NORTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED

(Distribution and Retail Supply of Electricity Licensee)

Filing of Resource Plan for 5th & 6th Control Period

(FY 24-25 to FY 28-29) & (FY 29-30 to FY 33-34)

31st March, 2023

BEFORE THE HONOURABLE TELANGANASTATE ELECTRICITY REGULATORY COMMISSION

AT ITS OFFICE AT 5th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004

FILING NO._____/2023

CASE NO. _____/2023

In the matter of:

Filing of Resource Plan for the 5th & 6th Control Periods (FY 2024-25 to FY 2028-29 & FY 2029-30 to FY 2033-34) in accordance with the Clause 9 of "Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity) Regulation, 4 of 2005" as adopted by Telangana State Electricity Regulatory Commission vide Telangana state Electricity Regulatory Commission (Adoption) Regulation, 2014.

In the matter of:

NORTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED … Applicant

2-5-31/2, Corporate Office, Vidyut Bhavan, Nakkalagutta, Hanumakonda,

Warangal – 506 001, Telangana, India. website: http://www.tsnpdcl.in/

The Applicant respectfully submits as under: -

i. In accordance with clause 9 of the "Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity) Regulation,4 of 2005" as adopted by Telangana State Electricity Regulatory Commission vide Telangana state Electricity Regulatory Commission (Adoption) Regulation, 2014 the Resource Plan shall contain the following:

   - Sales Forecast
   - Load Forecast
   - Power Procurement Plan and
   - Distribution Plan

"*The Distribution Licensee shall file for Commission's approval a Resource Plan on 1st April of the year preceding the first year of Control Period. The Resource Plan shall inter alia, contain the Sales Forecast, Load Forecast, Power Procurement Plan and a Distribution Plan (Capital Investment Plan) consistent with the requirements of the Commission's Guidelines on Load Forecast and Resource Plan (Distribution Plan and Power Procurement Plan) as amended from time to time*."

ii. The Hon'ble Commission shall approve the Resource Plan as per the Guidelines on Load Forecast, Resource Plan (Distribution Plan and Power Procurement Plan) and the Distribution Licensee shall adopt them in the Multi-Year and Annual filings for the respective Control period.

iii. The Guidelines for Load Forecast, Resource Plan (Distribution Plan and Power Procurement Plan) state that the licensee shall submit a Resource Plan for a period of two control periods i.e., Load Forecast, Power Procurement from the year of commencement beginning from 1st April and ending on the following 31st March including a detailed plan for the Control Period under consideration for tariff review purpose and an indicative plan for the subsequent Control Period. The Fifth control period starts from 1st April 2024 and ends on 31st March 2029 while the Sixth control period starts from 1st April 2029 and ends on 31st March 2034.

The licensee herewith submits the Resource Plan for 5th& 6thControl Periods (FY 2024-25 to FY 2028-29 & FY 2029-30 to FY 2033-34) for the review and approval of the Hon'ble Commission.

Sales Forecast:

The licensee has used a modified trend method wherein the historical trends have been modified based on a category to category basis based on the assessment of the licensee. For arriving at the projections for H2 of FY 2022-23 and from the period from FY 2023-24, CAGR for earlier 5 years period has been computed for each category in each circle for considering the appropriate growth rate.

- Category wise Sales forecast for 5th & 6th control period for each Circle is developed primarily based on analysis of historical data and applying appropriate growth rates based on CAGR.
- The 5yr, 4yr, 3yr, 2yr & 1yr CAGR of the sales growth for the period FY2016-17 to FY2021-22 and FY 2017-18 to FY 2022-23 were computed for each consumer category in each circle. The HT and LT sales for FY2021-22 (October, 2021 to March, 2022) are used as a base for H2 FY 2022-23 and the estimated sales for FY 2022-23 are used as a base for the projections from FY 2023-24, except the category of LT Agriculture and HT IV (A) at 132 KV voltage level.
- The Circle wise Sales Forecast is consolidated to arrive at Sales Forecast of TSNPDCL.
- The additional sales are projected based on the requirement given by Telangana State Renewable Energy Development Corporation Limited (TSREDCO), South Central Railways (SCR), Telangana State Industrial Infrastructure Corporation (TSIIC). Further, Singareni Collieries Company Limited (SCCL) sales are reduced on account of setting up captive solar plants and the same have been considered in the projections made.

The category wise Sales projections thus obtained for 5th&6thcontrol period along with effective CAGR are as follows :

Category wise Projected Sales in MU for 5th Control Period						
Category	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
LT I: Domestic	4243	4491	4753	5032	5328	5642
LT II: Non-Domestic/Commercial	915	972	1033	1098	1168	1243
LT III: Industry	245	251	257	263	269	275
LT IV: Cottage Industries	9	10	10	11	11	12
LT V: Agriculture	7890	8285	8699	9134	9591	10070
LT VI: Street Lighting & PWS	370	380	389	399	409	420
LT VII: General	58	61	64	67	70	74
LT VII: Temporary Supply	8	9	9	9	10	10
LT-IX EVs	1	4	8	15	23	32
Total LT	**13740**	**14460**	**15222**	**16028**	**16879**	**17779**
HT I: General, Ferro Alloys & HMWS	2151	2280	2447	2632	2840	3071
HT II: Others	190	201	213	225	238	252

HT III: Airports, Bus Stations and Railway Stations	8	8	8	8	9	9
HT IV (A): LIS	2209	2426	2666	2929	3219	3537
HT IV (B): CPWS	532	544	558	571	585	599
HT V (A): Railway Traction	553	588	614	641	670	700
HT VI: Townships & Residential Colonies	141	144	147	150	153	156
HT VII: RESCOs	32	33	34	35	36	37
HT VIII: Temporary	987	1031	1076	1124	1173	1225
HT-IX EVs	0	0	0	0	0	0
Total HT	**6803**	**7257**	**7763**	**8316**	**8922**	**9586**
Total (LT + HT)	**20543**	**21717**	**22985**	**24344**	**25801**	**27365**

Category wise Projected Sales in MU for 6th Control Period					
Category	**2029-30**	**2030-31**	**2031-32**	**2032-33**	**2033-34**
LT I: Domestic	5976	6331	6709	7111	7539
LT II: Non-Domestic/Commercial	1323	1408	1499	1597	1702
LT III: Industry	282	288	295	302	309
LT IV: Cottage Industries	13	14	15	16	18
LT V: Agriculture	10473	10892	11328	11781	12252
LT VI: Street Lighting & PWS	430	441	453	464	476
LT VII: General	78	82	86	90	95
LT VII: Temporary Supply	11	11	12	13	13
LT-IX EVs	33	33	33	33	34
Total LT	**18618**	**19501**	**20430**	**21408**	**22438**
HT I: General, Ferro Alloys & HMWS	3332	3625	3955	4329	4752
HT II: Others	266	282	299	317	336
HT III: Airports, Bus Stations and Railway Stations	9	9	9	10	10
HT IV (A): LIS	3887	4273	4696	5162	5674
HT IV (B): CPWS	613	628	643	659	675
HT V (A): Railway Traction	732	765	800	837	876
HT VI: Townships & Residential Colonies	159	163	166	169	172
HT VII: Temporary	38	39	40	41	42
HT VIII: RESCOs	1279	1335	1394	1456	1520
HT-IX EVs	0	0	0	0	0
Total HT	**10316**	**11119**	**12003**	**12980**	**14059**
Total (LT + HT)	**28934**	**30620**	**32434**	**34388**	**36497**

Loss Trajectory :

The loss trajectory for the 5th and 6th control periods is proposed as below :

Description	FY2021-22 (Actual)	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
LT Loss (%)	5.43%	5.40%	5.38%	5.37%	5.36%	5.35%	5.34%	5.33%
11kV Loss (%)	3.88%	3.87%	3.86%	3.853%	3.846	3.839%	3.832%	3.825%
33kV Loss (%)	3.01%	3.50%	3.48%	3.474%	3.468%	3.462%	3.456%	3.45%

The below table contains an indicative loss trajectory for the 6th Control period. The licensee would like to emphasize that the loss trajectory for the 6h Control period would depend on the actual achievement of the loss levels by the end of the 5th Control period.

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
LT Loss (%)	5.32%	5.31%	5.30%	5.29%	5.28%
11kV Loss (%)	3.818%	3.811%	3.804%	3.797%	3.79%
33kV Loss (%)	3.444%	3.438%	3.432%	3.426%	3.42%

The estimation of total distribution losses in the distribution system for the 5th control period is as follows:

Description	FY2021-22 (Actual)	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Distribution Losses including EHT (%)	9.15%	9.48%	9.39%	9.36%	9.30%	9.25%	9.19%	9.13%
Distribution Losses Excluding EHT (%)	10.81%	11.26%	11.17%	11.11%	11.09%	11.07%	11.05%	11.03%

The estimation of total distribution losses in the distribution system for the 6th control period is as follows:

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
Distribution Losses including EHT (%)	9.06%	8.99%	8.91%	8.83%	8.75%
Distribution Losses Excluding EHT (%)	11.00%	10.96%	10.93%	10.89%	10.85%

Transmission Loss Trajectory:

The TS TRANSCO loss trajectory for the 5th and 6th control periods are proposed as below :

	Actual	Approved		5th Control Period				
Description	FY2021 -22	FY2022 -23	FY2023 -24	FY2024 -25	FY2025 -26	FY2026 -27	FY2027 -28	FY2028 -29
Transmission Loss	2.47%	2.57%	2.50%	2.48%	2.46%	2.44%	2.42%	2.40%

	6th Control Period				
Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
Transmission Loss	2.385%	2.37%	2.355%	2.34%	2.325%

PGCIL Loss trajectory

The PGCIL losses are applicable on the power procurement from Central Generating Stations in the projections for 5th & 6th Control Periods.

The trajectory for the PGCIL losses (%) is as below:

	5th Control Period				
	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
PGCIL Losses (%)	3.56%	3.54%	3.52%	3.50%	3.48%

	6th Control Period				
	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
PGCIL Losses (%)	3.465%	3.45%	3.435%	3.42%	3.405%

CSPDCL Loss trajectory:

In the CSERC Order for determination of ARR and Tariff for CSPTCL (Chhattisgarh State Power Transmission Company Ltd., for the Control Period from FY 2022-23 to FY 2024-25, the Hon'ble CSERC has approved the CSPTCL losses as 3%.

Hence the Discoms have assumed the same to be applicable for all the years of 5th Control Period and for FY 2029-30 of 6th Control Periods (As the PPA is expiring during FY 2029-30).

Description	5th Control Period				
	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
CSPTCL Losses (%)	3.00%	3.00%	3.00%	3.00%	3.00%

Description	6th Control Period				
	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
CSPTCL Losses (%)	3.00%	-	-	-	-

Load Forecast :

i. The sales forecast output has been considered for projecting the energy requirement for the next two control periods.

ii. The sales projected are grossed up to 33kv losses as per the projected loss trajectory to arrive the energy requirement for the next two control periods.

iii. The energy requirement was further grossed up by 132kV losses to arrive the energy requirement of the licensee.

iv. The energy requirement for next two control periods is as below :

Energy Requirement in MU for 5th& 6th Control Period										
Particular	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
LT sales (MU)	14460	15222	16028	16879	17779	18618	19501	20430	21408	22438
11 kV sales (MU)	2686	2877	3088	3321	3580	3868	4190	4551	4956	5412
33 kV sales (MU)	782	795	809	823	837	852	868	883	900	916
132 kV sales (MU)	3789	4090	4419	4778	5169	5595	6061	6569	7124	7731
Total Sales (MU)	21,717	22,985	24,344	25,801	27,365	28,934	30,620	32,434	34,388	36,497
Aggregate Distribution Loss (%) incl EHT sales	9.36%	9.30%	9.25%	9.19%	9.13%	9.06%	8.99%	8.91%	8.83%	8.75%
TS TRANSCO Transmission Loss (%)	2.48%	2.46%	2.44%	2.42%	2.40%	2.385 %	2.37%	2.355 %	2.34%	2.325%
Total Energy Requirement at State Periphery (excl Interstate Transmission losses) (MU)	**24567**	**25981**	**27496**	**29118**	**30856**	**32595**	**34460**	**36465**	**38624**	**40950**
PGCIL Losses(%)	3.56%	3.54%	3.52%	3.50%	3.48%	3.465 %	3.45%	3.435 %	3.42%	3.405%

CSPTCL Losses (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	-	-	-	-
Total External Transmission losses (MU)	339	334	324	317	273	148	134	134	134	132
Total Power Purchase Requirement at State Periphery (MU)	**24,906**	**26,316**	**27,820**	**29,434**	**31,129**	**32,743**	**34,595**	**36,599**	**38,758**	**41,082**
Aggregate Distribution Loss (%) excl EHT sales	11.11 %	11.09 %	11.07 %	11.05 %	11.03 %	11.00 %	10.96 %	10.93 %	10.89 %	10.85%
Cumulative Transmission Losses (%)	3.81%	3.70%	3.58%	3.47%	3.26%	2.83%	2.75%	2.71%	2.68%	2.64%
Total T&D losses (%)	12.81 %	12.66 %	12.49 %	12.34 %	12.09 %	11.63 %	11.49 %	11.38 %	11.27 %	11.16%

Power Procurement Plan:

Energy Requirement

The total energy requirement for Telangana State is arrived by adding the energy requirements of both the Discoms (TSNPDCL & TSSPDCL).

The energy requirement for 5th Control Period (FY 2024-25 to FY 2028-29) is tabulated below –

Energy Requirement (MU)	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
TSNPDCL	24,906	26,316	27,820	29,434	31,129
TSSPDCL	60,090	63,452	66,955	70,851	74,828
TELANGANA STATE	**84,997**	**89,768**	**94,774**	**1,00,285**	**1,05,957**

The energy requirement for 6th Control Period (FY 2029-30 to FY 2033-34) is tabulated below –

Energy Requirement (MU)	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
TSNPDCL	32,743	34,595	36,599	38,758	41,082
TSSPDCL	78,895	83,521	88,502	93,841	99,555
TELANGANA STATE	**1,11,638**	**1,18,116**	**1,25,101**	**1,32,599**	**1,40,637**

Summary of Energy Availability:

SNo	Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	TS Genco – Thermal	52,970	58,955	58,933	59,032	58,940
2	TS Genco – Hydel	2,999	3,029	3,172	3,301	3,443
3	Central Generating Stations	28,550	28,232	27,913	27,293	23,085
4	NCES	18,577	18,574	18,449	18,320	18,295
5	Sembcorp Energy (IPPs)	2,360	2,360	2,360	2,367	2,360
6	CSPDCL (Chhattisgarh)	7,055	7,055	7,055	7,074	7,055
7	Singareni	9,244	9,244	9,244	9,270	8,911
	Total	**1,21,754**	**1,27,451**	**1,27,126**	**1,26,658**	**1,22,090**

SNo	Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	TS Genco – Thermal	58,844	58,530	58,624	58,521	58,537
2	TS Genco – Hydel	3,562	3,542	3,539	3,381	3,396
3	Central Generating Stations	22,891	23,033	23,014	22,969	22,993
4	NCES	18,179	18,179	18,126	18,126	18,126
5	Sembcorp Energy (IPPs)	2,360	2,360	2,367	2,360	2,360
6	CSPDCL (Chhattisgarh)	677	-	-	-	-
7	Singareni	8,911	8,911	8,938	9,244	9,244
	Total	**1,15,424**	**1,14,555**	**1,14,608**	**1,14,601**	**1,14,657**

Energy Balance

Based on the Energy Requirement and Energy Availability projections mentioned in the above sections, the Energy Balance in the state for each year of the 5th & 6th Control Periods are as follows:

Particular	Energy Balance in MUs for 5th Control Period				
	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Energy Availability	1,21,754	1,27,451	1,27,126	1,26,658	1,22,090
Energy Requirement	84,997	89,768	94,774	1,00,285	1,05,957
Surplus/ (Deficit)	**36,758**	**37,683**	**32,352**	**26,374**	**16,133**

Particular	Energy Balance in MUs for 6th Control Period				
	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
Energy Availability	1,15,424	1,14,555	1,14,608	1,14,601	1,14,657
Energy Requirement	1,11,638	1,18,116	1,25,101	1,32,599	1,40,637
Surplus/ (Deficit)	**3,786**	**(3,561)**	**(10,493)**	**(17,997)**	**(25,981)**

Power Procurement Plan (Short-term & Long-term):

Short-term plan for 5th Control Period:

- With the requirement growing year-on-year and considering the expected additional loads due to Lift Irrigation Schemes and Industrial and Commercial categories, TS Discoms have entered into PPAs with TS Genco, CGS and NCES (Solar) generators.
- For 5th Control Period, the Discoms are in energy surplus scenario. The reason for it is due to addition of new capacity.
- Discoms have taken care of good energy mix by entering into PPAs with both Thermal and RE generating stations for 5th Control Period

Long-term plan for 6th Control Period:

During the 6th Control Period, the Discoms have an energy deficit scenario. Discoms expect to meet the energy deficit by means of following measures.

- Based on the real-time conditions in future, if the new capacity in plants like Singareni and Telangana STPP are installed, then Discoms would explore entering PPAs with them as and when required.
- Discoms would ensure the cost effectiveness and would explore option of extending PPAs with CGS generators if required
- Discoms would explore the option of entering into PPAs with Renewable Energy generators as the variable costs from these are expected to reduce in future.
- In addition to these, Discoms would try to bridge smaller energy deficit gaps by utilizing the **Short-term Market** purchases

Capital Investment Plan:

i. The historical subdivision wise actual sales LT + 11kV are considered for last 5 years (FY 2017-18 to FY 2021-22) and CAGRs have been computed.
ii. The CAGR considered for each sub-division has been capped at maximum of 3.5 % to moderate the numbers of network required.
iii. The following assumptions are made for network projections:

New Substation Addition:

- A new sub-station is added if the loading on the existing substation is greater than threshold set and no new PTRs can be added/augmented
- **Urban:** A new sub-station is required if the sub-station capacity exceeds 16 MVA
- **Semi - Urban:** A new sub-station is required if the sub-station capacity exceeds 16 MVA
- **Rural:** A new sub-station is required if the sub-station capacity exceeds 10 MVA
- The new substation added will beof16MVA (2*8MVA) in Urban and Semi-Urban areas and 10MVA(2*5MVA) in rural areas.

New PTR Addition:

- If the peak loading on PTRs in substation is greater than the threshold set (% loading of its capacity) and if the substation can accommodate a new PTR. Further, if none of the PTRs can be augmented.

PTR Augmentation:

- An old PTR of 5 MVA capacity in urban &semi-urban substation is upgraded to 8MVA in case it gets loaded beyond threshold limit.
- An old PTR of 3.15 MVA capacity in a rural substation is upgraded to 5 MVA in case it gets loaded beyond threshold limit.

New Feeder Addition:

- Redistribution of feeder currents is done for each sub-station, irrespective of the feeder loading.
- A new feeder would be required incase peak feeder current exceeds more than 150 Amp.
- After the new feeders are proposed as per condition mentioned above , the peak currents in the feeders are distributed equally among the ones overloaded and the new feeders proposed to calculate the feeder loading at the end of year.
- The number of feeders in a substation is limited to 6 in case of Urban and Semi-Urban areas and 4 in case of rural areas.

DTR Projections:

- LT sales (Excluding agri and Only Agri) adjusted for LT losses and thereafter sales per kVA (kWh/kVA) computed for 2022-23 for each circle based on the existing DTR Capacity (kVA) (Agri & Non Agri)

- Sales per kVA (circle wise) ratio has been used to project circle wise & year wise DTR Capacity (kVA) for the 5th& 6th control period.
- Circle wise DTR No's are arrived based on the existing % configuration (capacity) but restricting DTR capacities to > = 100 kVA (100 KVA, 160 KVA& 315 KVA) for Non -Agri. DTRs and 25 kVA,63 KVA & 100 KVA for Agri DTRs.

The Network projection results i.e., no. of substations No. of PTRs, No. of feeders and No. of DTRs getting added during the 5th & 6th control periods are detailed below:

TSNPDCL	Unit	FY 2023-24 Base year	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	5th Control period (FY24-25)
Substation Additions	Nos	49	57	67	80	85	112	**401**
PTR Additions	Nos	15	18	28	45	56	67	**214**
PTR Augmentation	Nos	14	19	25	27	37	45	**153**
Feeder Additions	Nos	0	3	6	13	18	24	**64**
DTR Unit Additions	Nos	10901	11501	12115	12764	13441	14148	**63969**

TSNPDCL	Unit	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	6th Control period (FY30-34)
Substation Additions	Nos	83	85	85	92	93	438
PTR Additions	Nos	51	52	57	59	60	279
PTR Augmentation	Nos	28	31	35	38	40	172
Feeder Additions	Nos	7	10	15	22	23	76
DTR Unit Additions	Nos	12415	12983	13578	14203	14864	68043

Base Capital Expenditure:

The Base Capex plan arrived for the network projections proposed for 5th & 6thcontrol periods is as follows:

Sl. No.	Network Elements	Base Capex in Rs. Cr. (5th CP)						
		FY 23- 24 Base year	FY24-25	FY25-26	FY 26-27	FY27-28	FY 28-29	Total
1	Sub-Stations	201.06	245.98	303.34	384.88	430.42	604.89	**1969.51**
2	PTR Addition	9.93	12.62	19.77	33.76	43.56	56.66	**166.37**
3	PTR Augmentation	8.10	11.46	15.67	17.72	25.28	33.41	**103.54**
4	Feeder Addition	0.00	0.85	1.77	4.03	6.16	8.89	**21.70**
5	DTR Addition	619.86	684.45	754.66	832.32	917.26	1010.30	**4199.00**
Total		**838.96**	**955.36**	**1095.22**	**1272.71**	**1422.67**	**1714.15**	**6460.12**

Sl. No.	Network Elements	Base Capex in Rs. Cr. (6th CP)					
		FY29-30	FY30-31	FY31-32	FY32-33	FY33-34	Total
1	Sub-Stations	471.06	505.44	508.76	575.61	601.00	**2661.86**
2	PTR Addition	45.52	48.50	52.99	57.29	60.89	**265.18**
3	PTR Augmentation	22.07	25.50	28.47	32.30	35.60	**143.93**
4	Feeder Addition	2.58	3.80	6.00	9.00	10.17	**31.56**
5	DTR Addition	938.25	1027.51	1125.33	1232.71	1351.20	**5675.00**
Total		**1479.48**	**1610.75**	**1721.55**	**1906.90**	**2058.85**	**8777.54**

Other Capital Expenditure:

The details of Other Capital Expenditure that the licensee is expected to incur for the 5th & 6th control periods is as follows:

Sl.No.	Investment Area	in Rs. Cr.					
		FY 24-25	FY 25-26	FY 26-27	FY27-28	FY 28-29	Total 5thCP
a	**AT & C Loss Reduction**	**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**
	Conversion of S-Ph to 3-Ph AGL DTRs	17.5	0.5	0.5	0.5	0.5	**19.50**
	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	**12.50**
	Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	**42.00**
b	**Reliability Improvement & Contingency Schemes**	**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**
	Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	**21.00**
	Covered Conductor	2.50	5.00	7.50	9.00	9.00	**33.00**
	Provision of alternate supply at 33 KV for consumers	**3.78**	**9.00**	**11.33**	**10.95**	**4.95**	**40.00**
	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	**38.38**
	No. of Bays(Cost)	0.15	0.30	0.45	0.30	0.43	**1.63**
	Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines	0.50	1.50	2.00	0.75	0.25	**5.00**
	Provision of alternate supply at 11 KV for consumers	**12.35**	**15.00**	**18.10**	**20.15**	**27.40**	**93.00**

	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	**90.00**
	No. of Bays(cost)	0.35	0.50	0.60	0.65	0.90	**3.00**
	Provision of alternate supply for LT consumers (Addition of LT line)	**27.50**	**35.00**	**40.00**	**42.50**	**50.00**	**195.00**
	Replacement of damaged LT AB cable in SC/ST habitations	7.50	12.50	12.50	10.00	7.50	**50.00**
c	**Renovation & Modernization**	**59.75**	**88.38**	**117.00**	**145.63**	**174.25**	**585.00**
	R&M of SS	5.25	7.88	10.50	13.13	15.75	**52.50**
	VCBs in SS	0.38	0.56	0.75	0.94	1.13	**3.75**
	33KV Line	27.50	41.25	55.00	68.75	82.50	**275.00**
	11KV Line	13.08	19.61	26.15	32.69	39.23	**130.75**
	DTR	6.3	9.45	12.6	15.75	18.9	**63.00**
	LT line	1.25	1.875	2.5	3.125	3.75	**12.50**
	PTRs	3	4.5	6	7.5	9	**30.00**
	Safety Equipment	3.00	3.25	3.50	3.75	4.00	**17.50**
d	**Technology Upgradation**	**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**
	Automation of Substations	7.50	8.00	8.50	9.00	10.00	**43.00**
	GIS mapping	7.50	7.50	7.50	7.50	7.50	**37.50**
	WAN	1.00	1.00	1.00	1.00	1.00	**5.00**
	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	**150.00**
	Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analysis etc.	15.00	15.00	15.00	15.00	15.00	**75.00**
	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	**14.45**
e	**New Consumer Capex**	**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**
	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	**0.45**
	Consumer Meters	**20.58**	**21.81**	**23.12**	**24.51**	**25.98**	**116.01**
	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	**101.86**
	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	**9.55**
	LT CT Meters	0.82	0.86	0.92	0.97	1.03	**4.59**
	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	**10.94**
	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	**537.78**
f	**Civil Infrastructure Development**	**23.40**	**23.40**	**23.40**	**23.40**	**23.40**	**117.00**
	Construction of Office Buildings	20.00	20.00	20.00	20.00	20.00	**100.00**

	Administrative Support (furniture)	3.40	3.40	3.40	3.40	3.40	**17.00**
g	**Capacitor Bank**	**17**	**17**	**17**	**17**	**17**	**85.00**
	2/1 MVAR Capacitor Bank	15	15	15	15	15	**75.00**
	600 KVAR Line Capacitor	2	2	2	2	2	**10.00**
h	**AGL Feeder Segregation**	**78.75**	**112.5**	**157.5**	**225**	**216**	**789.75**
Total Other Capex		**439.48**	**522.61**	**621.16**	**730.91**	**763.72**	**3077.88**

Sl.No.	Investment Area	in Rs. Cr.					
		FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	Total 6thCP
a	**AT & C Loss Reduction**	**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**
	Conversion of S-Ph to 3-Ph AGL DTRs	17.5	0.5	0.5	0.5	0.5	**19.50**
	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	**12.50**
	Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	**42.00**
b	**Reliability Improvement & Contingency Schemes**	**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**
	Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	**21.00**
	Covered Conductor	2.50	5.00	7.50	9.00	9.00	**33.00**
	Provision of alternate supply at 33 KV for consumers	**3.78**	**9.00**	**11.33**	**10.95**	**4.95**	**40.00**
	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	**38.38**
	No. of Bays	0.15	0.30	0.45	0.30	0.43	**1.63**
	Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines	0.50	1.50	2.00	0.75	0.25	**5.00**
	Provision of alternate supply at 11 KV for consumers	**12.35**	**15.00**	**18.10**	**20.15**	**27.40**	**93.00**
	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	**90.00**
	No. of Bays	0.35	0.50	0.60	0.65	0.90	**3.00**
	Provision of alternate supply for	**27.50**	**35.00**	**40.00**	**42.50**	**50.00**	**195.00**

	LT consumers (Addition of LT line)						
	Replacement of damaged LT AB cable in SC/ST habitations	7.50	12.50	12.50	10.00	7.50	**50.00**
c	**Renovation & Modernization**	**59.75**	**88.38**	**117.00**	**145.63**	**174.25**	**585.00**
	R&M of SS	5.25	7.88	10.50	13.13	15.75	**52.50**
	VCBs in SS	0.38	0.56	0.75	0.94	1.13	**3.75**
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	LT line	1.25	1.875	2.5	3.125	3.75	**12.50**
	PTRs	3	4.5	6	7.5	9	**30.00**
	Safety Equipment	3.00	3.25	3.50	3.75	4.00	**17.50**
d	**Technology Upgradation**	**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**
	Automation of Substations	7.50	8.00	8.50	9.00	10.00	**43.00**
	GIS mapping	7.50	7.50	7.50	7.50	7.50	**37.50**
	WAN	1.00	1.00	1.00	1.00	1.00	**5.00**
	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	**150.00**
	Hardware refresh, SAP upgradation Data Analyses tools, Dash board, Outage Management System (OMS), PTR Monitoring system, Load flow analysis, etc.	15.00	15.00	15.00	15.00	15.00	**75.00**
	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	**14.45**
e	**New Consumer Capex**	**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**
	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	**0.45**
	Consumer Meters	**20.58**	**21.81**	**23.12**	**24.51**	**25.98**	**116.01**
	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	**101.86**
	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	**9.55**
	LT CT Meters	0.82	0.86	0.92	0.97	1.03	**4.59**
	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	**10.94**
	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	**537.78**
f	**Civil Infrastructure Development**	**30.00**	**30.00**	**30.00**	**30.00**	**30.00**	**150.00**
	Construction of Office Buildings	30.00	30.00	30.00	30.00	30.00	**150.00**
	Administrative Support (furniture)	0.00	0.00	0.00	0.00	0.00	**0.00**
g	**Capacitor Bank**	**17**	**17**	**17**	**17**	**17**	**85.00**

	2/1 MVAR Capacitor Bank	15	15	15	15	15	**75.00**
	600 KVAR Line Capacitor	2	2	2	2	2	**10.00**
h	**AGL Feeder Segregation**	**96.25**	**137.5**	**192.5**	**275**	**264**	**965.25**
Total Other Cape		**463.58**	**554.21**	**662.76**	**787.51**	**818.32**	**3286.38**

TSNPDCL Capital Expenditure Summary (total):

The summarized capex for the licensee for 5th& 6thcontrol period is proposed as below:

(in Rs. Cr.)

Particular	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**Total 5thControl Period (FY24-29)**
Base Capex	955.36	1095.22	1272.71	1422.67	1714.15	6460.12
Other Capex	439.48	522.61	621.16	730.91	763.72	3077.88
Total Capex for TSNPDCL	**1394.84**	**1617.83**	**1893.87**	**2153.59**	**2477.88**	**9538.00**

Particular	**2029-30**	**2030-31**	**2031-32**	**2032-33**	**2033-34**	**Total 6th Control Period (FY 30-34)**
Base Capex	1479.48	1610.75	1721.55	1906.90	2058.85	8777.54
Other Capex	463.58	554.21	662.76	787.51	818.32	3286.38
Total Capex for TSNPDCL	**1943.06**	**2164.95**	**2384.31**	**2694.41**	**2877.18**	**12063.91**

Prayer

1. This filing has been discussed and approved by TSNPDCL and Sri Thalakokkula Madhusudhan of TSNPDCL has been authorised to execute and file the said document on behalf of TSNPDCL. Accordingly, the current filing documents are signed and verified by, and backed by the affidavit of Sri Thalakokkula Madhusudhan, the Chief General Manager (IPC&RAC) of TSNPDCL.

2. In the aforesaid facts and circumstances, the Applicant requests that the Hon'ble Commission may be pleased to:

   - Take the Resource Plan application of TSNPDCL on record and treat it as complete;
   - Approve the Resource Plan for 5th & 6th Control Periods;
   - Grant suitable opportunity to TSNPDCL within a reasonable time frame to file additional material information that may be subsequently available;
   - Pass such order as the Hon'ble Commission may deem fit and proper in the facts and circumstances of the case.

NORTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED

.....Applicant

Through

Petitioner

Chief General Manager
IPC & RAC, TSNPDCL
WARANGAL

Place: Warangal

Dated: 31.03.2020

BEFORE THE HONOURABLE TELANGANA STATE ELECTRICITY REGULATORY COMMISSION

Office at 5th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004

CASE NO. _____/2023

In the matter of:

Filing of Resource Plan for the 5th& 6thControl Periods (FY 2024-25 to FY 2028-29 & FY 2029-30 to FY 2033-34) in accordance with the Clause 9 of "Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity) Regulation,4 of 2005" as adopted by Telangana State Electricity Regulatory Commission vide Telangana state Electricity Regulatory Commission (Adoption) Regulation, 2014.

In the matter of:

NORTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED …. Applicant
2-5-31/2, Corporate Office, Vidyut Bhavan, Nakkalagutta, Hanumakonda,
Warangal – 506 001, Telangana, India. website: http://www.tsnpdcl.in/

The Applicant respectfully submits as under:

Affidavit of Applicant verifying the accompanying petition.

I, Sri Thalakokkula Madhusudhan, son of Sri T. Laxmipathi aged 57 years, Occupation: Chief General Manager (IPC&RAC), TSNPDCL, Hanumakonda, R/o Hanumakonda do solemnly affirm and say as follows:

1 I am the Chief General Manager (IPC&RAC) of Northern Power Distribution Company of Telangana Limited (TSNPDCL).

2 I am competent and duly authorized by TSNPDCL to affirm, swear, execute and file this affidavit in the present proceedings.

3 As such, I submit that I have been duly authorized by TSNPDCL to submit the application of TSNPDCL for Resource Plan filing for 5th& 6thControl Periods as per Terms and Conditions of Tariff for Wheeling and Retail Sale of Electricity (Regulation 4 of 2005), to the Hon'ble Commission.

4 I submit that I have read and understood the contents of the appended application of TSNPDCL. The facts stated in the application are true to the best of my knowledge, which are derived from the official records made available and certain facts stated are based on information and advice which, I believe to be true and correct.

DEPONENT
Chief General Manager
IPC & RAC, TSNPDCL
WARANGAL

VERIFICATION:

I, the above-named Deponent solemnly affirm at Hanumakonda on this **31st day of March 2023** that the contents of the above affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.

DEPONENT
Chief General Manager
IPC & RAC, TSNPDCL
WARANGAL

Solemnly affirmed and signed before me.

General Manager
IPC & RAC, TS[illegible]L
WARANGAL

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List of Tables

1 Introduction

The Filing of Resource Plan for 5th Control Period & 6th Control Period i.e., (FY2024-25 to FY2028-29) and (FY2029-30 to FY2033-34) in accordance with the Telangana State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity), Regulation 4 of 2005 before the Hon'ble Commission's approval shall contain the following:

- Sales Forecast
- Load Forecast
- Power Procurement Plan and
- Distribution Plan

The Hon'ble Commission shall approve the Resource Plan as per the Guidelines on Load Forecast, Distribution Plan and Power Procurement Plan and the Distribution Licensee shall adopt them in the Multi-Year and Annual filings (MYT) for the respective Control period.

The Guidelines for Load Forecast, Resource Plan (Distribution Plan and Power Procurement Plan) state that the licensee shall submit a Resource Plan for a period of two control periods i.e. Load Forecast, Power Procurement from the year of commencement beginning from 1st April and ending on the following 31st March including a detailed plan for the initial Control Period under consideration for tariff review purpose and an indicative plan for the subsequent Control Period.

The Fifth Control Period starts from 1st April, 2024 and ends on 31st March, 2029 while the Sixth Control Period starts from 1st April, 2029 and ends on 31st March, 2034. The licensee herewith submits a Resource Plan for the next two control periods for the review and approval of the Hon'ble Commission.

The Resource Plan as submitted by the Licensee consists of the following sections

- Sales Forecast
- Loss Trajectory

- Load Forecast
- Power Procurement Plan
- Distribution Plan

2 Sales Forecast

The factors affecting the actual consumption are numerous and often beyond the control of the licensees (Govt. Policies, individual consumer's conditions, weather conditions, variations in demand-supply conditions of the consumer's product, etc.). Therefore, an accurate point-estimate of the consumption (sales by licensees) may be a challenge. Under such situation, the attempt is to look into various factors and analyze the range of results to arrive at a reasonably accurate forecast within a range and use a single point-estimate within the range for the limited purpose of estimating future costs/ revenues.

The methodologies to be used for sales forecast depend on various factors like the category of consumers for which the forecast is being made, the time horizon of the forecast (short-term or long-term), availability of past data for relevant parameters, the desired nature and the level of details of the forecasts.

In order to capture the inherent characteristics of various categories and at different voltage levels, the licensee have prepared the sales forecast on past trends by using CAGR (Compounded Annual Growth Rate).

2.1 Approaches to Sales Forecasting

In order to develop appropriate methodology for sales forecasting, it is important to look at the approaches used for the purpose of sales forecasting.

2.1.1 **Trend Method**

This method is a non-causal model of demand forecasting which assumes that the underlying factors, which drive the demand for electricity, are expected to follow the same trend as in the past. These trends shall continue in the future except in certain categories.

The voltage wise sales forecast for all categories has been projected for the two Control Periods viz. FY2024-25 to FY 2028-29 and FY 2029-30 to FY 2033-34 by considering the following data:

- **Base Sales Data:** Category-wise and voltage wise actual sales for FY 2016-17 to H1 FY 2022-23have been considered as the base sales data for the projection of sales for 5th and 6th Control Periods. Since the Regulation 4 of 2005 specifies to file the Resource Plan by 1st April of the year proceeding the first year of Control Period, i.e., by 1st April of 2023, the licensee has considered the category wise and voltage wise actual sales for FY 2016-17 to H1 of FY 2022-23.

- **Growth rates:** For arriving at the projections for H2 of FY 2022-23 and the period from FY 2023-24, CAGR for earlier 5 years period has been computed for each category in each circle for considering the appropriate growth rate.

The licensee has used a modified trend method wherein the historical trends in usage have been modified based on a case to case basis based on the assessment of the licensee.

2.1.2 **Econometric analysis**

Econometric analysis is based on the identification of correlations between the demand for electricity and the explanatory variables. This method estimates the causal relationships between the energy consumption and the factors influencing consumption. This approach allows the explicit evaluation of the separate impacts of change factors, such as energy prices, real income, population, economic activity and other independent variables. However, under this approach, the implicit assumption is that relationships established in historical time series data and/ or cross-sectional data will persist in the future.

Out of various explanatory variables considered, State GDP and per capita income have statistically significant correlation with energy consumption. Based on the projections of the macro variables, Energy consumption levels can be estimated for next 5 years. Projecting State GDP and per capita income is complicated as they are further dependent on various economic, demographic, regulatory factors. In the absence of reliable source capturing the trend of macro variables, this approach was not carried out to project sales.

In view of this constraint, the modified trend method is felt to be more suitable for projection of sales for the control periods.

2.2 Historical Sales Summary

The category wise historical sales summary is provided in the Annexure -1.

2.3 Sales Forecast for the Control Period

- In FY2017-18, the Licensee has re-organized the jurisdiction of existing Operation Circles/ Divisions/Sub-Divisions/Sections and subsequently formed total 16Circles covering all the Districts encompassed by TSNPDCL.
- Further, it is to submit that as there are no load reliefs imposed since 20thNovember 2014 and considering the same there is no necessity of considering the LR quantum separately for projections.
- The 5yr, 4yr, 3yr, 2yr & 1yr CAGR of the sales growth for the period FY2016-17 to FY2021-22 and FY 2017-18 to FY 2022-23are computed for each consumer category in each circle. The HT and LT sales for FY2021-22(October,2021 to March, 2022) are used as a base for projections for H2 FY 2022-23 and estimated sales for FY 2022-23 are used as a base for the projections from FY 2023-24.

  Category wise Sales forecast for each Circle is developed primarily based on analysis of historical data and applying appropriate growth rates based on CAGR (mostly adopting appropriate CAGRs & moderated growth rate in case of abnormal CAGRs). The Circle wise Sales Forecast is consolidated to arrive at Sales Forecast of TSNPDCL.

Additional sales volume anticipated due to Electric Vehicles, Railway Traction and Kakatiya Textile Park are added at Discom level. The additional loads are considered based on the requirement given by Telangana State Renewable Energy Development Corporation Limited (TSREDCO),South Central Railways (SCR), Telangana State Industrial Infrastructure Corporation (TSIIC). Further, Singareni Collieries Company Limited (SCCL)has provided anticipated reduction of sales on account of setting up captive solar plants and the same have been considered in the projections made for 5th and 6th Control periods.

2.4 Category wise sales projection

2.4.1 LT-I Domestic

Considering the past trend in the domestic sales in each Circle, the Licensee has adopted 5 yr CAGR for most of the circles to project sales for 5thControl Period. The growth rate and corresponding sales projections are as follows:

Table 1: LT- I Domestic 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	3.80%	5.81%	5.83%	5.84%	5.86%	5.88%	5.90%
Sales in MU	4010	4243	4491	4753	5032	5328	5642

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 2:LT- I Domestic 6th Control Period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	5.92%	5.95%	5.97%	5.99%	6.02%
Sales in MU	5976	6331	6709	7111	7539

2.4.2 LT-II Non-Domestic

Considering the historic circle wise sales trend, the licensee has adopted 5 yr CAGR for all the circles. The growth rates arrived at DISCOM level for the 5th Control Period and corresponding sales projections are as follows:

Table 3: LT- II Non- Domestic 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	15.72%	6.24%	6.27%	6.30%	6.33%	6.36%	6.39%
Sales in MU	861	915	972	1033	1098	1168	1243

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 4: LT- II Non- Domestic 6th Control Period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	6.42%	6.46%	6.49%	6.52%	6.56%
Sales in MU	1323	1408	1499	1597	1702

2.4.3 LT-III Industrial

The LT industrial has observed negative growth in CAGR's in the historical sales for most of the circles. Considering the same, a nominal optimistic growth rate of 2% is adopted for projection for most of the circles. For rest of the circles appropriate growth rates as per the historical trends are adopted for the projection. The growth rates arrived at DISCOM level for the 5thControl Period and corresponding sales projections are as follows:

Table 5: LT-III Industrial 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	1.66%	2.32%	2.32%	2.33%	2.33%	2.34%	2.35%
Sales in MU	240	245	251	257	263	269	275

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 6: LT-III Industrial 6th Control Period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	2.35%	2.36%	2.37%	2.37%	2.38%
Sales in MU	282	288	295	302	309

2.4.4 LT-IV Cottage Industries

Considering the past circle wise sales trend in this category, is observed that some of the circles growth rate during past years is negative and hence a nominal growth of 2% is considered for sales projections in those circles, whereas in some circles the sales are significantly higher and considering the same moderated growth rate of 5% is adopted. For the remaining circles, appropriate growth rates as per historical trends are adopted for projection of sales. The growth rates arrived at DISCOM level for the 5thControl Period and corresponding sales projections are as follows:

Table 7: LT-IV Cottage Industries 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	4.85%	5.52%	5.74%	5.98%	6.23%	6.49%	6.77%
Sales in MU	9	9	10	10	11	11	12

Table 8: LT-IV Cottage Industries 6th Control Period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	7.06%	7.36%	7.68%	8.00%	8.34%
Sales in MU	13	14	15	16	18

2.4.5 LT-V Agriculture

The licensee has projected the Agricultural Sales for H2 FY2022-23 and FY 2023-24 and 5th Control Period at 5%.Further, the licensee expects the growth rate of 5% in agricultural category keeping in view the irrigation lands still to be cultivated which needs pumping water and release of new connections. The sales growth arrived at Discom level and corresponding sales projections for the 5th Control Period are as follows:

Table 9: LT-V Agriculture 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	1.28%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Sales in MU	7514	7890	8285	8699	9134	9591	10070

Further, the projections of sales for the subsequent 6th Control Period are made by considering 4% growth rate as follows:

Table 10:LT-V Agriculture 6th Control Period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	4.00%	4.00%	4.00%	4.00%	4.00%
Sales in MU	10473	10892	11328	11781	12252

2.4.6 LT-VI Street Lighting & PWS

From the historical sales information, a reduction of sales is observed in this category in most of the circles, which may be due to increase in usage of LEDs for street lighting. Hence, a nominal growth of 2% is adopted for the circles showing minor reduction of sales and appropriate CAGR (5yr to

1yr) is adopted for the remaining circles. The sales growth arrived at Discom level and corresponding sales projections for the 5th Control Period are as follows:

Table 11: LT-VI Street Lighting &PWS 5th Control Period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	4.90%	2.50%	2.51%	2.52%	2.53%	2.53%	2.54%
Sales in MU	361	370	380	389	399	409	420

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 12: LT-VI Street Lighting &PWS 6th Control period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	2.55%	2.56%	2.57%	2.58%	2.59%
Sales in MU	430	441	453	464	476

2.4.7 LT-VII General Purpose

Considering the past trend of sales in this category in each Circle, the Licensee has adopted 5 yr CAGR for half of the circles. Appropriate moderated growth rates are adopted for projection considering the abnormal CAGRs in the remaining circles. The growth rates arrived at DISCOM level for the 5thControl Period and corresponding sales projections are as follows:

Table 13: LT-VII General Purpose 5th Control period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	63.13%	5.00%	5.01%	5.02%	5.03%	5.04%	5.05%
Sales in MU	55	58	61	64	67	70	74

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 14: LT-VII General Purpose 6th Control period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	5.06%	5.07%	5.07%	5.08%	5.09%
Sales in MU	78	82	86	90	95

2.4.8 LT-VIII Temporary Supply

Due to uncertainty of sales trend in this category, a nominal growth rate of 5% is adopted for projecting the sales in 5th Control Period for all the circles where existing sales are recorded. The growth rates arrived at DISCOM level for the 5th Control Period and corresponding sales projections are as follows:

Table 15: LT-VIII Temporary Supply 5th Control period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	54.33%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Sales in MU	7.73	8.12	8.52	8.95	9.39	9.86	10.36

Further, the projections of sales for the subsequent 6th Control Period are made by adopting similar growth rates considered for 5th Control Period as follows:

Table 16: LT-VIII Temporary Supply 6th Control period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	5.00%	5.00%	5.00%	5.00%	5.00%
Sales in MU	11	11	12	13	13

2.4.9 LT-IX Electric Vehicle Charging Stations

With the increased emphasis on environmental sustainability, electric vehicles are expected to play a key role in transportation. Even though, the current sales are on lower side, the corresponding growth rates are higher considering the lower base, and this is likely to evolve over a longer time horizon and may reach sizeable proportion during later part of the next control period. TSREDCO, the State Nodal Agency for setting up of Electric Vehicle infrastructure and promotion of Electric Mobility has provided the projection of sales under this category for the period from H2 FY 2022-23 till the end of5th Control period. Accordingly, the same were considered as submitted by TSREDCO. The sales growth arrived at Discom level and corresponding sales projections for 5th Control Period are as follows:

Table 17: LT-IX Electric Vehicle Charging Station 5th Control period

Description	Estimates	Projections					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	Current Year	Next Year	5th Control Period				
YoY Growth	0.00%	483.13%	193.68%	125.81%	83.11%	54.23%	38.67%
Sales in MU	0.21	1.24	3.65	8.23	15.08	23.26	32.25

Further, the projections of sales for the subsequent 6thControl are as follows:

Table 18: LTIX Electric Vehicle Charging Station 6th Control period

Description	Projected Sales in MU				
	2029-30	2030-31	2031-32	2032-33	2033-34
Growth	0.84%	0.88%	0.91%	0.95%	0.99%
Sales in MU	33	33	33	33	34

2.4.10 HT-I Industrial and Ferro Alloys

At 11kV, 33kV & 132kV voltage levels, negative /meager growth rates have been recorded in some of the circles during the previous years in the Industrial segment. Hence, a nominal growth rate of 2% is adopted for such circle and in some of the circles the growth rates are either significantly

higher or lower without any trend and in such circles moderated growth rates of 5% is considered for projection of sales.

SCCL has installed captive solar plants with an installed capacity of 219 MW (as on Feb 2023) which has resulted in reduction of sales at 33 kV and 132 kV voltage levels and it is expected that capacity of around 81 MW is expected to be synchronized by the end of FY 2023-24. Accordingly, the projected reduction of sales viz. 134.82 MU corresponding to the new installations of 81 MW are reduced from industrial loads at 132 kV voltage level.

Further, TSIIC, (aState Government initiative for providing infrastructure through development of industrial areas)is developing Kakatiya Mega Textile Park in Warangal Rural (District) and has provided sales projections from the expected textile units from FY 2023-24 till the end of 6th Control Period. Accordingly, the same are considered in the sales projection for 5th and 6th Control Period. Summary of the sales projection submitted by TSIIC is as follows:

Table 19: Sales Projections as submitted by TSIIC for Kakatiya Mega Textile park

S. No	Financial Year	Sales in MU
1	2023-24	108
2	2024-25	217
3	2025-26	217
4	2026-27	217
5	2027-28	217
6	2028-29	217
7	2029-30	217
8	2030-31	217
9	2031-32	217
10	2032-33	217
11	2033-34	217

The growth rates arrived at DISCOM level for the 5th&6thControlPeriod and corresponding sales projections are as follows:

Table 20: HT-I Industrial and Ferro Alloys 5th Control period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	10.41%	9.80%	10.07%	10.33%	10.61%	10.88%	11.16%
	33kV	-35.97%*	54.39%	43.27%	1.28%	1.31%	1.34%	1.37%
	132kV	0.84%*	4.98%	-12.55%	5.11%	5.13%	5.14%	5.16%
	Total	**0.38%**	**11.89%**	**6.02%**	**7.31%**	**7.58%**	**7.87%**	**8.17%**
Sales in MU	11kV	1021	1121	1233	1361	1505	1669	1855
	33kV	169	261	374	379	384	389	395
	132kV	732	769	672	707	743	781	821
	Total	**1922**	**2151**	**2280**	**2447**	**2632**	**2840**	**3071**

*Due to reduction in SCCL sales on account of Captive Solar Plants

Table 21: HT-I Industrial and Ferro Alloys 6th Control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	11.44%	11.72%	12.00%	12.27%	12.54%
	33kV	1.41%	1.44%	1.47%	1.51%	1.54%
	132kV	5.17%	5.19%	5.20%	5.22%	5.23%
	Total	**8.47%**	**8.79%**	**9.11%**	**9.45%**	**9.78%**
Sales in MU	11kV	2068	2310	2587	2905	3269
	33kV	400	406	412	418	425
	132kV	864	909	956	1006	1058
	Total	**3332**	**3625**	**3955**	**4329**	**4752**

2.4.11 HT-II Others

Considering the past trend of sales in each circle, the licensee has adopted appropriate growth rates for few circles with positive growth and a nominal growth rate of 5% or 2% for circles where abnormal growth is recorded. The growth rates arrived at DISCOM level for the 5thControl Period and corresponding sales projections are as follows:

Table 22: HT-II Others 5th ControlPeriod

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	29.50%	5.80%	5.84%	5.88%	5.92%	5.96%	6.00%
	33kV	-58.72%	2.32%	2.33%	2.34%	2.35%	2.36%	2.38%
	132kV	27.31%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**23.30%**	**5.60%**	**5.64%**	**5.69%**	**5.73%**	**5.78%**	**5.83%**
Sales in MU	11kV	171	180	191	202	214	227	241
	33kV	4	4	4	4	5	5	5
	132kV	6	6	6	6	6	6	6
	Total	**180**	**190**	**201**	**213**	**225**	**238**	**252**

*negative growth rates due to lower sales recorded in H1 FY 2022-23

Further, the projections of sales for the subsequent 6thControl Period are made by adopting similar growth rates considered for 5thControl Period as follows:

Table 23: HT-II Others 6th ControlPeriod

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	6.04%	6.08%	6.13%	6.17%	6.21%
	33kV	2.39%	2.40%	2.41%	2.42%	2.43%
	132kV	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**5.87%**	**5.92%**	**5.97%**	**6.01%**	**6.06%**
Sales in MU	11kV	255	271	287	305	324
	33kV	5	5	5	5	5
	132kV	6	6	7	7	7
	Total	**266**	**282**	**299**	**317**	**336**

2.4.12 HT-III Airports, Bus stations & Railway stations

The CAGRs recorded during the previous years are lower& negative in this category. Hence, a nominal growth rate of 2% is adopted for all the circles to project sales in 5thand 6thControlPeriod. The growth rates arrived at DISCOM level for the 5th &6thControl Period and corresponding sales projections are as follows:

Table 24: HT-III Airports, Bus stations & Railway stations 5th control period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	7.73%	2.34%	2.34%	2.35%	2.35%	2.36%	2.36%
	33kV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	132kV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Total	**7.73%**	**2.34%**	**2.34%**	**2.35%**	**2.35%**	**2.36%**	**2.36%**
Sales in MU	11kV	7.70	7.88	8.06	8.25	8.44	8.64	8.85
	33kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	132kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**7.70**	**7.88**	**8.06**	**8.25**	**8.44**	**8.64**	**8.85**

Table 25: HT-III Airports, Bus stations & Railway stations 6th control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	2.37%	2.37%	2.38%	2.38%	2.39%
	33kV	0.00%	0.00%	0.00%	0.00%	0.00%
	132kV	0.00%	0.00%	0.00%	0.00%	0.00%
	Total	**2.37%**	**2.37%**	**2.38%**	**2.38%**	**2.39%**
Sales in MU	11kV	9.06	9.27	9.49	9.72	9.95
	33kV	0.00	0.00	0.00	0.00	0.00
	132kV	0.00	0.00	0.00	0.00	0.00
	Total	**9.06**	**9.27**	**9.49**	**9.72**	**9.95**

2.4.13 HT-IV Govt. Lift Irrigation Schemes, Agriculture, CPWS

HT VA: Lift Irrigation

For 11 kV and 33 kV Voltage levels, CAGRs recorded during the previous years are lower & negative in this category. Hence, a nominal growth rate of 2% is adopted for all the circles to project sales in 5th and 6th Control Period.

For 132 kV Voltage level i.e., the energy supplied for Lift Irrigation Schemes, it is observed that the historical growth trend in this category has many variations due to variations in the operation of Lift Irrigation pumps based on rainfall, water levels in reservoirs, etc. Considering the above, it is to be noted that it is difficult to predict the energy growth in this category. Further, the sales recorded in

H1 FY 2022-23 of 410 MU are on very lower side and it can be treated as an exception when compared to the sales recorded in the past two years viz. 1295 MU in H1 FY 2021-22 and 975 MU in H1 FY 2020-21. Considering the above, the licensee has considered the sales recorded in FY 2021-22 as the base for the projection for FY 2023-24. Coming to the growth rate, the licensee considered growth rate of 10% for projection of sales in this category. The sales growth arrived at DISCOM level and corresponding sales projections for the 5th& 6th Control Period are as follows:

Table 26: HT-IV Govt. LIS, Agriculture 5th Control Period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	-7.93%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	33kV	-22.06%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	132kV	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
	Total	**9.40%**	**9.85%**	**9.86%**	**9.87%**	**9.88%**	**9.88%**	**9.89%**
Sales in MU	11kV	23	23	24	24	25	25	26
	33kV	16	17	17	17	18	18	18
	132kV	1972	2169	2386	2625	2887	3176	3493
	Total	**2011**	**2209**	**2426**	**2666**	**2929**	**3219**	**3537**

Table 27: HT-IV Govt. LIS, Agriculture 6th control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	2.00%	2.00%	2.00%	2.00%	2.00%
	33kV	2.00%	2.00%	2.00%	2.00%	2.00%
	132kV	10.00%	10.00%	10.00%	10.00%	10.00%
	Total	**9.90%**	**9.91%**	**9.91%**	**9.92%**	**9.93%**
Sales in MU	11kV	26	27	27	28	28
	33kV	19	19	19	20	20
	132kV	3843	4227	4650	5115	5626
	Total	**3887**	**4273**	**4696**	**5162**	**5674**

HT IVB: CPWS

Considering the past trend of sales in each circle, the licensee has adopted appropriate growth rates for few circles with positive growth and a nominal growth rate of 5% or 2% for circles where

abnormal growth is recorded. The sales growth arrived at DISCOM level and corresponding sales projections for the 5th& 6th Control Period are as follows:

Table 28: HT-IVCPWS 5th Control Period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	6.55%	2.99%	3.01%	3.03%	3.05%	3.07%	3.09%
	33kV	4.58%	2.13%	2.13%	2.13%	2.13%	2.13%	2.14%
	132kV	2.17%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**5.02%**	**2.37%**	**2.38%**	**2.39%**	**2.40%**	**2.41%**	**2.41%**
Sales in MU	11kV	152	156	161	166	171	176	181
	33kV	341	348	356	363	371	379	387
	132kV	27	27	28	28	29	30	30
	Total	**520**	**532**	**544**	**558**	**571**	**585**	**599**

Table 29: HT-IVCPWS 6th ControlPeriod

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	3.11%	3.13%	3.15%	3.17%	3.19%
	33kV	2.14%	2.14%	2.14%	2.14%	2.14%
	132kV	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**2.42%**	**2.43%**	**2.44%**	**2.45%**	**2.46%**
Sales in MU	11kV	187	193	199	205	212
	33kV	396	404	413	421	431
	132kV	31	31	32	33	33
	Total	**613**	**628**	**643**	**659**	**675**

2.4.14 HT-V Railway Traction

Considering the past trends in this category, 5 yr CAGR is considered for projection in most of the circles. Further, SCR has provided projection of sales from FY 2024-25 to FY 2033-34 on account of upcoming loads in two circles falling under TSNPDCL are viz. Kamareddy and Nizamabad. The sales projection as submitted by SCR for the above referred two circles are considered by the licensee. The summary of the sales projection submitted by SCR is as follows:

Table 30: Sales Projections as submitted by SCR for HT V Railway Traction

S. No	Financial Year	Sales in MU
1	2024-25	12
2	2025-26	13
3	2026-27	15
4	2027-28	16
5	2028-29	18
6	2029-30	19
7	2030-31	21
8	2031-32	23
9	2032-33	26
10	2033-34	28

Accordingly, the sales growth arrived in this category at DISCOM level after considering the additional loads and corresponding sales projections for the 5th&6thControlPeriod are as follows:

Table 31: HT-V Railway Traction 5thControl Period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	132 kV	9.97%	4.25%	6.44%	4.41%	4.44%	4.47%	4.50%
	Total	**9.97%**	**4.25%**	**6.44%**	**4.41%**	**4.44%**	**4.47%**	**4.50%**
Sales in MU	132 kV	530	553	588	614	641	670	700
	Total	**530**	**553**	**588**	**614**	**641**	**670**	**700**

Table 32: HT-V Railway Traction 6thControl Period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	132 kV	4.53%	4.56%	4.59%	4.62%	4.65%
	Total	**4.53%**	**4.56%**	**4.59%**	**4.62%**	**4.65%**
Sales in MU	132 kV	732	765	800	837	876
	Total	**732**	**765**	**800**	**837**	**876**

2.4.15 HT-VI Colony Consumption

In most of the circles, negative / meager growth rates are recorded based on past historical data. Considering the past trend of sales in each circle, a nominal growth rate of 2% is adopted in most of

the circles to project sales in 5th and 6th Control Period. The growth rates arrived at DISCOM level for the 5th &6th Control Period and corresponding sales projections are as follows:

Table 33: HT-VI Colony Consumption 5th control period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	-0.80%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	33kV	-10.89%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	132kV	3.44%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**0.07%**	**2.00%**	**2.00%**	**2.00%**	**2.00%**	**2.00%**	**2.00%**
Sales in MU	11kV	9	9	9	9	9	10	10
	33kV	27	27	28	28	29	29	30
	132kV	103	105	107	110	112	114	116
	Total	**139**	**141**	**144**	**147**	**150**	**153**	**156**

Table 34: HT-VI Colony Consumption 6th control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	2.00%	2.00%	2.00%	2.00%	2.00%
	33kV	2.00%	2.00%	2.00%	2.00%	2.00%
	132kV	2.00%	2.00%	2.00%	2.00%	2.00%
	Total	**2.00%**	**2.00%**	**2.00%**	**2.00%**	**2.00%**
Sales in MU	11kV	10	10	10	11	11
	33kV	31	31	32	33	33
	132kV	119	121	123	126	128
	Total	**159**	**163**	**166**	**169**	**172**

2.4.16 HT VII Temporary Supply

Due to uncertainty of sales trend in this category, moderated growth rates ranging from 2% to 5% is adopted for majority of circles. The sales growth arrived at Discom level for the 5th and 6th Control Period and corresponding sales projections are as follows:

Table 35: HT-VIITemporary Supply 5th control period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11kV	32.80%	2.88%	2.90%	2.92%	2.94%	2.96%	2.97%
	33kV	-82.81%*	0.67%	0.68%	0.69%	0.70%	0.71%	0.72%
	132kV	-88.59%*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Total	**-25.55%**	**2.64%**	**2.66%**	**2.69%**	**2.71%**	**2.73%**	**2.76%**
Sales in MU	11kV	28	29	30	31	32	33	34
	33kV	2	2	2	2	2	2	2
	132kV	1	1	1	1	1	1	1
	Total	**31**	**32**	**33**	**34**	**35**	**36**	**37**

**Negativegrowth rates on account of loss of existing service in FY 2022-23 H1*

Table 36: HT-VIITemporary Supply 6th control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11kV	2.99%	3.01%	3.04%	3.06%	3.08%
	33kV	0.73%	0.74%	0.75%	0.76%	0.76%
	132kV	0.00%	0.00%	0.00%	0.00%	0.00%
	Total	**2.78%**	**2.80%**	**2.83%**	**2.85%**	**2.88%**
Sales in MU	11kV	35	36	37	38	39
	33kV	2	2	2	2	2
	132kV	1	1	1	1	1
	Total	**38**	**39**	**40**	**41**	**42**

2.4.17 HT VIII RESCO

In this category, there is only one bulk supply consumer i.e., Rural Electrical Supply Co-Operative society, Sircilla and the consumption pattern of the Resco is in line with TSNPDCL's consumption of all LT consumer categories. Considering the same, the growth rate of LT sales of TSNPDCL for FY 2023-24 is considered for projection of sales for this category. The growth rates arrived at DISCOM level for the 5th&6thControlPeriod and corresponding sales projections are as follows:

Table 37: RESCO 5th control period

Description	Voltage Level	Estimates	Projections					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
		Current Year	Next Year	5th Control Period				
Growth	11 kV	2.33%	4.41%	4.41%	4.41%	4.41%	4.41%	4.41%
	Total	**2.33%**	**4.41%**	**4.41%**	**4.41%**	**4.41%**	**4.41%**	**4.41%**
Sales in MU	11 kV	945	987	1031	1076	1124	1173	1225
	Total	**945**	**987**	**1031**	**1076**	**1124**	**1173**	**1225**

Table 38: RESCO 6th control period

Description	Voltage Level	Projections (MU)				
		2029-30	2030-31	2031-32	2032-33	2033-34
		6th Control Period				
Growth	11 kV	4.41%	4.41%	4.41%	4.41%	4.41%
	Total	**4.41%**	**4.41%**	**4.41%**	**4.41%**	**4.41%**
Sales in MU	11 kV	1279	1335	1394	1456	1520
	Total	**1279**	**1335**	**1394**	**1456**	**1520**

2.5 Consolidated Sales Projections

Table 39: Consolidated Sales Projections 5th control period

Description	Estimated	5th Control Period (Projections)					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
LT Category	**13058**	**13740**	**14460**	**15222**	**16028**	**16879**	**17779**
LT-I Domestic	4010	4243	4491	4753	5032	5328	5642
LT-II Non-domestic/Commercial	861	915	972	1033	1098	1168	1243
LT-III Industrial	240	245	251	257	263	269	275
LT-IV Cottage Industries	9	9	10	10	11	11	12
LT-V Agriculture	7514	7890	8285	8699	9134	9591	10070
LT-VI Street Lighting & PWS	361	370	380	389	399	409	420
LT-VII General Purpose	55	58	61	64	67	70	74
LT-VIII Temporary Supply	8	8	9	9	9	10	10
LT-IX EVs	0	1	4	8	15	23	32
HT Category	**6286**	**6803**	**7257**	**7763**	**8316**	**8922**	**9586**
HT-I Industry Segregated & Ferro Alloys	1922	2151	2280	2447	2632	2840	3071
HT-II Others (Commercial)	180	190	201	213	225	238	252
HT-III Airports, Bus Stations and Railway Stations	8	8	8	8	8	9	9
HT-IV(A) Govt. Lift Irrigation Schemes	2011	2209	2426	2666	2929	3219	3537

Description	Estimated	5th Control Period (Projections)					
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
HT-IV(B) CPWS	520	532	544	558	571	585	599
HT-V(A) Railway Traction	530	553	588	614	641	670	700
HT-VI Townships and Residential Colonies	139	141	144	147	150	153	156
HT-VII Temporary Supply	31	32	33	34	35	36	37
HT-VIII RESCOs	945	987	1031	1076	1124	1173	1225
HT-IX EVs	0	0	0	0	0	0	0
Total	**19345**	**20543**	**21717**	**22985**	**24344**	**25801**	**27365**

Table 40: Consolidated Sales Projections 6th control period

Description	Projections				
	2029-30	2030-31	2031-32	2032-33	2033-34
	6th Control Period				
LT Category	**18618**	**19501**	**20430**	**21408**	**22438**
LT-I Domestic	5976	6331	6709	7111	7539
LT-II Non-domestic/Commercial	1323	1408	1499	1597	1702
LT-III Industrial	282	288	295	302	309
LT-IV Cottage Industries	13	14	15	16	18
LT-V Agriculture	10473	10892	11328	11781	12252
LT-VI Street Lighting & PWS	430	441	453	464	476
LT-VII General Purpose	78	82	86	90	95
LT-VIII Temporary Supply	11	11	12	13	13
LT-IX EVs	33	33	33	33	34
HT Category	**10316**	**11119**	**12003**	**12980**	**14059**
HT-I Industry Segregated & Ferro Alloys	3332	3625	3955	4329	4752
HT-II Others (Commercial)	266	282	299	317	336
HT-III Airports, Bus Stations and Railway Stations	9	9	9	10	10
HT-IV(A) Govt. Lift Irrigation Schemes	3887	4273	4696	5162	5674
HT-IV(B) CPWS	613	628	643	659	675
HT-V(A) Railway Traction	732	765	800	837	876
HT-VI Townships and Residential Colonies	159	163	166	169	172
HT-VII Temporary	38	39	40	41	42
HT-VIII RESCOs	1279	1335	1394	1456	1520
HT—IX EVs	0	0	0	0	0
Total	**28934**	**30620**	**32434**	**34388**	**36497**

3 Loss Trajectory

The licensee observes that by considering the actual Agriculture sales, the loss at LT Voltage level is higher than the loss approved by the Hon'ble Commission. The incremental losses have resulted in additional procurement of energy for FY2021-22 for which the licensee has not gained any additional revenue. The licensee requests the Hon'ble Commission to consider the actual losses of FY2021-22 (except 33 kV – for 33 kV level the losses approved by Hon'ble TSERC is considered as base in FY 2021-22) as computed above to arrive at the loss trajectory for the next two control periods, i.e., from FY2024-25 to FY2028-29 & FY2029-30 to FY2033-34.

The licensee is striving to reduce the losses by the implementation of loss reduction measures like strengthening of the network infrastructure, addition of network elements and vigorously undertaking the Energy Audit visit to keep a close tab on the losses. Hence, the licensee humbly requests the Hon'ble Commission to approve the voltage wise loss trajectory for the 5th control period as given in the below table.

Table 41:Loss Trajectory for 5th Control Period

Description	FY2021-22 (Actual)	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
LT Loss (%)	5.43%	5.40%	5.38%	5.37%	5.36%	5.35%	5.34%	5.33%
11kV Loss (%)	3.88%	3.87%	3.86%	3.85%	3.85%	3.84%	3.83%	3.83%
33kV Loss (%)	3.01%	3.50%	3.48%	3.47%	3.47%	3.46%	3.46%	3.45%

The below table contains an indicative loss trajectory for the 6th Control period. The licensee would like to emphasize that the loss trajectory for the 6h Control period would depend on the actual achievement of the loss levels by the end of the 5th Control period.

Table 42:Loss Trajectory for 6th Control Period

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
LT Loss (%)	5.32%	5.31%	5.30%	5.29%	5.28%
11kV Loss (%)	3.82%	3.81%	3.80%	3.80%	3.79%
33kV Loss (%)	3.44%	3.44%	3.43%	3.43%	3.42%

The estimation of total distribution losses in the distribution system for the 5th control period is as follows:

Table 43Total distribution losses in the distribution system for the 5th ControlPeriod

Description	FY2021-22 (Actual)	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Distribution Losses including EHT (%)	9.15%	9.48%	9.39%	9.36%	9.30%	9.25%	9.19%	9.13%
Distribution Losses Excluding EHT (%)	10.81%	11.26%	11.17%	11.11%	11.09%	11.07%	11.05%	11.03%

The estimation of total distribution losses in the distribution system for the 6th control period is as follows:

Table 44Total distribution losses in the distribution system for the 6thControl Period

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
Distribution Losses including EHT (%)	9.06%	8.99%	8.91%	8.83%	8.75%
Distribution Losses Excluding EHT (%)	11.00%	10.96%	10.93%	10.89%	10.85%

Transmission Loss Trajectory:

The actual TS TRANSCO Transmission losses are available up to FY 2021-22. Based on the actual losses and approved Losses for FY2022-23 & FY 2023-24 from TS Transco MYT of 4th Control Period, the loss trajectory for the 5th and 6th control periods are proposed as below:

Table 45 Transmission loss trajectoryfor the 6th Control Period

Description	Actual	Approved		5th Control Period				
	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Transmission Loss	2.47%	2.57%	2.50%	2.48%	2.46%	2.44%	2.42%	2.40%

Table 46 Transmission loss trajectoryfor the 6th Control Period

Description	6th Control Period				
	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
Transmission Loss	2.39%	2.37%	2.35%	2.34%	2.33%

The Transmission losses external to state periphery consists of two components PGCIL Losses CSPTCL (Chhattisgarh) Losses.

PGCIL Loss trajectory:

The PGCIL losses are applicable on the power procurement from Central Generating Stations in the projections for 5th& 6th Control Periods. The average of the actual external losses from April 2022 to December 2022 were considered to be as the PGCIL losses for FY 2024-25. Thereafter, for each year of 5th Control Period (FY 2024-25 to FY 2028-29), 0.02% reduction is assumed in line with the assumed reduction for TS Transco losses. For each year of 6th Control Period (FY 2029-30 to FY 2033-34), 0.015% reduction is assumed in line with the assumed reduction for TS Transco losses.

The trajectory for the PGCIL losses (%) is as below:

Table 47 PGCIL Loss Trajectory 5th Control Period

Description	5th Control Period				
	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
PGCIL Losses (%)	3.56%	3.54%	3.52%	3.50%	3.48%

Table 48 PGCIL Loss Trajectory 6th Control Period

Description	6th Control Period				
	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
PGCIL Losses (%)	3.47%	3.45%	3.44%	3.42%	3.41%

CSPDCL Loss trajectory:

As per the CSPDCL Tariff Order 2017-18 issued by Chhattisgarh State Electricity Regulatory Commission (CSERC) on 31.03.2017, 1000 MW capacity of Marwa TPP was entirely made available for supply to the state of Telangana. In the CSERC Order for determination of ARR and Tariff for CSPTCL (Chhattisgarh State Power Transmission Company Ltd., for the Control Period from FY 2022-23 to FY 2024-25, the Hon'ble CSERC has approved the CSPTCL losses as 3%.

Hence the Discoms have assumed the same to be applicable for all the years of 5th Control Period and for FY 2029-30 of 6th Control Period(as the PPA is expiring in FY 2029-30).

Table 49 CSPDCL Loss Trajectory 5th Control Period

Description	5th Control Period				
	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
CSPTCL Losses (%)	3.00%	3.00%	3.00%	3.00%	3.00%

Table 50CSPDCL Loss Trajectory 6th Control Period

Description	6th Control Period				
	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
CSPTCL Losses (%)	3.00%	-	-	-	-

4 Energy Requirement Forecast

The sales forecast output has been considered for projecting the energy requirements for the next two control periods. The sales forecast output was adjusted for the LT losses, 11 kV losses and 33 kV losses as per the loss trajectory to arrive at the energy requirement of the licensee. This energy

requirement was further grossed up by Transmission losses to arrive at the total energy requirement of the Licensee at the State periphery. The Power procurement plan would be tied up with the energy requirement and checked for any surplus or deficit. The power procurement plan would adequately source power from other sources in periods where the energy/ peak deficit occurrence is envisaged.

The **Energy requirement for TSNPDCL** arrived for the next two control periods as per the above method is tabulated below:

Table 51 Energy Requirement 5th Control Period

Description	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
LT Sales in MU	14460	15222	16028	16879	17779
LT Loss (%)	5.37%	5.36%	5.35%	5.34%	5.33%
LT Energy Requirement in MU	15281	16084	16934	17832	18780
HT sales (11kV) in MU	2686	2877	3088	3321	3580
11kV Loss (%)	3.85%	3.85%	3.84%	3.83%	3.83%
Energy Requirement (11kV) in MU	18687	19720	20821	21995	23249
HT sales (33kV) in MU	782	795	809	823	837
33kV Loss (%)	3.47%	3.47%	3.46%	3.46%	3.45%
Energy Requirement (excluding EHT) in MU	20170	21252	22406	23635	24947
EHT sales in MU	3789	4090	4419	4778	5169
Energy Requirement (including EHT) in MU	23958	25342	26825	28413	30115
Transmission Loss (%)	2.48%	2.46%	2.44%	2.42%	2.40%
Total Energy Requirement at State Periphery in MU	**24567**	**25981**	**27496**	**29118**	**30856**

Table 52Energy Requirement 6thControl Period

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
LT Sales in MU	18618	19501	20430	21408	22438
LT Loss (%)	5.32%	5.31%	5.30%	5.29%	5.28%
LT Energy Requirement in MU	19664	20595	21574	22604	23689

Description	FY2029-30	FY2030-31	FY2031-32	FY2032-33	FY2033-34
HT sales (11kV) in MU	3868	4190	4551	4956	5412
11kV Loss (%)	3.82%	3.81%	3.80%	3.80%	3.79%
Energy Requirement (11kV) in MU	24466	25767	27157	28648	30247
HT sales (33kV) in MU	852	868	883	900	916
33kV Loss (%)	3.44%	3.44%	3.43%	3.43%	3.42%
Energy Requirement (excluding EHT) in MU	26222	27583	29038	30596	32267
EHT sales in MU	5595	6061	6569	7124	7731
Energy Requirement (including EHT) in MU	31817	33644	35607	37720	39998
Transmission Loss (%)	2.39%	2.37%	2.35%	2.34%	2.33%
Total Energy Requirement at State Periphery in MU	**32595**	**34460**	**36465**	**38624**	**40950**

The detailed plan of the licensee to meet this energy requirement from various energy sources will be covered in detail in the Power Procurement Plan section.

5 Load Forecast

Load forecast for the control period has been done using two methodologies, namely, (a) Time series analysis approach, (b) Constant load factor approach. A brief description of both these approaches is as follows:

5.1 Time series analysis:

Time-series methods use time as independent variable to produce demand. Historic data is taken into account to establish the pattern of hourly demand. The pattern is then used to project the future hourly demand. Since time series methods are more accurate over a short period of time, the forecast is limited to the 5th Control Period.

For the projection of demand for the 5thControlPeriod, hourly demands from 1stApril 2016 till 28thFeb 2023 were studied to derive the trend of demand for 24 hours. Hourly demand for remaining FY 2022-23 till FY 2028-29 was projected based on established trend. Seasonality factor has been derived from the variation in demand for each date, for a specific hour, in different months. Based on this input, an output has been calculated using the following equation:

Y (Projected Hourly Demand) = Z * (m X + C)

Where:

Z: Seasonality Factor

m: Slope of the hourly plotted demand

X: nth Day from the starting date (i.e. 1stApril 2016),

C: Intercept of the hourly plotted demand

The above projected hourly demand (Y) is treated as Base Demand. Demand attributed to additional loads have been added to the Base Demand to arrive at demand inclusive of additional loads viz. Railway Traction, Kakatiya Textile Park etc.

Table 53: Time series analysis (state level) 5th Control Period

Description	FY 23-24	FY24-25	FY 25-26	FY26-27	FY 27-28	FY28-29
Peak Demand(MW)	7761	6585	6999	7414	9885	8239

Load Forecast (Voltage and Category wise)

5.2 5thControl Period (FY 2024-25 to FY 2028-29)

5.2.1 Category wise consumers

Forecast of energy in MU, demand in MW and number of consumers for each class of consumers (other than Scheduled consumers) category-wise, voltage-wise and slab-wise, supplied by the distribution licensee.

Consumer numbers and contracted demand forecast details are enclosed vide Annexure-2

5.2.2 Scheduled Consumers through Open Access

Forecast of energy in MU, demand in MW and number of consumers (category-wise, voltage-wise) supplied by the distribution licensee to the scheduled consumers or licensees or traders within the State of Telangana and outside the State through open access

Table 54: Open access 5th control period

Voltage	2023-24			2024-25			2025-26			2026-27			2027-28			2028-29		
	No.of consumers	Demand in MW	Sales in MU	No.of consumers	Demand in MW	Sales in MU	No.of consumers	Demand in MW	Sales in MU	No.of consumers	Demand in MW	Sales in MU	No.of consumers	Demand in MW	Sales in MU	No.of consumers	Demand in MW	Sales in MU
33 kV	9	38	5	12	64	9	12	64	9	12	64	9	12	64	9	12	64	9
132 KV	7	108	53	10	163	61	10	163	61	10	163	61	10	163	61	10	163	61
Total	16	146	58	22	227	70	22	227	70	22	227	70	22	227	70	22	227	70

5.2.3 Other Suppliers using Network

Forecast of energy in MU, demand in MW and number of consumers for each class of consumers (category-wise, voltage-wise) supplied by a person other than the distribution licensee of their area of supply through open access.

No such consumers / suppliers are existing in TSNPDCL and are not expected during the said period.

5.2.4 Captive Generating Plants

Forecast of energy in MU and demand in MW for each class of consumers (category-wise, voltage-wise) utilized from captive generating plants of an aggregate capacity of 1MW and above

Table 55: Captive generating plants 5th control period

Voltage in kV	2023-24		2024-25		2025-26		2026-27		2027-28		2028-29	
	No,of consumers	Generation capacity in MVA	No,of consumers	Generation capacity in MVA	No,of consumers	Generation capacity in MVA	No,of consumers	Generation capacity in MVA	No,of consumers	Generation capacity in MVA	No,of consumers	Generation capacity in MVA
33	2	26	2	26	2	26	2	26	2	26	2	26
132KV & above	9	571	9	571	9	571	9	571	9	571	9	571
TOTAL	**11**	**597**	**11**	**597**	**11**	**597**	**11**	**597**	**11**	**597**	**11**	**597**

5.2.5 Load Profiles

Load profiles for consumer categories for representative days including the load factors, non-coincident and coincident peak demand for each category of consumers

Table 56: Load factor 5th control period

Category	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	Class Load Factor
Low Tension	13058	13740	14460	15222	16028	16879	17779	83%
Domestic	4010	4243	4491	4753	5032	5328	5642	75%
Commercial	861	915	972	1033	1098	1168	1243	88%
Industry	240	245	251	257	263	269	275	62%
Cottage Industry	9	9	10	10	11	11	12	69%
Agriculture	7514	7890	8285	8699	9134	9591	10070	50%
Street Lighting & PWS	361	370	380	389	399	409	420	50%
General Purpose	55	58	61	64	67	70	74	56%
Temporary	8	8	9	9	9	10	10	0%
EVs	0	1	4	8	15	23	32	0%
High Tension (11kV)	**2355**	**2513**	**2686**	**2877**	**3088**	**3321**	**3580**	**89%**
Industry	1021	1121	1233	1361	1505	1669	1855	93%
Others	171	180	191	202	214	227	241	79%
Rly Stns, Bus Stns& Airports	8	8	8	8	8	9	9	76%
Irrigation, Agl& CPWS	174	179	184	190	195	201	207	90%
Townships & Res. Colonies	9	9	9	9	9	10	10	63%
Spare (Temporary)	28	29	30	31	32	33	34	83%
RESCO	945	987	1031	1076	1124	1173	1225	78%
High Tension (33kV)	**560**	**660**	**782**	**795**	**809**	**823**	**837**	**87%**
Industry	169	261	374	379	384	389	395	84%
Others	4	4	4	4	5	5	5	78%
Irrigation, Agl& CPWS	357	365	373	381	389	397	406	91%
Townships & Res. Colonies	27	27	28	28	29	29	30	72%
Spare (Temporary)	2	2	2	2	2	2	2	72%
High Tension (132kV)	**3371**	**3630**	**3789**	**4090**	**4419**	**4778**	**5169**	**88%**
Industry	732	769	672	707	743	781	821	77%
Others	6	6	6	6	6	6	6	79%
Irrigation, Agl& CPWS	1999	2196	2414	2653	2916	3205	3524	90%
Railway Traction	530	553	588	614	641	670	700	63%
Townships & Res. Colonies	103	105	107	110	112	114	116	83%
Spare (Temporary)	1	1	1	1	1	1	1	78%
Total	**19345**	**20543**	**21717**	**22985**	**24344**	**25801**	**27365**	**82%**

Table 57: TSNPDCL – Coincident Demand (MW)

Category	2024-25	2025-26	2026-27	2027-28	2028-29
Low Tension Supply					
Domestic - Category I	615	651	690	730	773
Non-domestic - Category II	113	120	128	136	144
Industrial - Category III	29	29	30	31	31
Cottage Industries - Category IV	1	1	1	1	1
Irrigation and Agriculture - Category V	1342	1409	1480	1554	1631
Public Lighting & PWS - Category VI	35	35	36	37	38
Others - Category VII & VIII	6	7	7	7	8
Total Low Tension Supply	2141	2253	2371	2496	2627
High Tension Supply					
Industrial Cat- I (11KV)	139	153	169	188	209
Industrial Cat- I (33KV)	50	51	52	52	53
Industrial Cat-I (220/132KV)	66	69	73	76	80
Others Cat- II (11KV)	20	21	23	24	25
Others Cat- II (33KV)	1	1	1	1	1
Others Cat-II (220/132KV)	1	1	1	1	1
Rly Stns, Bus Stns& Airports Cat-III (11KV)	1	1	1	1	1
Irrigation, Agriculture & CPWS - Cat-IV (11KV)	23	23	24	25	25
Irrigation, Agriculture & CPWS - Cat-IV (33KV)	47	48	49	50	51
Irrigation, Agriculture & CPWS - Cat-IV (132KV)	274	301	331	364	400
Railway Traction Cat-V (132KV)	77	86	90	94	98
Colony Consumption – Cat-VI (11KV)	2	2	2	2	2
Colony Consumption – Cat-VI (33KV)	4	5	5	5	5
Colony Consumption – Cat-VI (132KV)	12	13	13	13	13
Spare (Temporary) – Cat-VII (11KV)	3	3	3	3	4
Spare (Temporary) – Cat-VII (33KV)	0.3	0.3	0.3	0.3	0.3
Spare (Temporary) – Cat-VII (132KV)	0.1	0.1	0.1	0.1	0.1
RESCO-11KV	150	157	164	171	178
Total High Tension Supply	869	933	998	1068	1145
Total Peak	3009	3186	3369	3564	3773

Table 58: TSNPDCL – Non-coincident Demand (MW)

Category	2024-25	2025-26	2026-27	2027-28	2028-29
Low Tension Supply					
Domestic - Category I	615	651	690	730	773
Non-domestic - Category II	149	158	168	179	190
Industrial - Category III	33	33	34	35	36
Cottage Industries - Category IV	2	2	2	2	2
Irrigation and Agriculture - Category V	1373	1442	1514	1589	1669
Public Lighting & PWS - Category VI	86	89	91	93	95
Others - Category VII & VIII	16	17	17	18	19
Total Low Tension Supply	2274	2393	2519	2651	2792
High Tension Supply					
Industrial Cat- I (11KV)	151	167	184	204	227
Industrial Cat- I (33KV)	103	104	106	108	110
Industrial Cat-I (220/132KV)	99	104	110	115	121
Others Cat- II (11KV)	28	29	31	33	35
Others Cat- II (33KV)	1	1	1	1	1
Others Cat-II (220/132KV)	1	1	1	1	1
Rly Stns, Bus Stns& Airports Cat-III (11KV)	1	1	1	1	1
Irrigation, Agriculture & CPWS - Cat-IV (11KV)	23	24	25	25	26
Irrigation, Agriculture & CPWS - Cat-IV (33KV)	47	48	49	50	51
Irrigation, Agriculture & CPWS - Cat-IV (132KV)	328	361	397	436	479
Railway Traction Cat-V (132KV)	77	87	90	94	99
Colony Consumption – Cat-VI (11KV)	2	2	2	2	2
Colony Consumption – Cat-VI (33KV)	4	5	5	5	5
Colony Consumption – Cat-VI (132KV)	12	13	13	13	13
Spare (Temporary) – Cat-VII (11KV)	4	4	4	4	5
Spare (Temporary) – Cat-VII (33KV)	0.3	0.3	0.3	0.3	0.3
Spare (Temporary) – Cat-VII (132KV)	0.1	0.1	0.1	0.1	0.1
RESCO-11KV	150	157	164	171	178
Total High Tension Supply	979	1053	1127	1209	1297
Total Peak	3254	3446	3646	3860	4089

5.2.6 Assumptions

Clear description and explanations for reasonable assumptions are given in Section 2.

5.2.7 Impact of Government policies

5.2.7.1 Impact of Solar Roof-top:

The licensee has taken proactive steps in creating a simple and consumer friendly process for release of roof-top solar connection. The installed capacity of Solar Roof top in the licensee area as on date is about 28.867 MW. Since all the solar roof-top are connections under net-metering, this is likely to have dual impact on the licensee which are stated below –

a) Reduction in the consumption of power by the consumer from the licensee

b) As a consequence of the above, consumers are likely to go in lower tariff slab which would impact the discom revenue.

The licensee has factored in the above as part of the sales forecast. However detailed modelling on the revenue impact, category-wise would be carried out by the licensee at the time of ARR and Tariff filing.

5.2.8 Alternative approaches

GDP and Per-capita income are significantly linked to the electricity consumption in any economy. However, there are significant challenges in forecast of the above parameters as they are function of varied socio-economic inputs. Availability of such forecasts at a state level is a challenge. In view of lack of availability of past data over a longer time-period and forward-looking view from reliable sources, the licensee has primarily relied on modified trend method for projections of sales for the ensuing control period.

5.2.9 Sensitivity Analysis

Demonstrating criticality of the assumptions through a sensitivity analysis

5.2.9.1 Base forecast

The Licensee has projected the category wise sales based on the modified trend approach.The sales forecast for the control period has been developed primarily based on analysis of historic data for the period FY2016-17 to FY 2022-23 H1. Further, the licensee has considered the additional loads estimated by various consumers for the future period. The growth rates adopted by the licensee is assuming the business-as-usual scenario.

5.2.9.2 High forecast

Since the formation of the State, Telangana's economy is increasing at a higher rate than the previous years. The State GDP projected for the FY 2023-24 (as per the budgetary estimated for FY 2023-24)is roughly estimated to grow at around 6.7% over FY 2022-23. Further, for the past 7-8 years it is observed that the growth rate of GSDP at constant prices (2011-12) of Telangana State is higher than that of India (*Source: Telangana Socio Economic Outlook 2023*). Considering the same, if the State GDP achieves a higher growth rate than estimates in the future periods also, the corresponding sales forecast for the Discom shall be higher. Considering the same, a High forecast is prepared by adopting positive & higher growth rates at Discom level. The additional loads as considered in the base forecast are retained without any change.

5.2.9.3 Low forecast

If the State GDP achieves lower growth rate than the estimates, the corresponding sales forecast for the Discom shall be affected and the same is estimated by adopting lesser growth than that considered for base forecast at Discom level for most of the categories and moderated/manual growth rates for few categories where base sales are projected on lower side. The additional loads as considered in the base forecast are also estimated to be impacted and lower sales were considered tha the projections received from the respective consumers.

Details of both high and low forecasts are enclosed vide Annexure-4

5.2.10 Inputs for Major Loads

Inputs from consultation with major consumers (large HT industrial consumers, other Licensees, Rescos, Railway Traction etc.,) that could affect Load Forecast

- Based on the information received from the South Central Railway on upcoming Railway Traction Sub-Stations, the sales projections were made for HT-V (A) category.
- Based on the information received from the Telangana State Industrial Infrastructure Corporation (TSIIC) on upcoming loads from Kaktiya Textile Park, the sales projections were made for HT-I (Industrial) category.
- Based on the information received from the TSREDCO on upcoming Electric Vehicle loads, the sales projections were made for HT-IX EV charging category.

5.3 Subsequent Control Period (6th Control Period)

A simple forecast for the subsequent Control Period (from FY2029-30 to FY33-34) as specified by the Commission from time to time.

5.3.1 Category wise consumers

Forecast of energy in MU, demand in MW for each class of consumers (category-wise) supplied by the distribution licensee

Consumer numbers and contracted demand forecast details are enclosed vide Annexure-3

5.3.2 Other Suppliers using Network

Forecast of energy in MU, demand in MW for each class of consumers (category-wise) supplied by a person other than the distribution licensee of theirarea of supply through open access

No such consumers / suppliers are existing in TSNPDCL and are not expected during the said period

5.3.3 Captive Generating Plants

Forecast of energy in MU, demand in MW for each class of consumers (category-wise, voltage-wise) utilized from captive generating plants of aggregate capacity of 1MW and above

Table 59: Captive generating plants 5th control period

Voltage in kV	2024-25		2025-26		2026-27		2027-28		2028-29	
	No. of consumers	Generation capacity in MVA	No. of consumers	Generation capacity in MVA	No. of consumers	Generation capacity in MVA	No. of consumers	Generation capacity in MVA	No. of consumers	Generation capacity in MVA
33	2	26	2	26	2	26	2	26	2	26
132KV & above	9	571	9	571	9	571	9	571	9	571
TOTAL	**11**	**597**	**11**	**597**	**11**	**597**	**11**	**597**	**11**	**597**

5.3.4 Assumptions

Clear description and explanations for reasonable assumptions are given in Section 2.

5.4 Historic Information

(i) Historical consumer category-wise, slab-wise, voltage-wise data of energy in MU, demand in MW, number of consumers for the last 5 years

Details are enclosed vide Annexure-1.

(ii) Historic data on technical and commercial losses in the distribution system and transmission losses in the intra-state transmission system.

Table 60: Historic technical & commercial losses

Description	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
	% Loss					
AT&C losses	16.11%	24.74%	28.74%	36.34%	9.03%	13.11%

Description	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
	% Loss					
Total Distribution Losses	13.69%	12.31%	11.23%	11.06%	10.81%	10.80%
Transmission Losses	3.37%	3.25%	2.85%	2.65%	2.57%	2.47%

(iii) Energy utilization, peak load, power factor data and annual load factors for the previous 5 years

Table 61: Historic peak demand

Description	2017-18	2018-19	2019-20	2020-21	2021-22
Energy Sales (MU)	14,937	17,195	18,612	18,774	18,642
Peak Demand (MW)	3445	3823	5659	5944	5184
Annual Load Factor (%)	49%	51%	38%	36%	41%

6 Power Procurement Plan

6.1 Energy Requirement

The energy requirement for 5thand 6thControl Periods (FY 2024-25 to FY 2028-29 and FY 2029-30 to FY 2033-34) is arrived by grossing up the projected sales with the projected losses(Distribution losses trajectory for each voltage level and projected Transmission losses) for each year as detailed in section 4 (Energy Requirement forecast).To arrive the total energy requirement at state periphery, the transmission losses external to state (PGCIL & CSPTCL) are added to the energy requirement (excluding external transmission losses) as detailed in section 4.

The total energy requirement for Telangana State is arrived by adding the energy requirements of both the Discoms (TSSPDCL & TSNPDCL).

The energy requirement for 5thControl Period (FY 2024-25 to FY 2028-29) is tabulated below –

Table 62Energy Requirement for 5th CP

Energy Requirement (MU)	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**
TSSPDCL	**60,090**	**63,452**	**66,955**	**70,851**	**74,828**
TSNPDCL	**24,906**	**26,316**	**27,820**	**29,434**	**31,129**
TELANGANA STATE	**84,997**	**89,768**	**94,774**	**1,00,285**	**1,05,957**

The energy requirement for 6thControl Period (FY 2029-30 to FY 2033-34) is tabulated below –

Table 63 Energy Requirement for 6th CP

Energy Requirement (MU)	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**
TSSPDCL	**78,895**	**83,521**	**88,502**	**93,841**	**99,555**
TSNPDCL	**32,743**	**34,595**	**36,599**	**38,758**	**41,082**
TELANGANA STATE	**1,11,638**	**1,18,116**	**1,25,101**	**1,32,599**	**1,40,637**

6.2 Energy Availability

6.2.1 Addition of Generating Capacity

The details of the expected generating capacity additions during 5th& 6th Control Period, along with their expected COD timelines, are mentioned below:

Table 64Addition of new generating stations

S.No.	Generating Station	Capacity (MW) allotted to TS state	Expected COD
1	Yadradri (YTPS)	4000 (800x5)	• Unit-1, Dec' 2023, • Unit-2, Mar' 2024, • Unit-3, May' 2024, • Unit-4, July' 2024, • Unit-5, Sept' 2024.
2	Telangana STPP	1360	• Unit-I Apr-23 • Unit-II Jun-23
3	SECI 400 MW (Solar)	130	• 270 MW is already Commissioned • Balance 130 MW - Apr'23
4	SECI 1000 MW (Solar)	1000	• 1000 MW - Oct'23
5	NTPC CPSU 1692 MW (Solar)	260	• 1432 MW is already Commissioned • Balance: 100 MW - Mar'23 10 MW - Apr'23 150 MW - Mar'24
6	NTPC CPSU 1045 MW (Solar)	1045	• 735 MW - Nov'23 • 310 MW - Apr'24
7	NHPC CPSU 500 MW (Solar)	500	• 500 MW - Apr'24

Based on the above considerations, the station-wise available capacities for 5th& 6th Control Periods are tabulated in below sections.

6.2.2 **Installed capacity from various sources**

Available power plants supplying power to the Discoms along with key information are mentioned in subsequent sub-sections:

TS GENCO

The table below shows the installed capacities and the PPA periods/ PPA expiry date of the Thermal and Hydel generating stations of TS Genco considered for 5th& 6th Control Periods including the share in the interstate projects. The DISCOMs purchase the entire generation of TS Genco under the terms of the PPAs with the generator.

TS GENCO – Thermal

Table 65TS Genco Thermal Stations details

S No	Generating Source	Telangana Share (MW)	Auxiliary consumption (%)	PLF (%)	PPA Period/ PPA Expiry Date
1	KTPS-V	500 (2x250)	9%	90%	31.03.2024
2	KTPS-VI	500 (1x500)	8%	85%	22.10.2036 (25 years from the date of COD)
3	RTS-B	62.5 (1x62.5)	10%	85%	31.03.2024
4	Kakatiya (KTPP) – I	500 (1x500)	8%	90%	13.09.2035 (25 years from the date of COD)
5	Kakatiya (KTPP) – II	600 (1x600)	7%	90%	23.03.2041 (25 years from the date of COD)
6	KTPS-VII	800 (1x800)	5%	80%	25.12.2043 (25 years from the date of COD)
7	Badradri (BTPS Units 1 to 4)	1080 (4x270)	9%	85%	09.01.2047 (25 Years from the date of CoD)
8	Yadadri (YTPS Units 1 to 5)	4000 (5x800)	8%	85%	25 years (From Last Unit of Anticipated COD)

TS GENCO –Hydel

Table 66TS Genco Hydel Stations details

SNo	Generating Source	Telangana Share (MW)	Auxiliary consumption (%)	PLF (%)	PPA Period/ PPA Expiry Date
1	Srirsailam left Bank HES (SLBHES)	900	1%	22%	31.03.2029
2	Nagarjun Sagar Power House (NSPH)	815.6	1%	22%	31.03.2029
3	Nagarjun Sagar Left Canal Power House (NSLCPH)	60	1%	22%	31.03.2029
4	Pochampadu HPS-I	27	1%	22%	31.03.2029
5	Pochampadu HPS-II (Sriramsagar)	9	1%	22%	29.09.2045 (35 years from the date of COD)
6	Singur HES	15	1%	22%	31.03.2029
7	Nizamsagar HES	10	1%	22%	31.03.2029
8	Palair (Mini Hydel)	2	1%	22%	31.03.2029
9	Peddapalli (Mini Hydel)	9.16	1%	22%	31.03.2029
10	Priyadarshini Jurala HES (50% share to Karnataka)	117 (Total capacity 234)	1%	22%	03.08.2046 (35 years from the date of COD)
11	Lower Jurala HES	240	1%	22%	30.09.2051 (35 years from the date of COD)
12	Pulichintala	120	1%	22%	07.09.2053 (35 years from the date of COD)

Central Generating Stations (CGS):

The Licensee has Power Purchase Agreements with various Central Generating Stations to purchase power from i) Thermal power plants like NTPC RSTPS I&II, NTPC RSTPS-III, NTPC Talcher

Stage-II, NTPC Simhadri Stage-I and Stage-II, NTPC Kudigi, Vallur Thermal Power Plant (NTECL - Vallur), Neyveli Lignite Corporation Ltd ("NLC") TPS-II Stage-I and Stage-II, NNTPP, NLC Expn I & II, NLC Tamilnadu Power Limited (Tuticorin), Telangana STPP Phase I and ii) Nuclear power plants like Madras Atomic Power Station ("MAPS"), Kaiga Atomic Power Station ("KAPS") and NPC Kudankulam. The share of the Telangana State in the total capacity of the stations and the PPA period/ PPA expiry date are provided below for 5th& 6th Control Periods.

Table 67Central Generating Stations details

SNo	Generating Source	Telangana Share (MW)	Auxiliary consumption (%)	PLF (%)	PPA Period/ PPA Expiry Date
1	NTPC (SR) - I & II	353	7%	85%	27.9.2018
2	NTPC (SR) - III	89	6%	85%	31.01.2026
3	NTPC Talcher II	217	6%	90%	05.04.2023
4	NLC Stage-I	5	10%	90%	20.02.2030
5	NLC Stage-II	7	10%	90%	20.02.2030
6	NPC-MAPS	22	11%	45%	23.12.2026
7	NPC-Kaiga Unit-I&II	68	11%	90%	23.12.2026
8	NPC-Kaiga Unit-III & IV	72	11%	90%	23.12.2026
9	NTPC Simhadri Stage-I	539	6%	90%	28.02.2028
10	NTPC Simhadri Stage-II	257	6%	90%	29.09.2037
11	NTECL Vallur Thermal Power Plant	106	6%	90%	25.02.2040
12	NLC Tamilnadu (Tuticorn) Unit-I & Unit II	148	6%	90%	28.08.2040
13	Kudigi Unit-I, II & III	281	6%	90%	14.09.2043
14	New Neyvelli Thermal Power plant	62	6%	90%	09.02.2046
15	KKNPP (Kudankulam Nuclear Power Plant) Unit-I & II	54	8%	60%	PPA yet to be entered
16	Telangana Super Thermal	1360	7%	85%	25 Years/2048

	Power Project (NTPC), Phase-I				

Others

- The Telangana Discoms had signed the PPA with M/s. Singareni Collieries Company Ltd on 18.01.2016 in respect of 2x600MW Thermal Power Project, Stage-I, for the procurement of 100% power from Singareni Thermal Power Plant.
- As per the CSPDCL Tariff Order 2017-18 issued by Chhattisgarh State Electricity Regulatory Commission (CSERC) on 31.03.2017, 1000 MW capacity of Marwa TPP was entirely made available for supply to the state of Telangana.
- The Telangana Discoms have signed a Power Purchase Agreement with M/s. Sembcorp Energy India Limited (SEIL) erstwhile Thermal Power Tech Corporation India Limited (TPCIL) for a contracted capacity of 500 MW (Unit-I) under long term basis through Case-I bidding route for a period of 25 years. Consequent to bifurcation of the state, TS Discoms has a share of 53.89% i.e., 269.45 MW. SEIL (Unit-I) has been supplying this power from 20.04.2015.
- Also, the TS Discoms have followed the competitive bidding mechanism and have signed a Power Purchase Agreement with M/s. Sembcorp Energy India Limited (SEIL) erstwhile Thermal Power Tech Corporation India Limited (TPCIL) for a contracted capacity of 570 MW (Unit-II) under long term DBFOO basis for a period of 8 years. SEIL (Unit-II) has been supplying this power from 30.03.2016.

The source-wise generating capacity (Telangana Share) and the PPA period/ PPA Expiry date are shown in the table below:

Table 68Other Generating Stations details

S No	Generating Source	Telangana Share (MW)	Auxiliary consumption (%)	PLF (%)	PPA Period/ PPA Expiry Date
1	Sembcorp Energy Unit I	269.45	6%	95%	Apr - 2040 (25 Years)
2	Sembcorp Energy Unit II	500	6%	95%	Mar - 2024 (08 Years)
3	Singareni Thermal Power Project Stage -I	1200	6%	90%	Dec - 2041 (25 Years)

4	Chhattisgarh Power (CSPDCL)	1000	5%	82%	May - 2029 (12 Years)

Non-Conventional Energy Sources (NCES):

The installed capacities of NCES sources (including the new capacity additions as discussed in previous section) are as below:

Table 69NCES details

S No	Generating Source	Telangana Share (MW)	Auxiliary consumption (%)	PLF (%)
1	NCE - Bio-Mass	6	9%	80%
2	NCE - Bagasse	67	8%	55%
3	NCE - Municipal Waste to Energy	63	11%	80%
4	NCE - Industrial Waste based power project	19	9%	80%
5	NCE - Wind Power	128	1%	25%
6	NCE - Mini Hydel	3	1%	45%
7	NCE - Solar	2844	0.1%	25%
8	NTPC CPSU	2737	0.1%	25%
9	NHPC CPSU	500	0.1%	25%
10	SECI	1400	0.1%	25%
11	NTPC Bundled Scheme under JNNSM Ph-1	46	0.1%	25%
12	NTPC Bundled Scheme under JNNSM Ph-II (400 MW)	400	0.1%	25%

6.2.3 Energy Availability (MU) forecast

Based on the installed capacity share and considering the Plant Load Factor/ Plant Availability Factor and Auxiliary consumption of the plant, the year-wise energy availability from each station is projected.

The source-wise details of the energy availability in MUs are tabulated below:

TS GENCO – Thermal

Table 70TS Genco Thermal Energy Availability for 5th CP

S No	Generating Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	KTPS-V	3512	3512	3509	3521	3512
2	KTPS-VI	3504	3519	3504	3525	3504
3	RTS-B	413	412	412	413	412
4	Kakatiya (KTPP) – I	3519	3504	3514	3514	3519
5	Kakatiya (KTPP) – II	4205	4223	4205	4235	4205
6	KTPS-VII	5962	5957	5962	5973	5960
7	Badradri (BTPS Units 1 to 4)	8045	8045	8044	8067	8045
8	Yadadri (YTPS Units 1 to 5)	23811	29784	29784	29784	29784
	Total	**52970**	**58955**	**58933**	**59032**	**58940**

Table 71TS Genco Thermal Energy Availability for 6th CP

S No	Generating Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	KTPS-V	3509	3512	3521	3509	3512
2	KTPS-VI	3519	3504	3529	3504	3514
3	RTS-B	309	0	0	0	0
4	Kakatiya (KTPP) – I	3504	3519	3514	3514	3504
5	Kakatiya (KTPP) – II	4216	4205	4235	4205	4223
6	KTPS-VII	5957	5962	5973	5962	5957
7	Badradri (BTPS Units 1 to 4)	8045	8045	8068	8044	8044
8	Yadadri (YTPS Units 1 to 5)	29784	29784	29784	29784	29784
	Total	**58844**	**58530**	**58624**	**58521**	**58537**

TS GENCO – Hydel

Table 72TS Genco Hydel Energy Availability for 5th CP

SNo	Generating Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	NSPH (Nagarjun Sagar)	961	956	1044	1130	1225
2	NSLCPH (Nagarjun Sagar Left Canal)	64	65	64	64	66
3	Pulichintala	256	287	322	359	398
4	Pochampad	74	74	74	74	74
5	Nizam sagar	17	17	17	17	17
6	Palair	3	3	3	3	3
7	Mini Hydel (Peddapalli)	2	3	2	2	2
8	Singur	14	14	14	14	14
9	SLBHES (Srisailam)	1124	1124	1124	1124	1124
10	Priyadarshini Jurala	242	244	265	271	277
11	Lower Jurala	243	243	243	243	243
	Total	**2999**	**3029**	**3172**	**3301**	**3443**

Table 73TS Genco Hydel Energy Availability for 6th CP

SNo	Generating Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	NSPH (Nagarjun Sagar)	1315	1296	1300	1151	1167
2	NSLCPH (Nagarjun Sagar Left Canal)	80	77	74	66	67
3	Pulichintala	402	406	410	414	418
4	Pochampad	74	74	74	74	74
5	Nizam sagar	17	17	17	17	17
6	Palair	3	3	3	3	3
7	Mini Hydel (Peddapalli)	2	3	2	2	2
8	Singur	14	14	14	14	14
9	SLBHES (Srisailam)	1124	1124	1124	1124	1124
10	Priyadarshini Jurala	289	286	278	273	267
11	Lower Jurala	243	243	243	243	243
	Total	**3562**	**3542**	**3539**	**3381**	**3396**

Central Generating Stations (CGS)

Table 74CGS stations Energy Availability for 5th CP

SNo	Generating Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	NTPC (SR) - I & II	2666	2687	2618	2683	2669
2	NTPC (SR) Stage III	715	621	0	0	0
3	Talcher Stage 2	0	0	0	0	0
4	NTPC Simhadri Stage I	4163	4090	4090	4151	0
5	NTPC Simhadri Stage II	1984	1949	1949	1978	1984
6	NTPC Kudigi - I, II & III	2196	2095	2169	2095	2196
7	NLC Stage-I	35	35	35	35	35
8	NLC Stage-II	46	46	46	46	46
9	NNTPP (New Neyveli)	461	461	461	462	461
10	NLC Expansion 1	41	41	41	41	41
11	NLC Expansion 2	30	30	30	30	30
12	NPC-MAPS	56	56	42	0	0
13	NPC-Kaiga unit I & II	427	427	320	0	0
14	NPC-Kaiga unit III & IV	463	463	347	0	0
15	NPC- Kudankulam	28	28	28	28	28
16	Kudankulam (KKNPP) Unit-II	335	335	335	335	335
17	Vallur Thermal Power Plant (NTECL - Vallur)	698	698	698	698	698
18	NLC Tamilnadu Power Ltd (Tuticorin)	1098	1098	1098	1101	1098
19	NSM Bundled Ph II	1390	1390	1390	1394	1390
20	Telangana STPP (phase I)	11718	11682	12216	12216	12074
	Total	**28550**	**28232**	**27913**	**27293**	**23085**

Table 75CGS stations Energy Availability for 6th CP

SNo	Generating Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	NTPC (SR) - I & II	2668	2618	2686	2669	2669
2	NTPC (SR) Stage III	0	0	0	0	0
3	Talcher Stage 2	0	0	0	0	0

4	NTPC Simhadri Stage I	0	0	0	0	0
5	NTPC Simhadri Stage II	1949	1949	1949	1949	1949
6	NTPC Kudigi - I, II & III	2095	2169	2074	2196	2074
7	NLC Stage-I	32	0	0	0	0
8	NLC Stage-II	28	0	0	0	0
9	NNTPP (New Neyveli)	461	461	462	461	462
10	NLC Expansion 1	41	41	41	41	41
11	NLC Expansion 2	30	30	30	30	30
12	NPC-MAPS	0	0	0	0	0
13	NPC-Kaiga unit I & II	0	0	0	0	0
14	NPC-Kaiga unit III & IV	0	0	0	0	0
15	NPC- Kudankulam	28	28	28	28	28
16	Kudankulam (KKNPP) Unit-II	335	335	335	335	335
17	Vallur Thermal Power Plant (NTECL - Vallur)	698	698	698	698	698
18	NLC Tamilnadu Power Ltd (Tuticorin)	1098	1098	1101	1098	1101
19	NSM Bundled Ph II	1390	1390	1394	1390	1390
20	Telangana STPP (phase I)	12038	12216	12216	12074	12216
	Total	**22891**	**23033**	**23014**	**22969**	**22993**

Non-Conventional Energy Sources (NCES):

Table 76NCES sources Energy Availability for 5th CP

SNo	Generating Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	NCE - Biomass	42	42	42	0	0
2	NCE - Bagasse	321	321	196	117	117
3	NCE - Municipal Waste to Energy	438	438	438	438	438
4	NCE - Industrial Waste based power project	130	130	130	130	105
5	NCE - Wind Power	281	281	281	281	281
6	NCE - Mini Hydel	10	8	8	0	0
7	NCE - Solar	6224	6224	6224	6224	6224

8	NTPC CPSU	5994	5994	5994	5994	5994
9	NHPC CPSU	1095	1095	1095	1095	1095
10	SECI	3066	3066	3066	3066	3066
11	NTPC Bundled Scheme under JNNSM Ph-1	100	100	100	100	100
12	NTPC Bundled Scheme under JNNSM Ph-II (400 MW)	876	876	876	876	876
	Total	**18577**	**18574**	**18449**	**18320**	**18295**

Table 77NCES sources Energy Availability for 6th CP

SNo	Generating Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	NCE - Biomass	0	0	0	0	0
2	NCE - Bagasse	0	0	0	0	0
3	NCE - Municipal Waste to Energy	438	438	438	438	438
4	NCE - Industrial Waste based power project	105	105	53	53	53
5	NCE - Wind Power	281	281	281	281	281
6	NCE - Mini Hydel	0	0	0	0	0
7	NCE - Solar	6224	6224	6224	6224	6224
8	NTPC CPSU	5994	5994	5994	5994	5994
9	NHPC CPSU	1095	1095	1095	1095	1095
10	SECI	3066	3066	3066	3066	3066
11	NTPC Bundled Scheme under JNNSM Ph-1	100	100	100	100	100
12	NTPC Bundled Scheme under JNNSM Ph-II (400 MW)	876	876	876	876	876
	Total	**18179**	**18179**	**18126**	**18126**	**18126**

Others:

Table 78Other sources Energy Availability for 5th CP

S No	Generating Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	Sembcorp Unit I	2360	2360	2360	2367	2360
2	Sembcorp Unit II	0	0	0	0	0
3	Singareni CCL	9244	9244	9244	9270	8911
4	CSPDCL	7055	7055	7055	7074	7055
	Total	**18659**	**18659**	**18659**	**18712**	**18327**

Table 79Other sources Energy Availability for 6th CP

S No	Generating Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	Sembcorp Unit I	2360	2360	2367	2360	2360
2	Sembcorp Unit II	0	0	0	0	0
3	Singareni CCL	8911	8911	8938	9244	9244
4	CSPDCL	677	0	0	0	0
	Total	**11948**	**11272**	**11305**	**11604**	**11604**

Summary of Energy Availability:

Table 80Other sources Energy Availability for 5th CP

S No	Source	Energy Availability in MUs for 5th Control Period				
		FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
1	TS Genco – Thermal	52,970	58,955	58,933	59,032	58,940
2	TS Genco – Hydel	2,999	3,029	3,172	3,301	3,443
3	Central Generating Stations	28,550	28,232	27,913	27,293	23,085
4	NCES	18,577	18,574	18,449	18,320	18,295
5	Sembcorp Energy (IPPs)	2,360	2,360	2,360	2,367	2,360
6	CSPDCL (Chhattisgarh)	7,055	7,055	7,055	7,074	7,055
7	Singareni	9,244	9,244	9,244	9,270	8,911
	Total	**1,21,754**	**1,27,451**	**1,27,126**	**1,26,658**	**1,22,090**

Table 81Other sources Energy Availability for 6th CP

S No	Source	Energy Availability in MUs for 6th Control Period				
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
1	TS Genco – Thermal	58,844	58,530	58,624	58,521	58,537
2	TS Genco – Hydel	3,562	3,542	3,539	3,381	3,396
3	Central Generating Stations	22,891	23,033	23,014	22,969	22,993
4	NCES	18,179	18,179	18,126	18,126	18,126
5	Sembcorp Energy (IPPs)	2,360	2,360	2,367	2,360	2,360
6	CSPDCL (Chhattisgarh)	677	-	-	-	-
7	Singareni	8,911	8,911	8,938	9,244	9,244
	Total	**1,15,424**	**1,14,555**	**1,14,608**	**1,14,601**	**1,14,657**

6.3 Energy Balance

Based on the Energy Requirement and Energy Availability projections mentioned in the above sections, the Energy Balance in the state for each year of the 5th& 6th Control Periods are as follows:

Table 82Energy Balance for 5th CP

Particular	Energy Balance in MUs for 5th Control Period				
	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Energy Availability	1,21,754	1,27,451	1,27,126	1,26,658	1,22,090
Energy Requirement	84,997	89,768	94,774	1,00,285	1,05,957
Surplus/ (Deficit)	**36,758**	**37,683**	**32,352**	**26,374**	**16,133**

Table 83Energy Balance for 6th CP

Particular	Energy Balance in MUs for 6th Control Period				
	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
Energy Availability	1,15,424	1,14,555	1,14,608	1,14,601	1,14,657
Energy Requirement	1,11,638	1,18,116	1,25,101	1,32,599	1,40,637
Surplus/ (Deficit)	**3,786**	**(3,561)**	**(10,493)**	**(17,997)**	**(25,981)**

6.4 Power Procurement Plan (Short-term & Long-term):

Short-term plan for 5th Control Period:

- With the requirement growing year-on-year and capacity not matching the requirement, Discoms have been forced to depend on short-term market purchases during FY 2021-22 and FY 2022-23.
- During the FY 2021-22, TSSPDCL have purchased 4786 MUs for Rs. 2175 Cr and TSNPDCL have purchased 1998 MUs for Rs. 908 Cr through Trading at average unit rate of Rs. 4.54/kWh (the same has been given by Discoms during ARR filing for FY 2023-24). But for FY 2022-23, the average unit rate has increased to be at Rs. 7.07/kWh (based on the actual cost of H1 and estimated cost for H2 of FY 2022-23). In some months, the market rates have crossed Rs. 12/kWh as well.
- Moreover, the requirement is expected to grow due to Lift Irrigation Schemes and load additions in Industrial and Commercial categories.
- Hence, TS Discoms have entered into PPAs with TS Genco, CGS and NCES (Solar) generators to provide 24x7 quality and reliable power supply to all the categories of consumers.
- For 5th Control Period, the Discoms are in energy surplus scenario. The reason for it is due to addition of new capacity from TS Genco Station (YTPS), CGS station (Telangana STPP) and NCES stations (SECI & CPSU schemes). The detailed description of addition of new generating capacity is mentioned in above sections (section 7.2)
- Discoms have taken care of good energy mix by entering into PPAs with both Thermal and RE generating stations for 5th Control Period
- For 5th Control Period also, on a real-time basis, if the market conditions are favorable, TS Discoms shall engage in the sale of surplus power, as done in the recent years

Long-term plan for 6th Control Period:

During the 6th Control Period, the Discoms have an energy deficit scenario. Discoms expect to meet the energy deficit by means of following measures.

Based on the real-time conditions in future, if the below mentioned plants are installed, then Discoms would explore entering PPAs with them as and when required.

I. **Singareni Phase II**

a. Discoms are planning to enter into PPA with Singareni CCL unit 3 (800 MW) capacity and this unit is expected to be Commissioned during FY 2026-27

b. There is a scope for installation of 1600 MW additional capacity for Singareni CCL (Units 4 & 5).

II. **Telangana STPP**

a. Currently Discoms are allotted 85% share from TSTPP (1600 MW) plant. The negotiations are going on to allot the remaining 15% share as well to TS Discoms only.

b. There is a scope for installation of 2400 MW (3x800 MW each) additional capacity for Telangana STPP.

III. **Central Generating Stations**

a. The availability from CGS stations for 1019 MW (incl Simhadri 539 MW) is reduced during 6th Control Period due to expiry of PPAs. The station-wise PPA details are provided in above sections (section 7.2)

b. Discoms would ensure the cost effectiveness and would explore option of extending PPAs if required.

IV. **Non-Conventional Energy Sources (NCES)**

a. The variable costs from NCES (Solar) have reduced significantly in the last few years. There are two modes for procuring Solar power Distributed mode (generating plants are placed close to sub-stations to reduce losses) and Centralized mode (generating plants are concentrated in a single region like SECI, CPSU, etc.)

b. Currently Discoms are procuring Solar power in both modes and would explore these options in future based on cost-competitiveness.

V. In addition to these, Discoms would try to bridge smaller energy deficit gaps by utilizing the **Short-term Market** purchases

7 Distribution Plan

As per Guidelines for Resource Plan (Dec 2006), Licensee shall submit a detailed Distribution Plan for the next Control Period. This Distribution Plan is prepared considering the network elements required for System Expansion Plan.

System expansion is planned to cater to the load growth and network strengthening. The following methodology has been adopted for the estimation of the new network elements required to cater to the load growth.

7.1 Network Plan Base Capital Expenditure:

7.2 Methodology

7.2.1 Data

The following data has been gathered for all the sub-divisions in a DISCOM:

Sales Projection

Sub-division wise LT, 11kV and total HT actual sales including open access for past 5 years (FY 2017-18 to FY 2021-22) has been considered. Projection of sub-division wise LT and 11kV sales for the 5^{th}& 6^{th}control period has been carried out on the basis of the actual sales of the last five years.5-year CAGR has been considered in most of the cases, having modified in case of exceptions. The CAGR has been capped at a maximum of 3.5 %. Further, year on year growth rate for thus projected combined LT and 11kV sales was computed to project the loading of network elements (33/11 kV sub-station, PTR, and 11kV Feeders) for the 5^{th}& 6^{th}control period.

Sub-division Classification

Sub-divisions are classified as Urban, Semi-urban and rural based on the current location and current load pattern. This classification helps the Licensee to compute the load density in the respective area. Addition of Sub-stations or PTR will be proposed based on the load growth and Load density in that area. For example, load density would be high in urban area rather than semi-

urban and rural area and hence, addition of Sub-stations would be optimal in rural areas rather than addition of PTR to reduce line losses.

Network Loading Data

The details of all Sub Stations in the Licensee area were gathered along with the location area classification, details of constituent network elements and their respective peak loading values.

Power Transformer Details

The power transformer (PTR) capacities installed in each sub-station were gathered along with the peak loading details of PTRs. The data used for analysis is the year end values of 2022-23 and is as received from the field to ensure that the model captures and reflects the real situation as in the field. The peak loading details as received from the field was validated to remove any exceptions.

Feeder Details

The details captured for analysis are the total number of feeders installed in a sub-station and the peak currents flowing through the same. This data was captured from the field during the year 2022-23. The peak current data in feeders of a sub-station have been validated to remove exceptions, if any.

Distribution Transformer Details

Capacity wise total number of DTRs in each circle was captured. The DTRs are classified as Agricultural and Non-agricultural. Information is collected after taking this classification under consideration.

7.2.2 **Network Element Details**

7.2.2.1 Sub-station Unit

Each Sub-station is projected by considering sub-station as a unit comprising of all the associated equipment. Each sub-station unit consists of below mentioned major equipment:

- 33 kV line of 12 KM (6 KM Main Line & 6 KM standby)
- 132/33 kV tapping bay
- 33 kV VCB
- Power Transformers
- Feeders (11 KV VCB & 11 KV line of 5 KM (each feeder)); Urban/Semi Urban sub-station will have 6 feeder & rural sub-station will have 4 feeders.

7.2.2.2 Power Transformer Unit

A Power transformer is projected by considering it as a unit consisting of below mentioned major equipment:

- Power Transformer
- HV Breaker
- LV Breaker
- 33 KV AB switch

When a Power Transformer is upgraded, the old transformer is reused at another sub-station based on requirement. For Example, A 5 MVA transformer, which is upgraded to 8 MVA in Urban can be re-used in rural regions.

7.2.2.3 Feeder Unit

Each feeder is defined as a unit constituting of Feeder breaker and metering, bay extension, 11 kV line of 5 KM, poles.

7.2.2.4 DTR Unit

A DTR unit consists of DTR, AB switch, DTR structure, 0.3 km of LT line, 0.4 km of 11 kV line.

7.2.3 **Modelling for Network Additions (Sub-stations; PTRs and Feeders)**

The PTR and feeder loadings in every sub-station (in a sub-division) have been assumed to grow at the same rate as the year-on-year sales growth of sum of LT and HT 11 kV sales of that particular sub-division. The sub-station capacity limit has been capped at 16 MVA for Urban sub-stations, 16 MVA for semi-urban sub-stations, and 10 MVA for rural sub-stations. These limits have been set with an objective to reduce line losses and for improving the voltage profile.

For example, if a Sub-Stations having a 16 MVA PTR capacity, 70% of peak load, semi urban area, 10% growth rate. This requires additional PTR capacity to cater to the load growth in that area. However, with the threshold limit, a new Sub-station will be proposed closer to the load centre to reduce line losses and for improving voltage profile.

7.2.3.1 Sub-station

A new sub-station will be proposed as per the following conditions:

- If none of the PTRs are upgradable (An upgradable PTR is 5 MVA capacity in Urban and Semi-Urban Sub-station and 3.15 MVA in a Rural Sub-station).
- If an additional PTR is required and the sub-station cannot accommodate any further PTRs based on the criteria mentioned above.
- Average loading on PTRs in sub-station is greater than the threshold set (% loading of its capacity) for new sub-station addition.

A certain loading of the PTRs in the present sub-station is transferred to the new sub-station. The PTR capacity to be installed in the new sub-station is 5 MVA in rural, 8 MVA in case of urban& semi-urban. The load transfer from a present sub-station to a new sub-station has been factored in such a way that in most situations the average loading on PTRs in the present sub-station after the load transfer doesn't exceed the Threshold Capacity in any of the years in the control period.

The number of feeders proposed for a new sub-station is 6 for Urban, Semi-urban region and 4 for rural region.

7.2.3.2 Power Transformer

A new PTR will be proposed as per the following conditions:

- If the peak loading of any of the PTRs installed exceeds the threshold set (% loading of its capacity) and if the sub-station can accommodate a new PTR i.e., Urban- 16 MVA, SU – 16 MVA, Rural -10 MVA.
- If none of the PTRs are upgradable (An upgradable PTR is 5 MVA capacities in Urban & Semi-Urban Sub-station and 3.15 MVA in a Rural Sub-station).
- The PTR capacity proposed is either 5 MVA or 8 MVA, depending on remaining sub-station capacity and requirement.

The final loading on the PTRs after a new PTR is proposed is such that the distribution of peak loads on all PTRs is the same. This shall ensure that all the PTRs are loaded equally unlike the scenario of peak loading on one of them being very high.

A similar carry forward approach has been adopted for the PTR additions as done for sub-stations.

7.2.3.3 Feeders

The total number of feeders in a sub-station has been capped to 6 for urban, semi-urban and 4 for rural.

New feeders will be proposed under the following conditions:

- Redistribution of feeder currents is done for each sub-station, irrespective of the feeder loading
- If after the redistribution, peak feeder current exceeds more than threshold limits and an additional feeder can be accommodated in the sub-station
- The above applies only if no new sub-station addition is being proposed

- After the new feeders are proposed as per condition mentioned above, the peak currents in the feeders are distributed equally among the ones overloaded and the new feeders proposed to calculate the feeder loading at the end of year.

Additional feeders have also been considered apart from the projections in view of expected requirements based on field input.

When a new Sub-station on account of overloaded feeders is proposed, same PTR loading (% peak loading) for old Sub-stations is maintained. Total transferable current for a sub-division is calculated by classifying Sub-stations in groups of Urban, Semi-Urban and Rural. The number of Sub-stations is proposed depends upon the number of feeders required as per threshold feeder current for that year and the Sub-stations classification. It is assumed that each new Sub-stations thus proposed, in Urban and Semi-Urban areas would have a capacity of 8 MVA (1 PTR of 8 MVA) whereas a Rural sub-station would have a capacity of 5 MVA (1 PTR of 5MVA).

A similar carry forward approach has been adopted for the feeder currents as done above for sub-stations and PTRs.

7.2.3.4 Distribution Transformers

Distribution transformers are categorized as agricultural and non- agricultural. Information of DTRs, circle and capacity wise was collected for FY 2022-23.

- LT sales (Non agriculture and agriculture) and LT losses considered and thereafter sales per KVA (kWh/kVA) computed for 2022-23 for each circle based on the existing DTR Capacity (kVA) (Agricultural & Non-agricultural category)
- Sales per kVA (circle wise) ratio has been used to project circle wise & year wise DTR Capacity (kVA) for the 5^{th}& 6^{th}control period.
- Circle wise DTR Nos are arrived based on the existing % configuration (kVA capacity) for 100,160 & 315 kVA (Non-agricultural) but restricting to only 25 kVA,63 kVA & 100 kVA for DTRs (agricultural category)

7.2.4 **Threshold Peak Loading of Network Elements**

With the current loading of the network elements, very large number of new sub-station, PTRs, feeders and DTRs are being proposed in both the control periods. Licensee adopted differential and high threshold limits to moderate the network projections &ensure a relatively uniform network additions each year during the 5th& 6thcontrol period. Summary of the threshold peak loading are shown below.

Table 84 Threshold values

Description	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Sub-station Threshold (%)					
Urban Sub-station threshold	85%	85%	85%	85%	85%
Semi urban Sub-station threshold	85%	85%	85%	85%	85%
Rural Sub-station threshold	90%	90%	90%	90%	90%
PTR Threshold (%)					
Urban PTR threshold	88%	88%	88%	88%	88%
Semi Urban PTR threshold	88%	88%	88%	88%	88%
Rural PTR threshold	96%	96%	96%	96%	96%
Feeder Threshold (Amp)					
Urban/Semi-urban/Rural	150	150	150	150	150
Description	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**
Sub-station Threshold (%)					
Urban Sub-station threshold	95%	95%	95%	95%	95%
Semi urban Sub-station threshold	95%	95%	95%	95%	95%
Rural Sub-station threshold	95%	95%	95%	95%	95%
PTR Threshold (%)					
Urban PTR threshold	90%	90%	90%	90%	90%
Semi Urban PTR threshold	98%	98%	98%	98%	98%
Rural PTR threshold	100%	100%	100%	100%	100%
Feeder Threshold (Amp)					
Urban/Semi-urban/Rural	150	150	150	150	150

7.3 Network Additions Summary

In this section, the details of the network additions are provided for the 5th& 6thcontrol period. In the network additions, the sub-station additions, PTR capacity additions, Feeder additions, and DTR additions has been captured.

Table 85 Summary of Network Projections

TSNPDCL	Unit	Base Year	Total 5th Control Period					Total 5th CP (FY 24-25 to FY 28-29)
		FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	
Sub-station Additions	Nos	49	57	67	80	85	112	401
PTR Additions	Nos	15	18	28	45	56	67	214
PTR Augmentation	Nos	14	19	25	27	37	45	153
Feeder Additions	Nos	0	3	6	13	18	24	64
DTR Unit Additions	Nos	10901	11501	12115	12764	13441	14148	63969

Table 86 Detailed Network Projections

Network Projections Results (5th CP)	Base Year	Total 5th Control period					Total for 5th CP
	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	
New Sub-station Additions							
Urban nos.	2	4	5	7	8	9	33
Semi Urban nos.	-	-	-	1	-	1	2
Rural nos.	9	15	24	36	50	66	191
Total number of Sub-stations	11	19	29	44	58	76	226
Total Capacity Added (MVA)	66	112	170	279	369	410	1,340
No.of Feeders	48	84	126	192	248	324	974
Sub-station addition due to overloaded feeders							
Urban nos.	-	-	-	-	-	-	-
Semi Urban nos.	-	-	-	-	-	-	-
Rural nos.	38	38	38	36	27	36	175
Total Number of Sub-stations	38	38	38	36	27	36	175
Total Capacity Added (MVA)	190	190	190	180	135	180	875
No of Feeders	152	152	152	144	108	144	700
Total Capacity Added (MVA)	256	302	360	459	504	590	2,215
Total number of Sub-stations							
Urban nos.	2	4	5	7	8	9	33
Semi Urban nos.	-	-	-	1	-	1	2
Rural nos.	47	53	62	72	77	102	366

Network Projections Results (5th CP)	Base Year	Total 5th Control period					Total for 5th CP
	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	
Total Number of Sub-stations	49	57	67	80	85	112	**401**
Total Capacity Added (MVA)	256	302	360	459	504	590	2,215
No of Feeders	200	236	278	336	356	468	1,674
Total number of PTRS in new Sub-stations							
PTR No(8 MVA)	2	4	5	8	8	10	35
PTR No(5 MVA)	10	16	26	43	61	66	212
Total Number of PTRs in new Sub-stations	12	20	31	51	69	76	247
Total Capacity Added (MVA)	66	112	170	279	369	410	1,340
Total number of PTRs in Sub-station due to over loaded feeders							
PTR No(8 MVA)	-	-	-	-	-	-	-
PTR No(5 MVA)	38	38	38	36	27	36	175
Total number of PTR	38	38	38	36	27	36	175
Total Capacity Added (MVA)	190	190	190	180	135	180	875
New PTR Additions in existing Sub-stations number							
PTR No(8 MVA)	2	3	2	5	5	5	20
PTR No(5 MVA)	13	15	26	40	51	62	194
Total PTR numbers added	15	18	28	45	56	67	**214**
Total Capacity Added (MVA)	81	99	146	240	295	350	1,130
PTR Augmentation number							
PTR augmented in Urban and Semi-Urban Sub-station	13	17	21	23	30	34	125
PTR augmented in Rural Sub-station	1	2	4	4	7	11	28
Total PTRs augmented	14	19	25	27	37	45	**153**
PTR capacity augmented in MVA	41	55	70	76	103	122	427
Total PTR capacity added (MVA)	122	154	216	316	398	472	1557
Feeder Additions in Existing Sub-stations	**-**	**3**	**6**	**13**	**18**	**24**	**64**
Total Capacity Addition (New Sub-station + Existing Sub-station) MVA	378	456	576	775	902	1062	3772
Total no of feeders added including Sub-stations due to overloaded feeders	200	239	284	349	374	492	1,738
Total number of PTRs added	65	76	97	132	152	179	636
Total Capacity of PTRs added (MVA)	337	401	506	699	799	940	3345
DTR Additions							
25 KVA	6396	6729	7065	7417	7787	8176	37174
63 KVA	1170	1231	1292	1357	1425	1496	6801
100 KVA	3005	3189	3383	3589	3803	4026	17990
160 KVA	259	276	294	314	334	353	1571
315 KVA	71	76	81	87	92	97	433
Total DTRs	**10901**	**11501**	**12115**	**12764**	**13441**	**14148**	**63969**

Table 87Summary of Network Projections

TSNPDCL	Unit	Total 6th Control Period					Total 6th CP (FY 29-30 to FY 33-34)
		FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	
Sub-station Additions	Nos	83	85	85	92	93	438
PTR Additions	Nos	51	52	57	59	60	279
PTR Augmentation	Nos	28	31	35	38	40	172
Feeder Additions	Nos	7	10	15	22	23	76
DTR Unit Additions	Nos	12415	12983	13578	14203	14864	68043

Table 88 Detailed Network projections

Network Projections Results (6th CP)	Total 6th Control Period					Total for 6th CP
	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	
New Sub-station Additions						
Urban nos.	4	4	4	4	4	20
Semi Urban nos.	-	1	1	1	1	4
Rural nos.	43	44	44	51	52	234
Total number of Sub-stations	47	49	49	56	57	258
Total Capacity Added (MVA)	277	290	305	345	320	1,537
No.of Feeders	196	206	206	234	238	1,080
Sub-station addition due to overloaded feeders						
Urban no.	-	-	-	-	-	-
Semi Urban nos.	-	-	-	-	-	-
Rural nos.	36	36	36	36	36	180
Total Number of Sub-stations	36	36	36	36	36	180
Total Capacity Added (MVA)	180	180	180	180	180	900
No of Feeders	144	144	144	144	144	720
Total Capacity Added (MVA)	457	470	485	525	500	2,437
Total number of Sub-stations						
Urban nos.	4	4	4	4	4	20
Semi Urban nos.	-	1	1	1	1	4
Rural nos.	79	80	80	87	88	414
Total Number of Sub-stations	83	85	85	92	93	**438**
Total Capacity Added (MVA)	457	470	485	525	500	2,437
No of Feeders	340	350	350	378	382	1,800
Total number of PTRS in new Sub-stations						
PTR No(8 MVA)	4	5	5	5	5	24

Network Projections Results (6th CP)	Total 6th Control Period					Total for 6th CP
	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	
PTR No(5 MVA)	49	50	53	61	56	269
Total Number of PTRs in new Sub-stations	53	55	58	66	61	293
Total Capacity Added (MVA)	277	290	305	345	320	1,537
Total number of PTRs in Sub-stations due to over loaded feeders						
PTR No(8 MVA)	-	-	-	-	-	-
PTR No(5 MVA)	36	36	36	36	36	180
Total number of PTR	36	36	36	36	36	180
Total Capacity Added (MVA)	180	180	180	180	180	900
New PTR Additions in existing Sub-stations number						
PTR No(8 MVA)	5	5	5	5	5	25
PTR No(5 MVA)	46	47	52	54	55	254
Total PTR numbers added	51	52	57	59	60	**279**
Total Capacity Added (MVA)	270	275	8	310	315	1,178
PTR Augmentation number						
PTR augmented in Urban and Semi-Urban Sub-stations	25	27	27	29	31	139
PTR augmented in Rural Sub-stations	3	4	8	9	9	33
Total PTRs augmented	28	31	35	38	40	**172**
PTR capacity augmented in MVA	81	88	96	104	110	478
Total PTR capacity added (MVA)	351	363	104	414	425	1656
Feeder Additions in Existing Sub-stations	7	10	15	22	23	**76**
Total Capacity Addition (New Sub-stations + Existing Sub-stations) MVA	808	833	589	939	925	4093
Total no of feeders added including Sub-stations due to overloaded feeders	347	360	365	400	405	1,876
Total number of PTRs added	140	143	151	161	157	752
Total Capacity of PTRs added (MVA)	727	745	493	835	815	3615
DTR Additions						
25 KVA	6863	7137	7422	7718	8026	37,166
63 KVA	1256	1306	1358	1412	1468	6,800
100 KVA	3837	4054	4284	4530	4794	21,499
160 KVA	361	382	404	427	453	2,027
315 KVA	98	104	110	116	123	551
Total DTRs	**12415**	**12983**	**13578**	**14203**	**14864**	**68043**

7.4 Network Element Definition and Cost Details

1. Sub-station Unit Cost (Rs. / sub-station): For calculating the cost of a sub-station added Licensee have considered the following to be a part of a sub-station unit:
    - 33 kV line of 6 KM with a 6 KM of standby supply.
    - 11 kV each of 5 KMs (6 Feeders for Urban & Semi Urban and 4 Feeders for Rural).
    - 132/33 kV tapping bay.
    - 33 kV VCB.
    - Sub-station unit cost includes the PTRs, 11 kV bay and AB switches.
    - It includes all the relevant material cost, construction cost and labour charges.

The sub-station unit cost arrived above is the value pertaining to present cost data. Considering the possible increase in material and labour costs, the sub-station cost has been escalated by a certain percentage year-on-year for 5^{th}& 6^{th} Control Period. The number of sub-station additions each year has been multiplied by the sub-station unit cost for that year to arrive at the total cost of installing all new sub-stations in that year.

2 PTR Unit Cost (Rs. / Unit): For calculating the cost of installing a PTR in a sub-station we have considered the following:

- PTR of 5 MVA and 8 MVA capacities in Rural and Urban& Semi Urban areas respectively
- 33 KV AB switch
- Associated Equipment and labour cost

PTR unit additions in existing sub-station in Rural and Urban areas in a year is multiplied with the PTR unit cost in Rural and Urban areas respectively for that year to arrive at the total cost of installing of PTRs addition in existing sub-station. On similar lines as the sub-station unit cost, the present PTR unit cost has been escalated by a certain percentage year-on-year to get the PTR unit

cost for subsequent years of the control period. This has been done to account for the possible increase in the material and labour cost during the 5th& 6thcontrol period.

3 Feeder Unit Cost (Rs. / feeder): For calculating the cost for erecting a feeder in a sub-station is considered the following:

- Feeder breaker and metering
- Bay extension
- 11 kV line
- Associated Equipment and labour cost

The feeder addition in a year, which excludes the additions in new sub-stations, is multiplied with the feeder unit cost for that year to arrive at the cost of installing new feeder addition in existing sub-station. The present feeder unit cost has been escalated by a certain percentage year-on-year to get the feeder unit cost for subsequent years of the 5th& 6thcontrol period.

4 DTR Unit Cost (Rs. / kVA): For calculating the cost of a installing a DTR, the following are considered:

Circle wise DTR Nos are arrived based on the existing % configuration (kVA capacity) for100,160 & 315 kVA (Non-agricultural) but restricting to only 100 kVA ,25 kVA and 63 kVA for DTRs (agricultural category).

- AB switch
- DTR structure
- 0.3 km of LT line
- 0.4 km of 11 kV line
- Associated Equipment and labour cost

The present unit cost of each rated capacity of DTR has been escalated by a certain percentage year-on-year to get the capacity wise DTR unit cost for subsequent years of the 5th& 6thcontrol period.

5 **Capital Cost Escalation Factor:** Relevant categories of WPI, CPI have been considered in the ratio of 60:40 for calculating an overall escalation rate. The five-year average of this factor has been computed to be 4.57%and the same has been considered on the unit costs of 2022-23 to arrive at the unit costs for every year of the 5th control period& 6th Control Period.

The cost data for FY 2022-23 is considered for projections of network cost for base year i.e., FY2023-24. A Price Escalation of **4.57%**is considered for YoY cost projections by considering 60% of WPI and 40% of CPI variation over past five years.

The network element unit cost arrived based on the cost data is the value pertaining to FY2022-23. Considering the possible increase in material and labour costs, the network unit cost has been escalated by the above-mentioned percentage of price escalation year-on-year. The number of network additions each year has been multiplied by the relevant network unit cost for that year to arrive at the total cost of installing the new network elements in that year.

Network element Cost of the Licensee considered for computing Base Capital Expenditure during the 5th& 6thcontrol period is as shown below.

Table 89 Per unit cost of equipment

Sl. No.	Cost Data	TSNPDCL	
	Details	Units	Rs.
A	**Sub-station Unit Addition**		
	Sub-station with 1*5 MVA with 4 feeders (Rural)	**Rs. Lakh/SS Unit**	**405.19**
	Labor Cost	**Rs. Lakh/SS Unit**	59.53
	Material Cost	**Rs. Lakh/SS Unit**	345.65
	Sub-station with 2*5 MVA PTR with 4 feeders (Rural)	**Rs. Lakh/SS Unit**	**482.71**
	Labor Cost	**Rs. Lakh/SS Unit**	61.83
	Material Cost	**Rs. Lakh/SS Unit**	420.88
	Sub-station with 1*8 MVA PTR with 6 feeders (Urban)	**Rs. Lakh/SS Unit**	**492.48**
	Labor Cost	**Rs. Lakh/SS Unit**	76.72
	Material Cost	**Rs. Lakh/SS Unit**	415.76
	Sub-station with 2*8 MVA PTR with 6 feeders (Urban)	**Rs. Lakh/SS Unit**	**596.17**
	Labor Cost	**Rs. Lakh/SS Unit**	76.72

Sl. No.	Cost Data	TSNPDCL	
	Details	Units	Rs.
	Material Cost	**Rs. Lakh/SS Unit**	519.45
B	**PTR Addition**		
	5 MVA PTR Addition	**Rs. Lakh/PTR Unit**	**62.73**
	Labor Cost	**Rs. Lakh/PTR Unit**	0.52
	Material Cost	**Rs. Lakh/PTR Unit**	62.20
	8 MVA PTR Addition	**Rs. Lakh/PTR Unit**	**88.65**
	Labor Cost	**Rs. Lakh/PTR Unit**	0.52
	Material Cost	**Rs. Lakh/PTR Unit**	88.13
C	**PTR Augmentation**		
	Urban & Semi Urban PTR Augmentation (5 MVA to 8 MVA)	**Rs. Lakh /PTR Unit**	**58.33**
	Labor Cost	**Rs.Lakh /PTR Unit**	1.42
	Material Cost	**Rs.Lakh /PTR Unit**	56.91
	Rural PTR Augmentation (3.15 MVA to 5 MVA)	**Rs.Lakh /PTR Unit**	**52**
	Labor Cost	**Rs.Lakh /PTR Unit**	1.42
	Material Cost	**Rs.Lakh /PTR Unit**	50.59
D	**Feeder Addition**		
	Feeder Addition in Existing Sub-station	**Rs. Lakh /Feeder Unit**	**27.98**
	Labor Cost	**Rs.Lakh/Feeder Unit**	7.49
	Material Cost	**Rs.Lakh/Feeder Unit**	20.49
E	**DTR Addition**		
	DTR 25KVA	**Rs./DTR Unit**	**478798**
	Labor Cost	Rs./DTR Unit	113966
	Material Cost	Rs./DTR Unit	364832
	DTR 63KVA	**Rs./DTR Unit**	**627374**
	Labor Cost	Rs./DTR Unit	127168
	Material Cost	Rs./DTR Unit	500205
	DTR 100 KVA	**Rs./DTR Unit**	**701363**
	Labor Cost	Rs./DTR Unit	133227
	Material Cost	Rs./DTR Unit	568136
	DTR 160KVA	**Rs./DTR Unit**	**765168**
	Labor Cost	Rs./DTR Unit	133227
	Material Cost	Rs./DTR Unit	631942
	DTR 315KVA	**Rs./DTR Unit**	**1358459**
	Labor Cost	Rs./DTR Unit	133227

Sl. No.	Cost Data	TSNPDCL	
	Details	Units	Rs.
	Material Cost	Rs./DTR Unit	1225232

7.5 BaseCapexNetwork Additions Financial Summary:

In this section, the details of the base capex for network additions are provided for the 5th& 6thcontrol period. In the network additions, the sub-station additions, PTR capacity additions, PTR Augmentation, Feeder additions &DTR additions have been captured.

Network Additions (Base Capex) – Financial Projections for the 5th& 6thControl Period

Sl. No.	Network Elements	Base Capex for 5th Control Period in Rs. Cr.					
		FY 24-25	FY 25-26	FY 26-27	FY27-28	FY 28-29	Total 5th CP
1	Sub-Stations	245.98	303.34	384.88	430.42	604.89	**1969.51**
2	PTR Addition	12.62	19.77	33.76	43.56	56.66	**166.37**
3	PTR Augmentation	11.46	15.67	17.72	25.28	33.41	**103.54**
4	Feeder Addition	0.85	1.77	4.03	6.16	8.89	**21.70**
5	DTR Addition	684.45	754.66	832.32	917.26	1010.30	**4199.00**
Total		**955.36**	**1095.22**	**1272.71**	**1422.67**	**1714.15**	**6460.12**

Sl. No.	Network Elements	Base Capex for 6th Control Period in Rs. Cr.					
		FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	Total 6th CP
1	Sub-Stations	471.06	505.44	508.76	575.61	601.00	**2661.86**
2	PTR Addition	45.52	48.50	52.99	57.29	60.89	**265.18**
3	PTR Augmentation	22.07	25.50	28.47	32.30	35.60	**143.93**
4	Feeder Addition	2.58	3.80	6.00	9.00	10.17	**31.56**
5	DTR Addition	938.25	1027.51	1125.33	1232.71	1351.20	**5675.00**
Total Base Capex		**1479.48**	**1610.75**	**1721.55**	**1906.90**	**2058.85**	**8777.54**

7.6 Other Capital Expenditure

Apart from the base capital expenditure projected based on the load growth and existing load on the network, it is proposed to invest an amount of Rs.3077.88 Crores in the 5thcontrol period i.e., FY 2024-25 to FY 2028-29& Rs.3286.38 Cr. in 6th Control Period i.e., FY 2029-30 to FY 2033-34 for achieving loss trajectory, technology up-gradation and system improvement of existing network. The expenditure is basically divided into following heads:

- AT&C loss reduction
- Reliability Improvement & Contingency Schemes
- Renovation & Modernization
- Technology Up gradation
- New Consumer Capex
- Civil Infrastructure Development

- **AT & C Loss Reduction:** The licensee proposes to invest in the following areas under loss reduction schemes

  Conversion of S Ph to 3 Ph AGL DTRs: The TSNPDCL has a predominant agricultural consumer base of an approximately 12.50 lakh consumers which contribute more than 46% of total sales. Hence, the licensee feels essential to reduce technical losses by converting existing S-Ph AGL DTRs to 3-Ph AGL DTR's distribution network to 11KV and by erecting 1076 no's 63/25 KVA DTRs in place of 15/10 KVA S-Ph AGL DTRs. Accordingly, the licensee proposes to take up the conversion of S-Ph to 3-Ph works during the ensuing fiscal year and control period (5th& 6th) for which cost arrived as Rs. 39 Crores.

  Replacing OH line with UG cables: The licensee also proposes to replace the existing OH line with the UG cables for road crossings. Accordingly, it is expected to carry out replacing OH line with UG cables work for 70 KM of existing lines, which would incur an amount of Rs. 25 Crores during the ensuing control periods (5th& 6th).

Replacement of existing 34sq.mm. conductor with 55sq.mm. conductor: As a step to reduce the technical losses, the licensee proposes to replace existing worn out 34 sq. mm. conductor of about 4200 KM 11KV line with 55sq.mm. conductor and accordingly the licensee expects to incur an expenditure of Rs. 84 Crores during the ensuing control periods (5^{th}& 6^{th}).

Other Capex: AT&C loss Reduction for 5^{th} Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**	**Total 5^{th}Control Period**
1	Conversion of S Ph to 3-Ph AGL DTRs	17.50	0.50	0.50	0.50	0.50	19.50
2	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	12.50
3	Replacement of existing 34sq.mm. conductor with 55sq.mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	42.00
Total		**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**

Other Capex: AT&C Loss Reduction for 6^{th} Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**	**Total 6^{th}Control Period**
1	Conversion of S Ph to 3-Ph AGL DTRs	17.50	0.50	0.50	0.50	0.50	19.50
2	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	12.50
3	Replacement of existing 34sq.mm. conductor with 55sq.mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	42.00
Total		**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**

- **Reliability improvement and Contingency Schemes:**

The licensee intends to improve its reliability in power supply by reducing interruptions and improving the existing system by implementing the following schemes.

Re conductoring of lines: The licensee also proposes to replace the damaged conductor of existing lines with the similar size of conductor to prevent accidents and to avoid interruptions to the power supply to the consumers. Accordingly, it is expected to carry out reconductoring work for 2416KM of existing 11KV lines, which would incur an amount of Rs. 42 Crores during the ensuing control periods (5^{th}& 6^{th}).

Covered Conductor: -The licensee also proposes to replace the existing OH line with the covered conductor to reduce interruptions. Accordingly, it is expected to carry out replacing OH line with covered conductor work for 300 KM of existing lines, which would incur an amount of Rs. 66 Crores during the ensuing control period (5^{th}& 6^{th}).

- **Contingency schemes**

Provision of alternate supply at 33KV level: Under this scheme the licensee aims at providing alternate 33KV supply to 33/11 KV sub-stations, which have a single source of 33KV supply. It is estimated that this scheme requires 50 KM of new 33KV line with towers in Towns, 550 KM of new 33 KV line and 44 Nos new 33KV bays. The implementation of scheme would incur Rs.80 Crores during ensuing control periods (5^{th}& 6^{th}).

Replacement of existing 100sq.mm. conductor with higher size of conductor in 33KV lines: As a step to reduce the technical losses, the licensee proposes to replace existing 100sq.mm. conductor with higher size of conductor in 33KV lines of about 300 KM and accordingly the licensee expects to incur an expenditure of Rs. 10 Crores during the ensuing control periods (5^{th}& 6^{th}).

Provision of alternate supply at11KV level: The licensee intends to erect 2,650 KM of 11KV line to provide alternate 11KV supply for improving reliability in power supply by

providing supply to a part of feeder in the event of break downs, line clears etc. Accordingly, an amount of Rs.186 Crores approximately is expected to be incurred during the ensuing control period (5^{th}& 6^{th}).

Provision of alternate supply for LT consumers: In the event of a distribution transformer failure, it is necessary to have an alternate LT supply from adjacent DTRs to the existing LT lines. Hence 6,500 KM of LT line is proposed for above purpose, which would incur an amount of Rs. 390 Crores during the current fiscal year and ensuing control periods (5^{th}& 6^{th}).

Provision for replacement of damaged LT AB cable in SC/ST habitations: The licensee also proposes to replace the existing damaged LT AB cable in SC/ST habitations. Accordingly, it is expected to carry out replacing LT AB cables, which would incur an amount of Rs. 100 Crores during the ensuing control periods (5^{th}& 6^{th}).

Other Capex: Reliability Improvement & Contingency for 5th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**	**Total 5thControl Period**
1	Reconductoring of lines (55 sq.mm. conductor with 100sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	21.00
2	Covered Conductor	2.50	5.00	7.50	9.00	9.00	33.00
3	Provision of alternate supply at 33 kV for consumers	3.78	9.00	11.33	10.95	4.95	40.00
a	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	38.38
b	No. of Bays	0.15	0.30	0.45	0.30	0.43	1.63
4	Replacement of existing 100sq.mm. conductor with higher size of conductor in 33KV lines	0.50	1.50	2.00	0.75	0.25	5.00
5	Provision of alternate supply at 11 KV Consumer	12.35	15.00	18.10	20.15	27.40	93.00
a	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	90.00
b	No. of Bays	0.35	0.50	0.60	0.65	0.90	3.00
6	Provision of alternate supply for LT consumers (Addition of LT line)	27.50	35.00	40.00	42.50	50.00	195.00
7	Replacement of damaged LT AB cable in SC/ST habitations	.50	12.50	12.50	10.00	7.50	50.00
Total		**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**

Other Capex: Reliability Improvement & Contingency for 6th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**	**Total 6th Control Period**
1	Reconductoring of lines (55 sq.mm. conductor with 100sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	21.00
2	Covered Conductor	2.50	5.00	7.50	9.00	9.00	33.00
3	Provision of alternate supply at 33 kV for consumers	3.78	9.00	11.33	10.95	4.95	40.00
a	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	38.38
b	No. of Bays	0.15	0.30	0.45	0.30	0.43	1.63
4	Replacement of existing 100sq.mm. conductor with higher size of conductor in 33KV lines	0.50	1.50	2.00	0.75	0.25	5.00
5	Provision of alternate supply at 11 KV Consumer	12.35	15.00	18.10	20.15	27.40	93.00
a	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	90.00
b	No. of Bays	0.35	0.50	0.60	0.65	0.90	3.00
6	Provision of alternate supply for LT consumers (Addition of LT line)	27.50	35.00	40.00	42.50	50.00	195.00
7	Replacement of damaged LT AB cable in SC/ST habitations	7.50	12.50	12.50	10.00	7.50	50.00
Total		**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**

- **Renovation and Modernization.**

Under Renovation and Modernization scheme the licensee proposes to replace the following existing assets due to ageing of equipment. In order to maintain the system in a healthy condition and to provide uninterrupted power supply to the consumers, the licensee proposes to renovate and replace various equipment during the ensuing 5th& 6thcontrol period which is expected to incur an expenditure of Rs.1170 Crores.

Other Capex: Renovation and Modernization for 5th Control Period in Rs. Cr.							
Sl.No	**Investment Area**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**	**Total 5th Control Period**
1	R&M of Sub-station	5.25	7.88	10.50	13.13	15.75	52.50
2	VCBs in Sub-station	0.38	0.56	0.75	0.94	1.13	3.75

3	33KV Line	27.50	41.25	55.00	68.75	82.50	275.00
4	11KV Line	13.08	19.61	26.15	32.69	39.23	130.75
5	DTR	6.30	9.45	12.60	15.75	18.90	63.00
6	LT line	1.25	1.88	2.50	3.13	3.75	12.50
7	PTRs	3.00	4.50	6.00	7.50	9.00	30.00
8	Safety Equipment	3.00	3.25	3.50	3.75	4.00	17.50
Total		**59.75**	**88.375**	**117**	**145.625**	**174.25**	**585**

Other Capex: Renovation and Modernization for 6th Control Period in Rs. Cr.							
Sl.No	**Investment Area**	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**	**Total 6thControl Period**
1	R&M of Sub-station	5.25	7.88	10.50	13.13	15.75	52.50
2	VCBs in Sub-station	0.38	0.56	0.75	0.94	1.13	3.75
3	33KV Line	27.50	41.25	55.00	68.75	82.50	275.00
4	11KV Line	13.08	19.61	26.15	32.69	39.23	130.75
5	DTR	6.30	9.45	12.60	15.75	18.90	63.00
6	LT line	1.25	1.88	2.50	3.13	3.75	12.50
7	PTRs	3.00	4.50	6.00	7.50	9.00	30.00
8	Safety Equipment	3.00	3.25	3.50	3.75	4.00	17.50
Total		**59.75**	**88.375**	**117**	**145.625**	**174.25**	**585**

- **Technology up gradation**

For proper identification of consumers and linking them with input source for the purpose of having complete database, e-procurement, billing, the licensee proposes to implement the following projects during ensuing 5thand 6thcontrol period.

GIS Mapping:

Differential Global Positioning System (DGPS) survey is carried for the assets like 33/11kV sub-stations, 33 KV network, 11 KV network, LT network, DTRs, etc., Door to door consumer survey is carried out for tagging the consumer on the electrical network. This will enable complete asset and consumer information into digital form which can be utilized as input to GIS application.

WAN:

Wide Area Network is required to connect all DISCOM officers to the Data Center (DC) for assessing the applications.

Automation of Sub-stations:

All Sub-stations are provided with FRTUs. All 11 KV feeders and LV are connected to FRTU and FRTU is connected to Data Center. This allows to monitor and control feeders on real-time basis.

SCADA/DMS:

SCADA/DMS provides integrated, accurate and cost-effective management of distribution network by providing control room operators with advanced computerized facilities. The real time data is transmitted from field to control center. The real time control is carried out from control center.

Benefits are:

- Increase reliability through automation
- Eliminates the need for manual data collection
- Alarms and system-wide monitoring enable operators to quickly spot and address problems
- Automation protects workers by enabling problem areas to be detected and addressed automatically
- Operators can use powerful trending capabilities to detect future problems, provide better routine maintenance of equipment and spot areas of improvement
- Historians provides the ability to view data in various ways to improve efficiency
- Interruption time is drastically reduced. Only faulty part of the lines is isolated instead of complete line.

Other Capex: Technology Upgradation for 5th Control Period in Rs. Cr.							
Sl. No.	**Investment Area**	**FY 24-25**	**FY 25-26**	**FY 26-27**	**FY 27-28**	**FY 28-29**	**Total 5th Control Period**
1	Automation of Sub-stations	7.50	8.00	8.50	9.00	10.00	43.00
2	GIS mapping	7.50	7.50	7.50	7.50	7.50	37.50
3	WAN	1.00	1.00	1.00	1.00	1.00	5.00
4	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	150.00
5	Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analyses etc.	15.00	15.00	15.00	15.00	15.00	75.00
6	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	14.45
Total		**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**

Other Capex: Technology Upgradation for 6th Control Period in Rs. Cr.							
Sl. No	**Investment Area**	**FY 29-30**	**FY 30-31**	**FY 31-32**	**FY 32-33**	**FY 33-34**	**Total 6th Control Period**
1	Automation of Sub-stations	7.50	8.00	8.50	9.00	10.00	43.00
2	GIS mapping	7.50	7.50	7.50	7.50	7.50	37.50
3	WAN	1.00	1.00	1.00	1.00	1.00	5.00
4	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	150.00
5	Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System(OMS), PTR monitoring system, Load flow analyses etc.	15.00	15.00	15.00	15.00	15.00	75.00
6	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	14.45
Total		**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**

- **New consumer Capex**

Presently in TSNPDCL, every new LT service connection is released with a tamper proof energy meter. For 11 kV and above voltages, meter & metering unit (CT/PT) will be supplied by the DISCOM. The projected expenditure for releasing these services for the ensuing 5th& 6thcontrol period is Rs.1330 Crores.

Other Capex: New Consumer Capex for 5th Control Period in Rs. Cr.							
Sl. No..	**Investment Area**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**	**Total 5thControl Period**
1	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	0.45
2	Consumer Meters	20.58	21.81	23.12	24.51	25.98	116.01
a	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	101.86
b	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	9.55
c	LT CT Meters	0.82	0.86	0.92	0.97	1.03	4.59
3	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	10.94
4	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	537.78
Total:		**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**

Other Capex: New Consumer Capex for 6th Control Period in Rs. Cr.							
Sl. No.	**Investment Area**	**FY 2029-30**	**FY 2030-31**	**FY 2031-32**	**FY 2032-33**	**FY 2033-34**	**Total 6thControl Period**
1	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	0.45
2	Consumer Meters	20.58	21.81	23.12	24.51	25.98	116.01
a	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	101.86
b	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	9.55
c	LT CT Meters	0.82	0.86	0.92	0.97	1.03	4.59
3	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	10.94
4	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	537.78
Total:		**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**

- **Civil Infrastructure Development**

The licensee proposed to construct 7Nos. Circle Offices, 25Nos. Operation Divisions, 20Nos. MRT, M&P, DPE, Construction Divisions, 30Nos. Operation Sub-Divisions, 75Nos. Section Offices, 20Nos. ERO Offices, 50 Nos. Control room and Compound walls, Borewells and fencing etc., during ensuing control period of 10 years. The expenditure to be incurred in the 5th& 6th control period is as given below:

Other Capex: Civil Infrastructure for 5th Control Period in Rs. Cr.

Sl.No.	Investment Area	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	Total 5th Control Period
1	Construction of Office Buildings	20	20	20	20	20	100
2	Administrative Support (furniture)	3.4	3.4	3.4	3.4	3.4	17
Total		**23.4**	**23.4**	**23.4**	**23.4**	**23.4**	**117**

Other Capex: Civil Infrastructure for 6th Control Period in Rs. Cr.

Sl.No.	Investment Area	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	Total 6thControl Period
1	Construction of Office Buildings	30	30	30	30	30	150
2	Administrative Support (furniture)	0	0	0	0	0	0
Total		**30**	**30**	**30**	**30**	**30**	**150**

- **Capacitor Bank**

The Licensee also proposes to install capacitor banks for a total expenditure of Rs. 170 Cr. in 5th& 6th Control period.

Other Capex: Capacitor Bank for 5th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**	**FY 2028-29**	**Total for 5th Control Period**
1	2/1 MVAR Capacitor Bank	15	15	15	15	15	75
2	600 KVAR Line Capacitor	2	2	2	2	2	10
3	**Total**	**17**	**17**	**17**	**17**	**17**	**85**

Other Capex: Capacitor Bank for 6th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 29-30**	**FY 30-31**	**FY 31-32**	**FY 32-33**	**FY 33-34**	**Total for 6th Control Period**
1	2/1 MVAR Capacitor Bank	15	15	15	15	15	75
2	600 KVAR Line Capacitor	2	2	2	2	2	10
3	**Total**	**17**	**17**	**17**	**17**	**17**	**85**

- **AGL Feeder Segregation**

The licensee proposes to erect interlinking lines for separation of agricultural feeders. Accordingly, it is expected to carry out 3076 Nos of feeder segregation, which would incur an amount of Rs. 1755 Crores during the ensuing control periods (5th& 6th).

Other Capex: AGL feeder Segregation for 5th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**Total for 5thControl Period**
1	AGL Feeder Segregation	78.75	112.5	157.5	225	216	**789.75**

Other Capex: AGL Feeder Segregation for 6th Control Period in Rs. Cr.							
Sl.No.	**Investment Area**	**FY 29-30**	**FY 30-31**	**FY 31-32**	**FY 32-33**	**FY 33-34**	**Total for 6th Control Period**
1	AGL Feeder Segregation	96.25	137.50	192.50	275.00	264.00	**965.25**

7.7 Summary of Other Capital Expenditure

Table 90 Summary of other capex

Sl. No.	Investment Area	Total Other Capex for 5th Control Period in Rs. Cr.					
		FY 24-25	**FY 25-26**	**FY 26-27**	**FY27-28**	**FY 28-29**	**Total 5th CP**
A	**AT & C Loss Reduction**	**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**
	Conversion of S-Ph to 3-Ph AGL DTRs	17.5	0.5	0.5	0.5	0.5	19.50
	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	12.50
	Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	42.00
B	**Reliability Improvement & Contingency Schemes**	**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**
	Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	21.00
	Covered Conductor	2.50	5.00	7.50	9.00	9.00	33.00
	Provision of alternate supply at 33 KV for consumers	**3.78**	**9.00**	**11.33**	**10.95**	**4.95**	**40.00**
	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	38.38
	No. of Bays	0.15	0.30	0.45	0.30	0.43	1.63
	Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines	0.50	1.50	2.00	0.75	0.25	5.00
	Provision of alternate supply at 11 KV for consumers	**12.35**	**15.00**	**18.10**	**20.15**	**27.40**	**93.00**
	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	90.00
	No. of Bays	0.35	0.50	0.60	0.65	0.90	3.00

Sl. No.	Investment Area	Total Other Capex for 5th Control Period in Rs. Cr.					
		FY 24-25	FY 25-26	FY 26-27	FY27-28	FY 28-29	Total 5th CP
	Provision of alternate supply for LT consumers (Addition of LT line)	27.50	35.00	40.00	42.50	50.00	195.00
	Replacement of damaged LT AB cable in SC/ST habitations	7.50	12.50	12.50	10.00	7.50	50.00
C	**Renovation & Modernization**	**59.75**	**88.38**	**117.00**	**145.63**	**174.25**	**585.00**
	R&M of Sub-station	5.25	7.88	10.50	13.13	15.75	52.50
	VCBs in Sub-station	0.38	0.56	0.75	0.94	1.13	3.75
	33KV Line	27.50	41.25	55.00	68.75	82.50	275.00
	11KV Line	13.08	19.61	26.15	32.69	39.23	130.75
	DTR	6.3	9.45	12.6	15.75	18.9	63.00
	LT line	1.25	1.875	2.5	3.125	3.75	12.50
	PTRs	3	4.5	6	7.5	9	30.00
	Safety Equipment	3.00	3.25	3.50	3.75	4.00	17.50
D	**Technology Upgradation**	**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**
	Automation of Sub-stations	7.50	8.00	8.50	9.00	10.00	43.00
	GIS mapping	7.50	7.50	7.50	7.50	7.50	37.50
	WAN	1.00	1.00	1.00	1.00	1.00	5.00
	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	150.00
	Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analysis, etc.	15.00	15.00	15.00	15.00	15.00	75.00
	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	14.45
E	**New Consumer Capex**	**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**
	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	0.45
	Consumer Meters	**20.58**	**21.81**	**23.12**	**24.51**	**25.98**	**116.01**
	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	101.86
	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	9.55
	LT CT Meters	0.82	0.86	0.92	0.97	1.03	4.59
	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	10.94
	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	537.78
F	**Civil Infrastructure Development**	**23.40**	**23.40**	**23.40**	**23.40**	**23.40**	**117.00**
	Construction of Office Buildings	20.00	20.00	20.00	20.00	20.00	100.00

Sl. No.	Investment Area	Total Other Capex for 5th Control Period in Rs. Cr.					
		FY 24-25	FY 25-26	FY 26-27	FY27-28	FY 28-29	Total 5th CP
	Administrative Support (furniture)	3.40	3.40	3.40	3.40	3.40	17.00
g	**Capacitor Bank**	**17**	**17**	**17**	**17**	**17**	**85.00**
	2/1 MVAR Capacitor Bank	15	15	15	15	15	75.00
	600 KVAR Line Capacitor	2	2	2	2	2	10.00
H	**AGL Feeder Segregation**	**78.75**	**112.5**	**157.5**	**225**	**216**	**789.75**
Total Other Capex for TSNPDCL		**439.48**	**522.61**	**621.16**	**730.91**	**763.72**	**3077.88**

Table 91 Summary of Other Capex

Sl. No.	Investment Area	Total Other Capex for 6th Control Period in Rs. Cr.					
		FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	Total 6th CP
A	**AT & C Loss Reduction**	**23.20**	**10.50**	**12.50**	**15.50**	**12.30**	**74.00**
	Conversion of S-Ph to 3-Ph AGL DTRs	17.5	0.5	0.5	0.5	0.5	19.50
	Replacing OH line with UG cables	1.50	2.50	2.50	3.00	3.00	12.50
	Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph)	4.20	7.50	9.50	12.00	8.80	42.00
B	**Reliability Improvement & Contingency Schemes**	**56.63**	**82.00**	**96.43**	**97.85**	**104.10**	**437.00**
	Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor)	2.50	4.00	5.00	4.50	5.00	21.00
	Covered Conductor	2.50	5.00	7.50	9.00	9.00	33.00
	Provision of alternate supply at 33 KV for consumers	**3.78**	**9.00**	**11.33**	**10.95**	**4.95**	**40.00**
	Addition of 33KV lines	3.63	8.70	10.88	10.65	4.53	38.38
	No. of Bays	0.15	0.30	0.45	0.30	0.43	1.63
	Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines	0.50	1.50	2.00	0.75	0.25	5.00
	Provision of alternate supply at 11 KVfor consumers	**12.35**	**15.00**	**18.10**	**20.15**	**27.40**	**93.00**
	Addition of 11KV line	12.00	14.50	17.50	19.50	26.50	90.00
	No. of Bays	0.35	0.50	0.60	0.65	0.90	3.00
	Provision of alternate supply for LT consumers (Addition of LT line)	27.50	35.00	40.00	42.50	50.00	195.00

Sl. No.	Investment Area	Total Other Capex for 6th Control Period in Rs. Cr.					
		FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	Total 6th CP
	Replacement of damaged LT AB cable in SC/ST habitations	7.50	12.50	12.50	10.00	7.50	50.00
C	**Renovation &Modernization**	**59.75**	**88.38**	**117.00**	**145.63**	**174.25**	**585.00**
	R&M of Sub-station	5.25	7.88	10.50	13.13	15.75	52.50
	VCBs in Sub-station	0.38	0.56	0.75	0.94	1.13	3.75
	33KV Line	27.50	41.25	55.00	68.75	82.50	275.00
	11KV Line	13.08	19.61	26.15	32.69	39.23	130.75
	DTR	6.3	9.45	12.6	15.75	18.9	63.00
	LT line	1.25	1.875	2.5	3.125	3.75	12.50
	PTRs	3	4.5	6	7.5	9	30.00
	Safety Equipment	3.00	3.25	3.50	3.75	4.00	17.50
D	**Technology Upgradation**	**62.75**	**63.75**	**64.75**	**66.00**	**67.70**	**324.95**
	Automation of Sub-stations	7.50	8.00	8.50	9.00	10.00	43.00
	GIS mapping	7.50	7.50	7.50	7.50	7.50	37.50
	WAN	1.00	1.00	1.00	1.00	1.00	5.00
	SCADA/DMS	30.00	30.00	30.00	30.00	30.00	150.00
	Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analysis, etc.	15.00	15.00	15.00	15.00	15.00	75.00
	Administrative support (Computers and printers)	1.75	2.25	2.75	3.50	4.20	14.45
E	**New Consumer Capex**	**118.00**	**125.08**	**132.58**	**140.54**	**148.97**	**665.18**
	33KV line for new consumer (Including LI schemes)	0.08	0.08	0.09	0.10	0.10	0.45
	Consumer Meters	**20.58**	**21.81**	**23.12**	**24.51**	**25.98**	**116.01**
	LT 1-Phase Meters	18.07	19.15	20.30	21.52	22.81	101.86
	LT 3-Phase Meters	1.70	1.80	1.90	2.02	2.14	9.55
	LT CT Meters	0.82	0.86	0.92	0.97	1.03	4.59
	HT metering Net (Meter cost including CT/PT)	1.94	2.06	2.18	2.31	2.45	10.94
	Infrastructure required for AGL	95.40	101.12	107.19	113.62	120.44	537.78
F	**Civil Infrastructure Development**	**30.00**	**30.00**	**30.00**	**30.00**	**30.00**	**150.00**
	Construction of Office Buildings	30.00	30.00	30.00	30.00	30.00	150.00
	Administrative Support (furniture)	0.00	0.00	0.00	0.00	0.00	0.00
G	**Capacitor Bank**	**17**	**17**	**17**	**17**	**17**	**85.00**

Sl. No.	Investment Area	Total Other Capex for 6th Control Period in Rs. Cr.					
		FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	Total 6th CP
	2/1 MVAR Capacitor Bank	15	15	15	15	15	75.00
	600 KVAR Line Capacitor	2	2	2	2	2	10.00
H	**AGL Feeder Segregation**	**96.25**	**137.5**	**192.5**	**275**	**264**	**965.25**
Total Other Capex for TSNPDCL		**463.58**	**554.21**	**662.76**	**787.51**	**818.32**	**3286.38**

7.8 Summary of Total Capital Expenditure (Base & Other Capex).

Particulars	Total Capex for 5th Control Period in Cr.					
	FY24-25	FY25-26	FY 26-27	FY27-28	FY 28-29	Total for 5thCP (FY 2024-25 to FY 2028-29)
Base Capex	955.36	1095.22	1272.71	1422.67	1714.15	6460.12
Other Capex	439.48	522.61	621.16	730.91	763.72	3077.88
Total Capex for TSNPDCL	**1394.84**	**1617.83**	**1893.87**	**2153.59**	**2477.88**	**9538.00**

Particulars	Total Capex for 6th Control Period in Cr.					
	FY29-30	FY30-31	FY31-32	FY32-33	FY33-34	Total for 6thCP (FY 2029-30 to FY 2033-34)
Base Capex	1479.48	1610.75	1721.55	1906.90	2058.85	8777.54
Other Capex	463.58	554.21	662.76	787.51	818.32	3286.38
Total Capex for TSNPDCL	**1943.06**	**2164.95**	**2384.31**	**2694.41**	**2877.18**	**12063.91**

HISTORIC DATA

Each class of Consumers Other than Scheduled Consumers

Consumer Categories	FY 2016-17				FY 2017-18				FY 2018-19				FY 2019-20				FY 2020-21				FY 2021-22			
	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	No.of Consumers	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)
LT Category	**5272105**	**9505**	**3680**	**4432829**	**5427471**	**11220**	**3922**	**4588106**	**5702405**	**12697**	**4147**	**5733177**	**5978899**	**12065**	**4475**	**5906123**	**6174019**	**12928**	**4803**	**6098328**	**6345430**	**12654**	**6316**	**6331236**
Category I - Domestic	3727922	2835	2342	0	3827797	3038	2517		4040266	3197	2640		4239991	3547	2850		4361528	3769	3062		4422077	3863	4355	
Category II - Non-domestic/Commercial	364349	592	607	0	382729	639	664		407436	680	742		430890	758	820		459183	649	891		517091	744	1089	
Category III - Industrial	31125	242	536	0	31821	255	533		32668	248	546		33089	244	564		33797	246	581		33893	236	589	
Category IV - Cottage Industries & Dhobighats	6406	7	16	0	6645	7	16		7008	7	18		7240	8	19		7535	8	20		7639	8	20	
Category V - Agriculture	1063148	5511	0	4432829	1095709	6922	0	4588106	1129773	8201	0	5733177	1164283	7140	0	5906123	1202763	7904	0	6098328	1251686	7420	0	6331236
Category VI - St. Lighting & PWS	52650	275	140	0	56729	312	151		58703	311	157		76217	308	176		80925	322	192		83015	345	198	
Category VII - General Purpose	26505	42	38	0	26041	47	40		26551	54	43		27039	60	47		27640	27	49		28338	34	57	
Category VIII-Temporary Supply	0	0	0	0	0	0	0		0	0	0		150	0	1		648	2	8		1691	5	8	
HIGH TENSION																								
HT Category at 11 kV	**2089**	**1356**	**538**		**2389**	**1688**	**613**		**2683**	**1814**	**712**		**2866**	**1907**	**1084**		**3019**	**2015**	**837**		**3246**	**2184**	**916**	
HT-I Indl Segregated	1445	487	273		1625	644	312		1807	680	350		1938	736	401		2062	772	417		2211	924	466	
Lights & Fans	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Colony consumption	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Seasonal Industries	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT - I B Ferro-alloys	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT-II - Others Commercial	354	103	55		403	127	74		442	149	81		462	137	74		488	96	80		557	132	91	
HT-III Airports, Bus Stations and Railway Stations	17	8	3		18	7	3		18	7	3		18	8	2		18	6	2		20	7	3	
HT -IV A Govt Lift Irrigation Schemes	188	23	61		203	33	66		209	38	68		204	28	67		205	33	67		206	25	67	
HT-IV B CPWS	67	15	16		68	15	18		129	44	39		127	102	39		123	136	39		119	142	37	
HT-VI Townships and Residential Colonies	17	12	4		17	12	5		17	11	5		17	9	5		18	9	5		18	9	5	
RESCOs	1	708	0		55	849	0		61	886	0		67	869	11		69	938	15		74	924	15	
HT-VIII Temporary Supply	0	0	126		0	0	136		0	0	166		33	17	486		36	24	211		41	21	233	
HT Category at 33 kV	**66**	**282**	**124**		**81**	**290**	**148**		**116**	**452**	**231**		**126**	**569**	**329**		**129**	**611**	**229**		**132**	**664**	**231**	
HT-I Indl Segregated	30	177	51		38	164	63		45	212	77		48	199	70		47	188	65		46	191	62	
Lights & Fans	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Colony consumption	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Seasonal Industries	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT - I B Ferro-alloys	1	0	0		1	18	4		0	38	0		1	42	6		1	37	6		2	73	11	
HT-II - Others Commercial	11	14	10		15	19	13		18	19	16		15	12	8		16	10	8		18	10	7	
HT-III Airports, Bus Stations and Railway Stations	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT -IV A Govt Lift Irrigation Schemes	16	48	52		19	48	57		21	41	63		22	47	64		22	32	64		22	21	64	
HT-IV B CPWS	2	0	0		2	0	0		26	101	60		27	219	64		27	288	62		27	326	64	
HT-VI Townships and Residential Colonies	6	43	11		6	40	11		6	42	15		7	42	14		7	43	15		8	30	16	
HT-VIII Temporary Supply	0	0	0		0	0	0		0	0	0		6	9	0		9	13	0		9	12	0	
HT Category at 132 kV	**48**	**1606**	**913**		**47**	**1740**	**881**		**54**	**2232**	**1769**		**63**	**4071**	**2741**		**63**	**3221**	**2737**		**66**	**3140**	**2810**	
HT-I Industry Segregated	17	666	185		17	712	193		17	795	185		18	874	215		17	807	185		16	726	197	
Lights & Fans	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Colony consumption	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
Seasonal Industries	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT-I (B) Ferro-Alloys	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT-II Others (Commercial)	3	6	43		3	3	18		3	5	18		4	4	17		4	9	14		7	4	18	
HT-III Airports, Bus Stations and Railway Stations	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
HT-IV(A) Govt. Lift Irrigation Schemes	16	423	494		15	503	494		21	900	1380		27	2601	2319		27	1892	2319		29	1793	2405	
HT-IV(B) CPWS	0	0	0		0	0	0		1	7	5		1	22	5		1	24	5		1	26	5	
HT-V Railway Traction	10	411	165		10	416	150		10	424	150		11	447	155		11	318	154		11	482	154	
HT-VI Townships and Residential Colonies	2	100	26		2	105	26		2	101	30		2	101	30		2	99	30		2	100	30	
HT-VIII Temporary Supply	0	0	0		0	0	0		0	0	0		0	21	0		1	70	0		0	9	0	
TOTAL(LT + HT)	**5274308**	**12750**	**5255**	**4432829**	**5429988**	**14937**	**5565**	**4588106**	**5705258**	**17195**	**6858**	**5733177**	**5981954**	**18612**	**8631**	**5906123**	**6177230**	**18774**	**8605**	**6098328**	**6348874**	**18642**	**10273**	**6331236**

5th CP Forecast

Each class of Consumers Other than Scheduled Consumers

Consumer Categories	2023-24				2024-25				2025-26				2026-27				2027-28				2028-29			
	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)
LT Category	**6,735,493**	**13,740**	**6,795**	**6,959,665**	**6,914,602**	**14,460**	**7,077**	**7,327,945**	7,101,113	**15,222**	**7,387**	**7,716,727**	7,295,398	**16,028**	**7,726**	**8,127,152**	7,497,863	**16,879**	**8,098**	**8,560,427**	7,708,943	**17,779**	**8,505**	**9,017,822**
Category I - Domestic	4,666,470	4,243	4,563	0	4,794,076	4,491	4,652	0	4,925,438	4,753	4,742	0	5,060,676	5,032	4,835	0	5,199,911	5,328	4,929	0	5,343,269	5,642	5,025	0
Category II - Non-domestic/Commercial	594,903	915	1,314	0	638,250	972	1,479	0	684,866	1,033	1,665	0	735,006	1,098	1,875	0	788,948	1,168	2,113	0	846,989	1,243	2,381	0
Category III - Industrial	35,725	245	615	0	36,680	251	630	0	37,664	257	647	0	38,678	263	668	0	39,722	269	690	0	40,798	275	715	0
Category IV - Cottage Industries & Dhobighats	8,186	9	21	0	8,486	10	22	0	8,806	10	23	0	9,147	11	24	0	9,512	11	25	0	9,903	12	26	0
Category V - Agriculture	1,311,201	7,890	0	6,959,665	1,314,999	8,285	0	7,327,945	1,319,004	8,699	0	7,716,727	1,323,228	9,134	0	8,127,152	1,327,682	9,591	0	8,560,427	1,332,379	10,070	0	9,017,822
Category VI - St. Lighting & PWS	87,340	370	208	0	89,601	380	214	0	91,932	389	220	0	94,335	399	227	0	96,811	409	234	0	99,364	420	241	0
Category VII - General Purpose	29,844	58	64	0	30,633	61	69	0	31,448	64	76	0	32,289	67	82	0	33,158	70	89	0	34,056	74	97	0
Category VIII-Temporary Supply	1,766	8	8	0	1,805	9	8	0	1,844	9	8	0	1,884	9	8	0	1,925	10	8	0	1,967	10	9	0
Category IX - Evs	57	1	1	0	71	4	3	0	110	8	5	0	154	15	7	0	193	23	9	0	218	32	10	0
HIGH TENSION																								
HT Category at 11 kV	**3,742**	**2,513**	**1,016**	**0**	**4,022**	**2,686**	**1,070**	**0**	4,330	**2,877**	**1,130**	**0**	4,670	**3,088**	**1,198**	**0**	5,046	**3,321**	**1,273**	**0**	5,464	**3,580**	**1,357**	**0**
HT-I Indl Segregated	2,556	1,121	536	0	2,751	1,233	579	0	2,964	1,361	627	0	3,196	1,505	680	0	3,450	1,669	738	0	3,727	1,855	802	0
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II - Others Commercial	665	180	107	0	729	191	118	0	801	202	130	0	882	214	145	0	972	227	162	0	1,074	241	183	0
HT-III Airports, Bus Stations and Railway Stations	22	8	4	0	23	8	4	0	25	8	4	0	26	8	4	0	28	9	4	0	31	9	4	0
HT -IV A Govt Lift Irrigation Schemes	213	23	68	0	217	24	68	0	220	24	68	0	224	25	68	0	229	25	68	0	233	26	68	0
HT-IV B CPWS	135	156	38	0	144	161	38	0	154	166	38	0	165	171	38	0	178	176	38	0	191	181	38	0
HT-VI Townships and Residential Colonies	22	9	5	0	24	9	5	0	27	9	5	0	31	9	5	0	36	10	5	0	41	10	5	0
HT-VIII Temporary Supply	49	29	15	0	54	30	15	0	59	31	15	0	66	32	15	0	75	33	15	0	86	34	15	0
HT VIII RESCOs	79	987	243	0	79	1,031	243	0	79	1,076	243	0	79	1,124	243	0	79	1,173	243	0	79	1,225	243	0
HT Category at 33 kV	**132**	**660**	**231**	**0**	**132**	**782**	**231**	**0**	132	**795**	**231**	**0**	132	**809**	**231**	**0**	132	**823**	**231**	**0**	132	**837**	**231**	**0**
HT-I Indl Segregated	46	261	62	0	46	374	62	0	46	379	62	0	46	384	62	0	46	389	62	0	46	395	62	0
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	2	0	11	0	2	0	11	0	2	0	11	0	2	0	11	0	2	0	11	0	2	0	11	0
HT-II - Others Commercial	18	4	7	0	18	4	7	0	18	4	7	0	18	5	7	0	18	5	7	0	18	5	7	0
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT -IV A Govt Lift Irrigation Schemes	22	17	64	0	22	17	64	0	22	17	64	0	22	18	64	0	22	18	64	0	22	18	64	0
HT-IV B CPWS	27	348	64	0	27	356	64	0	27	363	64	0	27	371	64	0	27	379	64	0	27	387	64	0
HT-VI Townships and Residential Colonies	8	27	16	0	8	28	16	0	8	28	16	0	8	29	16	0	8	29	16	0	8	30	16	0
HT-VIII Temporary Supply	9	2	8	0	9	2	8	0	9	2	8	0	9	2	8	0	9	2	8	0	9	2	8	0
HT VIII RESCOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT Category at 132 kV	**74**	**3,630**	**2,926**	**0**	**76**	**3,789**	**2,944**	**0**	76	**4,090**	**2,953**	**0**	76	**4,419**	**2,964**	**0**	76	**4,778**	**2,972**	**0**	76	**5,169**	**2,981**	**0**
HT-I Industry Segregated	16	769	197	0	16	672	197	0	16	707	197	0	16	743	197	0	16	781	197	0	16	821	197	0
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-I (B) Ferro-Alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II Others (Commercial)	7	6	18	0	7	6	18	0	7	6	18	0	7	6	18	0	7	6	18	0	7	6	18	0
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-IV(A) Govt. Lift Irrigation Schemes	29	2,169	2,405	0	29	2,386	2,405	0	29	2,625	2,405	0	29	2,887	2,405	0	29	3,176	2,405	0	29	3,493	2,405	0
HT-IV(B) CPWS	1	27	5	0	1	28	5	0	1	28	5	0	1	29	5	0	1	30	5	0	1	30	5	0
HT-V Railway Traction	11	553	158	0	13	588	173	0	13	614	180	0	13	641	188	0	13	670	193	0	13	700	199	0
HT-VI Townships and Residential Colonies	1	105	5	0	1	107	5	0	1	110	5	0	1	112	5	0	1	114	5	0	1	116	5	0
HT-VIII Temporary Supply	9	1	137	0	9	1	139	0	9	1	142	0	9	1	145	0	9	1	149	0	9	1	152	0
HT VIII RESCOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL(LT + HT)	**6,739,441**	**20,543**	**10,969**	**6,959,665**	**6,918,831**	**21,717**	**11,323**	**7,327,945**	**7,105,651**	**22,985**	**11,702**	**7,716,727**	**7,300,276**	**24,344**	**12,119**	**8,127,152**	**7,503,117**	**25,801**	**12,574**	**8,560,427**	**7,714,615**	**27,365**	**13,075**	**9,017,822**

6th CP Forecast

Each class of Consumers Other than Scheduled Consumers

Consumer Categories	2029-30				2030-31				2031-32				2032-33				2033-34			
	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)	Consumers (Nos.)	Energy Sales (MU)	Connected Load/ Contract Demand (MW)	Connected Load/ Contract Demand (HP)
LT Category	**7929104**	**18618**	**8950**	**9500680**	**8158874**	**19501**	**9442**	**10010419**	**8398791**	**20430**	**9985**	**10548536**	**8649434**	**21408**	**10586**	**11116610**	**8911419**	**22438**	**11253**	**11716309**
Category I - Domestic	5490881	5976	5121	0	5642881	6331	5221	0	5799409	6709	5323	0	5960609	7111	5427	0	6126628	7539	5535	0
Category II - Non-domestic/Commercial	909453	1323	2685	0	976688	1408	3028	0	1049072	1499	3416	0	1127014	1597	3855	0	1210956	1702	4352	0
Category III - Industrial	41906	282	743	0	43049	288	772	0	44226	295	805	0	45439	302	840	0	46689	309	877	0
Category IV - Cottage Industries & Dhobighats	10321	13	28	0	10770	14	30	0	11253	15	32	0	11773	16	34	0	12332	18	36	0
Category V - Agriculture	1337332	10473	0	9500680	1342556	10892	0	10010419	1348065	11328	0	10548536	1353874	11781	0	11116610	1360000	12252	0	11716309
Category VI - St. Lighting & PWS	101996	430	248	0	104710	441	256	0	107509	453	265	0	110395	464	273	0	113373	476	282	0
Category VII - General Purpose	34983	78	106	0	35941	82	116	0	36932	86	126	0	37956	90	138	0	39014	95	151	0
Category VIII-Temporary Supply	2011	11	9	0	2055	11	9	0	2100	12	9	0	2147	13	9	0	2194	13	9	0
Category IX - Evs	221	33	10	0	223	33	10	0	226	33	10	0	229	33	10	0	231	34	10	0
HIGH TENSION																				
HT Category at 11 kV	**5928**	**3868**	**1454**	**0**	**6445**	**4190**	**1562**	**0**	**7024**	**4551**	**1683**	**0**	**7673**	**4956**	**1820**	**0**	**8405**	**5412**	**1974**	**0**
HT-I Indl Segregated	4032	2068	872	0	4365	2310	951	0	4731	2587	1038	0	5134	2905	1135	0	5576	3269	1242	0
Lights & Fans	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II - Others Commercial	1190	255	207	0	1320	271	236	0	1469	287	270	0	1639	305	310	0	1833	324	359	0
HT-III Airports, Bus Stations and Railway Stations	34	9	4	0	37	9	4	0	42	9	4	0	47	10	4	0	53	10	4	0
HT -IV A Govt Lift Irrigation Schemes	238	26	68	0	244	27	68	0	250	27	68	0	256	28	68	0	263	28	68	0
HT-IV B CPWS	206	187	38	0	223	193	38	0	242	199	38	0	262	205	38	0	286	212	38	0
HT-VI Townships and Residential Colonies	49	10	5	0	58	10	5	0	69	10	5	0	84	11	5	0	103	11	5	0
HT-VIII Temporary Supply	100	35	15	0	118	36	15	0	142	37	15	0	172	38	15	0	211	39	15	0
HT VIII RESCOs	79	1279	243	0	79	1335	243	0	79	1394	243	0	79	1456	243	0	79	1520	243	0
HT Category at 33 kV	**132**	**852**	**231**	**0**	**132**	**868**	**231**	**0**	**132**	**883**	**231**	**0**	**132**	**900**	**231**	**0**	**132**	**916**	**231**	**0**
HT-I Indl Segregated	46	400	62	0	46	406	62	0	46	412	62	0	46	418	62	0	46	425	62	0
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	2	0	11	0	2	0	11	0	2	0	11	0	2	0	11	0	2	0	11	0
HT-II - Others Commercial	18	5	7	0	18	5	7	0	18	5	7	0	18	5	7	0	18	5	7	0
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT -IV A Govt Lift Irrigation Schemes	22	19	64	0	22	19	64	0	22	19	64	0	22	20	64	0	22	20	64	0
HT-IV B CPWS	27	396	64	0	27	404	64	0	27	413	64	0	27	421	64	0	27	431	64	0
HT-VI Townships and Residential Colonies	8	31	16	0	8	31	16	0	8	32	16	0	8	33	16	0	8	33	16	0
HT-VIII Temporary Supply	9	2	8	0	9	2	8	0	9	2	8	0	9	2	8	0	9	2	8	0
HT VIII RESCOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT Category at 132 kV	**76**	**5595**	**2991**	**0**	**76**	**6061**	**3003**	**0**	**76**	**6569**	**3015**	**0**	**76**	**7124**	**3026**	**0**	**76**	**7731**	**3040**	**0**
HT-I Industry Segregated	16	864	197	0	16	909	197	0	16	956	197	0	16	1006	197	0	16	1058	197	0
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-I (B) Ferro-Alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II Others (Commercial)	7	6	18	0	7	6	18	0	7	7	18	0	7	7	18	0	7	7	18	0
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-IV(A) Govt. Lift Irrigation Schemes	29	3843	2405	0	29	4227	2405	0	29	4650	2405	0	29	5115	2405	0	29	5626	2405	0
HT-IV(B) CPWS	1	31	5	0	1	31	5	0	1	32	5	0	1	33	5	0	1	33	5	0
HT-V Railway Traction	13	732	204	0	13	765	213	0	13	800	221	0	13	837	227	0	13	876	236	0
HT-VI Townships and Residential Colonies	1	119	5	0	1	121	5	0	1	123	5	0	1	126	5	0	1	128	5	0
HT-VIII Temporary Supply	9	1	156	0	9	1	159	0	9	1	164	0	9	1	168	0	9	1	172	0
HT VIII RESCOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL(LT + HT)	**7935240**	**28934**	**13627**	**9500680**	**8165527**	**30620**	**14238**	**10010419**	**8406023**	**32434**	**14915**	**10548536**	**8657316**	**34388**	**15663**	**11116610**	**8920032**	**36497**	**16497.95**	**11716309**

Annexure 4

Consumer Categories	Sales In MU's																					
	HIGH FORECAST											LOW FORECAST										
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
LT Category	**13822**	**14636**	**15502**	**16425**	**17408**	**18454**	**19457**	**20522**	**21655**	**22859**	**24141**	**13612**	**14192**	**14801**	**15440**	**16109**	**16810**	**17433**	**18081**	**18754**	**19453**	**20181**
Category I - Domestic	4297	4605	4935	5290	5671	6081	6521	6994	7503	8050	8638	4141	4276	4415	4560	4710	4866	5027	5194	5367	5546	5733
Category II - Non-domestic/Commercial	930	1005	1087	1176	1273	1379	1495	1621	1759	1909	2074	896	932	970	1010	1052	1096	1142	1190	1240	1293	1348
Category III - Industrial	250	260	271	283	295	308	322	337	352	369	386	243	247	251	255	259	263	267	271	276	280	285
Category IV - Cottage Industries & Dhobighats	9	10	10	11	12	13	14	15	16	18	20	9	9	10	10	10	11	11	12	12	13	13
Category V - Agriculture	7890	8285	8699	9134	9591	10070	10473	10892	11328	11781	12252	7890	8285	8699	9134	9591	10070	10473	10892	11328	11781	12252
Category VI - St. Lighting & PWS	378	395	414	433	454	475	498	523	548	575	604	367	373	379	385	392	398	405	412	419	426	433
Category VII - General Purpose	59	63	67	72	77	83	88	95	102	109	117	57	58	60	61	63	65	67	68	70	72	74
Category VIII-Temporary Supply	8	9	10	11	11	12	13	14	15	17	18	8	8	8	9	9	9	9	10	10	10	11
Category IX- Evs	1	4	8	15	23	32	32	32	32	32	32	1	4	8	15	23	32	32	32	32	32	32
HIGH TENSION																						
HT Category at 11 kV	**2556**	**2778**	**3024**	**3296**	**3599**	**3936**	**4312**	**4732**	**5203**	**5731**	**6325**	**2474**	**2601**	**2736**	**2881**	**3037**	**3204**	**3383**	**3576**	**3784**	**4009**	**4251**
HT-I Indl Segregated	1139	1273	1425	1598	1794	2018	2273	2565	2898	3280	3718	1092	1169	1253	1345	1445	1555	1674	1805	1949	2106	2279
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II - Others Commercial	185	200	216	234	254	275	298	324	352	382	415	176	183	189	196	203	210	217	225	233	242	250
HT-III Airports, Bus Stations and Railway Stations	8	8	9	9	10	10	11	11	12	13	13	8	8	8	8	8	8	9	9	9	9	9
HT -IV A Govt Lift Irrigation Schemes	23	24	25	26	27	28	29	30	31	33	34	23	23	23	24	24	24	25	25	25	25	26
HT-IV B CPWS	160	170	180	190	202	214	226	240	255	270	286	154	157	161	164	167	170	174	177	181	184	188
HT-VI Townships and Residential Colonies	9	10	10	11	11	12	12	13	14	15	16	9	9	9	9	9	9	9	9	10	10	10
HT-VIII Temporary Supply	30	31	33	34	36	38	40	42	44	46	49	29	29	30	30	30	31	31	32	32	33	33
RESCOs	1002	1062	1126	1194	1265	1341	1422	1507	1597	1693	1795	983	1023	1064	1106	1150	1196	1244	1294	1346	1400	1455
HT Category at 33 kV	**676**	**816**	**848**	**883**	**919**	**958**	**999**	**1043**	**1090**	**1139**	**1191**	**635**	**731**	**740**	**750**	**759**	**769**	**780**	**790**	**800**	**811**	**822**
HT-I Indl Segregated	264	380	387	395	404	413	423	433	444	455	467	238	327	329	332	335	337	340	343	346	349	352
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT - I B Ferro-alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II - Others Commercial	4	4	5	5	5	5	5	6	6	6	6	4	4	4	4	5	5	5	5	5	5	5
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT -IV A Govt Lift Irrigation Schemes	17	18	18	19	20	20	21	22	23	24	25	16	17	17	17	17	17	17	18	18	18	18
HT -IV B Agriculture	362	383	406	431	457	485	514	545	579	614	652	347	354	360	367	373	380	387	394	401	408	416
HT-IV C CPWS	28	28	29	30	31	33	34	35	36	37	39	27	27	27	28	28	28	28	29	29	29	29
HT-VI Townships and Residential Colonies	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2
HT-VIII Temporary Supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RESCOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT Category at 132 kV	**3762**	**4081**	**4574**	**5134**	**5770**	**6493**	**7179**	**7941**	**8789**	**9732**	**10782**	**3605**	**3737**	**4012**	**4313**	**4641**	**4998**	**5389**	**5817**	**6284**	**6795**	**7354**
HT-I Industry Segregated	787	712	768	828	894	965	1042	1126	1217	1315	1423	753	641	659	679	699	720	741	763	785	809	833
Lights & Fans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colony consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Industries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-I (B) Ferro-Alloys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-II Others (Commercial)	6	6	6	6	7	7	7	8	8	8	9	6	6	6	6	6	6	6	6	7	7	7
HT-III Airports, Bus Stations and Railway Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HT-IV(A) Govt. Lift Irrigation Schemes	2268	2608	2999	3449	3966	4561	5108	5722	6408	7177	8038	2169	2386	2625	2887	3176	3493	3843	4227	4650	5115	5626
HT-IV(B) Agriculture	28	29	30	31	33	34	35	37	38	40	41	27	27	28	28	28	28	29	29	29	30	30
HT-IV(C) CPWS	563	611	650	692	738	786	839	895	955	1020	1090	544	570	586	602	619	637	655	674	694	714	735
HT-V Railway Traction	109	114	120	126	133	139	147	154	162	170	179	105	106	108	110	111	113	115	117	118	120	122
HT-VI Townships and Residential Colonies	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HT-VIII Temporary Supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL(LT + HT)	**20817**	**22310**	**23948**	**25738**	**27696**	**29841**	**31947**	**34239**	**36736**	**39461**	**42439**	**20326**	**21261**	**22290**	**23384**	**24546**	**25782**	**26985**	**28264**	**29623**	**31068**	**32608**