	1280	15539

• Length of Cables

Table 18: Length of Cables

Particulars	Value (km)
Line length (ct km)	1979.1
Length of Aerial Bunched Cables	5556.2
Length of Underground Cables	5832

III Discussions & Analysis-

3.1 Energy Accounts for Previous Year

Current cycle of audit is first year of energy accounting base on the notification no. No. 18/1/BEE/DISCOM/2021 from BUREAU OF ENERGY EFFICIENCY dated 6th October, 2021.

3.2 Energy Accounts & Performance in current year

Circle wise Connections & Input Energy

Tata Power DDL has five circles and twelve numbers of division & thirty-seven numbers of sub division, the circle wise total numbers of connections, connected load (MW), Input energy (MU) & metered energy (MU) is given in the table:

Circle	Total No of Connections	Connected Load (MW)	Input Energy (MU)	Metered Energy (MU)
Urban Circle	488797	1064.07	1670.72	1527.51
Sub Urban Circle	205017	1150.44	1813.98	1626.33
Town Circle	419677	1659.27	2212.07	2113.02
Metro circle	587100	1583.78	2238.01	2142.07
City Circle	123440	568.297	1015.34	901.514
Total	1824031	6025.86	8950.12	8310.43

Table 19: Input & Metered Energy Circle Wise



Figure 2: Circle wise connection

Circle wise Energy Sharing

The circle wise connected load & input energy & metered energy with transmission & distribution losses is given in following table:

Circle	Connected Load (MW)	Input Energy (MU)	Metered Energy (MU)	T&D loss (MU)
Urban Circle	1064.07	1670.72	1527.51	143.21
Sub Urban Circle	1150.44	1813.98	1626.33	187.66
Town Circle	1659.27	2212.07	2113.02	99.05
Metro circle	1583.78	2238.01	2142.07	95.94
City Circle	568.30	1015.34	901.51	113.83
Total	6025.86	8950.12	8310.43	639.68



Figure 3: Circle wise connected Load

> Division wise energy parameters & Losses

The total twelve numbers of divisions, the energy parameter input energy, metered energy & T & D Losses of division wise is shown in below table:

Name of Division	Number of connections	Connected Load Metered (kW)	Input energy (MU)	Metered Energy (MU	T&D loss (MU)	T&D loss (%)
Badli	118023	361.627	572.640	506.245	66.394	11.59%
Bawana	86630	659.799	1211.328	1049.848	161.479	13.33%
CIVIL LINES	133677	516.163	717.655	698.062	19.593	2.73%
KESHAV PURAM	144883	554.117	776.536	732.968	43.568	5.61%
MANGOL PURI	195216	371.317	596.141	563.843	32.298	5.42%
MODEL TOWN	164580	479.634	627.765	596.412	31.353	4.99%
MOTI NAGAR	141117	588.989	717.875	681.988	35.887	5.00%
Narela	123440	568.297	1015.343	901.514	113.829	11.21%
PITAM PURA	118387	490.638	602.656	576.479	26.177	4.34%
ROHINI	227304	732.832	1014.100	981.811	32.289	3.18%
KIRARI	139833	217.586	373.879	334.896	38.983	10.43%
SHALIMAR BAGH	230941	484.861	724.199	686.368	37.831	5.22%
Total	1824031	6025.86	8950.117	8310.435	639.682	7.15%

 Table 20: Division Wise Input, Metered, T&D Losses



Figure 4: Input and Metered Energy (Division Wise)



Figure 5: Division wise T&D loss (%)

> Consumer Category wise energy parameters & Losses

The consumer wise all the parameters like input energy, metered energy, no of consumers, billed amount, collection efficiency & AT&C losses are given in below table:

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Residential	96876	142.27		216.94		151.13	100.44	0.66	
	Agricultural	530	3.75		2.08		0.24	0.87	3.63	
BADLI	Commercial/Industrial- LT	19852	194.53	572.64	248.63	66.39	309.28	337.36	1.09	
	Commercial/Industrial- HT	54	13.69		20.70		18.10	24.60	1.36	
	Others	711	7.39		17.90		10.52	32.89	3.13	
Badli		118023	361.63	572.64	506.25	66.39	489.27	496.17	1.01	0.10
	Residential	63139	93.68		134.79		69.06	68.81	1.00	
	Agricultural	1791	9.98		4.52		2.98	2.87	0.96	
BAWANA	Commercial/Industrial- LT	21099	537.79	1211.33	857.69	161.48	1084.06	1103.45	1.02	
	Commercial/Industrial- HT	34	8.81		18.24	18.24	22.13	22.29	1.01	
	Others	567	9.54		34.60		29.30	30.37	1.04	
Bawana		86630	659.80	1211.33	1049.85	161.48	1207.53	1227.81	1.02	0.12
	Residential	108647	284.55	717 655	385.41	10.50	239.37	245.22	1.02	
GIVIL LINES	Agricultural	2	0.01	717.000	0.00	19.59	0.00	0.00	0.00	

Table 21: Division Wise AT&C Losses

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial- LT	23900	102.43		88.82		132.84	133.50	1.01	
	Commercial/Industrial- HT	67	47.63		57.20		99.92	101.42	1.02	
	Others	1061	81.55		166.63		142.06	132.84	0.94	
CIVIL LINES		133677	516.16	717.66	698.06	19.59	614.19	612.99	1.00	0.03
	Residential	116732	266.22		369.21		217.41	217.42	1.00	
	Agricultural	0	0.00		0.00		0.00	0.00	0.00	
KESHAV PURAM	Commercial/Industrial- LT	27213	238.83	776.54	278.43	43.57	375.33	382.21	1.02	
	Commercial/Industrial- HT	127	40.41		68.88		81.36	81.28	1.00	
	Others	811	8.67		16.45		13.54	8.90	0.66	
KESHAV PURAM		144883	554.12	776.54	732.97	43.57	687.64	689.81	1.00	0.05
	Residential	172277	261.21		426.08		208.94	208.73	1.00	
	Agricultural	1	0.04		0.02		0.00	0.00	0.00	
MANGOL	Commercial/Industrial- LT	21989	93.85	596.14	100.52	32.29	138.05	138.95	1.01	
	Commercial/Industrial- HT	23	9.27		17.23		19.61	20.68	1.05	
	Others	926	6.95		19.99		17.23	19.93	1.16	
		195216	371.32	596.14	563.84	32.29	383.83	388.29	1.01	0.04
	Residential	142130	322.65		441.85		265.72	265.43	1.00	
MODEL	Agricultural	1	0.01	627 77	0.00	31 35	0.00	0.00	0.00	
TOWN	Commercial/Industrial- LT	21526	105.84		93.78	01.00	138.36	138.51	1.00	

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial- HT	45	13.87		18.98		25.41	25.55	1.01	
	Others	878	37.27		41.80		42.13	40.31	0.96	
MODEL TOWN		164580	479.63	627.77	596.41	31.35	471.62	469.80	1.00	0.05
	Residential	113015	294.67		384.62		235.76	235.12	1.00	
	Agricultural	2	0.01		0.01		0.00	0.00	0.00	
MOTI NAGAR	Commercial/Industrial- LT	27125	219.48	717.88	207.57	35.89	306.08	307.83	1.01	
	Commercial/Industrial- HT	133	65.04		73.31		98.62	99.05	1.00	
	Others	842	9.80		16.48		15.51	15.56	1.00	
MOTI NAGAR		141117	588.99	717.88	681.99	35.89	655.97	657.56	1.00	0.05
	Residential	102214	157.62		234.73		80.31	129.40	1.61	
	Agricultural	2314	18.06		10.40		6.76	5.94	0.88	
NARELA	Commercial/Industrial- LT	17558	336.73	1015.34	539.70	113.83	700.56	689.56	0.98	
	Commercial/Industrial- HT	152	40.44		88.67		113.17	106.56	0.94	
	Others	1202	15.45		28.01		31.92	13.48	0.42	
Narela		123440	568.30	1015.34	901.51	113.83	932.72	944.94	1.01	0.10
	Residential	100533	339.20		424.35		283.04	282.02	1.00	
	Agricultural	0	0.00	602 66	0.00	26 17	0.00	0.00	0.00	
	Commercial/Industrial- LT	16990	106.61	002.00	96.36	20.17	141.29	141.86	1.00	

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial- HT	78	37.07		40.74		54.30	55.23	1.02	
	Others	786	7.75		15.04		10.93	11.31	1.03	
PITAM PURA		118387	490.64	602.66	576.48	26.17	489.56	490.42	1.00	0.04
	Residential	196237	515.27	1014.10	702.94	32.29	422.86	422.24	1.00	
ROHINI	Agricultural	0	0.00		0.00		0.00	0.00	0.00	
	Commercial/Industrial- LT	29233	121.57		106.04		157.30	157.44	1.00	
	Commercial/Industrial- HT	66	44.38		51.06		68.39	72.25	1.06	
	Others	1768	51.61		121.77		106.26	106.96	1.01	
ROHINI		227304	732.83	1014.10	981.81	32.29	754.81	758.88	1.01	0.03
	Residential	124016	163.52	373.88	272.05	38.98	126.82	126.54	1.00	
KIRARI	Agricultural	63	0.34		0.20		0.11	0.10	0.95	
	Commercial/Industrial- LT	15285	46.15		47.02		66.23	65.57	0.99	
	Commercial/Industrial- HT	3	1.24		0.47		0.72	0.72	1.00	
	Others	466	6.34		15.15		18.33	19.41	1.06	
KIRARI		139833	217.59	373.88	334.90	38.98	212.21	212.33	1.00	0.10
SHALIMAR BAGH	Residential	205767	343.20	724.20	517.80	37.83	270.87	270.47	1.00	
	Agricultural	80	0.48		0.43		0.18	0.18	0.98	
	Commercial/Industrial- LT	23905	96.30		103.81		143.89	143.34	1.00	
	Commercial/Industrial- HT	81	35.24		43.15		53.02	56.58	1.07	

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Others	1108	9.64		21.17		19.46	20.30	1.04	
SHALIMAR BAGH		230941	484.86	724.20	686.37	37.83	487.42	490.87	1.01	0.05
	Residential	1541583	3184.05	8950.12	4510.76	639.68	2571.29	2571.83	1.00	
	Agricultural	4784	32.66		17.66		10.27	9.97	0.97	
	Commercial/Industrial- LT	265675	2200.11		2768.38		3693.27	3739.58	1.01	
	Commercial/Industrial- HT	863	357.09		498.63		654.75	666.21	1.02	
	Others	11126	251.95		515.00		457.18	452.27	0.99	
		1824031	6025.86	8950.12	8310.43	639.68	7386.76	7439.86	1.01	0.06



Figure 6: Connected Load, Energy Share & Billed Amount (%)
Division wise Commercial Parameters & losses

The division wise AT & C losses of Tata Power DDL is calculated for the FY-2020-21 & is found 6.48%, the division wise losses is shown in below table:

Name of Division	Input energy (MU)	Metered energy	Total energy (MU)	T&D loss (MU)	T&D loss (%)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
BADLI	572.64	506.25	506.25	66.39	11.59%	489.27	496.17	101.41%	10.35%
BAWANA	1211.33	1049.85	1049.85	161.48	13.33%	1207.53	1227.81	101.68%	11.88%
CIVIL LINES	717.66	698.06	698.06	19.59	2.73%	614.19	612.99	99.80%	2.92%
KESHAV PURAM	776.54	732.97	732.97	43.57	5.61%	687.64	689.81	100.32%	5.31%
MANGOL PURI	596.14	563.84	563.84	32.29	5.42%	383.83	388.29	101.16%	4.32%
MODEL TOWN	627.77	596.41	596.41	31.35	4.99%	471.62	469.80	99.62%	5.36%
MOTI NAGAR	717.88	681.99	681.99	35.89	5.00%	655.97	657.56	100.24%	4.77%
NARELA	1015.34	901.51	901.51	113.83	11.21%	932.72	944.94	101.31%	10.05%
PITAM PURA	602.66	576.48	576.48	26.17	4.34%	489.56	490.42	100.17%	4.18%
ROHINI	1014.10	981.81	981.81	32.29	3.18%	754.81	758.88	100.54%	2.66%
KIRARI	373.88	334.90	334.90	38.98	10.43%	212.21	212.33	100.06%	10.38%
SHALIMAR BAGH	724.20	686.37	686.37	37.83	5.22%	487.42	490.87	100.71%	4.55%
	8950.12	8310.44	8310.44	639.68	7.15%	7386.76	7439.86	100.72%	6.48%

Table 22: Division Wise AT&C Losses

Note: All five circles have input as well as billed metered energy separately.







Figure 8: Collection Efficiency (%)

Billed Energy

The collection efficiency of the Tata Power DDL as per the data provided is given in the following table:

Collection efficiency = Collected Amount/(Billed Amount*100)

Table	23:	Collection	Efficiency
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Name of Division	No of connection	Connected Load Metered (kW)	Input energy (MU)	Metered energy (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency
Badli	118023	361.63	572.64	506.25	489.27	496.17	101.41%
Bawana	86630	659.80	1211.33	1049.85	1207.53	1227.81	101.68%
CIVIL LINES	133677	516.16	717.66	698.06	614.19	612.99	99.80%
KESHAV PURAM	144883	554.12	776.54	732.97	687.64	689.81	100.32%
MANGOL PURI	195216	371.32	596.14	563.84	383.83	388.29	101.16%
MODEL TOWN	164580	479.63	627.77	596.41	471.62	469.80	99.62%
MOTI NAGAR	141117	588.99	717.88	681.99	655.97	657.56	100.24%
Narela	123440	568.30	1015.34	901.51	932.72	944.94	101.31%
PITAM PURA	118387	490.64	602.66	576.48	489.56	490.42	100.17%
ROHINI	227304	732.83	1014.10	981.81	754.81	758.88	100.54%
KIRARI	139833	217.59	373.88	334.90	212.21	212.33	100.06%
SHALIMAR BAGH	230941	484.86	724.20	686.37	487.42	490.87	100.71%
	1824031	6025.86	8950.12	8310.44	7386.76	7439.86	100.72%

Voltage wise Energy Parameter

Tata Power-DDL having EHV, HV & LV voltage levels, voltage wise feeder name, energy parameter , input energy , export energy, metered , unmetered connections as per the data provided is given in the following table:

> 220kV Voltage feeder name & Energy Parameters

S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
1	220	Kashmiri Gate 220 KV DMRC 2	Metered	Functional	4902482	42.16	0
2	220	Kasmeri Gate 220 KV DMRC 1	Metered	Functional	5128473	23.85	0
3	220	SMB DMRC Jahangirpuri	Metered	Functional	4902494	19.53	0
4	220	DMRC SMB RSS	Metered	Functional	4902484	1.88	0
	220	Total				87.43	0

Table 24: Metering Details at 220 KV

> 66 kV Voltage feeder name & Energy Parameters

Table 25: Metering Details at 66 KV

S.	Voltage	Feeder Name	Feeder	Status of	Meter	Import	Export
	Level	Norolo T V 1	Meter	Functional	<u>5.N0</u>	252.40	
1 0	66		Metered	Functional	5129462	233.49	0
2	00		Metered	Functional	1005052	279.90	0
3	00		Matarad	Functional	4803032	238.43	0
4	00	Gopal Pur T X 2	Metered	Functional	4864976	250.44	0
5	66	SMBIX2	Metered	Functional	5128411	241.41	0
6	66	Rohini 220 Kv T X 1	Metered	Functional	4864964	209.27	0
7	66	Rohini 220 KV T X 2	Metered	Functional	4865022	206.65	0
8	66	Rohini 220 KV T X 3	Metered	Functional	4864997	264.13	0
9	66	Rohini 220 KV T X 4	Metered	Functional	5295166	240.30	0
10	66	Kanjawala T X 1	Metered	Functional	4865041	289.23	0
11	66	Kanjawala T X 2	Metered	Functional	5295182	328.96	0
12	66	66 KV DMRC MUNDKA	Metered	Functional	5128439	-5.38	0
13	66	Kanjawala T X 3	Metered	Functional	4864788	419.79	0
14	66	Bawana 400 KV I/C 100 MVA TR. No.1	Metered	Functional	4864911	272.94	0
15	66	Rohin-II 220 KV 66kV I/C No 1	Metered	Functional	4902505	305.86	0
16	66	Rohini II 220 KV 66kV I/C No 2	Metered	Functional	5128468	306.11	0
17	66	Nangloi Ckt 2	Metered	Functional	4864787	-74.14	0
18	66	Mundka to MGP-1	Metered	Functional	4864983	150.51	0
19	66	MGP T-off to Nangloi Ckt (-ve)	Metered	Functional	4864971	0.00	0
20	66	Mundka to Sawda Ghevra	Metered	Functional	4864950	22.03	0

S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
21	66	sagarpur	Metered	Functional	5128441	20.26	0
22	66	Pappan Kalan	Metered	Functional	4864960	130.68	0
23	66	Rewari Line 66/11 Tr 3	Metered	Functional	4865005	-27.40	0
24	66	Bawana 220 T X 2	Metered	Functional	4864992	257.16	0
25	66	Bawana 220 T X 3	Metered	Functional	4864827	252.29	0
26	66	Bawana 220 T X 1	Metered	Functional	4864973	385.31	0
27	66	DELHI MSW			4864958	133.88	0
28	66	Railway Ckt-1			4864952	-11.04	0
29	66	Railway Ckt-2			5129958	-14.60	0
30	66	SMB T X 4			40001535	138.48	0
31	66	Gopal Pur T X 4 (160 MVA)			5295184	264.28	0
32	66	66kV Incomer 1- 220kV SGTN			XF465246	16.02	0
33	66	66kV Incomer 2- 220kV SGTN			XF465248	73.44	0
	66	Total				5818.69	0

> 33 kV Voltage feeder name & Energy Parameters

S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
1	33	Gopal Pur T X 1	Metered	Functional	5128429	195.43	0
2	33	Gopal Pur T X 3	Metered	Functional	4864924	262.91	0
3	33	Kasmeri Gate 33 KV Civil Line-1	Metered	Functional	4864791	29.25	0
4	33	Kasmeri Gate 33 KV Civil Line-2	Metered	Functional	4864867	17.44	0
5	33	Kasmeri Gate 20 MVA TR	Metered	Functional	4864797	21.31	0
6	33	O/G Payal Ckt	Metered	Functional	4864836	61.39	0
7	33	O/G REWARI LINE	Metered	Functional	4865182	51.60	0
8	33	INDER PURI Ckt-1	Metered	Functional	4864865	65.86	0
9	33	33 kV 16 MVA TR-1	Metered	Functional	4864880	27.03	0
10	33	33 kV 16 MVA TR-2	Metered	Functional	5295128	36.75	0
11	33	INDER PURI Ckt-2	Metered	Functional	4864873	66.34	0
12	33	33KV Naraina Pandav Nagar feeder	Metered	Functional	5295124	28.85	0
13	33	Rohtak Road O/G 33 KV Rama Road	Metered	Functional	4865179	39.92	0
14	33	Rohtak Road O/G 33 KV Shahzada Bagh-2	Metered	Functional	4864795	5.83	0
15	33	Rohtak Road O/G 33 KV Rampura-1	Metered	Functional	5295125	79.19	0

S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
16	33	Rohtak Road O/G 33 KV Rampura-2	Metered	Functional	5295126	75.91	0
17	33	Rohtak Road T X 3	Metered	Functional	4865185	6.48	0
18	33	O/G 33 kV DLF Kirti Nagar	Metered	Functional	4864821	67.71	0
19	33	SMB T X 1	Metered	Functional	4864930	284.34	0
20	33	SMB T X 3	Metered	Functional	4864922	345.70	0
21	33	Subzi Mandi T X 2	Metered	Functional	5295137	289.88	0
22	33	O/G BG Rd-1 (To BSES)	Metered	Functional	4864831	-40.75	0
23	33	O/G BG Rd-2 (To BSES)	Metered	Functional	4864825	-67.65	0
24	33	SubziMandi T X 1	Metered	Functional	4864916	315.51	0
25	33	Wazir Pur 220 KV 33kV I/C No 1	Metered	Functional	4864903	278.85	0
26	33	Wazir Pur 220 KV 33kV I/C No 2	Metered	Functional	4864946	318.04	0
27	33	33 KV Peeragarhi CKT to CC ranibagh	Metered	Functional	4864901	77.09	0
28	33	Sudarshan Park 33KV Line-1	Metered	Functional	4864810	97.13	0
29	33	PUSA Ckt-I	Metered	Functional	4864843	44.96	0
30	33	PUSA Ckt-II	Metered	Functional	5295123	0.00	0
31	33	DMS BSES 33 kV Pandav Nagar	Metered	Functional	5295200	0.01	0
32	33	33 kV Vishal -1	Metered	Functional	4865158	-19.99	0
33	33	33 kV Vishal -2	Metered	Functional	4864816	-4.76	0
34	33	33 kV Mayapuri	Metered	Functional	4864808	-16.64	0
35	33	Rewari Line 33/11 Tr 1	Metered	Functional	4864822	-33.36	0
36	33	I/C from Rohtak road	Metered	Functional	4864866	36.23	0
37	33	Vishal (Imp/Exp)	Metered	Functional	4865149	-0.12	0
	33	Total				3043.69	0

> 11 kV Voltage feeder name & Energy Parameters

Table 27 : Met	ering Details	at 11	ΚV
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S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
1	11	LOCAL TR Narela	Metered	Functional	4902583	-0.20	0
2	11	LOCAL TR Gopalpur	Metered	Functional	4865091	-0.18	0
3	11	ISBT K.Gate (F/o No.II Mahavir Ice factory)	Metered	Functional	4865074	5.71	0
4	11	LOCAL TR K Gate	Metered	Functional	4902530	-0.11	0
5	11	BUS COUPLER	Metered	Functional	4902528	-0.01	0

S. No	Voltage Level	Feeder Name	Feeder Meter	Status of Meter	Meter S.No	Import MU	Export (MU)
6	11	Gopi Nath Bazaar (- ve)	Metered	Functional	5295192	-10.88	0
7	11	LOCAL TR naraina	Metered	Functional	4902602	-0.34	0
8	11	BUS COUPLER	Metered	Functional	4902559	0.58	0
9	11	LOCAL TR SMB	Metered	Functional	4902561	-0.55	0
10	11	LOCAL TR Rohini	Metered	Functional	4902597	-0.39	0
11	11	LOCAL TR Kanjawala	Metered	Functional	4865071	-0.30	0
12	11	LOCAL TR Subzimandi	Metered	Functional	4902594	-0.11	0
13	11	DCM Nuruddin Park	Metered	Functional	4902579	4.88	0
14	11	DCM chowk	Metered	Functional	4902585	4.85	0
15	11	Sadar-S/S	Metered	Functional	4865090	6.31	0
16	11	CSA colony	Metered	Functional	4865088	0.00	0
17	11	DMS BSES Shadi Kham Pur(Ranjeet nagar c. centre)	Metered	Functional	4902538	0.00	0
18	11	DMS BSES 69 NG Road via Breakfast-2	Metered	Functional	4902549	0.00	0
19	11	DMS BSES H Block Kirti Nagar	Metered	Functional	4902578	0.00	0
20	11	DMS BSES J Block Kirti Nagar	Metered	Functional		0.00	0
21	11	DMS BSES Philips	Metered	Functional	4902568	4.96	0
22	11	Tibia College	Metered	Functional	4902540	9.43	0
23	11	EAST PARK ROAD	Metered	Functional	4902520	8.77	0
24	11	Manak Pura	Metered	Functional	4902536	6.34	0
25	11	Ramesh Nagar-1	Metered	Functional	4902572	0.00	0
26	11	Bali Nagar	Metered	Functional	4902541	4.74	0
27	11	ESI Hospital and Rameshnagar-2	Metered	Functional	4902539	5.38	0
28	11	Moti Nagar Tanga stand	Metered	Functional	4902548	0.00	0
29	11	41 Rama Road	Metered	Functional	4865089	0.00	0
30	11	51 Rama Road	Metered	Functional	4902565	0.91	0
31	11	Nazafgarh Road	Metered	Functional	4902564	7.58	0
32	11	Moti Nagar Kiosk	Metered	Functional	4902591	3.77	0
33	11	Sylvania(Philips)	Metered	Functional	4902529	0.00	0
34	11	BSES NDPL (EX) ON BUS 1&2	Metered	Functional	4902577	1.37	0
35	11	NDPL BSES (EX) ON BUS 2&3	Metered	Functional	4902525	-0.03	0
36	11	Local Tr	Metered	Functional	4902543	-0.24	0
	11	Total				62.25	0

> Voltage feeder name & Energy Parameters

The voltage wise total no of exchange points & energy consumptions of all the voltage level & the percentage share of energy & feeders are given in the graph:

Table 28: Input Energy at Various Voltage Level

Voltage Level (kV)	Exchange Points	Input Energy (MU)
220kV	4	87.43
66kV	33	5818.19
33kV	37	3043.69
11kV	36	62.25



Figure 9: No of feeders





3.3 Unit wise Performance

Tata Power DDL has total five circles, twelve division & there are following category in which the energy consumption is divided Residential, agriculture, Commercial & others. The performance of all the division are shown in below table:

Name of Division	Consumer category	Total Number of connecti ons (Nos)	Total Connected Load (MW)	Input energy (MU)	Metered energy	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Residential	96876	142.27		216.94	216.94		151.13	100.44	66.46%	
	Agricultural	530	3.75		2.08	2.08		0.24	0.87	363.36%	
BADLI	Commercial/Industrial -LT	19852	194.53	572.64	248.63	248.63	66.39	309.28	337.36	109.08%	
	Commercial/Industrial -HT	54	13.69		20.70	20.70		18.10	24.60	135.89%	
	Others	711	7.39		17.90	17.90		10.52	32.89	312.75%	
Badli		118023	361.63	572.64	506.25	506.25	66.39	489.27	496.17	101.41%	10%
	Residential	63139	93.68		134.79	134.79		69.06	68.81	99.64%	
	Agricultural	1791	9.98		4.52	4.52		2.98	2.87	96.38%	
BAWANA	Commercial/Industrial -LT	21099	537.79	1211.33	857.69	857.69	161.48	1084.06	1103.45	101.79%	
	Commercial/Industrial -HT	34	8.81		18.24	18.24		22.13	22.29	100.74%	
	Others	567	9.54		34.60	34.60		29.30	30.37	103.66%	
Bawana		86630	659.80	1211.33	1049.85	1049.85	161.48	1207.53	1227.81	101.68%	12%
	Residential	108647	284.55	717.65	385.41	385.41	10.50	239.37	245.22	102.44%	
	Agricultural	2	0.01	CO.111	0.00	0.00	19.59	0.00	0.00	0.00%	

Table 29: Circle Wise Performance

Name of Division	Consumer category	Total Number of connecti ons (Nos)	Total Connected Load (MW)	Input energy (MU)	Metered energy	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial -LT	23900	102.43		88.82	88.82		132.84	133.50	100.50%	
	Commercial/Industrial -HT	67	47.63		57.20	57.20		99.92	101.42	101.50%	
	Others	1061	81.55		166.63	166.63		142.06	132.84	93.51%	
CIVIL LINES		133677	516.16	717.65	698.06	698.06	19.59	614.19	612.99	99.80%	3%
	Residential	116732	266.22		369.21	369.21		217.41	217.42	100.00%	
	Agricultural	0	0.00		0.00	0.00		0.00	0.00	0.00%	
KESHAV PURAM	Commercial/Industrial -LT	27213	238.83	776.54	278.43	278.43	43.568	375.33	382.21	101.83%	
	Commercial/Industrial -HT	127	40.41		68.88	68.88		81.36	81.28	99.90%	
	Others	811	8.67		16.45	16.45		13.54	8.90	65.74%	
KESHAV PURAM		144883	554.12	776.54	732.97	732.97	43.568	687.64	689.81	100.32%	5%
	Residential	172277	261.21		426.08	426.08		208.94	208.73	99.90%	
	Agricultural	1	0.04		0.02	0.02		0.00	0.00	0.00%	
MANGOL	Commercial/Industrial -LT	21989	93.85	596.14	100.52	100.52	32.29	138.05	138.95	100.65%	
	Commercial/Industrial -HT	23	9.27		17.23	17.23		19.61	20.68	105.47%	
	Others	926	6.95		19.99	19.99		17.23	19.93	115.65%	
		195216	371.32	596.14	563.84	563.84	32.29	383.83	388.29	101.16%	4%
	Residential	142130	322.65		441.85	441.85		265.72	265.43	99.89%	
MODEL	Agricultural	1	0.01	627 77	0.00	0.00	31.35	0.00	0.00	0.00%	
TOWN	Commercial/Industrial -LT	21526	105.84	<u></u>	93.78	93.78		138.36	138.51	100.11%	

Name of Division	Consumer category	Total Number of connecti ons (Nos)	Total Connected Load (MW)	Input energy (MU)	Metered energy	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial -HT	45	13.87		18.98	18.98		25.41	25.55	100.55%	
	Others	878	37.27		41.80	41.80		42.13	40.31	95.69%	
MODEL TOWN		164580	479.63	627.77	596.41	596.41	31.35	471.62	469.80	99.62%	5%
	Residential	113015	294.67		384.62	384.62		235.76	235.12	99.73%	
	Agricultural	2	0.01		0.01	0.01		0.00	0.00	0.00%	
MOTI NAGAR	Commercial/Industrial -LT	27125	219.48	717.87	207.57	207.57	35.88	306.08	307.83	100.57%	
NAGAN	Commercial/Industrial -HT	133	65.04		73.31	73.31		98.62	99.05	100.44%	
	Others	842	9.80		16.48	16.48		15.51	15.56	100.32%	
MOTI NAGAR		141117	588.99	717.87	681.99	681.99	35.89	655.97	657.56	100.24%	5%
	Residential	102214	157.62		234.73	234.73		80.31	129.40	161.12%	
	Agricultural	2314	18.06		10.40	10.40		6.76	5.94	87.90%	
NARELA	Commercial/Industrial -LT	17558	336.73	1015.34	539.70	539.70	113.83	700.56	689.56	98.43%	
	Commercial/Industrial -HT	152	40.44		88.67	88.67		113.17	106.56	94.16%	
	Others	1202	15.45		28.01	28.01		31.92	13.48	42.23%	
Narela		123440	568.30	1015.34	901.51	901.51	113.83	932.72	944.94	101.31%	10%
	Residential	100533	339.20		424.35	424.35		283.04	282.02	99.64%	
5,744	Agricultural	0	0.00		0.00	0.00		0.00	0.00	0.00%	
PITAM PURA	Commercial/Industrial -LT	16990	106.61	602.66	96.36	96.36	26.18	141.29	141.86	100.40%	
	Commercial/Industrial -HT	78	37.07		40.74	40.74		54.30	55.23	101.71%	

Name of Division	Consumer category	Total Number of connecti ons (Nos)	Total Connected Load (MW)	Input energy (MU)	Metered energy	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Others	786	7.75		15.04	15.04		10.93	11.31	103.49%	
PITAM PURA		118387	490.64	602.66	576.48	576.48	26.18	489.56	490.42	100.17%	4%
	Residential	196237	515.27		702.94	702.94		422.86	422.24	99.85%	
	Agricultural	0	0.00		0.00	0.00		0.00	0.00	0.00%	
ROHINI	Commercial/Industrial -LT	29233	121.57	1014.10	106.04	106.04	32.29	157.30	157.44	100.09%	
	Commercial/Industrial -HT	66	44.38		51.06	51.06		68.39	72.25	105.65%	
	Others	1768	51.61		121.77	121.77		106.26	106.96	100.66%	
ROHINI		227304	732.83	1014.10	981.81	981.81	32.29	754.81	758.88	100.54%	3%
	Residential	124016	163.52	373.88	272.05	272.05		126.82	126.54	99.77%	
	Agricultural	63	0.34		0.20	0.20		0.11	0.10	94.88%	
KIRARI	Commercial/Industrial -LT	15285	46.15		47.02	47.02	38.98	66.23	65.57	99.00%	
	Commercial/Industrial -HT	3	1.24		0.47	0.47		0.72	0.72	100.27%	
	Others	466	6.34		15.15	15.15		18.33	19.41	105.87%	
KIRARI		139833	217.59	373.88	334.90	334.90	38.98	212.21	212.33	100.06%	10%
	Residential	205767	343.20	-	517.80	517.80		270.87	270.47	99.85%	_
	Agricultural	80	0.48		0.43	0.43		0.18	0.18	97.95%	
SHALIMAR BAGH	Commercial/Industrial -LT	23905	96.30	724.20	103.81	103.81	37.83	143.89	143.34	99.62%	
BAGH	Commercial/Industrial -HT	81	35.24		43.15	43.15		53.02	56.58	106.72%	
	Others	1108	9.64		21.17	21.17		19.46	20.30	104.32%	
SHALIMAR BAGH		230941	484.86	724.20	686.37	686.37	37.84	487.42	490.87	100.71%	5%

Name of Division	Consumer category	Total Number of connecti ons (Nos)	Total Connected Load (MW)	Input energy (MU)	Metered energy	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Residential	1541583	3184.05		4510.76	4510.76		2571.29	2571.83	100.02%	
	Agricultural	4784	32.66		17.66	17.66		10.27	9.97	97.07%	
	Commercial/Industrial -LT	265675	2200.11	8950.12	2768.38	2768.38	639.68	3693.27	3739.58	101.25%	
	Commercial/Industrial -HT	863	357.09		498.63	498.63		654.75	666.21	101.75%	
	Others	11126	251.95]	515.00	515.00]	457.18	452.27	98.92%]
		1824031	6025.86	8950.12	8310.43	8310.43	639.68	7386.76	7439.86	100.72%	6.48%

3.4 Energy Conservation measures already taken & proposed for Future

Energy Conservation measures already taken

Tata Power DDL has done various energy conservation to reduce the energy consumptions in FY-2020-21, they have replaced the old inefficient AC's, with energy efficient AC's, all inefficient old fan with energy efficient BLDC Fan's & Non-conventional light with energy efficient light (LED's) etc. The total quantity is shown in table:

 Table 30: Energy Conservation Measures Implemented – FY 2020-21

DSM Program	FY	Quantity (Nos)	Load reduction (MW)	Energy Saving (MU)	CO₂ reducti on (mTon)
AC Replacement Program	FY-20-21	1350	0.63	1.36	1.1
BLDC Ceiling Fan	FY-20-21	30	0	0	0
LED Lighting Scheme	FY-20-21	58242	1	2	2

> Energy Conservation measures Proposed for Future

Table 31: Proposed Energy Conservation Measures – FY-2021-22

DSM Program	FY	Quantity (Nos)	Load reduction (MW)	Energy Saving (MU)	CO2 reduction (mTon)
AC Replacement Scheme	FY-21-22	2148	1	1.64	1.3
BLDC Ceiling Fan	FY-21-22	620	0.03	0.12	0.1
LED Lighting Scheme	FY-21-22	99006	1	2	2
Behavioural Demand Response (BDR)	FY-21-22	2044	7.69	-	-

3.5 Critical Analysis

I. Discom Parameter for evaluation of performance

- Evaluation of Discom performance in Delhi is being done on basis of yearly Distribution loss & AT & C loss targets.
- Aggregate Technical and Commercial (AT & C) losses is the appropriate index used in a situation where the system is associated with losses which occur due to various reasons.

• AT & C losses are the difference between energy injected into the system and the energy for which payment is made. It is the aggregate of the Transmission and Distribution (T and D) losses and loss due to non-realization of payable demand.

Transmission & Distribution losses (T&D losses)

T& D Losses = {1- (Total energy Billed/ Total energy Input in the system)} x 100

Aggregate technical and commercial losses (AT&C losses)

AT&C Losses = {1- (Billing Efficiency x Collection Efficiency) } x 100

Where

Billing efficiency= Total unit Billed/ Total unit Inputs

Collection efficiency = Revenue collected / Amount Billed

The overall average T & D Losses & AT & C Losses of the Tata Power DDL, are 7.15% & 6.48% which are significantly less than the average of all India figure which stands at close to 20%.

II. DISCOM T & D Losses computation approach

Transmission losses = Total Energy Purchased - Total Energy Sale - Total Input

Procedure followed

- Substation wise/feeder wise Monthly Input energy details are collected through main and check meters at various exchange points.
- The details of Input energy are then matched with the meters installed at Tata Power-DDL periphery
- Billed units are calculated by cumulating the sum of energy recorded by consumer meters.
- The difference in input energy and billed units is considered as T&D loss.
- 3.6 Inclusion & Exclusions

Not applicable

3.7 Detailed Formats to be annexed

- Month wise input and billed energy.
- T&D losses computation approach.
- Un-metered energy consumption approach.

- Internal field audit report of input and billed energy.
- Performance of discom on distribution losses.
- Outcome of internal filed audit.
- Measures taken to reduce losses and improve losses.
- Zone/circle/Division/Sub-division wise loss computation.
- Reduction achieved, measures adopted for energy conservation and quantity of energy saved.
- Report on distribution losses.
- List of measuring equipment and calibration certificates and frequency of calibration.
- Write up on energy scenario.
- Generation via solar, DG and any other source and share of energy consumption.
- Net Input Energy Computation Details.
- Category wise consumer's details.
- Category wise consumers connected load and % load
- Bifurcation of Billed Energy (metered billed energy and unmetered billed energy).
- Disconnected consumers details
- Loss Analysis report
- Write up on procedure followed technical loss analysis.

IV Note of the EA/EM along with queries & replies to data gaps

Designated Consumer has T&D losses 7.15% & AT&C losses 6.48%. Various schemes have been implemented by DC to reduce losses which are shown in annual report and attached in the annexure of report.

DC is having the GIS software which is provided for verification. Also supporting documents for the same has been provided which is attached in annexure of report.

There is 100% metering available at feeder and consumer level but limited metering available at distribution transformers of 250 kVA and below. Expanding metering infrastructure for all DTs would require intensive capital expenditure and with insignificant improvement margins, therefore, the Discom has requested for exemption for metering at DTs rated 250 kVA & below.

V. Annexures

5.1 Introduction to verification firm

We A-Z Energy Engineers Pvt. Ltd. provides consultancy services in the areas of energy management while conducting Energy Audits in all segments of energy input. For conducting Detailed Energy Audits, Energy Audits under PAT (Mandatory and M&V), we have a pool of experienced BEE Accredited & Certified Energy Auditors, Electrical Engineers, Mechanical Engineers and Technicians having experience of more than 30 years. The Energy Audits is being carried out with sophisticated instruments namely Power-Analyzer, Flue Gas Analyzer, Ultra-sonic flow meter, Techo-meter, Anemometer, Hego-Meter, Digital Thermometer, Thermographic Camera's, Lux Meter, Leak detectors. Laser gun etc. etc.

Objective

- To carry out and take ahead the business of Energy Efficiency and climate change including promotion and dissemination of energy efficient product and services.
- To disseminate the culture of safe manufacturing and Services through safety audits and trainings.
- To facilitate implementation of energy efficiency projects for Demand Side Measures including optimization of energy mix for industries, railways, building sector, lighting, HVAC etc.
- > To facilitate implementation of schemes, programs and policies of central and state governments or its agencies applicable for enhancing energy efficiency.
- To provide consultancy services in the field of Clean Development Mechanism and Renewable Energy Certificate projects, Carbon Markets, Demand Side Management, Energy Efficiency, Climate change and other related areas.
- To identify and impart training to build the capacity of stakeholders in the field of Energy Efficiency and safe practices in Industry.
- To act as a resource center in the field of Energy Efficiency and take up the activities of Capacity Building Training and other related activities.

Vision

- To make use of energy sustainable.
- To create and sustain markets for energy efficiency in India
- To facilitate energy efficiency improvement through private sector investments in energy efficiency.

Mission

- To assist all stakeholders in implementing energy efficiency and realizing savings.
- To create awareness regarding merits of improvement of energy efficiency and safety practices in private and public sector.

We are Accredited Energy Auditor from BEE, also empanelled by BEE for PAT M & V Audits and Mandatory Energy Audit Projects. A-Z Energy Engineers Pvt. Ltd. has been short listed by Bureau of Energy Efficiency as an Energy Service Company (ESCO), it is an ISO 9001:2015 certified company. We have completed more than 1260 nos. projects, including 52 PAT projects

Dr. P.P. Mittal the Founder Director of A-Z Energy Engineers Pvt. Ltd. was awarded by Govt. of India in National Energy Conservation Award 2013, 2015 & 2016. MSME Ministry Govt. of India awarded "Best Services Providing Company" it was awarded by Hon'ble Prime Minister of India. Dr. P.P. Mittal, also received the "Energy Engineer" of South-East Asia Sub-continent award 2016 & 2018 at Washington DC & Charlotte USA respectively. Haryana Govt. also recognized the services of Dr. P.P. Mittal, Ph.D, MBA, Post Graduate Diploma in Power Distribution, Chartered Engineer, Leed Auditor - Indian Green Building Council Hyderabad, Accredited Energy Auditor (AEA-011).

Accolades

- Stand first in MSME Micro Services Award 2013 and award received from Hon;ble Prime Minister of India on 18/10/2016 at Ludhaiana. This award consist <u>Trophy</u>, Certifiate & cash prize of Rs. 3 lacs.
- Reveived prestigious "Legend in Energy" Award for Asian Sub-contitnet from AEE, Atlanta at Wahington, DC on 20/09/2016.
- Received Award from AEE Atlanta at Washington citing as "<u>Energy Engineer–2016 & 2018</u>" of South-East Aisa sub-continent
- Received Letter of appreciateion from Chief Minister of Haryana
- Winner Haryana State Energy Conservation Award 2012 with Certificate & Rs. 50,000/-
- National Energy Conservation Award 2013
- National Energy Conservation Award 2015
- National Energy Conservation Award 2016
- Appreciation from Sh. Kalraj Misra, Hon'ble Minister of State for MSME.
- Recevied Appreciation from Sh. Haribahi Parathibhai Chaudhary, Minister of State for MSME, Govt. of India
- Recevied Appreciation from Sh. K.K. Jalan, IAS Seecretary, MSME
- Received appcreciation from Sh. Devender Singh, IAS, Secretary Power, Haryana
- Recevied Appreciation from Institute of Engineers on Energy Day
- Received Appreciation from HAREDA, Chandigarh
- Received feedback & appreciation from 400 units including CERC, UNDP & CAG

I. Name of the Firm

Name of Accredited Firm	Accredited Energy Auditor
A-Z Energy Engineers Pvt. Ltd.	Dr. P P Mittal :– AEA 0011
Darya Ganj New Delhi-110002	Registration Number:– EmAEA-0024

II. Composition of Team

Sr. No.	Name	Qualification	EM/EA/AEA/EmAEA Registration No	Experience (In Years)/ Sector						
1	Dr. P.P Mittal	Ph.D, MBA	AEA-011	+45 Years						
Sector Expert										
2	Mr. Vipon Chanda	DISCOM Sector	-	30 Years						
		Team Membe	ers							
3	Mr. V.P Sharma	B. Tech	EA- 10061	32 Years						
4	Mr. Alok Kumar Tiwari	Team Member	EM-300137	6 Years						
5	Mr. Pankaj Chauhan	Team Member	-	8 Years						

III. Registration No.

EmAEA - 0024

IV. Undertaking from EmAEA

We A-Z Energy Engineers Pvt. Ltd. hereby confirms that our AEA and all other audit team members mentioned in this report has conduct mandatory annual energy audit (Accounting) for Tata Power Delhi Distribution Limited (hereafter called as DC). We also confirm that none of our team member was in the employment of the DC within the previous four years, and was not involved in undertaking energy audit of the DC within the previous four years.

For A-Z Energy Engineers Private Limited

Authorised Signatory Director

(Dr. P.P. MITTAL) Director

5.2 Minutes of Meeting with the Discom Firm.

Minutes of Meeting with DISCOM team

DISCOM:

TATA Power Delhi Distribution Limited

BEE Accredited Energy Auditor: A-Z Energy Engineers Private Limited

Subject: Annual Energy Audit Report of Tata Power DDL DISCOM for FY 2020-21.

Tata Power DDL:

A-Z Energy Engineers Pvt. Ltd. 1. Mr. P P Mittal

- Mr. H C Sharma
 Mr. Dhruba Banerjee
- 3. Ms. Sameeksha Raina
- 4. Mr. Akshay Kumar Gera

With reference to BEE regulation No. 18/1/BEE/DISCOM/2021- the Bureau of Energy Efficiency (Manner and Intervals for Conduct of Energy Audit (Accounting) in Electrical Distribution companies) Regulation, 2021, joint meetings between Tata Power-DDL Energy Accounting team and A-Z Energy Engineers Pvt. Ltd. were held on 21st April, 26th April and 5th May 2022. Meetings involved detailed discussion on data filled in sector specific proforma document, scope of work including activities to be undertaken for completion of Annual Energy Audit Report of DISCOM for FY 2020-2021. Following points were discussed/reviewed during the meetings:

- 1. Annual Energy Accounting pro-forma provided by the DISCOM.
- 2. DISCOM has provided documents for purchase energy, input energy, billed energy, billed amount, collected amount and AT&C loss.
- DISCOM has provided petition submitted to Delhi Electricity Regulatory Commission for True up and factsheets of GIS for number of consumers, number of distribution transformers, number of circles and distribution network length.
- 4. The auditor verified the purchase energy, input energy, billed energy, billed amount, collected amount and AT&C loss.

- 5. The auditor verified the category wise number of consumers, number of distribution transformers, number of circles and distribution network line length based on GIS data.
- Verified T&D losses, AT&C losses & Collection Efficiency for the Discom for FY 20-21 was 7.15 %, 6.48 % & 101 % respectively.
- 7. All data which are being maintained by DISCOM has been collected as per the BEE specified energy accounting format and sample measurements have been completed successfully.

Signed on behalf of: Tata Power DDL

James Brezz

Signed on Behalf of: A-Z Energy Engineers Pvt. Ltd.



5.3 Check List prepared by EmAEA

List of documents required are:

- Month wise input and billed energy.
- T&D losses computation approach.
- Un-metered energy consumption approach.
- Internal field audit report of input and billed energy.
- Performance of dicsom on distribution losses.
- Outcome of internal filed audit.
- Measures taken to reduce losses and improve losses.
- Zone/circle/Division/Sub-division wise loss computation.
- Reduction achieved, measures adopted for energy conservation and quantity of energy saved.
- Report on distribution losses.
- List of measuring equipment's and calibration certificates and frequency of calibration.
- Write up on energy scenario.
- Generation via solar, DG and any other source and share of energy consumption.
- Net Input Energy Computation Details.
- Category wise consumer's details.
- Category wise consumers connected load and % load
- Bifurcation of Billed Energy (metered billed energy and unmetered billed energy).
- Disconnected consumers details
- Loss Analysis report
- Write up on procedure followed Technical loss analysis.

5.4 Brief Approach, Scope & Methodology for audit

Scope of annual energy accounting is as per guidelines and notification from BUREAU OF ENERGY EFFICIENCY, New Delhi dated 6th October, 2021



5.5 Infrastructure Details

Table 32: Infrastructure details

		Form-Details o	f Input Infrastru	ıcture	
1	Parameters	Total	Covered during in audit	Verified by Auditor in Sample Check	Remarks (Source of data)
i	Number of circles	5			Organizational Structure
ii	Number of divisions	12			Organizational Structure
iii	Number of sub- divisions	37			Organizational Structure
iv	Number of feeders	1280			GIS database
v	Number of DTs	7248			GIS database
vi	Number of consumers	1824031			SAP System
2	Parameters	66kV and above	33kV	11/22kV	LT
a. i.	Number of conventional metered consumers	0	0	0	1569119
ii	Number of consumers with 'smart' meters	0	0	0	210285
iii	Number of consumers with 'smart prepaid' meters	0	0	0	0
lv	Number of consumers with 'AMR' meters	4	2	1012	43601
V	Number of consumers with 'non-smart prepaid' meters	0	0	0	5077
Vi	Number of unmetered consumers	0	0	0	
vii	Number of total consumers	4	2	1012	1823013
b.i.	Number of conventionally metered Distribution Transformers	0	0	0	252
li	Number of DTs with communicable meters	0	0	0	3868
lii	Number of unmetered DTs	0	0	0	474
lv	Number of total Transformers	0	0	0	4594
c.i.	Number of metered feeders	134	108	1280	15539

	Form-Details of Input Infrastructure										
li	Number of feeders with communicable meters	134	108	1280	0						
lii	Number of unmetered feeders	0 0 0 0									
١v	Number of total feeders	134	108	1280	15539						
d.	Line length (ct km)			1979.1							
e.	Length of Aerial Bunched Cables	5556.2									
f.	Length of Underground Cables			5832							

5.6 Power Purchase details

Table 33: Power Purchase Details

Name of Generation Station	Generation Capacity (In MW)	Type of Station Generation (Based- Solid (Coal ,Lignite)/Liquid/Ga s/Renewable (biomass- bagasse)/Others)	Type of Contract (in years/months/day s)	Type of Grid (Intra-state/Inter- state)
NTPC Aravali Jhajjar	613.79	Coal	25 Years	Inter State
NTPC Dadri NCTPS(Th.) Stage II	10	Coal	25 Years	Inter State
NTPC Dadri NCTPS(Th) Stage I	9.98	Coal	25 Years	Inter State
NTPC Kahalgaon II	48.27	Coal	25 Years	Inter State
NTPC Singrauli STPS	46	Coal	30 Years	Inter State
NTPC Rihand STPS-II	39	Coal	25 Years	Inter State
NTPC Rihand STPS-I	31	Coal	28 Years	Inter State
NTPC Dadri GPS	28	Gas	25 Years	Inter State
NTPC Auriya GPS	22	Gas	35 Years	Inter State
NTPC Kahalgaon I	15.64	Coal	25 Years	Inter State
NTPC ANTA GPS	14	Gas	30 Years	Inter State
NTPC Unchahaar-II TPS	14	Coal	25 Years	Inter State
NTPC Unchahaar-III TPS	9	Coal	25 Years	Inter State
NTPC Unchahaar-I TPS	7	Coal	27 Years	Inter State
NTPC Farakka	7	Coal	25 Years	Inter State
NTPC Singrauli Small Hydro	2	RE	35 Years	Inter State
NHPC Dulhasti	15	Hydro	35 Years	Inter State
NHPC Parbati III	20	Hydro	40 Years	Inter State
NHPC Bairasiul	6	Hydro	25 Years	Inter State
NHPC Tanakpur	3.15	Hydro	35 Years	Inter State
NHPC Chamera -I	13	Hydro	35 Years	Inter State
NHPC Chamera-II	12	Hydro	35 Years	Inter State
NHPC Chamera-III	9	Hydro	35 Years	Inter State
NHPC URI-I	16	Hydro	35 Years	Inter State
NHPC Uri-II	10	Hydro	40 Years	Inter State
NHPC Dhauliganga	11	Hydro	35 Years	Inter State
NHPC Sewa II	5	Hydro	35 Years	Inter State
Narora APS	14	Nuclear	43 Years	Inter State
RAPP 5&6	17	Nuclear	43 Years	Inter State
CLP Jhajjar	132	Coal	25 Years	Inter State
Maithon Power Limited	299.98	Coal	30 Years	Inter State
SECI Solar (Renewable)	20	RE	35 Years	Inter State
Tala HEP	9	Hydro	35 Years	Inter State

Name of Generation Station	Generation Capacity (In MW)	Type of Station Generation (Based- Solid (Coal ,Lignite)/Liquid/Ga s/Renewable (biomass- bagasse)/Others)	Type of Contract (in years/months/day s)	Type of Grid (Intra-state/Inter- state)	
CTPS 7 & CTPS 8	92	Coal	25 Years	Inter State	
MTPS 6	31	Coal	25 Years	Inter State	
Sasan	27 MW to 136 MW	Coal	25 Years	Inter State	
Nathpa Jhakri HPS	44	Hydro	35 Years	Inter State	
Tehri HPP	19	Hydro	35 Years	Inter State	
Koteshwar HEP	12	Hydro	35 Years	Inter State	
Pragati- I	63.61	Gas	25 Years	Intra State	
Pragati III	298	Gas	25 Years	Intra State	
IPGCL GT	82	Gas	20 Years	Intra State	
Delhi Municipal Solid Waste Solutions Ltd. (Bawana) (Renewable)	7	RE	20 Years	Intra State	
Nanti Hydro Power Pvt. Ltd. (Renewable)	13.5	RE	20 Years	Inter State	
Suryakanta Hydro energies Pvt. Ltd. (Renewable)	14	RE	20 Years	Inter State	
Timarpur Okhla Waste management co. Ltd. (Renewable)	6	RE	20 Years	Intra State	
Sun Edison	180	RE	20 Years	Inter State	
Taranda	12.65	RE	20 Years	Inter State	
SECI WIND	50	RE	25 Years	Inter State	

5.7 Category of service details

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Residential	96876	142.27		216.94		151.13	100.44	0.66	
	Agricultural	530	3.75		2.08		0.24	0.87	3.63	
BADLI	Commercial/Industrial- LT	19852	194.53	572.64	248.63	66.39	309.28	337.36	1.09	
	Commercial/Industrial- HT	54	13.69		20.70	_	18.10	24.60	1.36	
	Others	711	7.39		17.90		10.52	32.89	3.13	
Badli		118023	361.63	572.64	506.25	66.39	489.27	496.17	1.01	0.10
Baun	Residential	63139	93.68		134.79	161.48	69.06	68.81	1.00	
	Agricultural	1791	9.98		4.52		2.98	2.87	0.96	
BAWANA	Commercial/Industrial- LT	21099	537.79	1211.33	857.69		1084.06	1103.45	1.02	
	Commercial/Industrial- HT	34	8.81		18.24		22.13	22.29	1.01	
	Others	567	9.54		34.60		29.30	30.37	1.04	
Bawana		86630	659.80	1211.33	1049.85	161.48	1207.53	1227.81	1.02	0.12
	Residential	108647	284.55		385.41		239.37	245.22	1.02	
	Agricultural	2	0.01	717 655	0.00	19 59	0.00	0.00	0.00	
	Commercial/Industrial- LT	23900	102.43	111.000	88.82	10.00	132.84	133.50	1.01	

Table 34: Category of service details

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Commercial/Industrial- HT	67	47.63		57.20		99.92	101.42	1.02	
	Others	1061	81.55		166.63		142.06	132.84	0.94	
CIVIL LINES		133677	516.16	717.66	166.63 698.06 19.59		614.19	612.99	1.00	0.03
	Residential	116732	266.22		369.21 0.00 278.43 68.88 16.45		217.41	217.42	1.00	
	Agricultural	0	0.00	776.54	0.00		0.00	0.00	0.00	
KESHAV	Commercial/Industrial- LT	27213	238.83		278.43	43.57	375.33	382.21	1.02	
PURAM	Commercial/Industrial- HT	127	40.41		68.88		81.36	81.28	1.00	
	Others	811	8.67		16.45		13.54	8.90	0.66	
KESHAV PURAM		144883	554.12	776.54	732.97	43.57	687.64	689.81	1.00	0.05
	Residential	172277	261.21		426.08		208.94	208.73	1.00	
PURAM	Agricultural	1	0.04		0.02		0.00	0.00	0.00	1
MANGOL	Commercial/Industrial- LT	21989	93.85	596.14	100.52	32.29	138.05	138.95	1.01	
PURI	Commercial/Industrial- HT	23	9.27		17.23		19.61	20.68	1.05	
	Others	926	6.95		19.99		17.23	19.93	1.16	
		195216	371.32	596.14	563.84	32.29	383.83	388.29	1.01	0.04
	Residential	142130	322.65		441.85		265.72	265.43	1.00	
	Agricultural	1	0.01		0.00		0.00	0.00	0.00	
MODEL TOWN	Commercial/Industrial- LT	21526	105.84	627.77	93.78	31.35	138.36	138.51	1.00	
	Commercial/Industrial- HT	45	13.87		18.98		25.41	25.55	1.01	

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Others	878	37.27		41.80		42.13	40.31	0.96	
MODEL TOWN		164580	479.63	627.77	596.41	31.35	471.62	469.80	1.00	0.05
	Residential	113015	294.67		384.62	35.89	235.76	235.12	1.00	
Name of Division O MODEL TOWN O MODEL TOWN Re Aq MOTI NAGAR Re Aq MOTI NAGAR Re Aq MOTI NAGAR Re Aq MOTI NAGAR Re Aq MOTI OI Re Aq MOTI OI Re Aq MOTI OI Re Aq MOTI OI Re Aq NARELA L1 OI Narela PITAM PURA Ri Ci Ci Ci NARELA Ci Ci Ci Ci Narela Ri Ci Ci Ci Ci Ci	Agricultural	2	0.01		0.01		0.00	0.00	0.00	
MOTI	Commercial/Industrial- LT	27125	219.48	717.88	207.57		306.08	307.83	1.01	1
NAGAR -	Commercial/Industrial- HT	133	65.04		73.31		98.62	99.05	1.00	
	Others	842	9.80		16.48		15.51	15.56	1.00	
MOTI NAGAR		141117	588.99	717.88	681.99	35.89	655.97	657.56	1.00	0.05
NAGAR	Residential	102214	157.62		234.73		80.31	129.40	1.61	
	Agricultural	2314	18.06		10.40		6.76	5.94	0.88	
NARELA	Commercial/Industrial- LT	17558	336.73	1015.34	539.70	113.83	700.56	689.56	0.98	1
	Commercial/Industrial- HT	152	40.44		88.67		113.17	106.56	0.94	1
	Others	1202	15.45		28.01		31.92	13.48	0.42	
Narela		123440	568.30	1015.34	901.51	113.83	932.72	944.94	1.01	0.10
	Residential	100533	339.20		424.35		283.04	282.02	1.00	
	Agricultural	0	0.00		0.00		0.00	0.00	0.00	
PITAM PURA	Commercial/Industrial- LT	16990	106.61	602.66	96.36	26.17	141.29	141.86	1.00	
	Commercial/Industrial- HT	78	37.07		40.74		54.30	55.23	1.02	
	Others	786	7.75		15.04		10.93	11.31	1.03	

Name of Division	Consumer category	Total Number of connections (Nos)	Total Connected Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
PITAM PURA		118387	490.64	602.66	576.48	26.17	489.56	490.42	1.00	0.04
	Residential	196237	515.27		702.94		422.86	422.24	1.00	
	Agricultural	0	0.00		0.00		0.00	0.00	0.00	
ROHINI	Commercial/Industrial- LT	29233	121.57	1014.10	106.04	32.29	157.30	157.44	1.00	
	Commercial/Industrial- HT	66	44.38		51.06		68.39	72.25	1.06	
	Others	1768	51.61		121.77		106.26	106.96	1.01	
ROHINI		227304	732.83	1014.10	981.81	32.29	754.81	758.88	1.01	0.03
	Residential	124016	163.52		272.05		126.82	126.54	1.00	
	Agricultural	63	0.34		0.20	38.98	0.11	0.10	0.95	
KIRARI	Commercial/Industrial- LT	15285	46.15	373.88	47.02		66.23	65.57	0.99	
	Commercial/Industrial- HT	3	1.24		0.47		0.72	0.72	1.00	
	Others	466	6.34		15.15		18.33	19.41	1.06	
KIRARI		139833	217.59	373.88	334.90	38.98	212.21	212.33	1.00	0.10
	Residential	205767	343.20		517.80		270.87	270.47	1.00	
	Agricultural	80	0.48		0.43		0.18	0.18	0.98	
	Commercial/Industrial- LT	23905	96.30	724.20	103.81	37.83	143.89	143.34	1.00	
DAGH	Commercial/Industrial- HT	81	35.24		43.15		53.02	56.58	1.07	
	Others	1108	9.64		21.17		19.46	20.30	1.04	
SHALIMAR BAGH		230941	484.86	724.20	686.37	37.83	487.42	490.87	1.01	0.05

Name of Division	Consumer category	Total Number of connections (Nos)	er Total Connected Is Load (MW)	Input energy (MU)	Total energy	T&D loss (MU)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
	Residential	1541583	3184.05		4510.76		2571.29	2571.83	1.00	
	Agricultural	4784	32.66		17.66		10.27	9.97	0.97	
	Commercial/Industrial- LT	265675	2200.11	8950.12	2768.38	639.68	3693.27	3739.58	1.01	
	Commercial/Industrial- HT	863	357.09		498.63		654.75	666.21	1.02	
	Others	11126	251.95		515.00		457.18	452.27	0.99	
		1824031	6025.86	8950.12	8310.43	639.68	7386.76	7439.86	1.01	0.06

1 Name of the DISCOM 2 i) Year of Establishment 3 DISCOM's Contact details & Address ii City/Town/Village iii District iv Telephone i Company's Chief Executive Name ii Designation ii Designation iii Address iv State vi State vi State vi State vi State vi State vi District vi State vi District vi State vi District vi District vi District vi District vi District <td< th=""><th>TATA POWER DELHI DI 2002 2002 Joint ve New D Dell Dellhi 011-66112202 Fax</th><th>ISTRIBUTION LIMITED</th></td<>	TATA POWER DELHI DI 2002 2002 Joint ve New D Dell Dellhi 011-66112202 Fax	ISTRIBUTION LIMITED
2 i) Year of Establishment 3 DISCOM's Contact details & Address ii) Government/Public/Private 3 DISCOM's Contact details & Address iii) District Etephone 4 Registered Office iii District iv Telephone 4 Registered Office iii Designation iii Designation iii Designation iii Designation v District	2002. 2002. Joint ve New D Delhi Delhi Delhi Delhi Drin Delhi Drin	-03
ii) Government/Public/Private 3 DISCOM s Contact details & Address ii City/Town/Village iii District iii Bistrict iii State iv Telephone 4 Registered Office 1 Company's Chief Executive Name 1 Company's Chief Executive Name 1 Company's Chief Executive Name 1 Designation 1 Designation 1 Designation 1 Designation 1 Designation 1 Designation 1 Telephone 1 District 1 Designation 1 District 1 District 1 Designation 1 Designation 1 Designation 1 District 1 District 1 District 1 District 1 District 1 Designation 1 District 1 Designation 1 District 1 Designation 1 District	Joint ve Joint ve New D Delhi Delhi Delhi 1Pin 011-66112202 Fax	~~
3 DISCOM's Contact details & Address i City/Town/Village iii District iiv Telephone 4 Registered Office 4 Registered Office 1 Company's Chief Executive Name 1 Company's Chief Executive Name 1 Designation 1 Designation 1 Designation 1 Designation 1 State 1 Designation 1 State 1 State 1 Telephone 1 State 1 District 1 District 1 District 1 District 1 District 1 District 1 Designation 1 Designation 1 Designation 1 District 1 Designation 1 District 1 District 1 Designation 1 Designation 1 Designation 1 Designation	Della Dellii Dellii Dell 011-66112202 Fax	onhtre
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iv Telephone 4 Registered Office 1 Company's Chief Executive Name 11 Designation 11 Designation 11 Designation 11 Address 11 Address 12 City/Town/Village 13 Address 14 State 15 State 16 State 17 Discoms) 18 Discoms) 19 Discoms) 11 Designation 11 Designation 11 Designation 11 Designation 11 Designation 11 Designation 11 Telephone 11 Designation	011-66112202 Fax	110000
4 Registered Office ii Company's Chief Executive Name iii Designation ii Designation v City/Town/Village v District v District ii State ii Telephone ii Telephone ii Discoms) ii Discoms) ii Designation ii Discoms) v City/Town/Village v City/Town/Village v Discoms) ii Address v District v D	VD.T	4000T1
i Company's Chief Executive Name ii Designation ii Address v City/Town/Village v District v Nodal Officer Details* n Nodal Officer Mame (Designated at District n DisCOM's) n DisCOM's) n DisCOM's) n District n Dist		60995/7-110
ii Designation iii Address v City/Town/Village v District ii State Nodal Officer Details* Nodal Officer Name (Designated at DISCOM's) ii Designation ii Address v City/Town/Village v District i State ii Telephone ii Telephone ii Telephone ii Telephone ii EATEM Revistration No.	Canoch Sri	initiation.
iii Address iv City/Town/Village v District iii Telephone ii DiSCOM's) Nodal Officer Name (Designated at DISCOM's) ii Designation ii Addross v City/Town/Village v District ii Telephone ii Telephone ii Telephone ii Telephone ii District Name Kanager Details*		there is a second s
iv City/Town/Village vi District vi State ii Telephone S Nodal Officer Details* Nodal Officer Name (Designated at DISCOM's) ii Designation ii Address v City/Town/Village v District v District ii Telephone ii Telephone ii Telephone ii Designation ii Besignation ii Besignation ii EA/EM Revistration No	NDPL House. Hidson I mee	Kinemar Jama Dallet on
v District vi State ii Telephone 5 Nodal Officer Details* 6 Nodal Officer Name (Designated at DISCOM's) 11 Designation 12 Designation 13 Address v City/Town/Village v District n State 11 Telephone 12 District 13 Address v District v District n State 11 Telephone 11 Designation 11 Designation	Delhi DA	man campower campo
 state fil Telephone Nodal Officer Details* Nodal Officer Name (Designated at DISCOM's) in Designation in Address v City/Town/Village v District in Telephone ii Telephone ii Telephone ii Telephone ii Telephone ii EATEM Revistration No. 		CIB Nagar
 Telephone Nodal Officer Details* Nodal Officer Name (Designated at DISCOM's) DISCOM's) Designation Addross Addross City/Town/Village Matter State State Energy Manager Details* Designation EA/EM Revistration No. 	Dalhi III	111111
 Nodal Officer Details* Nodal Officer Name (Designated at DISCOM's) DiSCOM's) Designation Address City/Town/Village District State Energy Manager Details* Designation Designation 	011-66113900	600011
i Nodal Officer Name (Designated at DISCOM's) II Designation ii Address v City/Town/Village v District ii Telepitone ii Telepitone ii Designation ii Designation ii EAJEM Revistration No.	XP T TATTETAX LEA	011-2/468(M
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li Designation li Address v City/Town/Village v District State i Elephone i Telephone i Telephone i Designation i EA/EM Revistration No	Mr. HCSI	harma
ii Address v City/Town/Village District State ii State b Energy Manager Details* i Designation i EA/EM Revistration No.	Constal M	
v City/Town/Village v District i State ii Telephone b Energy Manager Details* i EA/EM Revistration No.	NDPL House Hindson Lines 1	Kinosum Cama Dalia ad
 District State State Energy Manager Details* Name Designation EA/EM Revistration No. 	Delhi PO	annear ann branna
ri State ii Telepitone b Energy Manager Details* i Designation i EAJEM Revistration No.		CID Nagar
ii Telephone 5 Energy Manager Details* 1 Name 1 Designation 1 EAJEM Revistration No	Delhi Inin	OUDOLE
 Energy Manager Details* Name Designation EA/EM Recistration No. 	91-1166050595 Fav	600011
i Name i Designation ii EAJEM Recistration No	1111	
i Designation ii EAJEM Revistration No	Md. Shadah	Ahmad
i EA/EM Registration No.	Sr. Manager Wheth	her EA or EM EAA
MALT HEATING AND	EM-50	62
v Telephone	91-1166050613 Fax	
Mobile .	9717991957 E-mail ID m	occharist at mac@mac.
Period of Information		Line international second start and the second second
Year of (FY) information including Date and Month (Start & End)	FY20-21, 1st April, 2020	J- 31st March, 2021

5.8 Detailed Format to be annexed

Period of Information Year of (FY) information including Date and Mont	th (Start & End) FY20-21,	1st April, 2020- 31st March, 2021
2 Technical Details		
(a) Energy Input Details		
(i) Input Energy Purchase (i) (From Generation Source)	Million kwh	10085.62
(ii) Net input energy (at DISCOM Periphery after adji transmission losses and energy traded)	justing the Million kwh	8950.12
(iii) Total Energy billed (is the Net energy billed, adju- traded))	usted for energy Million kwh	8310.43
	Million kwh	639.68
(b) Transmission and Distribution (1&D) loss Details	S	7.15%
Collection Efficiency	%	101%
(c) Aggregate Technical & Commercial Loss	%	6%

Name of Authorised Signatory Name of the DISCOM: Full Address-



EM-5062

Registration Number:

15 Barris		Form-Details of Input Infra	structure			Remarks (If any)
F	Parameters	Total	Covered during in audit	Verified by Auditor in Sample Check	Remarks (Source of data)	
	Number of circles	5			Oganizational Structure	
2=	Number of divisions	12			Oganizational Structure	
Ξ	Number of sub-divisions	37			Oganizational Structure	Includes individual zones and business units
.≥	Number of feeders	1280			GIS database	11kV Feeders
>	Number of DTs	7248			GIS database	Above 250kVA-4594 nos, equal to and less than 250kVA- 2654 nos.
Vi	Number of consumers	1824031			SAP System	
2	Parameters	66kV and above	33kV	11/22kV	ET	
a,	Number of conventional metered consumers	o	D	0	1569119	
:=	Number of consumers with 'smart' meters	0	0	0	210285	
III	Number of consumers with 'smart prepaid' meters	O	0	0	o	All smart meters are provided with provision for 'smart prepaid metering'.
Š	Number of consumers with 'AMR' meters	4	2	1012	43601	
>	Number of consumers with 'non-smart prepaid' meters	٥	0	0	5077	(10) STF (0)
vi	Number of unmetered consumers	0	0	0		and
viiv	Number of total consumers	4	2	1012	1823013	El and the
						a bini a bi

		As per organizational policy and incur of higher capital expenditure, distribution transformers with capacity above 250kVA are considered for installation of energy meters.					Energy meter installed on LT side of distribution transformer acts as a source of energy recording of downstream network.	Total Length of Bare		Consider the second	ES MEN SULL .	()))))))))))))))))))
252	3868	474	4594	15539	0	0	15539				Remarks (Source of data)	
0	C	o	0	1280	1280	0	1280		2		Reference	
0	0	0	0	108	108	0	108	1979.	5556.	5832	NM	
σ	0	0	G	134	134		34				Particulars	
Number of conventionally metered Distribution Transformers	Number of DTs with communicable meters	Number of unmetered DTs	Number of total Transformers	Number of metered feeders	Number of feeders with communicable meters	Number of unmetered 0 feeders	Number of total feeders	Line length (ct km)	Length of Aerial Bunched Cables	Length of Underground Cables	Voltage level	
b.i.	in	IE	iv	::	:=	i		d.	à	f.	m	
Unable to provide details against serial numbers 3 & 4. For serial number 3, voltage wise power purchase details are not available, as the invoice of power purchase contains only units purchased and details of power plant voltage not available.									AISTP/A	A La	(a) (a)	
--	---------------------	-------------------------	---------	----------------------------	---	--	-----------------------	--	--	--------------------------------------	------------------------	---------------------
Includes input energy for franchisees					Includes power from bilateral/ PX/ DEEP	Any power wheeled for any purchase other than sale to DISCOM. Does not include input for franchisee.		As confirmed by SLDC, RLDC etc	Based on data from Form 5			
	÷								0	0		
Long-Term Conventional	Medium Conventional	Short Term Conventional	Banking	Long-Term Renewable energy	Medium and Short-Term RE	Captive, open access input	Sale of surplus power	Quantum of inter-state transmission loss	Power procured from inter-state sources	Power at state transmission boundary	Long-Term Conventional	Medium Conventional
					66kV and above						INTEE	AUDO

																			OISTRIE!	Ta	12/ 12/ 12/	(o)	Majority of feeders are common to LT & HT. So input energy supplied is inseperable.
																						Reference	Include sales to consumers in franchisee areas,
						0	С	2	0											0	0	MU	
Short Term Conventional	Banking	Long-Term Renewable energy	Medium and Short-Term RE	Captive, open access input	Sale of surplus power	Quantum of intra-state transmission loss	Power procured from intra-state	sources	Input in DISCOM wires network	Renewable Energy Procurement	Small capacity conventional/	biomass/ hydro plants Procurement	Captive, open access input	Renewable Energy Procurement	Small capacity conventional/	biomass/ hydro plants Procurement	Sales Migration Input	Renewable Energy Procurement	Sales Migration Input	Energy Embedded within DISCOM wires network	Total Energy Available/ Input	Energy Sales Particulars	DISCOM ¹ consumers
										v 33 kV				/ 11 kV				i ur			18	1 Voltage level	LT Level

						Majority of feeders are common to LT & HT. So input energy supplied is inseperable.		MARK OF THE STREET	Non 10%			
unmetered consumers	Non DISCOM's sales	Demand from embedded generation at LT level				Include sales to consumers in franchisee areas, unmetered consumers	Non DISCOM's sales	Demand from embedded generation at 11kV level				Include sales to consumers in franchisee areas,
	Demand from open access, captive	Embedded generation used at LT level	Safe at LT level 0	Quantum of LT level losses 0	Energy Input at LT level	DISCOM' consumers	Demand from open access, captive	Embedded generation at 11 kV level used	Sales at 11 kV level 0	Quantum of Losses at 11 kV 0	Energy input at 11 kV level	DISCOM' consumers
												iii 33 kV Level

ummetered ummetered emand from open acces, captive sales mbedded generation at 33 kV or Non DISCOM's mbedded generation at 33 kV or Non DISCOM's elow level This is DISCOM mbedded generation at 33 kV or This is DISCOM elow level This is DISCOM alse at 33 kV level 0 is ontimers include sales to consumers consumers in foronsumers non DISCOM's sales is onthered Non DISCOM's is onthered Non DISCOM's is all to other DISCOM in onthered in consumers Non DISCOM's is all to other DISCOM is all to other DISCOM is all ting In onthered in consumers Non DISCOM's all									olsto.	(a) man (a)	1 10	R NEW ST	The second	1010						
emand from open access, captive mbedded generation at 33 kV or elow level mbedded generation at 33 kV or elow level ales at 33 kV level tuantum of Losses at 33 kV ales at 33 kV level nergy input at 33 kV Level of nergy input at > 33 kV Level ale to other DISCOMs anking nergy input at > 33 kV Level nergy input at > 33 kV Level of ales at 66kV and above (EHV) of transformer antimer antimer nergy input at > 33 kV Level of transformer ale to other DISCOMs ale at 66kV and above (EHV) of transformer transformer antimer transformer of transformer transformer of transformer transfo	Non DISCOM's sales	This is DISCOM and OA demand met via energy generated at same voltage level				Include sales to	consumers in	tranchisee areas,	unmetered	consumers	Non DISCOM's	sales								
emand from open access, captive mbedded generation at 33 kV or elow level ales at 33 kV level uantum of Losses at 33 kV nergy input at 33kV Level insgy input at 33kV Level insgy input at 33kV Level insgy input at > 33kV Level ale to other DISCOMs anking ross border sale of energy anking nergy input at > 33kV Level instry input at > 33kV Level instry input at > 33kV Level instry input at > 33kV Level intergy input at > 33kV Level intergy input at > 33kV Level intergy input at > 33kV Level			0	D														0	0	0
	Demand from open access, captive	Embedded generation at 33 kV or below level	Sales at 33 kV level	Quantum of Losses at 33 kV	Energy input at 33kV Level	DISCOM' consumers					Demand from open access, captive			Cross border sale of energy	Sale to other DISCOMs	Banking	Energy input at > 33kV Level	Sales at 66kV and above (EHV)	Total Energy Requirement	Total Energy Sales
		Demand from open access, captive Non DISCOM's sales	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or Sales Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy generated at same voltage level	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or Sales Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy generated at same voltage level Sales at 33 kV level D	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or sales Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy generated at same voltage level Cuantum of Losses at 33 kV 0	Demand from open access, captiveNon DISCOM'sEmbedded generation at 33 kV orSalesEmbedded generation at 33 kV orThis is DISCOMbelow leveland OA demandbelow levelmet via energygenerated atsame voltageSales at 33 kV level0Quantum of Losses at 33 kV Level0Energy input at 33kV Level0	Demand from open access, captive Non DiSCOM's Embedded generation at 33 kV or sales Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy energy generated at same voltage Sales at 33 kV level 0 Quantum of Losses at 33 kV Level 0 Inergy input at 33kV Level 0 DISCOM' consumers Include sales to	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or sales Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy generated at same voltage level Quantum of Losses at 33 kV Level 0 Energy input at 33kV Level 0 DISCOM' consumers on loculage sales to	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or sales Embedded generation at 33 kV or and OA demand below level and OA demand met via energy generated at same voltage level Zales at 33 kV level C Cuantum of Losses at 33 kV 0 Energy input at 33kV level C DISCOM' consumers 1 DISCOM' consumers 1	Demand from open access, captive Non DISCOM's Embedded generation at 33 KV or Non DISCOM Embedded generation at 33 KV or This is DISCOM below level and OA demand Discom and OA demand Discom and CA demand Discom and CA demand Discom and CA demand Include sales to consumers in franchisee areas, unmetered	Demand from open access, captive Non DisCOM's Embedded generation at 33 kV or Non DisCOM Embedded generation at 33 kV or This is DISCOM below level and OA demand met via energy generated at same voltage same voltage Cuantum of Losses at 33 kV level D Rengy input at 33kV Level D Increments Include sales to DisCOM' consumers Include sales to Unmetered unmetered	Demand from open access, captive Non DiSCOM's Embedded generation at 33 kV or Sales Embedded generation at 33 kV or This is DISCOM below level and OA demand below level below level Dantur of Loss at 3 kV or Cuantum of Losses at 33 kV D Demand from open access, captive Include sales to Demand from open access, captive Non DISCOM's	Demand from open access, captive Non DISCOM's Embedded generation at 33 kV or Sales Embedded generation at 33 kV or This is DISCOM Delow level and OA demand met via energy generated at Sales at 33 kV 0 Guantum of Losses at 33 kV 0 Inergy input at 33kV Level 0 Inergy input at 33kV Level 1 DISCOM' consumers 0 Inergy input at 33kV Level 1 Discom open access, captive 1 Demand from open access, captive Non DISCOM's	Demand from open access, captive Non DiscoM's Non DiscoM's Sales Embedded generation at 33 kV or below level This is DISCOM This is DISCOM Sales Embedded generation at 33 kV or below level This is DISCOM This is DISCOM Non Discom Embedded generation at 33 kV or below level This is DISCOM This is DISCOM Non Discom Below level Discom Non Outsige Non Outsige Non Discom Non Discom Consumers Discom Discom Non Discom's sales Non Discom's sales Non Discom/s sales	Demand from open access, captive Non Discom/s Embedded generation at 33 KV or asles Embedded generation at 33 KV or This is DISCOM Embedded generation at 33 KV or This is DISCOM Below level and oct demand Below level and oct demand Below level and oct demand Cuantum of Losses at 33 KV 0 Cuantum of Losses at 33 KV 0 Demand from open access, captive Include sales to consumers in franchise areas, consumers in c	Demand from open access, captive Non DISCOM's Non DISCOM's Sales Non DISCOM Sales This is DISCOM This DISCOM	Demand from open access, captive Non DISCOM's Non DISCOM Embedded generation at 33 KV or ailes ailes Embedded generation at 33 KV or ailes This Is DISCOM Embedded generation at 33 KV or and CA demand mer via energy Below level and CA demand mer via energy Bank Benerated at same voltage senerated at same voltage Cuantum of Losses at 33 KV 0 rm rm Guantum of Losses at 33 KV evel 0 rm rm DISCOM' consumers 0 rm rm Outent at 33KV Level rm rm rm DISCOM' consumers rm rm rm Outer at same from open access, captive Non DISCOM's sales rm rm Sale to other DISCOMS rm rm rm rm Banking rm rm rm rm	Demand from open access, raptive Non DISCOM's Embedded generation at 33 KV or Non DISCOM Embedded generation at 33 KV or This is DISCOM Embedded generation at 33 KV or This is DISCOM below level and OA demand below level and OA demand below level and OA demand cuantum of losses at 33 KV tevel D Dustry liput at 33KV Level D DISCON' consumers D DISCON' consumers nonsurers in Consumers nonsurers in Demand from open access, captive Non DISCOM's Denand from DISCOM's Non DISCOM's	Demand from open access, caprile Non DISCOM's Non Discom's Embedded generation at 33 KV or This is DISCOM ales Embedded generation at 33 KV or This is DISCOM and OA demand Demontored and OA demand and OA demand met via energy Demontored and OA demand met via energy met via energy Demontor of Losses et 33 KV D Hevel met via Denorum of Losses et 33 KV D Acmontored met via Denorum of Losses et 33 KV D Acmontored met via Denorum of Losses et 33 KV D Acmontored met via Denorum of Losses et 33 KV D Acmontored met via Denorum of Losses et 33 KV D Acmontored met via Denorum of Losses et 33 KV D Acmontored met via DiSCOM* consumers Denorum of Losses et 33 KV D Montored met via DiSCOM* consumers Denorum of Losses et 33 KV D Montored met via Discovers Denorum of Losses et 33 KV D	Demand from open access, captive Non DISCOMS Non DISCOMS Non DISCOMS Embedded generation at 33 kV or below level This is DISCOM and OA demand and OA demand met via energy generated at game voitage This is DISCOM and OA demand and OA demand Allow level This is DISCOM This is DISCOM and OA demand and OA demand Below level This is DISCOM This is DISCOM and OA demand and OA demand Basik Consumers D D P D D Basik DisCoM' consumers Consumers in frankiese reads, unmetered Include sales to consumers in frankiese reads, alles Non DISCOMS D D D Consumers Consumers in frankiese reads, alles Non DISCOMS D D D D Consumers Non DISCOMS D D D D D D Consumers Non DISCOMS D D D D D D Discomers D Non DISCOMS D D D D D Discomers

	% ssor	Majority of feeders are common to LT & HT. So inpu energy supplied is inseparal					Need clarification on this section.When consumer is in open access mode, sale is n	Irom utility.	(A DISTRICT	EC NEW COLU-	10 10 10 10 10 10 10 10 10 10 10 10 10 1	ON TATA	
ary	Sale Loss (in MU) (in MU)					Sale Loss (in MU) (in MU)	•							
Energy Accounting Summa	Input (in MU)					Input (in MU)						nation for DISCOM	0	
	DISCOM	L	11 Kv	33 kv	> 33 kv	Open Access, Captive	۲L	11 Kv	33 kv	> 33 kv		Loss Estima	T&D loss	
	Ŋ	-	:=	=	2	9			ij	Ň	L			

#DIV/0]

T&D loss (%) D loss (%)

-	111111111	-							Division Wis	e Losses	5 01000 In	Tet March 3	144				Contraction of the				STORIAL S	
						Consumer profile							9	eutered Alba	192		sol	5	Comn	vercial Parame	ter	
No N	ame of Girde code	n Name of Direction	Cansumer category	No of connection metered (Noof)	n No of connection Un-metered frast	Total Number of connections incet	% of number of	Connected Connec	Connected Load In-crutered	Total Connected Load	% of annected band	Input N energy	Ellie Intered o	d energy (MI neterad/a returnent	otal scorgy	5 of energy centumption	T&D ioss (MU)	T&D loss [%]	Billed Amount in Sc Consu	Collected Amount in B. Corre	Collection	AT & Closs [N]
111				[[Ē		(MM)	(MAR)	[MM]	1	liniti	(Sanua	12ioua	The last					1000-00		H H
			Residential	95876	•	96876	82%	141.265	0	342.265	NAK	100	16.9362	0	16,9362482	43%			151.13	100:442975	66.46%	
1 1004	NI CLOCH	DADI	Agricultural	1000		DEC .	10	3-722		3.752		The same	077455	0	01743655	8		-	270	0.5720155	302.20%	
4		Time	Commercial Industrial-HT	70827		12022	err W	13.692		13,602	× 4	12 /5685.27	10445	0 0	1202254057	455	22 162 124	4	18.1	133036.12E	135 89%	
-		1	Others	711	0	212	酒	1,105	•	7,365	i iii		130189	0	1010010010	2%			10.5177845	32.5940821	312.75%	
	Sub-total	1		118023	0	118023	100%	361,627		361,627	100%	572,6207 50	52455	0	06.2454915	NOOI	66.35422	12%	489.267784	496.165322	101.41%	10%
-	100	Constraint of	Residential	63139	0	69139	73%	93.681	0	93.65L	14%	T	1962.40	0	34,794238	然日			90.69	68.8136568	99,64%	
1	IL COLOR	P. Think	Agriculturel	1941	0	16/1	2%	9.476	0	9.576	2%	4	516536	0	4.516985	B			235	2.87206182	96.36%	
2 20	BAN CF	BAWANA	Commercial/Industrial+LT	51099	Q.	21099	24%	537.792	0	237.792	1	1211.328 8	52,6935	ø	125663547	82%	16/1191	13%	1084,06	1103.4529	101.79%	
-		Series P	Commercial (Industrial-HT	X 5	9 0	and the second	100	8.812	•	8.812	25	ali	73627		13.239541	**			27.13	12.2934348	100.74%	
	Cub seed		(mers	195		567	121	9,556		9.530	25		6/20379		d.60379274	1			29.3004973	30.3735122	103.66%	
+	Sup-total		Domisional of	830430 ACCESS		\$5630	MOOT	101.00		655.759	100N	1221.328 1	10.848	0	501212.640	100%	161.4792	13%	1207.5305	1227,80559	101.63%	12%
-	A REAL		Landon (hite)	200017	2 4	14007	STD NO	0,000		10200	en a	-	9175-03	0 4	920529.60	202			459-51	245,219/1	102.94%	
MUL E	N C D C	FOR LINES	Agreements)	2000	2 5	Anace	205	COLUMN T		0.005	5	0 00 00 00	000447		0.000447	SD .			0	0.0006433	COON	
			Commercial Bodinet ral WT	10120*	> c	15	A NO	17670 V		1747U	200	10 Second	0/5795		20/170'00	100	VIRICAT	5	152.54	125-204414	100207	
			Cehore Cehore	1991	7 0	1061	16	81 546	> 0	\$1 CAL	16%	n P	424.2 3	2 0	2/10/2023	NAC			26/25 CEF	CUTOTISTICS -	202001	
	Sub-total			132677	0	133677	100%	CIENCE		citatet.	1 MUNI	117 65.10 6	D AGIE		DB REPENTA	1 LINE	10.50237	746	614.10070A	111100111-00	20 Sher	M
\vdash	and a second		Recidentia	116722		116737	84%	COLORE		16, 236	15.0	32	DANC!		STUDIED STORE	E/NE	17CELPET	erc.	10/007"wTD	1110101111	200000	2.0
_			Agricultural	0	0	0	20	0	. 0	0	20		0		0	ON			0	0	C.COX	
40. 1	NCRC	SHAV PUR	A Commercial (Inductoral-UT	27213	0	27213	39%	238.825	0	238.826	10%	776.5%	18.4534	D	78.433412	30%	43.567.84	59	375,33	382.205926	101.832	
<u></u>			Commercial/Inductrial-HT	127	0	127	550	40.405	0	40.405	業	8	S.83314	0	66.883141	BK			81.36	\$1.2772915	306765	
-			Others	118	0	811	IX	8,666	0	8.666	20	A.	6,43539	0 1	6.44539494	2%	-		23.5309695	8.90108259	65.74%	
	Sub-total			14683	0	144883	100%	111-125	0	111455	NOOT	776.536 2	12.9682	0	32.9681869	300%	43.56784	6%	687,639969	689.806448	100.32%	2%
-			Hesidential	11771		112211	1932	261.21		261.21	10	w la	6.0245	0	126.084304	76%			208.94	14-50EL.302	30.90%	
E	Can Can	ANGOI DI	Agnoutura:	1000	0	1000	110	0.058		0.012	6	0	022696		0.022695	20%			0	0	00030	
		S-SUBORLA	Command and include a staff	1263	ə a	14	51 8	Dist of		11.745	10	T STATION	80.5188	0	Paraters of	NGT NO	34.45505	5	136.05	155.901106	100,65%	
-			Othere	3		026	1	2,497		1.051	8 8	4	1 2046		111220101	arc AN	-		111215580	120220002	115,602	
-	Sub-total		-	195216		100115	BUTL	11210		102.0	Torse o	COC 1212 5	AF42 57		10100155 S	ADAL	27807 62	74	000111/1/1	299 762717	101 16%	144
-	No. Constant		Recipiential	142130	0	142131	562	322.65		322.65	ETS.	T AVERAGE	10701		Sutors Ill	70%	CA057-96		CL 590	765.40.4541	ACC SOL	62
	5		Aerice/tural	1	0	1	W	0.005	0	0.005	03/	10	002660	0	0,000562	W				DODIERTRA	1000	
19	TO CIRCI	NOT BOOM	Commercial/Industrial-UT	21526	0	21526	13%	105,835	0	105,235	100	527.7652 9	73072	0	717081.52	15%	715521E	5%	38.96	138 51 3651	100.11%	
			Cosmeercel/Industrial-HT	\$	•	45	60	13.874	0	13.874	NS.	R	125263	0	38,975715	3%	and and a second se		12:07	25,550959	100.55%	
-	ALC: NOT A		Others	378	0	878	1%	37.267	0	37.267	100	1.4	80366	0	3.80366385	7%			42.1266627	40.3124512	35.69%	
	Sub-total			164580	0	164520	100%	429.634	0	479,634	100% 6	527.7652 5	96.412	0	96.41200399	100%	31.35317	5%	471.536663	469.303006	\$29'65	5%
-			Residential	113015	0	113015	9029	234 865	0	234,655	30%	m	819.3	0	134.616912	26座			335,76	235,115/26	1561,99	
			Agrice turge	•	0	2	10	0.001	0	1000	6%	-	006508	0	0.006508	9/6			0	0.00058736	0.00%	
ND /	IN CISCO	NOT NEED	Commercial, ndustrial-U	27125	0	27125	19%	239.477		215:477	37%	12:2746 21	07.5716	0	3591/5/10	30%	35.56673	2%	306.06	307.829627	100.57%	
-			Commercies// reduzities/HT	133	•	8	50	65.037		65,037	112	12	266061	0	73,509921	110			25.55	99.0497531	100.44%	
-			Others	22	0	542	IN	9,803	0	9.803	药	T	5,48291	0	6.48290533	2%			15.5143456	155644633	100.32%	
ł	Sub-total			141117	0	141117	100%	588.589	0	588.989	100%	112.8746 6	628618	0	81-5878918	100%	35,85673	3/5	655.974346	657.560557	100.2435	5%
-	In the second	The second	Residential	102214	•	102214	83%	157.619	0	157,619	120		34,727	0	34.72/0268	25%			80.31	656/05 621	161.12%	
- 1		and	Agricu tural	2314	0	2314	-	18.057	0	18.057	3%	P	0.401.85	0	0.40187665	ME			6.76	5.94184561	105 (品	
ă. 8	BUDHO.	NAMELA	Contimercial, industrial-LI	1/258	0	27556	1420	336.734	0	336,734	165	015.343 5	2007.65	0	39,7001573	60%	113,6229	11%	100.55	639:555952	読える	
-			Commercial/industrial-HT	152	0	152	ev.	10,138	0	\$59.0F	NA N	10	72029'8	0	8.67070555	50%			to there	100.562479	94,100	
-			Others	1202	0	1202	N	15,449	0	15,449	20	14	1381013	0	5.01382877	2%			11217757	13,4793238	1123%	
																			NA EV			
																			2	June 1	100	

Sub-total		A STATE OF A	173461	o	123440	10055	200,207	0	568.257	100%	015.343 50	5136	0 901.5	115965 20	11 30	08080	110 011	17796 ALL 446 9275	15 101 10	101 17
	Rest	dential	100533	0	100533	25%	339,202	0	339.202	193	42	1(36)1	424	7 20023	2		363	ALCTH CRC	17 80 19	
	48H	cu tural	0	0	0	10	0	0	0	80	1	0	0	0 0	1			S 6566F-1	2000	12
9 HURBAN CIR	PITAM PURA Com	mercal/industrial-UT	16950	0	06691	24%	106.614	0	106.514	22% 6	02.6565 96.	35534	0 96.3	1 (2015	2	17707	101 Jan	20 141 5562	100 Mail 100	12
	Con	mercal/industrial-HT	78	0	22	36	57.07	0	37.07	5%	8	73332	0 40.7	30315				2 IE 7500	112 AUX 11	11
	AHO	50	785	0	786	24	1,752	0	7.752	12	15.	03.768	0 15,03	267755		-	10 UL	20002 11 20203	100 TUL 100	21.9
Sub-total		E INTERNET	118337	0	113387	100%	490,638	0	490.638	100% 6	02.6565 574	1027	0 576.4	794065 10	36 26	12202	5 007 29	SRCS AGA ATCH	21 MAR 12	24
	Rest	de ntsel	196237	0	196237	200%	515.267	0	515,267	30%	8	2,937	0 702.	7 5073	28		472	22.22 6.45 35	126 20 BC	-
	Agh	cutarsi	0	0	0	05%	0	0	0	5%	1	0	0	0	100		1	0	0.00	12
ID REIHO CIRCI	ROHEN Com	mercial/industrial-LT	29233	0	29233	13%	121.574	0	121.574	17%	1014.1 100	10431	0 106.	13144 1	100	2894	356 255	7.3 157,4350	15 100.09	1.2
	5	mercial/industrial-HT	56	0	99	ND.	14.377	0	44.377	6%	51.	06045	0 51.0	60452 5	1.12		65	30 71.25129	36 105.63	1.2
	Othe	165	1768	0	1768	1%	51.624	0	51.614	24	121	1022	0 121.7	701215 1	25		106.2	63453 106.9601	1 100.66	1.5
lefot-daz		The second statement of the	227304	0	227304	100%	732.832	0	732.852	100%	1014.1 581	\$107	0 981.5	106905 10	0% 32	2894	356 754.8.	13453 758.8838	100.541	3%
	Retor	de mbai	124016	0	124016	368	163,52	0	163 52	4652	H	2.05	0 272	05005 8	- K		126	126.5345	11.99 23.77	
and the state	1132	cultural	53	q	8	10	0.337	0	0.337	ŝ	0.1	60036	0 01	93809 0	1		0	11 0.104366	15 94,889	13
11 INDAM CINC	KINARI COM	mercial/indestrial-LT	15285	0	15285	11%	16.146	0	46.146	21% 3	73.8793 47.	102394	0 27.0	23936 1	12 N	36343	66.	23 65,56557	200755 95:004	1.2
	5	mercal/industrial-HT	m	0	579	35	1.242	0	1242	1%	05	\$1568	0 0.4	974 0	30		10	12 0.721957,	12.061 60	1.2
	Othe		456	0	465	NO	6.341	0	6.341	356	15	11251	0 25.15	211151 5	1.00		1833	13395 19.406519	96 105,87	1.00
Sub-tota	-		139833	0	139833	3002	217.585	0	217596	100% 3	73.8793 334	6559	0 334,8	958605 10	38 38	98348	0% 212.7	052212 6611	8 100.06	A ION
	Redit	đential	205767	8	205767	89%	343.136	0	343,153	71%	513	6751	0 517.	94939 7	26		270	157 270.4730	55 99.25	1
	Agric	cultural	50	0	80	100	0.48	0	0.48	Sico	10	126EE	0 0.5	3977 0	1		es	12 0.176311	33 97 95	
C2 NEBAN CIRCI	ALIMAR SA Com	mercial/Industrial-L7	23905	0	23905	10%	66,303	0	56.303	NOZ	24,199 108	8145	0 103.1	14451	LE S	63068	556 143	39 143.3417	109 06 20	1.2
町市の	<u></u>	mercial/Inductrial-HT	18	0	13	UK	35.242	0	35.242	ž	19	15139	0 43.1	51385 6			155	02 56.56273	106.72	1.2
	Othe	r.	1108	0	1306	206	9.633	0	9.538	25%	N	12 333	0 21.17	332793 3	1		19,45	5283 20 29650	102 001 12	1.4
Sub-tote			196052	0	195062	100%	434,861	0	484,861	100%	26,195 686	3681	0 636.3	01 91 90	37	63189	P 187 18	15538 400 X702	11/11/1	285
100 Miles	Resid	dential	0	0	0	300	0	0	0	E		0		0 0	1			0	0.00	
	Agree	cultural	0	0	0	iii iii	0	0	0	6%		0	0	0	1				0.007	1.5
	Com	merces/Andustrial-LT	Ø	0	0	35	0	0	0	35	0	0	0	0	L	0	10		0.60	1.
	Com	mercial/Industrial-HT	0	0	0	20	0	0	0	950		0	0	0	1.28			0	0.00	1.0
A DE TANK	Othe	2	0	0	0	212	0	0	0	666		0	0	0 0	1.00			0	0,00	1.50
Sub-total			0		0	100%	0	0	0	300%	0	0	0	0 10	- *	0	10	0	0,007	6 100%
	Reck	dencial	0		0	8	0	0	0	80		0	0	0 0	28			0 0	0.00	
		culture:	0		5	8	0	0	0	3		0	0	0		-	0	0	0,00	- wi
	3	mercial financial of			0	15	0	0	0	0%	0	0	0	0 0		0	0/1	0	0.063	-
	Otte	E LA	0	5 6		8		0 0		8		0	0	0	Ţ		2	0/1-2	0.000	-
Sub-total			0	. 0		THUNK				100K			0		-	-	4 10 1	- N	C.000	100
C.S. Statistical	Reve	Santial				AN IN				tent		-		0	2	0	24	0	000	100%
	Agric	u tural	0	* 0	0	An An	3 0			20	1	0	0.0	0	T		0		0.001	-
5 Contraction	Com	metcal/industrial-LT	0	0	0	10	0			20					T		No.		000	with
	Com	mencel/industrial-HT	0	0	0	120	0			200						0			0.00	als
A STATE OF A	Othe	2	0	0	0	80	0	0	0	10					T		12	1.0	0000	
Sub-total			0	0	0	100%	0	0	0	NON	0	0	0	0 10	1 12	0	No. No. No.	19.24	0.6%	1000
	Rest	Sential	0	0	0	65	0	0	0	2%		0		0			SUTT N	0. N. 1	0.00	
	2UBy	Witural	0	0	0	52	0	9	0	湯		0	0	0 0	[2	0	0.000	Lar
D	5.	merco al/industrial-LF	0	•	0	60%	0	0	0	湯	0	0	0	0 0		0	e g	0	0.005	La
	5 2	mercial/industral-HT	0	0	•	50	0	D	a	0%		0	0	0			0	0	000	Tap
Schutatel	6.00					40				50	-			0	-	-	0	0	CLEVE	10
Party and						100%	0	0	0	IOCN	0	0	D	DI D	1	0	06 0	0	0,007	100%
	and A	ention .	0		0	30	0	0	0	30		0	0	9	-		9	0	0.007	
	19190 ("Amo	arturg: more of findices da 1 F	0			5	0	0	0	0%	1		-	0		_		0	0.005	-
		marcia/Industrial-AT				5 2	0		0	10	0	0		0		•	×		0,005	Lo.
122	Othe	101 million 100 mi	0	0	0	5 5				5 8	1				T	-		0	000	set.
Selb-total			0	0	0	100%	0	0		10776									UIN	annue 1
	Resid	kentia)	0	0	0	5%	0	0	0	Dis	+					-	R	2 0	1000	TUNE D
								2			7	1	1 0	2 1 2]		100	2	CANA CONTRACT	

	Commercial/Inductrial-HT	0	0	0	PUNIDE .	0	0	0	#DIV/OI			2	2	in/Mat	-		-			
100 miles	Cettars	0	0	0	#DIN/0#	0	0	0	HOV/NO#		0	•	0	#DIV/DE					anna	
Sub-tatel		0	0	0	100%	0	0	0	100%	0	0	0	0	10.0%	0	10%	0	0	0.00%	TOOK
Contraction of the second	Residential	0	0	0	FDIV/01	0	0	0	10/Mat		0	0	0	10//1/0#		10.00	D	0	0.00%	
日日日に	Aarcutura	0	0	0.	#BIV/DI	0	0	0	#D///0#		0	0	0	10/2/0#			0	0	0.00%	
	Commercial/Inductinal-LT	0	0	0	#DIVID#	0	0	0	HO/MOH	0	0	0	0	\$0///0#	0	50	0	0	0.00%	
	Commencial/Andustrial-HT	0	0	0	10/MO#	0	0	0	10//NG#		0	0	0	30/510#			0	0	0.00%	
	Others	0	0	0	solviol	0	0	0	10/N/0H		0	0	0	#DIV/OF			0	0	0.00%	
Sub-tetat	A Street And Street Street	0	0	0	100%	9	0	0	100%	0	0	0	0	100%	0	5/0	0	0	9500/0	100%
	Rezidential	2541523	ò	1541583	25%	3164.051	0	2184-052	53%		4610.757	0	4510.756964	50%	1		2571.29 2	9718 83149	100.02%	
	Agricultural	4724	0	4754	and the	32.66	0	32.66	酒		17,6623	0	17.662295	0%	and the second se		10.27 9	60751696	97,07%	
5 Total	Commercial/Industrial+LT	265675	0	265675	15%	2200.113	0	2200,313	37%	711.0805	2758.384	0	2768.384363	33%	639,6822	in the	3693.27 3	739,57737	101.25%	
	Commercial/Industrial+HT	563	0	863	300	357,055	0	357,066	620		498.6278	0	458.527807	6.8			654.75 6/	56.213132	101.75%	
	Others	11176	0	11126	1%	251.95	0	251.95	100		515.0031	0	535.0031025	6%			457.184249 4	52.268744	326.5%	-
At company level		1824031	0	1824031	1007	6025.86	0	6025,86	100%	111.0258	8310.435	0	\$55863-01E8	100%	639.6822	1%	7385.76425 7	439,88009	\$100,72%	10%
	Parameter																			
and the second se	A PERSONAL PROPERTY OF																			
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e undertratife stinat the inform son affected, J/we undertak norreed Signatory and Seal	nation supplied in this Document and 7 ac to indemnify auch loss.	Pro-forma is accur.	ate to the heat o	af my knowledge	and if any o	f the informat	ion supplied i	s found to be in	voorveet and	i such infam	station rest	it into local	to the Central G	overment	ar State Gow	rsiment or a tignature:- iame of Ener tegistration 2	ny of the arth y Managon tumber	15.69	A	A Cont
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LEICH MANNA	137 - 20			A	Manna - 20	- Alexan														

	Form-Input energy(Details	of Input energy & Infra	istructure)	Remarks (If any)
Same Procession	A. Summary of ener	rgy input & Infrastructure		
	Parameters	Period From 1st April, 2020 To 31st March, 2021	Remarks (Source of data)	
	Input Energy purchased (MU)	10085.62	Power purchase Invoice	Provisional values, will be revised at
	Transmission loss (%)	3%	Druge muchan I	year end.
	Transmission loss (MU)	324.346	I AMEL PUTCHASE INVOICE	
_	Energy sold outside the periphery(MU)	811 15689	Douton manhana 1	
	Open access sale (MU)	68.635967	From Commercial data	PGCLL & DTL losses Provisional values, will be revised at
	EHT sale	06	From Regulatory data	year end. Energy supplies to consumers on Open access mode, in the licensee
11 A R	Net input energy (received at DISCOM periphery or at distribution point)-(MU)	9012.06		area of Tata Power-DDL.
and the second second	Is 100% metering available at 66/33 kV Select yes or no from list)	Nac		
	Is 100% metering available at 11 kV (Select yes or no from list)	Vac		AUDIO N
HILL I	% of metering available at DT	%06	Energy Audit and GIS Data	Reserved to the
-	% of metering available at consumer end	100%	From Billing data kara	IN IN
-	No of feeders at 66kV voltage level	134	GIS Data have	Con and
	Vo of feeders at 33kV voltage level	108	GIS Data have	N Fai
	Vo of feeders at 11kV voltage level	1280	GIS Data haco	

No of LT feeders level		15539	GIS Data base	
Line length (ckt. km) at 66	skV voltage level	536.92	GIS Data base	
Line length (ckt. km) at 3:	skV voltage level	477.11	GIS Data base	
Line length (ckt. km) at 11	.kV voltage level	4999.2	GIS Data base	AND BETER
Line length (km) at LT lev	10	7354.1	GIS Data base	101
Length of Aerial Bunched	Cables	5556.2	GIS Data base	121 Million 121
Length of Underground C	ables	5832	GIS Data base	12
HT/LT ratio		0.8176704		

					Feeder	Status of	Meterin	Feeder	Status	of Commu	ication				
		a la			Metering	Meter	g Date	Type				日本の	^{period fr}	omto	and a set of the
S.No Z	one Circle	Voltge Level (KVA)	Feed TD	Feeder Name	Status (Mctered/ unmetered/ AMT/AMR)	(Functional Non- functional)	Date of last actual meter reading/ communic atiou	(Agri/ Industrial /Mixed)	% data received through automatica lly if feeder AMR/AMI	Number of hours when meter was unable to communicat e in period	Total Number of hours in the period	Meter S.No	CT/PT ratio	Import (MU)	Export (MU)
B.1		66		Narela T X 1	Metered	Functional						4864963	1000	253.49	0.00
B.2		66		Narela T X 2	Metered	Functional						5128462	500	279.90	0.00
8.3		66		Narela T X 3	Metered	Functional						4865052	1000	238.43	0.00
B.4		11	GTH.	LOCAL TR Narela	Metered	Functional				1		4902583	-10	-0.20	0.00
6.5		66	and a second	Gopal Pur T X 2	Metered	Functional.					Soft Soft at	4864976	-625	250.44	0.00
8.6		33		Gopal Pur T X 1	Metered	Functional						5128429	-500	195.43	0.00
B.7		33		Gopal Pur T X 3	Metered	Functional		いい				4864924	2000	262.91	0.00
8.8		11		LOCAL TR Gopalpur	Metered	Functional						4865091	1000	-0.18	0.00
6,9		220		Kasmeri Gate 220 KV DMRC 2	Metered	Functional						4902482	1000	42.16	0.00
8.10		220		Kasmeri Gate 220 KV DMRC 1	Metered	Functional						5128473	-7.5	23.85	0.00
8.11		33		Kasmeri Gate 33 KV Civil Line-1	Metered	Functional						4864791	1000	29.25	0.00
B.12		11	19.55	ISBT K.Gate { F/o No.II Mahavir Ice factory}	Metered	Functional				18 Martin		4865074	500	5.71	0.00
B.13		33		Kasmeri Gate 33 KV Civil Line-2	Metered	Functional				RDV RDV		4864867	1000	17.44	0.00
										1 store					

	MVA TR	Metered	Functional		4864797	266.66	21.31	0.00
	LOCAL TR K Gate	Metered	Functional		4902530	133.33	-0.11	0.00
ALT N	BUS COUPLER	Metered	Functional		4902528	500	-0.01	0.00
	O/G Payal Ckt	Metered	Functional		4864836	100	61.39	0.00
	O/G REWARI LINE	Metered	Functional		4865182	-7.5	51.60	0.00
10.00	INDER PURI Ckt-1	Metered	Functional		4864865	-400	65.86	0.00
	33 kV 16 MVA TR- 1	Metered	Functional		4864880	1000	27.03	0.00
State of the second	33 kV 16 MVA TR- 2	Metered	Functional		5295128	4000	36.75	0.00
and the second se	Gopi Nath Bazaar (-ve)	Metered	Functional		5295192	1000	-10.88	0.00
	LOCAL TR naraina	Metered	Functional		4902602	500	-0.34	0.00
	INDER PURI Ckt-2	Metered	Functional		4864873	50	66.34	0.00
	33KV Naraina							
	Pandav Nagar feeder	Metered	Functional		5295124	-100	28.85	00.0
COLUMN TWO IS NOT	Rohtak Road O/G 33 KV Rama Road	Metered	Functional		4865179	-100	39.92	0.00
10000	Rohtak Road O/G				2000			
	33 KV Shahzada Bagh-2	Metered	Functional		4864795	1000	5.83	0.00
10111 121	Rohtak Road O/G 33 KV Rampura-1	Metered	Functional		5295125	100	79.19	0.00
STREET, STREET, ST	Rohtak Road O/G 33 KV Rampura-2	Metered	Functional		5295126	3750	75.91	0.00
1000	BUS COUPLER	Metered	Functional	(4902559	1000	0.58	0.00
	Rohtak Road T X 3	Metered	Functional	STATE I	4865185	140.63	6.48	00.0
	O/G 33 kV DLF Kirti Nagar	Metered	Functional	E S S	4864821	166.67	67.71	0.00

8.33	33	SMB T X 1	Metered	Functional		4864930	300	284.34	0.00
B.34	66	SMBTX2	Metered	Functional		5128411	625	241.41	0.00
B.35	220	SMB DIMRC Jahangirpuri	Metered	Functional		4902494	150	19.53	0.00
8.36	11	LOCAL TR SMB	Metered	Functional		4902561	1000	-0.55	0.00
B.37	33	SMB T X 3	Metered	Functional		4864922	1000	345.70	0.00
8.38	220	DMRC SMB RSS	Metered	Functional		4902484	1000	1.88	0.00
8.39	99	Rohini 220 Kv T X 1	Metered	Functional		4864964	-7.5	209.27	0.00
B.40	66	Rohini 220 KV T X 2	Metered	Functional		4865022	1000	206.65	0.00
8.41	66	Rohini 220 KV T X 3	Metered	Functional		4864997	500	264.13	0.00
8.42	99	Rohini 220 KV T X 4	Metered	Functional		5295166	1000	240.30	0.00
B.43	11	LOCAL TR Rohini	Metered	Functional		4902597	1000	-0.39	0.00
B.44	99	Kanjawala T X 1	Metered	Functional		4865041	1000	289.23	0.00
B.45	99	Kanjawala T X 2	Metered	Functional		5295182	1000	328.96	0.00
B.46	11	LOCAL TR Kanjawala	Metered	Functional		4865071	500	-0.30	00.00
B.47	<u>66</u>	66 KV DMRC MUNDKA	Metered	Functional		5128439	-100	-5.38	0.00
B.48	66	Kanjawala T X 3	Metered	Functional		4864788	1000	419.79	0.00
B.49	33	Subzi Mandi T X 2	Metered	Functional		5295137	500	289.88	0.00
B.50	33	0/G BG Rd-1 (To BSES)	Metered	Functional	Contraction of the second	4864831	-266.66	-40.75	0.00
B.51	33	O/G BG Rd-2 (To BSES)	Metered	Functional	A AND A	4864825	-800	-67.65	0.00
B.52	33	SubziMandi T X 1	Metered	Functional	18/	4864916	2000	315.51	0.00
					ADIST				

				and the second			
0.00	0.00	500	4902538	OWER O	Functional	Metered	DMS BSES Shadi Kham Pur(Ranjeet nagar c. centre)
0.00	0.01	500	5295200	(and the second	Functional	Metered	DMS BSES 33 kV Pandav Nagar
0.00	0.00	500	4865088		Functional	Metered	CSA colony
0.00	6.31	1000	4865090		Functional	Metered	Sadar-S/S
0.00	4.85	200	4902585		Functional	Metered	DCM chowk
0.00	4.88	250	4902579		Functional	Metered	DCM Nuruddin Park
0.00	0.00	1000	5295123		Functional	Metered	PUSA Ckt-II
00.00	44.96	1000	4864843		Functional	Metered	PUSA Ckt-I
00.00	97.13	1000	4864810		Functional	Metered	Sudarshan Park 33KV Line-1
0.00	77.09	2000	4864901		Functional	Metered	33 KV Peeragarhi CKT to CC ranibagh
0.00	318.04	1000	4864946		Functional	Metered	Wazir Pur 220 KV 33kV I/C No 2
0.00	278.85	-100	4864903		Functional	Metered	Wazir Pur 220 KV 33kV I/C No 1
0.00	306.11	1000	5128468		Functional	Metered	Rohini II 220 KV 66kV I/C No 2
0.00	305.86	133.33	4902505 -		Functional	Metered	Rohin-II 220 KV 66kV I/C No 1
0.00	272.94	-1000	4864911		Functional	Metered	Bawana 400 KV I/C 100 MVA TR. No.1
0.00	-0.11	1000	4902594		Functional	Metered	LOCAL TR Subzimandi

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B.92 11 NDPL B B.93 33 NVN B.93 33 33 KVN B.94 33 33 KVN B.95 33 33 KVN B.95 33 33 KVN B.95 33 33 KVN B.96 33 33 KVN B.97 33 33 KVN B.97 33 33 KVN B.98 33 33 KVN B.99 33 8 Kewari L B.99 33 1/C fron B.99 33 1/C fron B.100 66 8 awana B.101 66 8 awana B.103 66 8 awana B.103 11 100 B.103 11 100 B.103 66 8 awana B.103 11 100 B.103 66 9 awana B.105 66 9 awana B.105 66 9 awana	L BSES (EX) BUS 2&3 V Vishal -1 V Vishal -2 Mavaouri	Matarad				100 m		
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B.98 33 I/C from reconstruction B.99 33 Vishal (I B.100 66 Bawana B.101 66 Bawana B.102 66 Bawana B.103 66 Bawana B.104 66 Bawana B.103 11 Loc B.104 66 PELH B.105 66 Raiwe	i Line 33/11 Tr 1	Metered	Functional	48	864822 333	.33 -33.3	36 0	00.0
B.99 33 Vishal (B.100 66 Bawana B.101 66 Bawana B.102 66 Bawana B.103 66 Bawana B.103 66 Dawana B.103 11 Loc B.104 66 DELH B.105 66 Raiwa	om Rohtak road	Metered	Functional	48	864866 20	00 36.2	3	00.0
B.100 66 Bawana B.101 66 Bawana B.102 66 Bawana B.103 66 Dawana B.103 66 Dawana B.103 66 Dawana B.103 66 Dawana B.104 66 DELH B.105 66 Raiwe	(imp/Exp)	Metered	Functional	48	865149 -1(00 -0.1	2 0	00.0
B.101 66 Bawana B.102 66 Bawana B.103 11 Loc B.104 66 DELH B.105 66 Palwa	1a 220 T X 2	Metered	Functional	48	864992 50	0 257.	16 0	00.0
B.102 66 Bawana B.103 11 Loc B.104 66 DELH B.105 66 Railwar	1a 220 T X 3	Metered	Functional	48	864827 20	00 252.	29 0	00.0
B.103 11 Loc B.104 66 DELH B.105 66 Railware	1a 220 T X 1	Metered	Functional	48	864973	385.	31 0	1.00
B.104 66 DELH B.105 66 Railwa	ocal Tr	Metered	Functional	45	902543	-0.2	4 0	0.00
B.105 66 Railwa	MSM H1			48	864958	133.	88 0	00.0
	way Ckt-1			48	864952	-11.(0 40	0.00
B.106 66 Railwa	way Ckt-2			51	129958	-14.6	50 0	00.0
8.107 66 SMB	AB T X 4			40	000153 5	138.	48 0	00.0
B.108 66 Gopal F	al Pur T X 4 50 MVA)			52	295184	264.	28 0	00.00
B.105 66 66 220ki	Incomer 1- JkV SGTN			X	F46524 6	16.0	12 0	00.0
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				AST - SA				

Total (MU) 9012.06 0.00	ut energy at DISCOM periphery (MU) 9012.06	Parameter	ease enter voltage level or leave blank	ease enter feeder id and name or leave blank	nter meter no or leave blank	nter CT/PT ratio or leave blank	ease enter numeric value or 0	lease select yes or no from list	ormula protected
(and into i	input energy at DISCOM periphery (MU)		Please enter voltage level or leave blank	Please enter feeder id and name or leave bla	Enter meter no or leave blank	Enter CT/PT ratio or leave blank	Please enter numeric value or 0	Please select yes or no from list	Formula protected
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1 Context H(17 31/23/4 154600 653/0600 2 Vormeredit 1 20046 942,05021 942,05021 3 Ford 20046 942,05021 20046 942,05021 4 Ford Mark 1 20046 942,05021 20046 5 Ford Mark 1 20046 942,05051 1 5 Ford Mark 1 1 253,05066 1 6 Ford Mark 1 1 253,05066 1 1 1 Internal 1 1 1 253,05066 1 233,05066 1 Internal Ford Mark 1 1 233,0506 1 233,0506 1 Internal Ford Mark 1 1 233,0506 1 233,0506 1 Internal Ford Mark 1 233,050 1 233,050 1 Internal Ford Mark 1 233,050 1 233,05	S.No	Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	Voltage Level (In Voltage)	No of Consumers	Total Consumption (in MU)	Remarks (Source of cat
2 Commental IT 20000 92556271 3 Post, Nuc, Schreifer R, Auber (Hetered) 1 20000 92556651 5 Inc, Muc, Schreifer R, Auber (Hetered) 1 20000 9255056 6 Hottigrant Khote/Pener 3331 2559056 2556271 7 Water Supply 20010 20010 2550056 9 Hittigrant Khote/Pener 3331 2550056 10 Hittigrant Khote/Pener 3331 25303056 11 Instantistyme 20000 29334313 12 Internet Supply 201 20301 13 Incontentient 201 20301 13 Incontentient 201 20301 14 Hittigrant 701 2733065 15 Internetistiger 701 2733065 16 Internetistiger 701 2733065 17 Anter Supply 701 2733065 18 Internetististrattistrather 701 27333055 <td>1</td> <td>Domestic</td> <td>HT/UT</td> <td>11/.22/.4</td> <td>1540657</td> <td>4534.709989</td> <td></td>	1	Domestic	HT/UT	11/.22/.4	1540657	4534.709989	
3 10 State 10	2	Commercial	17		236046	942,8584237	
4 Inc. 8 Nus Conferential Inc. Inc.<	3	IP Sets					
5 In Ku	4	Hor. & Nur. & Coffee/Tea & Rubber (Metered)					
6 Nature Robert 1 2.1/3006 7 Were Supply 321 2.1/3006 8 Poll Culture 300 113 3.1/3006 9 If Inducted Supply 300 113 3.1/3006 10 If Thus Relation 900 113 3.1/3006 11 Inducted Supply 900 113 3.1/3006 12 Inducted Supply 900 11 3.0/3005 13 Inducted Supply 900 11 3.1/3006 14 Connection (Real) 900 900 11 3.1/34005 14 Connection (Small Induction) 900 900 900 11 3.1/34005 15 If Connection 900 900 900 11 3.1/34005 16 If Table Sciencementer Specificate collares 900 900 900 11 3.1/34005 16 If Table Sciencementer Specificate collares 900 900 900 11 900 11 9005<	53	Hor. & Nur. & Coffee/Tea & Rubber (Flat)					
7 Muck Gaphy 1311 1323 25/3006 8 H Nuck Gaphy 400 134600 134600 10 H Nuck Gaphy 300 134600 134600 11 Industrial Medini 30 3334413 3334413 12 Industrial Medini 30 3334413 3334413 13 Industrial Medini 30 3334413 3334413 14 Applicational 30 31 3334413 15 Infraetical 31 31 3334413 16 Infraetical 31 31 31 17 Mack Load 31 31 31 31 18 Gonernence (all news) 31 31 31 31 18 Gonernence (all news) 31 31 31 31 10 Infraetical 11 31 31 31 10 Infraetical 11 31 31 31 10 Infraet	9	Heating and Motive Power					
8 Datic Ligning 6 4001 1064 64005 10 HT Hundstrail 36 7303,44135 36 7303,44135 11 Industrail Refault 36 7303,44135 36 7303,44135 11 Industrail Refault 10 32 730,44135 36 730,44135 12 Industrail Refault 10 10 10 36 730,44135 13 HT Commercial 10 10 10 10 276,370,69 14 Refault 10 10 10 10 10 10 14 Refault 10 10 10 10 10 10 15 Utrastic Rise and Objectment 10	1%	Water Supply			1311	257.983066	
9 H Tubate Sappy 9 H Tubate Sappy 9 H Tubate Sappy 11 Industrial Timany 100 233.4413 233.4413 12 Industrial Timany 100 100 203.2005 13 H Cumment Sappilization 01 235.37065 14 Applieble to Government Mopilization 01 235.37065 15 H Tubate Same Submit Tingglen coefficient 01 235.37065 16 H Tubate Same Submit Tingglen coefficient 01 235.37065 17 Made Table to all result 01 235.37065 235.3065 18 Comment Mopilizatie to all result 01 235.37065 235.37065 19 Made Table to all result 01 235.37065 235.37065 10 Made Table to all result 01 235.37065 235.37065 10 Made Table to all result 01 235.37065 235.3065 11 Made Table to all result 01 0105.5706 235.37065 11 Made Table to all result 010 <td>8</td> <td>Public Lighting</td> <td>+</td> <td></td> <td>4907</td> <td>118.48063</td> <td></td>	8	Public Lighting	+		4907	118.48063	
10 Hindustual 88 233.64313 11 Industrial (Medinal) 9 9 12 Industrial (Medinal) 9 9 13 H Commercial 0.1 256.37005 14 Uthringheo/scheener/Hill 9 9 15 Uthringheo/scheener/Hill 9 9 16 HT.ex. 9 9 9 17 Solid 9 9 9 18 Uthriticesci 9 9 9 19 Obters I (fary, solid) in terrarial) 9 9 9 20 Obters I (fary, solid) in terrarial) 9 9 9 21 Obters I (fary, solid) in terrarial) 9 9 9 22 Obters I (fary, solid) in terrarial) 10 9 9 23 Obters I (fary, solid) in terrarial) 10 9 10 24 Intersel(i ary, solid) in terrarial) 10 10 10 24 Intersel(i ary, solid) in terrari	6	HT Water Supply					
II locatrial (Senal) II locatrial (Senal) II Secandors III Secandors IIII Secandors IIII Secandors IIII Secandors IIIIII IIIIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	10	HT industrial			384	239,844313	
12 Identifiable 41 235,370,65 13 Refinementifi 47 235,370,65 14 Ingration Schemert Hospitals & Hospitals 9 275,370,65 15 Infinigation Schemer Hospitals 9 275,370,65 16 Infinigation Schemer Hospitals 9 275,370,65 17 Infinigation Schemer Hospitals 9 9 18 Genement Hospitals 9 9 9 19 Infinigation Schemer Hospitals 9 9 9 10 Infinition Hospitals 9 9 9 9 10 Infinition Hospital 9 9 9 9 9 11 Infinition Hospital 9 <td>11</td> <td>Industrial (Small)</td> <td></td> <td></td> <td>1</td> <td></td> <td></td>	11	Industrial (Small)			1		
13 If Commercial 0.1 213,370,065 14 Hergine to Goment Hoopidsk (hopust 2 15 Hergine to Goment Hoopidsk (hopust 2 16 If Tess. Apertments Applitable to all areas 17 Mod Load 4025 18 Others I (flanzy, specify in remarks) 4025 19 Diters I (flanzy, specify in remarks) 4025 20 Diters I (flanzy, specify in remarks) 4025 21 Diters I (flanzy, specify in remarks) 4025 22 Diters I (flanzy, specify in remarks) 4025 23 Ditters I (flanzy, specify in remarks) 4025 23 Ditters I (flanzy, specify in remarks) 24 Ditters I (flanzy, specify in remarks) 25 Ditters I (flanzy, specify in remarks) 26 Ditters I (flanzy, specify in remarks) 27 Dit	12	Industrial (Medium)					
14 Applicabilitie Government Kospitalitie Mospitalitie Mospitalite Mospitalitie Mospite Mospitalitie Mospitalite Mospital	13	HT Commercial			471	276.370495	
15 Lithrigation Schemes/Lithrigation Schemes/Li	14	Applicable to Government Hospitals & Hospitals					
16 Iff Tex, Apertments Applicable to all areas 1 Made Load 1 Made Load 18 Made Load </td <td>15</td> <td>Lift Irrigation Schemes/Lift Irrigation Societies</td> <td></td> <td></td> <td></td> <td></td> <td></td>	15	Lift Irrigation Schemes/Lift Irrigation Societies					
17 Mxed Load 11 Mxed Load 11 11 18 Government ciffkær and Gopartment 10 12 1339.01 10 Others 2 (ifany, specify in remarks) 1339.01 1339.01 21 Others 2 (ifany, specify in remarks) 1339.01 1339.01 22 Others 2 (ifany, specify in remarks) 1339.01 1339.01 23 Others 2 (ifany, specify in remarks) 10 10 23 Others 2 (ifany, specify in remarks) 10 10 24 Others 2 (ifany, specify in remarks) 10 10 25 Others 2 (ifany, specify in remarks) 10 10 26 Others 2 (ifany, specify in remarks) 10 10 27 Others 2 (ifany, specify in remarks) 10 10 28 Others 2 (ifany, specify in remarks) 10 10 29 Others 2 (ifany, specify in remarks) 10 10 20 Others 2 (ifany, specify in remarks) 10 10 21 Others 2 (ifany, specify in remarks) 10 10 21 Others 2 (ifany, specify in remarks) 10 10 22 Others 2 (ifany, specify in remarks) 10 10 23 Others 2 (ifany, specify in rema	16	HT Res. Apartments Applicable to all areas					
18 Government: offices and department 40355 1399-01 10 Others 21 (frany, specify in remarks) 40355 1399-01 20 Others 21 (frany, specify in remarks) 40355 1399-01 21 Others 21 (frany, specify in remarks) 40355 1399-01 22 Others 21 (frany, specify in remarks) 40355 1399-01 23 Others 21 (frany, specify in remarks) 40456 40456 23 Others 21 (frany, specify in remarks) 40456 40456 24 Others 21 (frany, specify in remarks) 40456 40466 23 Others 21 (frany, specify in remarks) 40456 40466 24 Others 21 (frany, specify in remarks) 40456 40466 23 Others 21 (frany, specify in remarks) 40466 40466 40466 24 Others 21 (frany, specify in remarks) 40466 40466 40466 40466 24 Others 21 (frany, specify in remarks) 40466 40466 40466 40466 24 Othere 21 (frany, specify in remarks) 40466<	17	Mixed Load					
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33 Dhores 5 (fi any, specify in remarks)	22	Others-4 (if any , specify in remarks)					
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5.9 List of Document Verified with each parameter

INSTRUCTION FOR FILLING UP THE FORM- INPUT ENERGY & KEEPING RECORDS AND INFORMATION FO VERIFICATION PROCESS

A.1	Please provide the details of purchased energy
A.2	Please provide the transmission loss %
A.4	Energy sold outside the periphery

8	100% collection) Consumers (50% unto 100% collection)			
	contenters (serve apro 20010 contextorily	Rs. Cr.	15.94	
19 The Pow	er Purchase Quantum for true up of FY 2020-21 a	as submitted by TPD	DDL is as follows:	
-	Table 5: Power Purchase Quantum (MU) for F1	2020-21 as per Au	uditor's certificate	
Sr. No.	Particulars		Actual Power Purchase	
1	Power Purchase:			
1	Power Purchase Quaritum		8520.52	
-	Short Term Power Purchase quantum		1565.10	
	Short term sale of Power		(811.16)	
	Sub-total Power Purchase		9274.46	
2	Transmission Loss:		10000	
- i -	Inter-State Transmission Loss		(90.89)	
1	Intra-State Transmission Loss		(233.46)	
	Total Transmission Loss	11	(324.35)	
3	Net Power Available after Transmission Loss		8950.12	

B.1	Please enter energy input details meter wise, with other mentioned details
B.2 to	Please enter energy input details meter wise, with other mentioned details of all input
B.1000	energy injections points

				Annual AT&C L	oss (FY2020-2021)		1.1		
Name of District	Energy Input (MU)	Energy Billed (MU)	D&B Losses (%)	Amount Billed (Rs. Cr.)	Amount Realized (Rs. Cr.)	Coll. Eff. (%)	Average Rate of billing (Ra./Kwh)	Energy Realized (MU)	AT&C Losses (%)
Batli	572.64	506.25	11.59%	469.27	496.17	101.41%	9.65	513.38	10.35%
Jawana	1211.33	1049.85	13.33%	1207.53	1227.81	101.68%	11.60	1067.48	11.68%
Sivil Lines	717.65	698.06	2.73%	614.19	612.99	99.80%	8.80	696.70	2.92%
Keshav Purem	776.54	732.97	5.61%	667.64	689.81	100.32%	9.38	735.28	5.31%
langolpuri	596.14	563.84	5.42%	363.63	388.29	101.16%	6.81	570,40	4.32%
Model Town	627.77	596.41	4.99%	471.62	469.80	99.62%	7,91	594.12	5.36%
Noti Nagar	717.87	681.99	5.00%	655.97	657.56	100.24%	9.62	663.64	4.77%
Varela	1015.34	901.51	11,21%	932.72	944.94	101.31%	10.35	913.32	10.05%
Ham Pura	602.66	578.48	4.34%	489.56	400.42	100.17%	8.40	577.40	4.18%
Rahini	1014.10	981.81	3.18%	754.81	758.88	100.54%	7.69	967.11	2.66%
Grani	373.88	334.90	10.43%	212.21	212.33	100.08%	8.34	335.09	10.38%
ihalimar Bagh	724.20	686.37	5.22%	487.42	490.87	100.71%	7.10	691.23	4.55%
POOL Total	8950.12	8319.43	7.15%	7386.76	7439.86	100.72%	8.89	8370.17	6.48%
shini rari halimar Bagh MDDL Total	1014.10 373.68 724.20 8950.12	361,61 334,90 686,37 8319,43	3.18% 10.43% 5.22% 7.18%	754.81 212.21 487.42 7386.76	755.88 212.33 490.87 7439.80	100.54% 100.06% 100.71% 100.72%	7.59 16.34 7.10 8.89	987.11 335.09 691.23 8376.17	2.58% 10.38% 4.55% 6.48%

⇒ C O . # H	ip:///www.tatapower-	ddl.com/Editor(Jupio	sdeiDocuments/C	intent/AT&C,300	count, hr. PL202	194 1505-1		θ,	台章	*	
E AT&C loss report fo	e FY 2020-2021.sbs		1	(1) - B	254 + 🔳	ð				*	÷
		0.2		Annual AT&C La	ona (FY2020-2021)						
Name of District	Energy input (MU)	Energy Billed (MU)	D&B Losses (%)	Amount Billed (Rs. Cr.)	Amount Realized (Rs. Cr.)	Coll. Eff. (%)	Average Rate of billing (Rs./Kwh)	Energy Realized (MU)	AT&C L		1940
Badi	572.64	506.25	11.59%	469.27	406.17	101.41%	9.66	913.38	10	1.35%	
Bawana	1211.33	1049.85	15.33%	1207.53	1227.81	101.68%	11.50	1067.48	11	88%	_
Civil Lines	717.65	698.06	2,73%	614.18	012.99	89.80%	8.80	695.70	2	92%	
Keahav Puram	776.54	732.97	5.61%	667.64	689.51	100.32%	9.38	735.28	5	31%	
Mangolpuri	596.14	563.84	5.42%	363.83	368,29	101.16%	8,81	570.40	4	32%	_
Model Town	621.77	096.41	4,99%	471.62	469.80	99.82%	7.95	094.12	8	36%	_
Moti Nagar	717.87	681.99	5.00%	665.97	657.56	100,24%	9.62	053.64	4	37%	
Nareta	1015.34	901.51	11,21%	932.73	044.94	101.31%	10.38	913.32	10	105%	
Pitam Pura	602.66	576.48	4.34%	489.56	490.42	100.17%	6,49	677.49	4	18%	_
Rohini	1014.10	981.81	3.18%	754.81	750.88	100.54%	7.09	907.11	2	50%	
Kinari	373.88	334.90	10.43%	212.21	212.33	100.06%	6.34	339.09	10	1.38%	
Shalimar Bagh	724.20	686.37	5.22%	487.42	400.87	100.71%	7.10	691.23	4	50%	
TPODI, Total	8958.12	8310.43	7.16%	7386.76	7429.06	106.72%	8,09	8176.17	6	48%	

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	Please enter no of un-metered consumers category wise of that circle only
	Please enter connected load of metered consumers category wise of that circle only
S.No 1	Please enter connected load of un-metered consumers category wise of that circle only
	Please enter input energy of the circle only
	Please enter billed metered energy category wise of that circle only
	Please enter billed un-metered energy category wise of that circle only

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				Annual AT&C L	oss (FY2020-2021)				
Name of District	Energy input (MU)	Energy Billed (MU)	D&B Losses (%)	Amount Billed (Rs. Cr.)	Amount Realized (Rs. Cr.)	Coll. Eff. (%)	Average Rate of billing (Rs./Kwh)	Energy Realized (MU)	AT&C Losses (%)
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Civil Lines	717,65	698.06	2.73%	614.19	612.99	99.80%	8.80	696.70	2.92%
Keshav Puram	776.54	732.97	5.61%	687,64	685.81	100.32%	9.38	735.28	5.31%
Mangolpuri	596.14	563.84	5.42%	363.63	366.29	101.16%	6.81	570,40	4.32%
Model Town	627.77	596.41	\$66.4	471.62	469.80	99.62%	7.91	594.12	5.36%
Moti Nagar	717.87	681,99	5.00%	655.97	667.56	100.24%	9.62	683.64	4,77%
Narela	1015.34	501.51	11.21%	932.72	944.94	101.31%	10.35	913.32	10.05%
Pitam Pura	602.66	576.48	4.25%	489,56	490.42	100,17%	8.49	577.49	4.18%
Rohini	1014.10	981.81	3.18%	754.81	758,88	100.54%	7.69	987.11	2.66%
Kirari	373,88	334,90	10.43%	212.21	212.33	100.06%	6.34	335.09	10.38%
Shalimar Bagh	724.20	686,37	5.22%	487,42	490.87	100.71%	7.10	691.23	4.55%
TPDDL Total	8950.12	8310.43	7.15%	7386.76	7439.86	100.72%	8.89	8370.17	5.48%

All the above figures have been truncated to two decimal places. Energy Realized (MU) data (at TPDOL level) has been calculated as per average billing rate(at TPPDL level).



Executive Summary - Tata Power Delhi Distribution Ltd. - True up of FY 2020-21 and ARR FY 2022-23

Sr. No.	Particulars	UoM	MU
1	Billed Sales	MU	8,310.43
2	Actual Distribution Loss Level	%	7.15%
3	Target Distribution Loss Level	%	7.90%
4	Actual Input @ actual distribution loss level	MU	8,950,12
5	Desired Input @ Target distribution loss level	MU	9,017.49
6	Saving in Input due to lower distribution loss level	MU	67
7	Power Purchase Cost	Rs./kWh	5.94
8	Total Overachievement Incentive	Rs. Cr.	40.01
9	TPDDL's Share	Rs. Cr.	25.79

1.8 TPDDL has submitted collection efficiency as 100.76% for FY 2020-21 and Overachievement Incentive on account of higher collection efficiency as follows:

Sr. No.	Particulars	UoM	Values
1	Amount Billed	Rs. Cr.	6,377.95
2	Amount Collected	Rs. Cr.	6,426.27
3	Collection Efficiency	%	100.76%
4	Target collection efficiency	%	99.50%
5	Amount of Collection over and above 99.50% target	Rs. Cr.	80.21
6	Sharing of Incentive		
7	Discoms (50% upto 100% and 100% beyond 100% collection)	Rs. Cr.	64.27
8	Consumers (50% upto 100% collection)	Rs. Cr.	15.94

Table 4: Computation of Collection Efficiency and Incentive for FY 2020-21

19 The Power Purchase Quantum for true up of FY 2020-21 as submitted by TPDDL is as follows:

Table 5: Power Purchase Quantum (MU) for FY 2020-21 as per Auditor's certificate

Sr. No.	Particulars	Actual Power Purchase
1	Power Purchase:	
i	Power Purchase Quantum	8520.52
11	Short Term Power Purchase quantum	1565.10
iii	Short term sale of Power	(811.16)
	Sub-total Power Purchase	9274.46
2	Transmission Loss:	
i	Inter-State Transmission Loss	(90.89)
ii	Intra-State Transmission Loss	(233.46)
	Total Transmission Loss	(324.35)
3	Net Power Available after Transmission Loss	8950.12



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The component wise detailed information's are given in relevant paras of this chapter.

Truing up of Revenue Billed and Revenue available towards ARR

Revenue Billed for FY 20-21

In its Tariff Order for FY 2020-21, the Hon'ble Commission had projected billed sale of energy of 8,316 MU for the FY 2020-21. Against the same, Tata Power- DDL has actually billed 8,310 MU as sale of energy including actual own consumption of 13.11 MU. Given below is the table showing the category wise comparative between projected energy sale and actual energy billed.

S.		Approved Projected	Actual
No.	Category	Billed sale of Energy (MU)	Billed sale of Energy (MU)
1	Domestic	4294	4474
2	Non-Domestic	1302	1182
3	Industrial	2078	2080
4	Agriculture & Mushroom	15	17
5	Public Utilities	514	440
6	Advertisement & Hoardings	0	0
7	Temporary Supply	56	60
8	Charging Stations for E-Rickshaw/ E-Vehicle on Single Delivery Point	27	16
9	Others*	29	40
	Grand Total	8,316	8.310

Table 3.1: Category wise billed energy sale (Projected vis-à-vis Actual) for FY 2020-21

*others includes Enforcement, own consumption, staff, misuse & other adjustments

Based on actual energy billed, category wise % share in total energy billed is shown below:



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The Hon'ble Commission in its Business Plan Regulations, 2017 has specified that for the purpose of truing up, the Own Consumption shall be considered @ 0.25% of the energy billed or the actual consumption of licensee whichever is lower. Thus, for the purpose of truing up, Tata Power- DDL has considered actual consumption of 13.11 MU towards own consumption against the normative own consumption of 20.78 MU.

S. No.	Category	Total M con and sand	Number of sumers ctioned load	Net Units Sold
		MW	No.	MIL
1	Domestic	3,166	1529528	4474
2	Non-Domestic	1,234	233664	1105
3	industrial	1.312	30403	1182
4	Agriculture	30	1202	2080
5	Public Utilities	211	4303	17
6	Advertisement & Hoardings	244	0189	440
7	Temporary Supply	1	238	C
	Charging Stations for 5 million	39	15144	60
8	Vehicle on Single Delivery Point	5	710	16
9	Others*	20	2000	2000 - Contra - Contr
	Grand Total	60	3852	40
		6,026	1824031	8,310

Table 3.2: Category wise billed energy sale (MU) sought for truing up for FY 2020-21

Further, the Hon'ble Commission in its Tariff Order for FY 2020-21 had projected total revenue of Rs. 6,519.33 Cr. out of which Rs. 6036.42 Cr. had been projected towards fixed charges and Energy Charges and balance Rs. 482.91 Cr. (i.e. 8% Deficit Recovery Surcharge)

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to be applied on fixed and energy charges) had been projected towards recovery of carrying cost and accumulated revenue gap. Given below is the category wise billed revenue projected for FY 2020-21.

S. No.	Category	Net Units Sold "A"	Fixed Charges Billed – "B"	Energy Charges Billed "C"	Total Revenue "D=(B+C)"	ABR/kWh E= D/A*10	Deficit Recovery Surcharge of 8% F = D*8%
STREET		MU		Rs. Cr.		and the second second	Rs. Cr.
1	Domestic	4294	199.00	1,830.61	2,029.61	4.73	162.37
2	Non-Domestic	1302	379.13	1,085.25	1,464.38	11.25	117.15
3	Industrial	2078	423.80	1,610.45	2,034.25	9.79	162.74
4	Agriculture & Mushroom	15	4.98	2.29	7.27	4.85	0.58
5	Public Utilities	514	77.29	321.13	398.42	7.75	31.87
6	Advertisement and hoarding	Ø					
7	Vehicle on Single Delivery Point	27	13.40	89.09	102.49	9.15	8.20
8	Others	85					
9	Grand Total	8,316	1,097.60	4,938.82	5,036.42	7.26	482.91

Table 3.3: Category wise Projected billed energy sale (MU) and Revenue (Rs. Cr.) for FY 2020-21

*others includes Enforcement, own consumption, staff, misuse, other adjustments and temporary supply

Against the said projected billed revenue, Tata Power- DDL has actually billed energy revenue (net of E. tax and Pension Trust Surcharge) of Rs. 6,850.46 Cr. at approved Retail Supply Tariffs.

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Methodology for computation of AT&C loss level has been provided in Regulation 4.7 (a), (b) and (c) of MYT Regulations, 2011.

From the above table, it can be seen that target Distribution Loss Level for FY 2020-21 has been fixed @ 7.90%. Against the said target, Tata Power DDL has achieved actual Distribution loss level of 7.15% for FY 2020-21. Computation of the actual distribution loss level is given below:

1	able 3.6: Computation of T&D loss	and	overachievement for FY 2020-21
10	1000		of crucine venient for FT 2020-21

Sr. No	Particulars	MU	Remark
A	Input	8.050.13	TIL
В	Billed Units	0,950.12	Table 3.13
С	Actual Distribution Loss Level	7.150/	Table 3.4
D	Target Distribution Loss Level	7.15%	(1-B/A)
E	Overachievement/(Underachievement)	0.75%	(D = C)

Further the 25(4) of the Business Plan Regulation, 2017 provided that "Any financial Impact due to overachievement on account of Distribution Loss target by the distribution licensee for the relevant year shall be shared between the Distribution Licensee and consumers as follows:

- i. In case actual distribution loss is between the loss target and loss target minus [50%*(Previous Year Target Current Year Target)] for the relevant year shall be shared in the ratio of 2/3rd to Consumers and 1/3rd to the Distribution Licensee;
- *II.* In case actual distribution loss is less than loss target minus[50%*(Previous Year Target Current Year Target)]for the relevant year shall be shared in the ratio of 1/3rd to Consumers and 2/3rd to Distribution Licensee."

Previous year loss target was 8.00% for the purpose of computation of sharing of incentive.

S. No.	Particulars	Distribution Loss Level	Remark
А	Previous year target	8.00%	
В	Target Distribution Loss Level	7.90%	Table 15
C	Actual Distribution Loss Level	7.15%	Table 2.6

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Table 3.8 Overachievement Incentive on account of reduction in Distribution Loss Level

Sr. No	Particulars	MU	Remark
А	Billed Sales	8,310.43	Table 3.6
В	Actual Distribution Loss Level	7.15%	Table 3.6
С	Target Distribution Loss Level	7.90%	Table 3.6
D	Actual Input @ actual distribution loss level	8,950.12	Table 3.13
E	Desired Input @ Target distribution loss level	9,017.49	D+D*(C-B)
F	Saving in Input (MU) due to lower distribution loss level	67	(E-D) or D*(C-B)
G	Power Purchase Cost	5.94	Table 3.27
Н	Total Overachievement Incentive	40.01	E*G/10
1	TPDDL Share	25.79	

Revenue Realization

Computation of Collection Efficiency and overachievement incentive for FY 20-21

Regulation 10 of the DERC Tariff Regulations, 2017 provided that

"Collection efficiency, which shall be measured as ratio of total revenue realized to the total revenue billed in the same year:

Provided that Revenue Realised or Revenue Billed on account of electricity duty, late payment surcharge, any other surcharge shall be excluded from the computation of Collection Efficiency;"

S. No.	Particular	UoM	Amount	Remark
A	Total Revenue Billed as per Form 2.1a	(Rs Cr)	7,386.76	
B	Less- Electricity Tax	(Rs Cr)	274.49	Note 40.1 of the
С	Less- 8% Deficit Revenue Recovery Surcharge	(Rs Cr)	472.50	Audited Financial Statement
D	Less- Pension Trust Surcharge of 3.80%	(Rs Cr)	261.82	
E	Net Revenue Billed	(Rs Cr)	6,377.95	(A-B-C-D)

Table 3.9: Revenue Billed for the purpose of computation of collection efficiency for FY 20-21

During the FY 2020-21 Tata Power- DDL has realized an amount of Rs. 7,439.86 Cr against the total revenue billed of Rs. 7,386.76 Cr. Given below is the working of revenue collection to be considered for truing up of AT&C Loss Level:

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Table 3.10: Amount of revenue available for AT&C Computation for FY 2020-21 (Rs Cr)

SI. No.	Particular	Amount	Remarks
A	Total Revenue Realized	7439.86	
В	Less: Electricity Tax	274.29	Note 40.2 of the Aurliter
С	Less: 8% Deficit Revenue Recovery Surcharge	476.58	Financial Statement
D	Less: Pension Trust Surcharge	262.71	
E	Revenue Collected for Collection Efficiency	6,426.27	(A-B-C-D)

Based on above submission, computation of collection efficiency and corresponding incentive is calculated as below:

SI. No.	Particular	UoM	Amount	Remarks
А	Amount Billed	(Rs Cr)	6.377.95	Table 3.4
В	Amount Collected	(Rs Cr)	6,426.27	Table 3.10
С	Collection Efficiency	9/0	100.76%	B/A
D	Target collection efficiency	%	99.50%	As per BPR.2019
E	Amount of Collection over and above 99.50% target	(Rs Cr)	80.21	A*(C-D)
F	Sharing of Incentive			
	Discoms (50% upto 100% and 100% beyond 100% collection)	(Rs Cr)	64.27	
	Consumers (50% upto 100% collection)	(Rs Cr)	15,94	

Table 3.11: Computation of Collection Efficiency and Incentive for FY 20-21

Computation of Revenue Available for FY 2020-21

The Computation of net revenue available after adjusting the Incentive towards lower Distribution Loss Level and Higher Collection Efficiency is given below. It is worth to mention that for the purpose of computing surplus or deficit for the year, the amount of net revenue is considered based on actual collection only.

SI. No.	Particular	Collection Other than (DRS/PTS)	Remarks
A	Total Collection*	6,426.27	Table 3.10
В	Less- Overachievement Incentive towards Lower Distribution Loss	25.79	Table 3.8
C	Less- Overachievement incentive towards Collection	64.27	Table 3.11
D	Collection available towards ARR	6,336.22	(A-B-C)

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Power Purchase

Power Purchase Quantum

During FY 2020-21, the Petitioner has purchased 10,085.62 MUs out of which 811.16 MUs of surplus energy was sold as short term sale of surplus power.

Deducting the Inter-State transmission loss of 233.46 MUs and Intra-State transmission loss of 90.89 MUs, the Petitioner has submitted a net power purchase quantum of 8,950.12 MUs (excluding open access quantum consumed by open access consumers) delivered at TPDDL distribution periphery.

The summary of power purchase quantum for FY 2020-21 as per Auditor certificate as Annexure A-3 is given below:

Particulars Power Purchases	Actual Power Purchase (MUs)	Competer (D.
Power Purchasor	4 here builded and the second s	nemarks / Re
· over / dichdse.	(1103)	
Power Purchase Quantum	0.530.53	
Short Term Power Purchase quantum	0,520,52	
Short term sale of Power	1,565.10	**********
Net Power Purchase	-811.16	
Transmission Loss:	9,274.46	(i+ii+iii)
Intra-State Transmission Loss	20.00	
Inter-State Transmission Loss	-90.89	
Total Transmission Loss	-2.33.46	
Net Power Available after Transmission	-324.35	(i+ii)
Loss	8,950.12	(A+B)
	Power Purchase Quantum Short Term Power Purchase quantum Short term sale of Power Net Power Purchase Transmission Loss Intra-State Transmission Loss Inter-State Transmission Loss Total Transmission Loss Net Power Available after Transmission Loss	Power Purchase Quantum 8,520,52 Short Term Power Purchase quantum 1,565,10 Short term sale of Power -811,16 Net Power Purchase 9,274,46 Transmission Loss: 9,274,46 Intra-State Transmission Loss -90,89 Inter-State Transmission Loss -233,46 Total Transmission Loss -324,35 Net Power Available after Transmission 8,950,12

Table 3.13: Power Purchase Quantum (MUs) for FY 2020-21 as per Auditor's certificate

Actual consumption

It is submitted that Delhi SLDC issues weekly UI bills from where the actual drawl by a utility is finalized. It may be noted that there is a time lag of approx. 1months in issuing of the UI bills by Delhi SLDC and at the time of finalizing of accounts for FY 2020-21, the UI bills were not issued for the period 01st March 2021 to 31st March 2021. Hence TPDDL had taken a provision of the actual consumption MUs for the months for which bills were not issued. The breakup of consumption in FY 20-21 is as under:

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Table 3.14: Input (MUs) as per Auditor Certificate

Particulars	MU
Actual demand of FY 20-21 as per Delhi SLDC UI bills	8,338.93
(-) Open Access consumer	-59.75
(+) TATA Power-DDL Solar generation	2.01
(+) Provisional	664.59
(+) Net metering	4.34
Total consumption	8,950.12

Hence, Input considered for FY 20-21 is 8,950.12 MU.

Summary of Central Generating Station wise power scheduled during the year is given below:

The Hon'ble Commission has projected energy purchase of 7,563 MU for FY 2020-21. During the year, the Petitioner has purchased 8,520.52 MU from long term sources.

Sr.	Particulars	Energy (MU)	Energy (MU)	Difference
110.		Projected	Actuals	
A	NTPC			
	Anta Gas Power Station	2	11.28	9.28
	Auraiya Gas Power Station	27	22.29	-4.71
	Dadri Gas Power Station	49	55.11	6.11
_	FARAKKA	32	31.85	-0.15
	KAHALGAON - I	84	78.82	-5.18
	NCPP - DADRI	16	4.95	-11.05
	RIHAND - I	202	192.78	-9.22
Contra Dis	RIHAND - II	268	289.92	21,92
	SINGRAULI	314	292.05	-21.95
	UNCHAHAR - I	28	34.27	6.27
in the second	UNCHAHAR - II	54	62.28	8.28
	UNCHAHAR - III	40	44.74	4.74
	KAHALGAON - II	311	233.25	-77.75
	DADRI EXTENSION	23	36.65	13.65
	ARAVALI	44	964.98	920.98
	Sub-Total NTPC	1,494	2,355.22	861.22
3	NHPC		and the second	
	BAIRA SIUL	16	14.68 1	TAD -1.36
	CHAMERA - I	58	54.18	3 82
	CHAMERA – II	49	27.14	131 86

Table 3.15: Energy Purchased (MU) from Central Generating Stations during FY 2020-21

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ł.	CHAMERA - III	39	38.20	-0.80
	DHAULIGANGA	49	45.79	-3.2
	DULHASTI	82	87 38	5 3
	Parbati – III	26	23.59	-2.4
	SEWA -II	74	14.97	-9.0
	TANAKPUR	15	13.66	-7 74
	URI	99	97.79	-1.7
-	Uri - II	65	63.49	-1.5
	Sub-Total NHPC	523	480.34	-42.66
C	NUCLEAR	020	100.31	42.00
	RAPS - 5 & 6	174	119.56	-4.34
-	NPCII – NAPS	110	05.50	-13 31
	Sub-Total Nuclear	234	216 35	17.65
D	Other Stations		220.00	
-	THDC			
-	KOTESHWAR HEP	36	36 30	0.30
	TEHRI HEP	50	58.42	-0.55
	STIM		20,12	-0.30
	NIPC (SIVNL)	713	203.16	-0.84
	DVC		200.10	2.01
	Meija unit - 6	130	154.22	24.22
	DVC Chandrapur (Evt. 7.8, 8)	505	590.53	14.47
	Other CSGS			-7.4.41
	Harvana CLP Iliaijar	404	402.37	0.62
	MPL DVC - Mailbon Power	1 007	1 071 07	-0.05
11	Tala	36	30.50	5.41
	Sacan LIMPP	447	A60.65	1265
-	SECI Solar Pajachan	40	400.03	10.00
	Survakanta HEP	44		-40.00
	Nanti HEP	40		
	SEISODI	167		-40.00
	Taranda HEP	48		-107.00
	Singrauli HEP	3		-40.00
	Sub Total (SJVNL+DVC+THDC+Other CSGS)	4,169.00	3,799.20	-369.80
E	State Generating Stations			
	Gas Turbine Power Station (GTPS)	126	122.21	-3 79
	Pragati – I	296	286.79	-9.21
10.000	Pragati – III	636	694 30	58.30
	Timarpur-Okhla Waste Mot. Co	50	50.01	0.01
	MSW Bawana	33	50/01	-33.00
	Tata Solar	2		-2.00
	SGS Total	1,143.00	1,153.32	10.32
-	RENEWABLE ENERGY		62	MAR AN
	Net metering		4:34	64.34
	SECI 20 MW Solar		41,04	41.04

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	Grand Total	7,563.0	8,520.52	957.52
	Renewable Total	0	516.09	516.09
8	Singrauli Small Hydro		3.61	3.61
_	Suryakanta Hydro Energies Pvt. Ltd.		44.35	44.35
	Taranda Hydro		49.96	49.96
	SECI- Wind		53.05	53.05
	NANTI HYDRO POWER PRIVATE LIMITED		46.94	46.94
	DMSWSL		39.17	39.17
	Own Solar		2.01	2.01
	SEI Sunshine		59.77	59.77
autor co	SEI Sooraj		54.61	54.61
	SEI Solarvan		55.34	55.34
	SEI Renewable		22.21	22.21
	SEI RaviKiran		20.84	20.84
-	SEI Jyoti Swaroop		18.85	18.85

* MU scheduled to the petitioner in FY 20-21 as per invoices. Figures fetched from Audited Power Purchase Certificate Annexure A-3

Short Term Power Purchase

During this financial year the Petitioner has purchased 1,565.10 MU through bilateral/exchange/UI/Intrastate/Banking as short-term power purchase. Out of 1,565.10 MU the Petitioner has received back 187.83 MUs of banking and purchased 10.57 MU through UI, 644.26 MU through Bilateral, 42.18 MU through intra state purchase and balance 680.26 MU through Exchange mode. A comparative summary of sources wise short term power purchase from various sources from FY 2018-19 onwards are shown below:

		FY 18-19		FY 19-20		FY 20-21*	
S. No. A B	Particulars	Energy (MU)	(%)	Energy (MU)	(%)	Energy (MU)	(%)
А	Bilateral	0	0%	465.80	20%	644.26	41%
В	Banking	852.65	78%	723.10	31%	187.83	12%
С	Exchange	138.98	13%	1071.10	46%	680.26	43%
D	Intra state	34.75	3%	89.70	4%	42.18	3%
E	UI	68.36	6%	4.20	0%	10.57	1%
F	Total	1094.74	100%	2353.90	100%	1,565.10	100%
igures fe	etched from Audit	ed Power Purchase	Certificate	Annexure A-3		EN DETU	10

Table 3.16: Details of Short term Power Purchase

Short Term Power Sale

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During the year the Petitioner has sold 811.16 MU of surplus energy out of which 92.49 MU (11%) was sold through UI, 200.35 MU (25%) was banked, 403.16 MU (50%) was sold through exchange and 115.15 MU (14%) through intra-state arrangements.

A comparative summary of source wise short term power sales through various sources from FY 2018-19 onwards are shown below:

~		200 200 0	FY 18-	FY 18-19 FY 19-20		FY 18-19 FY 19-20 FY 2		FY 19-20 FY 20-21		18-19 FY 19-20 FY 20-2		FY 18-19		21*
S. No.	Particulars	Energy (MU)	(%)	Energy (MU)	(%)	FY 20-2 Energy (MU) 200.35 403.16 115.15 92.49 811.16	(%)							
A	Bilateral	201.97	10%	10.90	2%		0%							
В	Banking	701.39	34%	198.40	39%	200.35	25%							
C	Exchange	1,081.87	52%	134.80	27%	403.16	50%							
D	Intra state	43.80	2%	22.60	4%	115.15	14%							
E	UI	57.34	3%	137.40	27%	92.49	11%							
F	Total	2,086.37	100%	504.10	100%	811.16	100%							

Table 3.17: Details of Short term Power Sales

*Figures fetched from Audited Power Purchase Certificate Annexure A-3

Power Purchase Cost

The Petitioner has incurred gross power purchase cost of Rs. 4723 Cr (including cost of reversal of RE Cost) for the gross power purchase quantum of 10086 MUs in FY 2020-21 from all sources including intra-state, bilateral, UI and exchange. The revenue of Rs. 248 Cr on account of sale of 811 MU of surplus energy through bilateral, intra-state, UI and exchange has been adjusted against the gross power purchase cost. The Petitioner has also incurred transmission charges of Rs. 946 Cr,

Further in order to meet RPO obligations no cost has been incurred towards purchase of RE certificates. The Petitioner has arrived at total audited power purchase cost of Rs. 5315 Cr for FY 2020-21. Given below is the energy balance approved by Hon'ble DERC and the corresponding cost incurred by the petitioner.

Particulars	Energy (MU)	Total Charges (Rs. Cr.)	Rs./kwh	Energy (MU)	Fixed Charges (Rs. Cr.)	Variable Charges (Rs. Cr.)	Other Charges (Rs. Cr.)	Total Charges (Rs. Cr.)	Rs./kwh
	Approved in ARR		Sought for Trued Up						
NTPC						1	for an exercise		
Anta Gas Power Station	2.0	7.9	30.55	11.3	6.8	4.2	0.2		10.02
Auraiya Gas Power Station	27.0	21.3	7.90	22.3	10.0	8.0	<u> </u>	* TAPAS	9.11

Table 3.18: Details of Power Purchase Cost Station wise for FY 2020-21

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5.10 Brief description of Unit

Tata Power Delhi Distribution Limited [Tata Power-DDL] is a joint venture between Tata Power and the Government of NCT of Delhi with the majority stake being held by Tata Power Company (51%).

Tata Power-DDL is acknowledged for its consumer-friendly practices. Since privatization, the Aggregate Technical & Commercial (AT&C) losses in Tata Power-DDL areas have shown a record decline.

To ensure reliable power supply and to provide best in class service to its consumers, Tata Power–DDL has implemented several world-class technologies such as Advance Distribution Management system or ADMS which is designed to replace the conventional SCADA-DMS-OMS system with features like real-time integration of Smart Meter Data / Distributed Generation integration and single data model from GIS , Integrated Geographical Information System (GIS) for instant services, Advanced Metering Infrastructure (AMI), Automated Demand Response (ADR), Smart Street Light Management system, Field Force Automation, Upgraded Network, Integrated Toll Free Helpline No. 19124, etc.

Tata Power-DDL is the first Indian utility to be a member of Global Intelligent Utility Network Coalition (GIUNC) which is a coalition of 14 power utilities worldwide and is working towards accelerating the development of common standards, technology solutions and processes for intelligent networks.

Tata Power-DDL provides various facilities and services to its consumers for their ease and convenience such as 24X7 Integrated Helpline, Mobile Application for both iOS and Android users, bilingual website, Multiple Payment Avenue, End to End online services for New Connection, etc.

Tata Power-DDL's contribution towards improving the ease of getting electricity connection through process simplification improving India's ranking twice, from 138 in 2015 to 22 in 2019.

TATA Power-DDL has also added solar generation as a part of its sustainable initiatives since 2008, and has installed fifteen (15) Solar Plants in its Licensed Area with a total generation capacity is 1.8 MW. It has a total of 1420 Rooftop solar plants under net metering with a cumulative capacity of 43MWp. The company is now working on setting up a Smart Grid with the integration of Roof Top Solar, Energy Storage, E-charging of Electric Vehicles, Home Automation etc. in its network.

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. A journey which began a decade ago for empowering the consumers in Delhi now holds the potential to transform the distribution sector in India and similarly help utilities across the globe. Tata Power-DDL has a presence in India in nearly 20+ States and working with 30+ Discoms including Goa, Haryana, Uttar Pradesh, Chhattisgarh etc. as well as in International cities such as Benin, Eko, Kaduna, Kano etc.

Tata Power-DDL is 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, Enel, Omron, 3M, Panasonic, AES, Mitsubishi etc. in the areas of communications & smart grid technology, change management, consumer service delivery and business process re-engineering. Tata Power-DDL has also collaborated with leading international and national Institutions like Harvard, MIT, Ryerson University, IIT Delhi, Punjab Engineering College, Delhi University, Netaji Subhas Institute of Technology etc. to carry out research activities in energy space.

World Class Technologies , Tata Power DDL		
Advance Distribution Management System (ADMS)	Advance Distribution Management System (ADMS) is a single integrated system which will facilitate advanced monitoring, analysis, as well as control and planning, thereby enabling Tata Power-DDL to enhance the reliability, safety and efficiency of the power for the consumers. This system has advanced features of reporting outages and intimating to customers upfront. This system facilitates system controller as well as maintenance team for faster restoration of supply.	
Geographical information System (GIS)	Geographical Information System (GIS) is a foundational technology and single source to have repository of network, asset and consumer indexing for Tata Power-DDL. The data of this system gets integrated with ADMS, FFA, ERP, AMI, etc. for successful functioning of respective systems. This system enables delivering of results in terms of reliable & quality power along with advanced services and timely information to the consumers.	

Table 35: About TATA POWER-DDL

World Class Technologies , Tata Power DDL			
Smart Meter	Smart Meters are basic building blocks of Smart Grid. This technology encompasses Communication System (RF in Tata Power- DDL's case) and Data Handling Technologies (Meter Data Management System). Tata Power-DDL is implementing Smart Metering Technology (Advanced Metering Infrastructure-AMI) to bring operation efficiency in different IT and OT domains. This technology will bring transparency to consumers in terms of their consumption per month and monitoring of other critical parameters like MDI and PF on an instant basis. For Tata Power-DDL, it enables easy detection of pilferage and loss reduction. This last mile link will complete Smart Grid implementation by Tata Power-DDL.		
Smart Street Light Management system	Tata Power-DDL jointly is working on a project for achieving a reduction in the demand of street lighting which coincides with peak load, thereby reducing the overall peak demand, improving the lux levels, improving the power factor and checking the carbon foot print as a responsibility to the society. This will translate into considerable saving to the exchequers. This system is entirely managed through a Smart Centralized Control & Monitoring System which can identify partially or completely affected streetlight circuits on a real-time basis and the type/nature of fault, thereby alerting the maintenance team without any requirement of consumer complaints for such purpose. This will enhance safety & security of general public. It can also detect pilferage from street light circuits and generate alerts.		
Field Force Automation	Customer service through mobile workforce is the key to exceed the expectations of the consumer. Field Force Automation (FFA) is a system which optimizes the various tasks in hand and schedules & dispatches the nearest Crew to provide faster service to the consumers. This system not only enhances the service level but also completely tracks the allocation of workforce.		

• Source of Input Energy

The source of input energy with generation station and generation capacity & contract period is given the table:

Type of Fuel	Generation Capacity (MW)
Gas	507.6
Renewable Energy	305.2
Hydro	204.2
Nuclear	31.0
Coal	1541.7

Table 36: Types of Generation

• Consumer wise connections & energy consumptions for FY 2020-21

Energy consumption with type of consumers is given in the table:

Type of Consumers	Category of Consumers (EHT/HT/LT/ Others)	Voltage Level (V)	No of Consumers	Total Consumption (In MU)
Domestic	HT/LT	11/.22/.4	1540657	4534.71
Commercial	LT		236046	942.86
Water Supply			1311	257.98
Public Lighting			4907	118.48
HT Industrial			384	239.84
HT Commercial			471	276.37
Others-1 (if any , specify in				
remarks)			40255	1939.91
		Total	1824031	8310.16

Table 37: Energy consumption with type of consumers

VI. Number of Consumers

The Tata Power-DDLis divided into five numbers of circles, twelve number of divisions & thirtyseven numbers of sub divisions The numbers of feeders, DT's & number of consumers is 1280,7248 &1824031 respectively.

Table 38: No. of Consumers

Parameters	Values
Number of circles	5
Number of divisions	12
Number of sub-divisions	37
Number of feeders	1280
Number of DTs	7248
Number of consumers	1824031

VII. Voltage wise Meter & Unmetered Consumers

The voltage wise meter types of meter values given table:

Parameters	66kV and above	33kV	11/22kV	LT
Number of conventional metered consumers	0	0	0	1569119
Number of consumers with 'smart' meters	0	0	0	210285
Number of consumers with 'smart prepaid' meters	0	0	0	0
Number of consumers with 'AMR' meters	4	2	1012	43601
Number of consumers with 'non-smart prepaid' meters	0	0	0	5077
Number of unmetered consumers	0	0	0	
Number of total consumers	4	2	1012	1823013

Table 39: Voltage wise type of meters

VIII. Numbers of Distribution Transformers

Table 40: Numbers of Distribution Transformers

Parameters	66kV and above	33kV	11/22kV	LT
Number of conventionally metered Distribution Transformers	0	0	0	252
Number of DTs with communicable meters	0	0	0	3868
Number of unmetered DTs	0	0	0	474
Number of total Transformers	0	0	0	4594

IX. Numbers of Feeders

Table 41: Number of Feeders

Parameters	66kV and above	33kV	11/22kV	LT
Number of metered feeders	134	108	1280	15539
Number of feeders with communicable meters	134	108	1280	0
Number of unmetered feeders	0	0	0	0
Number of total feeders	134	108	1280	15539

X. Length of Cables

Table 42: Length of Cables

Particulars	Value (Km)
Line length (ct km)	1979.1
Length of Aerial Bunched Cables	5556.2
Length of Underground Cables	5832

5.11 List of parameters arrived through calculation or Formulae with list of source of data

Transmission and Distribution Losses (T&D Losses)

- Energy losses occur in the process of supplying electricity to consumers due to technical and commercial reasons.
- The technical losses are due to energy dissipated in the conductors, transformers and other equipment used for transmission, transformation, sub-transmission and distribution of power.
- These technical losses are inherent in a system and can be reduced to a certain level.
- Pilferage by hooking, bypassing meters, defective meters, errors in meter reading and in estimating un-metered supply of energy are the main sources of the commercial losses.
- When Commercial losses are added to Technical losses, it gives Transmission & Distribution (T&D) loss.
- There is another component of commercial losses, which is attributable to nonrecovery of the billed amount, which is reflected in collection efficiency.
- T&D losses together with loss in collection give us Aggregate Technical & Commercial (AT&C) losses.

Calculation of transmission losses:

Transmission losses = Total Energy Purchased - Total Energy Sale - Total Input

Transmission losses (MU)	Value
Total Energy Purchased	10085.62
Total Energy Sale	811.16
Transmission losses	324.34
Total Input	8950.12
Transmission losses (%)	3.22

Table 43: Calculation of transmission losses