ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

Vidyut Niyantrana Bhavan, Adjacent to 220/132/33/11 KV AP Carbides SS,
Dinnedevarapadu Road, Kurnool - 518 002, Andhra Pradesh.
Phones: 08518 - 294823,24,25,26

ORDER

In the matter of

Approval of Load Forecasts and Resource Plans

(Distribution Plans, Power Procurement Plans & Transmission Plans),

Comments on the State Electricity Plan for the

5th Control Period (FY 2024-25 to FY 2028-29)

&

Indicative Forecasts and Plans for the

6th Control Period (FY 2029-30 to FY 2033-34)

In respect of

Transmission Corporation of A.P.LTD..... (APTRANSCO)

Southern Power Distribution Company of A.P. LTD..... (APSPDCL)

A P Central Power Distribution Company LTD..... (APCPDCL)

Eastern Power Distribution Company of A.P.LTD..... (APEPDCL)

27th June 2024

CHAPTERS

LIST OF TABLES

LIST OF ANNEXURES

Foreword

The Electricity Demand Forecast is an exercise of vital importance for power procurement planning and investments in the power sector. The Resource Plan for the State aims at serving as a guiding document for a realistic assessment of DISCOMS's future electricity demand and, accordingly, for planning power procurement. The proper power procurement plan would optimise the power purchase cost of the DISCOMS, and the consumers would benefit accordingly. However, the task is not without its challenges. The uncertainty of demand due to factors like large-scale adoption of solar rooftop systems, DSM & energy efficiency measures by the consumers, migration to open access by industrial consumers, and the unpredictable nature's vagaries that prevailed during the last two years, make the task of estimating future demand a challenging one. Similarly, on the supply side, the large-scale integration of Renewable sources and their prices, energy mix and the operation of thermal power plants intra-state at their normal performance due to certain associated issues make the supply estimations tough. The Commission endeavoured to do its best to estimate future demand and accordingly finalised the power procurement requirements and investments for TRANSCO & DISCOMS' networks. Hopefully, it would serve as a beacon for the 5th control period, which commenced on 01.04.2024 and ends on 31.03.2029.

I would also like to thank my colleague members Sri Thakur Rama Singh, Sri P.V.R. Reddy for their cooperation and the following Commission officers for their efforts in bringing this Order to fruition.

1. Sri. D Ramanaiah Setty – Joint Director (Tariff)
2. Sri. P.Rajanikanth Reddy – Deputy Director (PPP)
3. Sri. A.Chaithanya –Assistant Director (Tariff)
4. Smt. P.V.Padmaja – PS
5. Smt. G.Surya Kumari – SA
6. Sri. P.Bala Gangadhar Reddy - JA

With warm regards

Sd/-

(JUSTICE C. V. NAGARJUNA REDDY)

CHAIRMAN

APERC

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

Vidyut Niyantrana Bhavan, Adjacent to 220/132/33/11 KV
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THURSDAY, THE TWENTY SEVENTH DAY OF JUNE
TWO THOUSAND AND TWENTY-FOUR

Present
Justice C.V. Nagarjuna Reddy, Chairman
Sri Thakur Rama Singh, Member
Sri P.V.R. Reddy, Member

In the matter of
Approval of detailed Load Forecasts and Resource Plans
(Distribution Plans, Power Procurement Plans & Transmission Plans)
of APDISCOMs & APTRANSCO respectively and
comments on the State Electricity Plan of APTRANSCO
for the 5th Control Period (FY 2024-25 to FY 2029-30) and
Indicative Forecasts & Plans
for the 6th Control Period (FY2030-31 to FY2034-35)

The Andhra Pradesh Electricity Regulatory Commission promulgated the guidelines for Load Forecasts, Resource Plans and Power Procurement Plans in December 2006 in place of earlier guidelines in existence, vide "The Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity) Regulation, 2005 (Regulation 4 of 2005)" clause 9 thereof made it mandatory for the Distribution Licensees to file resource plan containing the Sales Forecast, Load Forecast, Power Procurement Plan and a Distribution Plan (Capital Investment

Plan) before the Commission consistent with the Commission's guidelines on Load Forecast and Resource Plan as amended from time to time. Clause 9.2 further mandates that the Commission shall approve the Resource Plan as per the Guidelines and the Distribution Licensee shall adopt them in the Multi-Year and Annual filings for the Control Period. As per Clause 16 of Regulation 4 of 2005, the Commission has to adopt the Capital Investment Plan as part of the Resource Plan in terms of Clause 9 for determining the Regulated Rate Base (RRB).Clause 9 of the Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulation, 2005 (Regulation 5 of 2005), similarly made it mandatory for the Transmission Licensee to file a Resource Plan before the Commission which contains the Load Forecast and a Transmission Plan (Capital Investment Plan) consistent with the requirements of the Guidelines on Load Forecast and Resource Plan as approved by the Commission from time to time. Clause 9.2 lays down that the Commission shall approve the Resource Plan as per the Guidelines and the Transmission Licensee shall adopt them in the Multi-Year filings for the Control Period. Clause 14 of Regulation 5 of 2005 envisages that the Commission shall adopt the Capital Investment Plan approved as part of the Resource Plan in terms of clause 9 for determining the Regulated Rate Base (RRB). Para 5 of the APERC Guidelines 2016 also mandates APTRANSCO to formulate the State Electricity Plan. Clause 3 of the Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees) Regulation, 2008 (Regulation 1 of 2008) directs the Distribution Licensee to prepare a Power Procurement Plan as per the Commission's Guidelines on Load Forecasts, Resource Plans and Power Procurement and shall be submitted the same for the Commission's approval as specified in Clause 9 of Regulation 4 of 2005. Clause 35 of the Andhra Pradesh Electricity Regulatory Commission (Distribution Licensee) Regulation, 2013 (Regulation 10 of 2013) mandates the Distribution Licensee to prepare a year-wise demand forecast for two control periods following the guidelines/regulations issued by the Commission from time to time and the Distribution Licensees shall also submit prospective power procurement plan and Distribution Plan. Clause 37 of the

Regulation directs the Licensees to submit a long-term investment plan for 10 years including a detailed investment plan for 5 years, year by year following Load Forecast and Demand Forecast.

The APERC, after its constitution in 2014, by Order dated 15.04.2019, approved the first Load Forecasts and Resource Plans (Distribution Plans, Power Procurement Plans & Transmission Plans), for the 4th control period in respect of Transmission Corporation of A.P.LTD. (APTRANSCO), Eastern Power Distribution Company of A.P.LTD. (APEPDCL), and Southern Power Distribution Company of A.P. LTD. (APSPDCL). The 4th control period is ending on 31.03.2024. Therefore, this Commission by letter dated 15.12.2022, had directed the licensees to file Load Forecasts and Resource Plans for the 5th and 6th control period on or before 01.04.2023 as per the APERC's guidelines for Load Forecasts, Resource Plans and Power Procurement Plans issued in December 2006. The licensees sought an extension of time and accordingly, the Commission granted a one-month extension of time. The licensees have made filings following the guidelines in extended time as per the instructions of the Commission. The Commission hosted a public notice dated 06.05.2023 along with all the filings of the licensees on its website inviting comments/ views/ suggestions from all the interested persons/stakeholders in these matters, fixing the last date for submission of views as 31.05.2023. Because of the requests from certain stakeholders/interested Persons, the time for submission of comments/ views/Suggestions was extended till the end of June 2023 through a public notice dated 01.06.2023.

A public notice dated 07.06.2023 was also hosted on the website of the Commission along with the State Electricity Plan submitted by APTRANSCO on 31.05.2023 inviting the comments/views /suggestions from all the interested persons/stakeholders on the same fixing the last date for submission of views as 03.07.2023. The comments/views/suggestions have been received from the stakeholders in response to the above public notices. The Commission also held a public hearing on 19-08-2023 at 10:30 AM in a Hybrid mode in the Camp office of the APERC at APEPDCL Corporate Office premises, Visakhapatnam. After careful consideration of the comments/views/suggestions of all the stakeholders,

the filings of the licensees and keeping in view the guidelines dated 28.06.2023 of the Ministry of Power for Resource Adequacy Framework, the Central Electricity Authority's Guidelines on Medium and Long term demand forecast issued in July 2023, and the Model Regulation issued by the FORUM OF REGULATORS (FOR) for Resource Adequacy Framework, the Commission passes the following:

COMMON ORDER

CHAPTER - I

LICENSEES' FILINGS – SUMMARY

1. Eastern Power Distribution Company of Andhra Pradesh Ltd. (APEPDCL) on 02.05.2023, Southern Power Distribution Company of Andhra Pradesh Ltd. (APSPDCL) on 30.04.2023 and Andhra Pradesh Central Power Distribution Corporation Limited (APCPDCL) on 29-04-2023 have filed their respective Load Forecasts and Resource Plans for the 5th and 6th Control Periods, stated to be in compliance with the relevant tariff regulations and guidelines issued by the Commission.

2. Transmission Corporation of AP Ltd. (APTransco) has submitted its Resource Plan for the 5th Control Period (FY 2024-25 to FY 2028-29) and 6th Control Period (FY 2029-30 to FY2033-34) on 28-04-2023, stated to be based on the AP Discom's and AP Genco's perspective plan in compliance with the relevant tariff regulations and guidelines issued by the Commission.

3. Transmission Corporation of AP Ltd. (AP Transco) has also submitted the State Electricity Plan for the 5th Control Period (FY 2024-25 to FY 2028-29) and 6th Control Period (FY 2029-30 to FY2033-34) on 31-05-2023, stated to be as per the guidelines issued by the Commission.

4. According to the filings, the APDISCOMs have committed to supplying 24x7 quality, reliable and affordable power to all their consumers. The State Electricity Plan covers the entire gamut of the power sector, including generation, transmission, distribution, consumer initiatives, renewable energy, energy efficiency measures, and the financial health of the utilities.

5. That the total number of consumers in the State is 207.18 lakhs which includes 163.17 lakhs of domestic, 19.60 lakhs of commercial, 1.40 lakhs of industrial, and 19.34 lakhs of agricultural categories as of 28.02.2023. The total energy consumption in Andhra Pradesh during FY 2022-23 was 72,400 MU. The peak demand was 12,653 MW occurred in May 2023 and the maximum grid consumption was 251 MU as of the date of filing.

6. That the total installed capacity as of 31-03-2023 of Andhra Pradesh DISCOMs is 19,832 MW comprising 9,390 MW of thermal and 1,773 MW of hydel, 906 MW of Gas, 134 MW of nuclear and 7626 MW of Renewable Energy. The transmission

infrastructure consists of 17 Nos. of 400 kV substations, 105 Nos. of 220 kV substations, 238 Nos. of 132 kV substations and 31,665 (5,483 ckm of 400 KV, 12,307 ckm of 220 KV and 13,875 Ckm of 132 KV lines) Circuit Kilometres (Ckm) of EHT lines as on 31.03.2023. The transmission loss during FY 2022-23 was 2.61%. The distribution infrastructure consists of 3,251 Nos. of 33/11 kV substations, 11,77,838 distribution transformers and 29,518 Ckm of 33 KV lines as of 28.02.2023.

7. That the Power is being supplied to Domestic, Commercial and industrial consumers along with Agricultural consumers in rural areas through mixed feeders. The power is being supplied to Industries through 706 dedicated/express industrial feeders. 9 hours three-phase power supply is given to agricultural consumers mostly in single/two spells during day time and supply timings are rotated every 7 days. The rural areas are being provided with a three-phase supply along with 9 hours agricultural supply and a single-phase power supply for the balance of 15 hours. As a result, all the consumers, other than Agriculture in rural areas get 24 hours of supply every day. Since 2014, all rural areas have been extended 24-hour single-phase/three-phase power supply. The segregation of Agricultural feeders would enable the extension of a 24x7, reliable 3-phase power supply to all consumers in rural areas.

8. That the summary of the sales forecast filed by three DISCOMS vis a vis FY23 (Actuals) and FY24 (estimates) is shown in the table below:

Table 1: Summary of Sales Forecast in MUs

DISCOM	FY23	FY24	FY25	FY26	FY27	FY28	FY29
			5th Control Period				
EPDCL	25597	26992	28950	31029	33101	35338	37771
SPDCL	24325	26366	28226	30155	31685	33283	35354
CPDCL	14157	15246	16738	17528	21927	22800	23696
Total	64079	68604	73914	78712	86713	91421	96821

DISCOM	FY30	FY31	FY32	FY33	FY34	CAGR
	6th Control Period					
EPDCL	40390	43228	46306	49650	53288	6.89%
SPDCL	37091	38929	41038	43101	45288	5.81%
CPDCL	24640	25646	26708	27838	29045	6.80%
Total	102121	107803	114052	120589	127621	6.46%

9. That the loss trajectory projected by the three DISCOMS vis a vis FY24 (estimates) is shown in the table below:

Table 2: Loss Trajectory forecast - APEPDCL

Voltage Level	FY24*	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
		5th Control Period					6th Control Period				
LT	4.38%	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
11 kV	3.06%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%	3.32%	3.31%	3.31%	3.30%
33 kV	3.27%	3.34%	3.33%	3.32%	3.31%	3.30%	3.30%	3.29%	3.29%	3.28%	3.28%

Table 3: Loss Trajectory forecast - APSPDCL

Voltage Level	FY24*	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
		5th Control Period					6th Control Period				
LT	5.08%	5.07%	5.06%	5.04%	5.03%	5.02%	5.01%	4.99%	4.98%	4.97%	4.96%
11 kV	3.31%	3.30%	3.29%	3.29%	3.28%	3.27%	3.26%	3.25%	3.24%	3.24%	3.23%
33 kV	3.20%	3.19%	3.18%	3.18%	3.17%	3.16%	3.15%	3.14%	3.14%	3.13%	3.12%

Table 4: Loss Trajectory forecast – APCPDCL

Voltage Level	FY24*	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
		5th Control Period					6th Control Period				
LT	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.68%	3.67%	3.66%	3.65%
11 kV	3.17%	3.16%	3.15%	3.15%	3.14%	3.13%	3.12%	3.11%	3.11%	3.10%	3.09%
33 kV	3.12%	3.11%	3.10%	3.10%	3.09%	3.08%	3.07%	3.07%	3.06%	3.05%	3.04%

- Voltage wise losses in percentage for FY 2023-24 has been taken from ARR filings.

10. That based on the sales forecast, grossing up the sales with the losses as per the loss trajectory projected, energy input computed by the DISCOMs at their periphery adding sales at EHT network vis a vis FY24 estimates is shown in the tables below:

Table 5: Energy input of APEPDCL for 5th Control Period

Parameters	FY24	FY25	FY26	FY27	FY28	FY29
Annual LT Loss	4.38%	3.42%	3.41%	3.40%	3.40%	3.39%
Energy Input at LT level (MU)	14666	15618	16790	17866	19022	20258
Annual 11 kV Loss	3.06%	3.39%	3.38%	3.37%	3.36%	3.35%
Energy Input at 11kV level (MU)	17619	18762	20077	21300	22611	24013
Annual 33 kV Loss	3.27%	3.34%	3.33%	3.32%	3.31%	3.30%
Energy Input at 33 kV level (MU)	21082	22467	24025	25503	27087	28784
Total Energy Input at 33 kV + 132 kV & above Sales (MU)	**28863**	**30870**	**33080**	**35272**	**37640**	**40212**

Table 6: Energy input of APEPDCL for 6th Control Period

Parameters	FY30	FY31	FY32	FY33	FY34
Annual LT Loss	3.38%	3.37%	3.36%	3.35%	3.34%
Energy Input at LT level (MU)	21583	23005	24531	26171	27932
Annual 11 kV Loss	3.34%	3.32%	3.31%	3.31%	3.30%
Energy Input at 11kV level (MU)	25517	27127	28859	30722	32721
Annual 33 kV Loss	3.30%	3.29%	3.29%	3.28%	3.28%
Energy Input at 33 kV level (MU)	30606	32555	34653	36908	39332
Total Energy Input at 33 kV + 132 kV & above Sales (MU)	42981	45974	49225	52754	56590

Table 7: Energy input of APSPDCL for 5th Control Period

Particulars	FY24	FY25	FY26	FY27	FY28	FY29
Annual LT Loss	5.08%	5.07%	5.06%	5.04%	5.03%	5.02%
Energy Requirement at LT level (MU)	16180	17025	17917	18857	19848	20895
Annual 11 kV Loss	3.31%	3.30%	3.29%	3.29%	3.28%	3.27%
Energy Requirement at 11kV level (MU)	18912	20128	21189	22327	23508	24756
Annual 33 kV Loss	3.20%	3.19%	3.18%	3.18%	3.17%	3.16%
Energy Requirement at 33 kV level (MU)	22655	24078	25355	26726	28162	29693
Total Energy Requirement at 33 kV + 132 kV Sales	29312	31333	33418	35119	36904	39185

Table 8: Energy input of APSPDCL for 6th Control Period

Category	FY30	FY31	FY32	FY33	FY34
Annual LT Loss	5.01%	4.99%	4.98%	4.97%	4.96%
Energy Requirement at LT level (MU)	21999	23165	24395	25695	27068
Annual 11 kV Loss	3.26%	3.25%	3.24%	3.24%	3.23%
Energy Requirement at 11kV level (MU)	26076	27471	28946	30506	32157
Annual 33 kV Loss	3.15%	3.14%	3.14%	3.13%	3.12%
Energy Requirement at 33 kV level (MU)	31335	33022	34808	36698	38701
Total Energy Requirement at 33 kV + 132 kV Sales	41164	43209	45535	47829	50259

Table 9: Energy input of APCPDCL for 5th Control Period

Parameters	FY24	FY25	FY26	FY27	FY28	FY29
Annual LT Loss	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
Energy Requirement at LT level (MU)	11379	11916	12502	13099	13730	14400
Annual 11 kV Loss	3.17%	3.16%	3.15%	3.15%	3.14%	3.13%
Energy Requirement at 11kV level (MU)	13374	14012	14724	15439	16212	17022
Annual 33 kV Loss	3.12%	3.11%	3.10%	3.10%	3.09%	3.08%
Energy Requirement at 33 kV level (MU)	15784	16546	17390	18246	19179	20150
Total Energy Requirement at 33 kV + 132 kV Sales	16889	18463	19344	23840	24820	25836

Table 10: Energy input of APCPDCL for 6th Control Period

Parameters	FY30	FY31	FY32	FY33	FY34
Annual LT Loss	3.68%	3.68%	3.67%	3.66%	3.65%
Energy Requirement at LT level (MU)	15115	15839	16601	17402	18244
Annual 11 kV Loss	3.12%	3.11%	3.11%	3.10%	3.09%
Energy Requirement at 11kV level (MU)	17883	18766	19700	20688	21736
Annual 33 kV Loss	3.07%	3.07%	3.06%	3.05%	3.04%
Energy Requirement at 33 kV level (MU)	21185	22254	23390	24599	25889
Total Energy Requirement at 33 kV + 132 kV Sales	26919	28045	29235	30502	31853

11. That the loss trajectory projected by the APTRANSCO for intrastate transmission system vis a vis FY23 actuals and FY24 estimates is shown in the table below:

Table 11: Loss trajectory for Transmission and PGCIL losses

FY	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
APTransco Transmission loss %	2.75	2.75	2.75	2.75	2.7	2.7	2.7	2.65	2.65	2.65	2.6	2.6
PGCIL	0.80	0.80	0.80	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95

12. That the Discoms have been procuring energy from Central Generating Stations as per their share allocated by MoP and shown procurement of 7000 MW solar power from FY25 in phases, and accordingly the combined intrastate and interstate transmission losses projected by them vis a vis FY23 actuals and FY24 estimates are shown in the table below:

Table 12: Loss trajectory for Intra and Interstate Transmission

Losses (%)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Transmission	3.55	3.55	3.55	3.65	3.65	3.65	3.65	3.60	3.60	3.60	3.55	3.55

13. That the Transmission and PGCIL losses are added to the energy input at DISCOMS periphery for arriving at the total energy input for each DISCOMs at state transmission network periphery which are shown vis a vis FY23 actuals and FY24 estimates in the tables below:

Table 13: Energy Input projections at State Level for 5th Control Period (MU)

Energy input MUs	FY23	FY24	FY25	FY26	FY27	FY28	FY29
Energy Input @ EPDCL	27391	28863	30870	33081	35273	37641	40212
Energy Input @CPDCL	15398	16561	18115	18976	23449	24406	25397
Energy Input @SPDCL	26232	29312	31333	33419	35120	36905	39185
Transmission Losses	1969	2131	2290	2440	2630	2773	2937
PGCIL Loss	573	620	666	798	925	976	1033
Total Energy input at State level	71563	77487	83275	88713	97396	102700	108765

Table 14: Energy Input projections at State Level for 6th Control Period (MU)

Energy input MUs	FY30	FY31	FY32	FY33	FY34
Energy Input @ EPDCL	42982	45975	49226	52755	56591
Energy Input @SPDCL	41164	43209	45536	47829	50260
Energy Input @CPDCL	26454	27552	28712	29948	31266
Transmission Losses	3040	3209	3394	3519	3723
PGCIL Loss	1090	1150	1217	1286	1360
Total Energy input at State level	114730	121095	128085	135336	143200

14. That the energy input and peak loads estimation at the state's periphery after taking into account the energy under open access are shown vis a vis FY23 actuals and FY24 estimates in the table below:

Table 15: Summary of the forecast for Energy Requirement and Peak Demand for three DISCOMS – 5th CP

Particulars	FY23	FY24	FY25	FY26	FY27	FY28	FY29
Energy input (MUs)	72400	79472	85365	90924	99731	105179	111378
State Load (MW) (Load factor Method)	12293	13746	15226	16256	17831	18805	19913

Table 16: Summary of forecast for Energy Requirement and Peak Demand for the three DISCOMS – 6th CP

	FY30	FY31	FY32	FY33	FY34	CAGR
Energy input (MUs)	117510	124067	131269	138753	146877	6.64%
State Load (MW) (Load factor Method)	21042	22251	23561	24944	26870	7.37%

Comparison of Load Forecasts

15. The comparison of the Energy (MU) forecast and Demand Forecast (MW) for the three DISCOMS together with the 20th EPS projections by CEA are shown below. That the Discoms energy forecast is almost in line with the 20th EPS by CEA in the 5th Control period and slightly lower in the 6th control period.

Table 17: Comparison of Load forecasts (MU)

Energy Requirement (MU)	FY23	FY24	FY25	FY26	FY27	FY28	FY29
20th EPS report by CEA	72400	78134	84245	90889	98162	105792	113859
Discoms Forecast	72400	79472	85365	90924	99731	105179	111378

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Energy Requirement (MU)	FY30	FY31	FY32	FY33	FY34	CAGR FY34
20th EPS report by CEA	123361	130196	137022	145746	155026	7.17%
Discoms Forecast	117510	124067	131269	138753	146877	6.64%

Table 18: Comparison of Load forecasts (MW) - Peak Demands

Demand (MW)	FY23	FY24	FY25	FY26	FY27	FY28	FY29
20th EPS report by CEA	12293	13937	15027	16212	17509	18870	20309
Discoms forecast	12293	13746	15226	16256	17831	18805	19913

Demand (MW)	FY30	FY31	FY32	FY33	FY34	CAGR FY34
20th EPS report by CEA	22004	23223	24440	25907	27461	7.58%
Discoms forecast	21042	22251	23561	24944	26870	7.37%

16. That the licensees have entered into common power purchase agreements with various suppliers of electricity and share the capacity in the ratios as shown in the table below as per the Government orders.

Table 19: The ratios of APEPDCL, APSPDCL and APCPDCL

Sl.No.	Name of Discom	Allocated Share in %
1	APSPDCL	40.44%
2	APEPDCL	36.22%
3	APCPDCL	23.34%
	Total	**100.00%**

17. That the summary of the installed capacities of various sources and the DISCOMS entitlement as per the PPAs they entered into is shown in the table below:

Table 20: Existing Installed/Contracted Capacity from various sources

SOURCE	INSTALLED CAPACITY (MW)	APDISCOMs SHARE (%)	APDISCOMs CONTRACTED CAPACITY (MW)	APEPDCL CONTRACTED CAPACITY (MW) (@37.97)	APSPDCL CONTRACTED CAPACITY (MW) (@40.44)	APCPDCL CONTRACTED CAPACITY (MW) (@23.34)
APGENCO-THERMAL	3410	100%	3410	1295	1379	796
APGENCO-HYDEL	1774	100%	1774	673	717	414
JOINT SECTOR	2617	93.91%	2457	933	994	573
CGS	15290	12.94%	1979	751	800	462
IPPs (Thermal)	3680	51.50%	1896	720	767	442
IPPs (Gas)	1498	46.11%	691	262	279	161
NCE	7627	100%	7627	2896	3084	1780
TOTAL	**35895**	**55.30%**	**19832**	**7530**	**8020**	**4629**

18. That some PPAs are expiring by the end of this control period. The expiry/renewable of PPAs, and retirements of plants are as below:

i) **Old APGENCO Stations:**

The composite PPA with AP Genco which covers several old stations both in the Thermal & Hydel category is expiring by the end of the present fourth control period. This PPA majorly covers the following plants.

NTTPS -1 to 6 units (1260 MW)

RTPP-stage I (420 MW)

Hydel – 1723.60 MW, State projects USL, LSR, Donkarayi, SRBPH, NSRCPH, NSTPHES, PABM, Mini Hydro (Chettipetta) and including Inter State projects Machkund PH, Tungabhadra PH,

That the Ministry of Power, Govt. of India vide letter dated 20.01.2023 have communicated that pursuant to the meeting held on 06.12.2022, the Minister for Power & NRE instructed not to retire any thermal units till 2030 and urged for carrying out R&M for life extension and improve the flexibility and reliability of thermal units considering the expected demand scenario and availability of capacity in future. Further, APGENCO vide letter dated 11.04.2023 has requested APDISCOMs to extend the validity of composite PPAs for 10 years i.e. up to FY2033-34. Accordingly, APDISCOMs subject to the approval of Hon'ble APERC are provisionally considering the power procurement from these plants up to FY 2033-34.

That the PPA with RTPP Stage II-(2*210 MW) is going to expire on 28.03.2033 and this plant is also considered till the horizon of the 6th control period.

That given the long gestation period required for the construction of new thermal capacities and the impending retirement of old and inefficient thermal plants, it would be prudent to continue to operate the existing efficient thermal capacities.

ii)**Expiry of PPAs of certain CGSs:**

Ramagundam Stage-I&II – 289 MW expired on 31.10.2017.

NLC TPS-II Stage-I & Stage-II - 132 MW expired on 31.03.2021

Kaiga 1 to 4 units – 114 MW & MAPS -18.136 MW will expire during FY 2026-27.

Simhadri Stage-I - 461 MW will expire during FY 2027-28.

Ramagundam Stage-III – 72 MW will expire during FY 2029-30

Talcher Stage-II – 181 MW will expire during FY2030-31.

That the Ministry of Power, Govt. of India has notified on 20th April 2023, a Scheme for Pooling of Tariff of those CGS plants whose PPAs have expired. This scheme is effective from 1st July 2023 onwards, mainly designed for CGS stations that have completed 25 years of service. That common pool will be created with total Installed capacity with uniform F.C. and V.C. by deallocating power from the original beneficiaries.

That as per the scheme, the beneficiaries have to requisition power for the required quantum within 15 days from the announcement of the common pool website. Priority will be given to the original beneficiaries and thereafter, first come first serve will be followed. Beneficiaries have to enter separate PPAs for a minimum period of 5 years for requisitioning power from a common pool after obtaining proper consent for entering PPAs and for the quantum of power. The CGS plants after the completion of 25 years will be added to the common pool subsequently. One year prior intimation will be given to the beneficiaries before completion of the 5-year agreement period.

That in accordance with the scheme, APDISCOMs are expected to lose allocation from Ramagundam stages 1 & 2 immediately. To get power to the extent of share from Ramagundam stages 1 and 2, the DISCOMS have to apply in the common pool portal spontaneously at that time.

That with due regard to the impact of the scheme on the beneficiaries, which is yet to be studied in depth, APDISCOMs consider the entire allocated capacity as is available now from the existing central generating stations throughout the fifth & sixth control periods.

That in Retail Supply Tariff Order (RSTO) FY 2022-23, at Para 100, the Hon'ble Commission has mentioned that since there is no consent of the Commission for the PPA's with CGSs, there is no obligation to take power from them unless the Commission approves the same on a case-to-case basis. The Commission further stated that the Ministry of Power (MoP), GoI vide its letter dated 28.08.2006 had clarified that the PPAs, the DISCOMs enter into with interstate projects shall have the approval of the State Electricity Regulatory Commission (SERC) concerned as they only have the powers to regulate electricity purchases and procurement process of distribution licensees under section 86(1)(b) of the Electricity Act, 2003

except the tariff and tariff-related matters of the PPAs. The Commission has disallowed the dispatch from the following four CGSs whose APDISCOMS share of contracted capacity as indicated below:

NTPC-Kudgi	:	244.56 MW
NTECL –Vallur	:	86.15 MW
NTPL	:	121.33 MW
NNTPS	:	52.70 MW
Total	:	504.74 MW

That the DISCOMS have shown procurement of power from the above plants in the filings.

iii) **Expiry of PPAs with Gas Power Plants (IPPs):**

GVK Extns & GVK Gautami will expire in FY 2024-25

Kona Seema will expire in FY 2025-26

GMR Vemagiri will expire in FY2028-29

That these plants are stranded due to unavailability of gas and are not scheduled. Hence these are not considered for the 5th and 6th Control periods.

iv) Expiry of PPAs of Non-Conventional Energy Sources (NCEs) whose capacities have not been considered after the expiry of the PPA in the remaining period of the control period.

That the APDISCOMS have PPAs with Non-Conventional/Renewable Energy plants for 7626 (Solar : 3755 MW; Wind: 3638 MW ; Other NCE: 232 MW) as of 31.03.2023.

That out of the total solar power contracted capacity, certain PPAs of solar power plants are going to expire viz., Yaswanth Solar Energy Pvt Ltd (1 MW) expires on 30.09.2026 , Sri Power Generation Pvt Ltd (Chervi) (2MW) expires on 17.03.2031 and SB Energy Pvt Ltd (3MW) expires on 20.03.2031.

That out of the total wind power contracted capacity, certain PPAs of wind power plants are going to expire viz.2.5 MW during FY 2023-24, 10.85 MW during FY 2025-26, 4.5 MW during FY 2026-27, 83.55 MW during FY 2030-31, 34.25 MW during FY 2031-32 and 28.9 MW during FY20232-33.

That out of the total other NCE power contracted capacity, certain PPAs of NCE power plants are going to expire viz. 78.5 MW during FY 2023-24, 24.7 MW during FY 2024-25, 36 MW during FY 2025-26, 10 MW during FY 2026-27, 2 MW during FY 2027-28, 14.66 MW during FY 2028-29, 20 MW during FY 2029-30, 1.2 MW during FY 2031-32.

v) **Capacity additions considered by the DISCOMs**

a) APGENCO Thermal-VTPS-Stage V-1X800 MW

That APDISCOMs have entered into an amended and restated power purchase agreement on 14-10-2022 with APGENCO for procurement of 100% power from its VTPS-Stage V having an installed capacity of 800 MW for 25 years from the date of COD and the signed PPA was submitted to the Hon'ble Commission for consent vide letter dated 17-10-2022. The plant is expected to achieve a Commercial Operation Date (COD) by 1st September 2023. Accordingly, APDISCOMs have considered the power procurement for the ensuing financial year FY 2023-24 and throughout the 5th and 6th control periods.

b) Two Units at Lower Sileru 2X115 MW

That there is a proposal from APGenco for installing an additional two 115 MW units at Lower Sileru hydel power during FY2024-25. These two units would not entail any additional energy but are helpful in meeting the peak demand within the existing water discharge capability. These Units are considered in resource planning for the 5th and 6th control periods.

c) APGENCO Hydro- Polavaram Hydro Project 12X80 MW:

That APGenco is developing a 960 MW Hydro power project at Polavaram Irrigation project. The configuration of the project is 12X80 MW. Polavaram hydel power (7*80MW) during FY 2024-25 and (5*80MW) during FY 2025-26 is expected.

d) Upper Sileru Pumped Storage Hydro Project 9X150 MW

That there is a proposal by APGenco to develop the Upper Sileru Pumped Storage Power Plant with an aggregate installed capacity of 1350 MW to be set up during FY 2027-28 (8x150 MW) and during FY 2028-29 1 x 150 MW. Hence, the power from this plant is considered from FY 2027-28, FY2028-29 and the entire 6th control period.

e) CGS-Nuclear-Bhavini-100 MW

That APDISCOMs sought an allocation of 100 MW from the proposed BHAVINI Nuclear Plant. The plant is expected to be commissioned in the year FY 2024-25 and accordingly considered in the power procurement plan.

f) CGS-Talcher-Stage-III -264 MW.

That APDISCOMs sought an allocation of 264 MW from the proposed Talcher-Stage-III Thermal. The plant is expected to be commissioned in the year FY 2027-28 and accordingly considered in the power procurement plan.

g) CGS-Telangana Super Thermal Power Station Phase I

That APDISCOMs were allocated 8 MW minimal share from the SR pool unallocated quota from the C.O.D of Telangana STPS Phase-I Unit-I, 1x800 MW plant. The C.O.D of Unit-I is going to be declared during April/May 2023. APDISCOMs are expected to get a further 1% share of 8 MW from the SR pool unallocated quota from Telangana STPS Phase-I Unit-II, 1x800 MW plant i.e., from the C.O.D of 2nd unit which is expected during FY 2023-24. These are accordingly, considered in the power procurement plan.

h) SECI-Solar 7000 MW:

That the Govt of Andhra Pradesh intends to extend 9 hrs day time uninterrupted power supply to the Agricultural farming consumers in the state on a sustainable basis through a separate nodal agency(Andhra Pradesh Rural Agricultural Power Supply Company – APRAPSCom).

SECI, a GOI undertaking made an offer to APDISCOMs in 2021 for procurement of 9000 MW Solar power from the projects being set up at Rajasthan vide Manufacturing linked scheme, with a tariff @ Rs. 2.49 per unit with a waiver of ISTS charges and losses to Andhra Pradesh

APDISCOMs submitted an interim power procurement plan for the 5th control period to the Hon'ble APERC and sought approval for procurement of 7000 MW Solar power from the SECI manufacturing linked scheme. The APERC vide orders dt 11.11.2021 issued consent for procurement of 7000 MW Solar Power from SECI.

As per the instructions of Govt of A.P, All the three APDISCOMs and Govt of AP entered into PSA with SECI dated 01.12.2021 for procurement of 7000 MW (17000 MU) from 2024 September onwards (3000 MW as of 2024, 6000 MW as of 2025 and 7000 MW as on Sep' 2026.).

Upon full establishment of APRAPSCom, the aforesaid Power Sale Agreement will be transferred from APDISCOMs to APRAPSCom for the supply of power to the Agricultural consumers. The Power from this capacity has been taken into account in estimations for power procurement.

i) Wind Projects

That there will also be an addition of 774 MW of wind power from AXIS and 400MW wind power from M/s AXIS Bundling, Balancing & Banking (BBB) scheme, totalling 1174.9 MW during FY 2025-26. The power from these plants has been considered in estimations of power procurement.

That the Gist of expected net capacity additions year wise as discussed above is tabulated below:

Table 21: Gist of expected net capacity additions:

Source	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**Total**
APGENCO							
Hydro Plants							
Polavaram (12x80MW)		560	400				**960**
Lower Sileru (2X115MW)		230					**230**
Upper Sileru Pumped storage (9X150)					1200	150	**1350**
Thermal Plants							
Vijayawada TPS Stage V (1x800 MW)	800						**800**
APGENCO Total	800	790	400		1200	150	**3340**
CGS							
Telangana Super Thermal Power Station Phase I (Unit-1&2)	16						**16**
Bhavani		100					**100**
Talcher stg-III					264		**264**
Private Projects							
Wind	-2.50	0	1164.50	-4.50			**1157.50**
Solar (SECI from Rajasthan)		3000	3000	999			**6999**
Gas (GVK extn. Gouthami, Konaseema, Vemagiri)		-315.40		-204.8		-170.90	**-691.10**
Other NCE	-77.30	-4.70	-27	-10	-2	-14.66	**-135.66**
Total Capacity addition	**736.20**	**3569.90**	**4537.50**	**779.70**	**1462**	**-35.56**	**11049.74**

19. That as discussed above, the Contracted Capacities for 5th & 6th Control Periods projected by APDISCOMS for 5th and 6th control period are tabulated below:

Table 22: Year-wise plant capacities (MW) – 5th Control Period

Source	FY23	FY24	FY25	FY26	FY27	FY28	FY29
APGENCO & APPDCL THERMAL	5650	6450	6450	6450	6450	6450	6450
APGENCO Hydel	1774	1774	2564	2964	2964	4164	4314
AP Discom Gas	0	0	0	0	0	0	0
CGS	1979	1995	2095	2095	2095	2359	2359
IPPs(Gas)	0	0	0	0	0	0	0
IPPs – Others	1896	1896	1896	1896	1896	1896	1896
NCE Sources	7627	7547	10542	14680	15664	15662	15647
MW Availability	**18925**	**19661**	**23546**	**28083**	**29068**	**30530**	**30665**

Table 23: Year wise plant capacities (MW) – 6th Control Period:

Source	FY30	FY31	FY32	FY33	FY34
APGENCO Coal	6450	6450	6450	6450	6450
APGENCO Hydel	4314	4314	4314	4314	4314
AP Discom Gas	0	0	0	0	0
CGS	2359	2359	2359	2359	2359
IPPs(Gas)	0	0	0	0	0
IPPs – Others	1896	1896	1896	1896	1896
NCE Sources	15627	15539	15503	15474	15474
MW Availability	**30645**	**30557**	**30521**	**30492**	**30492**

20. Renewable Power Purchase Obligation (RPPO)

That because of the geographical allocation of NCE projects till September 2022, APSPDCL has been surpassing RPPO obligation since almost entire Wind and solar capacities are installed in the SPDCL territorial area. The necessary

adjustments are being made in DISCOM-DISCOM energy flow and settlement transactions, as per the directions of Hon'ble APERC, to ensure that deficit RPPO DISCOMs Viz APEPDCL & APCPDCL are procuring the required NCE/REpower from APSPDCL to meet RPPO. The surplus energy procured by APSPDCL after netting off for RPPO obligation of deficit DISCOMs, is available for obtaining RECs as per the Regulations in vogue.

That the Hon'ble APERC notified Regulation No. 5 of 2022, Dt 29.09.2022 duly specifying RPPO targets to be met by designated entities for the next five years i.e part of FY 2022-23 till 2026-27. In the new Regulations, the classification of Solar / Non-Solar obligations present in the previous regulation is dispensed with. The RPPO as specified in the new Regulation is as follows:

Table 24: RPPO specified by the APERC:

FY23 (2nd Half)	FY24	FY25	FY26	FY27
18%	19%	20%	22%	24%

In the absence of any specified RPPO by the appropriate authority beyond FY2027, the APDISCOMs consider the same percentage of 24% specified for FY2027 for the period beyond the horizon of the 6th Control Period i.e FY 2024.

Table 25: The expected RPPO compliance by APDISCOMs during the 5th & 6th Control Periods

Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
RPPO Compliance in %	27.41	37.20	38.16	36.16	33.95	32.13	30.25	28.50	26.89	25.15

21. Power Surplus /Deficit Analysis in Terms of Energy

The Licensees have analysed surplus/deficit situations based on projections for both demand and supply. Based on existing and future planned installed capacities, energy availability in MUs has been determined for each power station. The Energy Despatch is based on the hourly expected dispatch of the generators taking into account projected hourly demand. The following table summarises projected energy generation dispatch for the total contracted capacities of the three DISCOMS together.

Table 26: Projected energy generation Despatch for 5th Control Period (MUs)

Station	FY24	FY25	FY26	FY27	FY28	FY29
APGenco/APPDCL	32358	34500	33087	34084	35828	37356
CGS	11780	12643	12074	12476	14839	15533
IPPs-T	11416	12164	11675	11912	12256	12853
Gas	749	749	749	749	749	749
Wind	7211	7205	9513	9503	9503	9503
Solar	6007	6007	6007	6007	6007	6007
Others	665	665	665	665	665	665
Hydel	4482	4482	4563	4563	4563	4563
Raj Solar	579	3195	10143	15128	16500	16500
Despatch	**75246**	**81610**	**88476**	**95086**	**100910**	**103729**

Table 27: Energy Despatch at state for 6th Control Period (MUs)

Station	FY30	FY31	FY32	FY33	FY34
APGenco/APPDCL	38398	39164	39576	36489	36489
CGS	16006	16354	16541	15140	15140
IPPs-T	13281	13491	13699	13607	13607
Gas	749	749	749	749	749
Wind	9503	9503	9503	9503	9503
Solar	6007	6007	6007	6007	6007
Others	665	665	665	665	665
Hydel	4563	4563	4563	4563	4563
Raj Solar	16500	16500	16500	16500	16500
Despatch	**105673**	**106995**	**107802**	**103223**	**103223**

Energy Balance (MU)

Based on the expected energy generation and energy requirement, the table below summarises the surplus and deficit of Energy (MUs) of three DISCOMS together:

Table 28: Energy Surplus/Deficit for 5th Control Period

Year /MUs	FY23	FY24	FY25	FY26	FY27	FY28	FY29
Energy Requirement	71116	77487	83275	88713	97396	102700	108765
Energy Despatch	68189	75246	81610	88476	95086	100910	103729
Surplus/(Deficit)	-2927	-2241	-1665	-237	-2310	-1790	-5036

Table 29: Energy Surplus/Deficit for 6th Control Period

FY	FY30	FY31	FY32	FY33	FY34
Energy (MU)	114730	121095	128085	135336	143200
Energy Despatch	105673	106995	107802	103223	103223
Deficit MU (-)	-9057	-14100	-20283	-32113	-39977

22. Power Surplus /Deficit Analysis in terms of MW

Demand Forecast

The equation considered for time series analysis for demand forecast is

Y = (A+ B*X)*S

Where

Y = future demand as per chosen time variable X in hour.

A =Intercept of linear regression in MW determined from historical demand from FY 2016-17 to FY 2022-23.

B =slope of the linear regression determined from historical demand from FY2016-17 to FY 2022-23.

S = seasonality index determined from historical demand from FY 2016-17 to FY 2022-23.

The demand data based on the time series forecasting for all the years in the 5th Control Period for each hour of each day in the year was computed by DISCOMS.

Plant Supply Forecast

The Forecast of hourly available capacity (MW) is determined by considering AP share in the power plants and PLFs. The assumption for plant availability shall remain the same except for hourly PLFs. Hourly PLFs assumed for various sources are shown below:

Category	PLFs
APGENCO/APPDCL Thermal	Assumed (70% to 83%)
APGENCO Hydel	As per each plant PLF
CGS	Assumed (80% to 90%)
IPP Gas	0%
APDISCOM Gas	40%
IPPs Thermal	80%
NCE Biomass	40%
NCE Bagasse	40%
NCE - Industrial Waste based power project	40%
NCE - Municipal Solid Waste Projects	40%
NCE - Wind Power	As per each plant hourly PLF
NCE - Mini Hydel	As per each plant hourly PLF
NCE – Solar	As per each plant hourly PLF

APGENCO Thermal: Average PLF of 76% is assumed to accommodate reduction in availability of coal in future with following inputs:

- Max. 83% for periods when Solar and wind generation is lower.
  - For periods such as June, July, August & September, where there is high wind generation, the PLF has been considered for a minimum 70% assuming maintenance of thermal power plants is scheduled in these months.
  - CGS: Average PLF of 85% is assumed to accommodate the reduction in wind power generation in future with the following inputs:
- PLF of 90% for four months: February, March, April and May

- PLF of 80% for the remaining months.
    - For Wind and solar plants, the actual observed hourly PLF is calculated for the representative year FY 2021-22 using hourly energy availability from each plant (MU) and the available plant capacity (MW) for that hour. This observed PLF is assumed for all the future years in the 5th and 6th Control Periods.
    - Monthly averages of hourly supply forecasts for the remaining years have been provided.

Surplus/Deficit (MW Analysis)

Based on average hourly demand and average hourly supply as per the assumptions above, the surplus and deficit in MW arrived at each hour wise for three DISCOMS together have been shown in the table below:

Surplus/ (Deficit)	1	2	3	4	5	6	7	8	9	10	11	12
2023-24	1194	1336	1398	1340	1624	1104	555	524	345	-35	495	756
2024-25	654	820	907	843	1164	553	-91	-1	68	-99	658	1071
2025-26	558	733	817	725	1406	785	147	615	1148	1102	2353	3052
2026-27	-273	-57	63	-35	704	-21	-715	13	949	1103	2670	3581
2027-28	-497	-258	-113	-219	566	-251	-269	638	1217	-455	1001	1986
2028-29	-1033	-767	-594	-708	125	-797	-942	-124	324	-1477	-30	996
2029-30	-1555	-1263	-1061	-1183	-299	-1323	-1590	-858	-541	-2473	-1033	33
2030-31	-2117	-1799	-1565	-1695	-757	-1890	-2285	-1642	-1463	-3533	-2101	-993
2031-32	-2722	-2375	-2110	-2248	-1256	-2507	-3045	-2498	-2470	-4686	-3260	-2105
2032-33	-3379	-3001	-2700	-2845	-1792	-3164	-3844	-3396	-3523	-5895	-4476	-3277
2033-34	-4085	-3674	-3336	-3487	-2372	-3874	-4706	-4362	-4657	-7193	-5781	-4533

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Surplus/ (Deficit)	13	14	15	16	17	18	19	20	21	22	23	24
2023-24	673	782	647	469	888	1092	1139	902	1010	990	1100	935
2024-25	1010	1083	810	428	588	583	498	232	333	379	509	366
2025-26	3027	2968	2366	1634	1541	1050	760	465	589	630	722	252
2026-27	3569	3429	2611	1675	1209	391	-177	-571	-462	-326	-197	-630
2027-28	1988	1866	1200	1442	943	1080	667	256	357	573	-464	-880
2028-29	1009	935	302	592	174	431	-9	-429	-337	-37	-1053	-1447
2029-30	57	32	-568	-233	-572	-196	-670	-1101	-1018	-633	-1625	-2000
2030-31	-958	-931	-1495	-1113	-1369	-868	-1379	-1821	-1748	-1274	-2241	-2595
2031-32	-2059	-1972	-2499	-2067	-2235	-1598	-2143	-2594	-2530	-1961	-2901	-3233
2032-33	-3220	-3074	-3561	-3075	-3146	-2370	-2959	-3426	-3374	-2709	-3621	-3928
2033-34	-4465	-4254	-4698	-4157	-4127	-3200	-3835	-4318	-4278	-3510	-4392	-4673

Power Procurement Plan for meeting the deficit

- That the DISCOM expects to meet the base load capacity requirement to be procured through the Generating Stations capable of operating Round the Clock (RTC) with a PLF from 60% to 85%.

- That remaining procurement may be undertaken with intermediate sources. Further, if any gap arises on account of day ahead/week ahead basis on account of shortfall in availability from the committed sources or any variations in the generation forecast as may be made available, short-term procurement will be undertaken in compliance with the Regulation in force.

- That the DISCOMs are also required to procure ancillary services (Secondary or Tertiary) in terms of maintaining the required Reserves in compliance to the

CERC's Indian Electricity Grid Code (IEGC), Deviation Settlement Mechanism (DSM) and Ancillary Services Regulations.

- That the DISCOMS together proposed a power procurement plan as shown in the table below:

Table 30: Power Procurement Plan for the 5th Control Period

Year	FY24	FY25	FY26	FY27	FY28	FY29
Day time Average surplus/ Deficit MW(9:00 to 16:00 hrs)	33	-324	1225	1479	449	-428
Evening peak Average Surplus/ Deficit MW(18:00 to 21:00 hrs)	584	-442	-832	-1924	-1072	-1840

23. Capital Expenditure

i. Historical Investments: That the Historical Capital Investments including the schemes supported by the State/Central government are shown in the tables below:

Table 31: Total Historical Capital Investment (Rs. Cr.) - APEPDCL

Sl. No.	Item	FY19	FY20	FY21	FY22	FY23	Total	CAGR
1	Spent by Discom	585.86	561.09	556.46	595.29	906.86	**3205.56**	**11.54%**
2	Funded under Schemes	368.58	288.15	240.84	270.48	472.76	**1640.81**	**6.42%**
	Total	**954.44**	**849.24**	**797.30**	**865.77**	**1379.62**	**4846.37**	**9.65%**

Table 32: Total Historical Capital Investment (Rs. Cr.) - APSPDCL

Sl. No.	Item	FY19	FY20	FY21	FY22	FY23	Total	CAGR
1	Spent by Discom	482	430	389	353	771	**2425**	**12.46%**
2	Funded under Schemes	718	774	1028	1315	1398	**5233**	**18.13%**
	Total	**1200**	**1204**	**1417**	**1668**	**2169**	**7658**	**15.95%**

Table 33: Total Historical Capital Investment (Rs. Cr.) - APCPDCL

Sl.	Item	FY19	FY20	FY21	FY22	FY23	Total	CAGR
1	Spent by Discom	440	393	294	394	600	**2121**	**8.07%**
2	Funded under Schemes	526	219	233	635	1003	**2616**	**17.53%**
	Total	**966**	**612**	**527**	**1028**	**1603**	**4736**	**13.51%**

ii. Capital Expenditure Projections for 5th and 6th Control Periods: That in line with the network requirements based on Load forecast, compliance to the Standards of Performance (SOP) Regulation issued by the Commission, objective of continuously improving reliability and quality of services to the consumers, compliance to Ease of Doing Business (EODB) norms specified by the State Govt., adhering to future requirements for system strengthening, etc., the DISCOMs have projected annual capital expenditure for the 5th & 6th Control periods. That the flagship schemes for network strengthening, load enhancement, loss reduction and sustaining quality & reliability of power supply are mostly getting expired within the 4th Control Period. Therefore, to meet capital expenditure requirements, spending in different areas such as AT&C Loss reduction measures, Renovation and Modernisation, System improvement works in Distribution, Technology upgradation etc. have been projected. To determine the network requirement, the DISCOMS have estimated Load Factor(s) by the following method:

- State/DISCOM/Circle level demands have been taken for each hour during FY2022-23. Based on this hourly demand, monthly average demand for each hour and yearly average demand have been determined. The Load factor is determined using the formula:

  Load Factor = Yearly average demand / Yearly peak demand

  Load Forecast

  based on Energy Input at 33 kV level for each circle and DISCOM, load factors as determined above, have projected demand in MW as per the formula mentioned below:

  Peak Demand (MW) = Energy required / (24*365/1000)/ load factor

  That the projections for future capital investments have been estimated by using year on year growth in forecasted non-coincident peak demand at DISCOM periphery i.e. LV side of EHT (33/11 kV) Substation. These peaks are converted into PTR capacity requirements and subsequently the PTR capacity requirements

thus arrived have been used for projecting requirements for other network elements such as 33 kV lines, 11 kV lines, DTR capacity and LT lines along with metering and other infrastructural requirements. Based on the circle-wise PTR and DTR capacities projected above, the incremental capacities required for each year have been determined. The system capacities (MVA) thus arrived have been used to estimate the number of PTRs and DTRs assuming that each 33/11 kV substation will have one PTR with a capacity of 5 MVA and each DTR will be of 100 kVA capacity. The line length required at different voltage levels i.e. 33 kV, 11 kV and LT has been estimated based on the assumption of maintaining an HT: LT ratio of 1 during the Control Periods for 11 kV and LT lines whereas current standards have been assumed to be continuing in future for 33 kV lines. The cost for each projected network element has been taken from the existing approved rates. However, escalation in the costs has been assumed considering variation in WPI and CPI to reflect growth in GDP of the State considering a weightage of 60%:40% respectively. Licensees have adopted the CERC methodology for the computation of the escalation factors. The DISCOMS have projected capital expenditure to strengthen the network to meet the projected demand as shown in the tables below:

Table 34: Total CAPEX for 5th and 6th Control period - APEPDCL

Investment Particulars		5th Control Period						6th Control Period					
	FY24	FY25	FY26	FY27	FY28	FY29	Total	FY30	FY31	FY32	FY33	FY34	Total
Ongoing Schemes	2249	2550	2425	300	300	300	**5875**	300	300	282	229	0	**1112**
Substations(New & Augmentation)	372	350	397	431	461	510	**2149**	566	638	714	802	896	**3616**
Distribution Transformer Additions	567	567	639	682	737	826	**3451**	932	1047	1182	1332	1503	**5997**
Lines, Cables & Network	710	692	777	839	902	1012	**4222**	1141	1283	1446	1631	1839	**7341**
Metering & Associated equipment	11	12	67	74	82	90	**325**	99	109	119	131	144	**602**
Loss reduction measures	106	117	128	136	150	165	**696**	182	200	220	242	266	**1108**
Technology Upgradation and R&M	1	1	1	1	1	1	**5**	1	1	2	2	2	**8**
Civil works & Others	21	23	26	28	31	34	**143**	**38**	**41**	**46**	**50**	**55**	**230**
Total	**4037**	**4312**	**4460**	**2492**	**2664**	**2938**	**16866**	**3259**	**3620**	**4011**	**4419**	**4706**	**20014**

Table 35: Total CAPEX for 5th and 6th Control period - APSPDCL

Investment Particulars	FY24	5th Control Period						6th Control Period					
		FY25	FY26	FY27	FY28	FY29	Total	FY30	FY31	FY32	FY33	FY34	Total
Ongoing Schemes	3732	2716	3795	1986	429	430	**9356**	430	428	119	0	0	**977**
Substations(New & Augmentation)	381	381	358	404	448	509	**2100**	577	626	704	789	882	**3578**
Distribution Transformer Additions	810	644	747	832	938	1056	**4217**	1195	1296	1447	1617	1806	**7361**
Lines, Cables & Network	468	366	422	468	524	588	**2368**	661	713	792	879	977	**4022**
Metering & Associated equipment	105	113	114	116	118	120	**581**	122	125	127	129	132	**635**
Loss reduction measures	0	0	0	0	0	0	**0**	0	0	0	0	0	**0**
Technology Upgradation and R&M	190	201	212	224	237	250	**1124**	265	280	295	312	330	**1482**
Civil works & Others	33	45	45	45	45	45	**225**	45	45	45	45	45	**225**
Total	**5719**	**4466**	**5693**	**4075**	**2739**	**2998**	**19971**	**3295**	**3513**	**3529**	**3771**	**4172**	**18280**

Table 36: Total CAPEX for 5th and 6th Control period - APCPDCL

Investment Particulars	FY24	5th Control Period						6th Control Period					
		FY25	FY26	FY27	FY28	FY29	Total	FY30	FY31	FY32	FY33	FY34	Total
Ongoing Schemes	1012	2432	1007	251	251	251	**4192**	144	144	144	144	0	**576**
Substations(New & Augmentation)	211	162	190	202	233	258	**1044**	291	315	354	398	450	**1808**
Distribution Transformer Additions	387	312	362	389	437	488	**1988**	550	595	663	741	826	**3375**
Lines, Cables & Network	346	274	312	332	369	406	**1693**	452	483	532	589	650	**2706**
Metering & Associated equipment	0	0	0	0	0	0	**0**						**0**
Loss reduction measures	0	0	0	0	0	0	**0**						**0**
Technology Upgradation and R&M	1760	55	61	67	73	81	**336**	210	220	231	137	151	**949**
Civil works & Others	30	20	10	11	12	13	**66**	15	16	18	19	21	**89**
Total	**3746**	**3254**	**1942**	**1251**	**1376**	**1496**	**9319**	**1662**	**1773**	**1942**	**2028**	**2098**	**9503**

24. Capital Investments for Transmission Network

That the proposed transmission system was evaluated for the load and generation conditions for FY 2024. The following system conditions are studied:

- Peak Load Scenario
- Light Load Scenario

The system studies were carried out for the above scenarios and analysed the transmission system required. The transmission investment plan is prepared based on the transmission network expansion plan developed and was based on load flow studies and short circuit studies. After conducting load flows, short circuit studies and contingency analysis under maximum thermal generation

scenario as the peak demand occurs in March various generation evacuation schemes at 765KV, and 400KV are depicted. The transmission expansion plan which includes 765KV, 400KV and 220 KV lines and Substations is also depicted. Sub transmission plan comprising 132KV network is also prepared and depicted. The power transformer capacities, conductor sizes, operating limits of power transformers and lines, capacity of Substations etc, contingency criteria are assumed as per rules/regulations in vogue.

Capital Works of 400 kV and 220 KV Transmission Schemes are being taken up for,

i. Evacuation of power from the Power Projects,

ii. System improvement i.e. to meet the additional load demand and for improvement of voltage profile, Voltage control and reduction of Transmission Losses.

iii. Including the associated 220 kV Lines & Substations

Capital works are mainly funded by JBIC (Japan), Power Finance Corporation Limited (PFC), Rural Electrification Corporation Limited (REC) & now recently from various Commercial Banks.

Transmission Resource Plan for the 5th & 6th Control Period

(i) The proposed transmission system was evaluated for the load and generation conditions during FY 2028-29. The transmission investment plan was prepared based on the transmission network expansion plan envisaged meeting load growth and various generation evacuation schemes at,765 kV 400 kV and 220 kV are depicted. The transmission expansion plan which includes 400 kV and 220 kV Lines and Substations is also depicted. The 132 kV transmission plan comprising 132 kV network is also prepared and depicted. The total investments (Rs. Crores) for New substations, Lines and Augmentation of Existing substations are as tabulated below:

Table 37: Total Transmission Investments for 5th Control Period

FY	400 kV	220 kV & 132 KV	Augmentation of PTRs	RMI	Total (Rs Crs)
2024-25	1699.56	1093.02	1002.71	160	**3955.29**
2025-26	1276.00	1062.90	555.51	170	**3064.41**
2026-27	1021.37	897.52	559.12	180	**2658.01**
2027-28	1320.00	1038.40	517.28	190	**3065.68**
2028-29	1320.00	1024.59	441.43	200	**2986.02**
Total	**6636.93**	**5116.43**	**3076.05**	**900**	**15729.41**

Table 38: Total Transmission Investments (Rs. Crs) for 6th control period

FY	765 KV	400 kV	220 kV & 132 KV	Total
2029-30	400.00	392.00	1376.50	**2168.50**
2030-31	3400.00	553.60	1637.50	**5591.10**
2031-32	0	689.60	1277.50	**1967.10**
2032-33	0	392.00	1077.50	**1469.50**
2033-34	0	392.00	1332.50	**1724.50**
Total	**3800.00**	**2419.20**	**6701.50**	**12920.70**

25. Objections/Views/Suggestions & Responses of Discoms/APTransco

A. Sri M.Venugopala Rao and Others and AP Textile Mills Association have requested the Commission to hold public hearings on the subject issues about the Resource Plan for the 5th& 6th control periods, and take a positive decision.

DISCOMS & APTRANSCO's Response: A Public Hearing is being held on 19-08-2023 by the APERC at Visakhapatnam in physical and virtual modes.

B. Sri M. Venu Gopal Rao and 3 others stated that the figures about the resource plan items once approved, should not be treated as sacrosanct and unalterable. The process of approval by the commission should be transparent, and details of all such transactions may be made public periodically. That ERCs are expected to act assertively, within the limitations of, and by law, to protect larger consumer interest to the extent possible.

DISCOMS Response: Under the purview of the APERC

C. Prayas Energy stated

i. That the petitions had historical data such as category-wise sales, Circle wise demand and load factor. Information on available generation capacity and planned additions were given. Forecast of energy and demand was given in varying degrees of detail in different petitions. For example, all DISCOMs provided monthly demand forecasts for four time periods of the day, but EPDCL provided hourly load data. It opined that all these data should be available in spreadsheet formats in different sheets in a uniform format specified by the Commission.

DISCOMS' & APTRANSCO's Response: The data in spreadsheet format is submitted to the Hon'ble APERC.

ii. That there was an urgent need to overhaul the 2006 APERC Guidelines on load forecast, resource plan and power procurement on the lines of the draft guidelines for medium and long-term load forecast (2023), Resource Adequacy Planning (2022) of the Central Electricity Authority and Guidelines/Regulations prepared in recent years by some SERCs. It appears that they are prepared based on projected growth in demand and generation, loss reduction trajectories and initiatives by central or state governments. Since demand projection is a key drive, the request for increased rigour in demand forecast gains significance. In addition to

expected loss reduction, the expected improvements in reliability (reduction in outage time and restoration time), safety (reduction of accidents), and revenue collection (due to metering and billing systems) should also be quantified, so that they can be tracked. It suggested that a mid-term review of the resource plan be needed during the control period, as this process would allow accuracy of the plan and implement mid-course corrections. The finalised resource plan should be taken seriously by all stakeholders. If there is any deviation from the plan, utilities should submit a petition to the Commission, which could take up a similar public participatory process before approving it. Utilities should not initiate actions which deviate from the plan, without such a process.

DISCOMS Response: Suggestion of the Ld. Objector noted

APTRANSCO's Response: State Electricity Plan for the 5th and 6th Control period will be finalized by the APERC after considering the remarks of all stakeholders. As suggested, demand forecasting will be done with increased rigour by adopting the latest methods available in the market. Along with Loss reduction, efforts are also being put up to improve Reliability and also to achieve Zero percent Accidents. The APERC issued Directions for submission of Quarterly progress reports on ARR/Tariff orders. The finalised plan is being taken seriously and being followed.

iii. That the current petition didn't provide any review of the Load Forecast and Resource Plan order for the 4th and 5th Control periods, issued by APERC in April 2019. The Ministry of Power has issued the "Guidelines for Resource Adequacy in Planning" on 28 June 2023. Similarly, CEA's report on the flexibilization of coal-fired power plants for achieving 40% technical minimum load is aimed at managing the inconsistency and intermittency of RE generation and stabilising the grid. As per the draft phasing plan, around 3000 MW of AP's TPPs fall in the 1st phase which is required to be compliant by 2026. Since compliance with such larger sectoral mandates and guidelines will require cost and operational investments, they must be accounted for well in advance to pre-empt challenges and ensure visibility for better planning. This, and other guidelines and good practices in other States should be used to prepare a guideline for AP.

DISCOMS & APTRANSCO's Response: They have submitted the approved vs actuals in respect of sales, load forecast etc. for the 4th control period on

the direction of the APERC. Suggestions regarding the flexibilization of coal-fired power plants for achieving a 40% technical minimum load are noted.

26. **Commission's view:** Though the guidelines do not mandate holding of public hearings on the filings as per the Guidelines 2016, the Commission conducted a public hearing in Visakhapatnam on 19.08.23. The Commission has placed all the information relating to filings as furnished by the DISCOMS in Excel sheets, the objections received and the replies furnished by the utilities on the Commission's website for ensuring transparency in addition to placing all filings and public notice inviting suggestions/views/comments from the stakeholders. The Commission will function within the purview of the Electricity Act, 2003 to protect the interests of all stakeholders of the sector including the consumer public. Though the guidelines, 2016 are not updated, the Commission will keep in view the guidelines issued by the CEA and MoP, GoI while finalising the Resource plans in this Order. The Commission added the performance of the Resource plan in a separate chapter as per the information collected by the Commission after the filings. Accordingly, the Commission decided to consider the filings submitted by the licensees, which are mentioned in brief in this Chapter, as the basis for the finalisation of Resource Plans for the 5th Control Period with due weight being given to views/objections/suggestions of stakeholders, as discussed at appropriate places in subsequent chapters of this order.

CHAPTER - II

REVIEW OF THE 4TH CONTROL PERIOD

27. The Guidelines for Load Forecasts, Resource Plans, and Power Procurement issued in 2006 by APERC do not mandate the review of the actual vis-a-vis the approvals of the Commission of the current control period while preparing the Resource Plans for the ensuing control period, However, the Commission proposes the overview of the current control period (first four years for which actuals are available) in brief in this chapter based on the data obtained from the DISCOMs after the filings.

28. The sales approved vs actual and deviation for the first four years of the 4th Control period in respect of APSPDCL, APCPDCL & APEPDCL are shown in the table below.

Table 39: Sales - Approved Vs Actuals - Three DISCOMS - 4th Control Period

All Figures in MU			4th Control Period Approved Vs Actuals							
Consumer Category		Discoms	FY 2019-20				FY 2020-21			
			Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
Category-I: Domestic	LT	SPDCL	4,564	4,840	276	6.05%	5,021	5,012	-9	-0.18%
		CPDCL	4,553	4,829	275	6.05%	5,141	5,132	-9	-0.18%
		EPDCL	5,671	5,912	241	4.25%	6,206	6,332	126	2.02%
		Total	**14,788**	**15,581**	**793**	**5.36%**	**16,368**	**16,475**	**107**	**0.66%**
	HT	SPDCL	19	19	0	1.29%	18	16	-2	-10.70%
		CPDCL	11	12	0	1.31%	13	12	-1	-10.65%
		EPDCL	27	30	3	10.59%	27	34	7	24.96%
		Total	**57**	**60**	**3**	**5.70%**	**58**	**61**	**3**	**5.91%**
Category-II: Commercial & Others	LT	SPDCL	983	974	-9	-0.96%	1,124	807	-317	-28.18%
		CPDCL	1,010	1,000	-10	-0.96%	1,088	781	-307	-28.18%
		EPDCL	1,124	1,123	-1	-0.10%	1,243	900	-343	-27.56%
		Total	**3,117**	**3,097**	**-20**	**-0.65%**	**3,454**	**2,488**	**-966**	**-27.96%**
	HT	SPDCL	481	493	12	2.52%	513	293	-220	-42.84%
		CPDCL	438	449	11	2.52%	492	281	-211	-42.84%
		EPDCL	721	749	28	3.90%	761	609	-152	-19.94%
		Total	**1,640**	**1,691**	**51**	**3.13%**	**1,766**	**1,184**	**-582**	**-32.97%**
Category-III: Industry	LT	SPDCL	560	517	-43	-7.74%	653	506	-147	-22.56%
		CPDCL	530	489	-41	-7.74%	593	459	-134	-22.56%
		EPDCL	423	379	-44	-10.50%	484	349	-136	-28.00%

All Figures in MU			4th Control Period Approved Vs Actuals							
Consumer Category		Discoms	FY 2019-20				FY 2020-21			
			Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
		Total	**1,513**	**1,384**	**-129**	**-8.51%**	**1,730**	**1,313**	**-417**	**-24.08%**
	HT	**SPDCL**	4,784	4,359	-425	-8.88%	5,152	4,267	-885	-17.18%
		CPDCL	2,932	2,672	-260	-8.88%	3,055	2,530	-525	-17.18%
		EPDCL	7,668	6,770	-898	-11.71%	8,288	6,654	-1,634	-19.71%
		Total	**15,384**	**13,801**	**-1,583**	**-10.29%**	**16,495**	**13,451**	**-3,044**	**-18.45%**
Category-IV: Institutional	LT	**SPDCL**	595	615	20	3.41%	612	654	42	6.87%
		CPDCL	245	254	8	3.41%	272	291	19	6.88%
		EPDCL	308	326	18	5.99%	317	329	12	3.64%
		Total	**1,148**	**1,195**	**47**	**4.10%**	**1,201**	**1,273**	**72**	**6.02%**
	HT	**SPDCL**	563	642	79	13.96%	586	541	-44	-7.53%
		CPDCL	315	359	44	13.96%	310	287	-23	-7.54%
		EPDCL	734	890	156	21.19%	749	684	-65	-8.68%
		Total	**1,612**	**1,890**	**278**	**17.25%**	**1,645**	**1,513**	**-132**	**-8.05%**
Category-V: Agricultural & Related	LT	**SPDCL**	8,073	7,664	-409	-5.07%	8,250	7,278	-973	-11.79%
		CPDCL	2,981	2,830	-151	-5.07%	3,237	2,855	-382	-11.79%
		EPDCL	3,487	3,870	383	11.00%	3,761	3,797	36	0.95%
		Total	**14,541**	**14,364**	**-177**	**-1.22%**	**15,248**	**13,929**	**-1,319**	**-8.65%**
	HT	**SPDCL**	2,950	1,603	-1,347	-45.65%	3,146	1,658	-1,487	-47.28%
		CPDCL	163	89	-75	-45.66%	165	87	-78	-47.28%
		EPDCL	1,452	347	-1,105	-76.09%	1,526	327	-1,199	-78.59%
		Total	**4,565**	**2,039**	**-2,526**	**-55.33%**	**4,837**	**2,072**	**-2,765**	**-57.16%**
Total	LT	**SPDCL**	14,776	14,610	-166	-1.12%	15,660	14,256	-1,404	-8.96%
		CPDCL	9,318	9,400	82	0.88%	10,330	9,518	-812	-7.86%
		EPDCL	11,013	11,610	597	5.42%	12,011	11,706	-305	-2.54%
		Total	**35,107**	**35,621**	**514**	**1.46%**	**38,001**	**35,480**	**-2,521**	**-6.63%**
	HT	**SPDCL**	8,796	7,116	-1,680	-19.10%	9,415	6,776	-2,639	-28.03%
		CPDCL	3,860	3,580	-280	-7.25%	4,035	3,197	-838	-20.78%
		EPDCL	10,602	8,786	-1,816	-17.13%	11,351	8,308	-3,043	-26.81%
		Total	**23,258**	**19,482**	**-3,776**	**-16.24%**	**24,801**	**18,281**	**-6,520**	**-26.29%**
RESCOs		**SPDCL**	**415**	**453**	**38**	**9.16%**	**453**	**428**	**-25**	**-5.42%**
		CPDCL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		EPDCL	**381**	**380**	**-1**	**-0.22%**	**419**	**402**	**-17**	**-3.95%**

All Figures in MU		4th Control Period Approved Vs Actuals							
Consumer Category	Discoms	FY 2019-20				FY 2020-21			
		Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
	Total	**796**	**833**	**37**	**4.67%**	**872**	**831**	**-41**	**-4.72%**
Grand Total	**SPDCL**	**23,987**	**22,179**	**-1,808**	**-7.54%**	**25,527**	**21,460**	**-4,067**	**-15.93%**
	CPDCL	**13,178**	**12,980**	**-198**	**-1.50%**	**14,366**	**12,715**	**-1,651**	**-11.49%**
	EPDCL	**21,996**	**20,777**	**-1,219**	**-5.54%**	**23,781**	**20,416**	**-3,365**	**-14.15%**
	Total	**59,161**	**55,936**	**-3,225**	**-5.45%**	**63,674**	**54,592**	**-9,082**	**-14.26%**

All Figures in MU			4th Control Period Approved Vs Actuals							
Consumer Category			FY 2021-22				FY 2022-23			
			Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
Category-I: Domestic	**LT**	**SPDCL**	5,635	5,280	-354	-6.29%	6,266	5,228	-1,038	-16.57%
		CPDCL	5,695	5,337	-358	-6.29%	6,370	5,314	-1,055	-16.57%
		EPDCL	6,792	6,736	-56	-0.82%	7,434	6,776	-658	-8.85%
		Total	**18,122**	**17,354**	**-768**	**-4.24%**	**20,070**	**17,319**	**-2,751**	**-13.71%**
	HT	**SPDCL**	18	18	-1	-3.38%	18	15	-3	-14.89%
		CPDCL	14	13	-0	-3.37%	16	14	-2	-14.88%
		EPDCL	28	30	2	8.46%	29	32	3	10.52%
		Total	**60**	**61**	**1**	**2.15%**	**63**	**61**	**-2**	**-3.19%**
Category-II: Commercial & Others	**LT**	**SPDCL**	1,262	959	-303	-24.00%	1,401	1,102	-300	-21.38%
		CPDCL	1,205	916	-289	-24.00%	1,356	1,066	-290	-21.38%
		EPDCL	1,383	1,085	-298	-21.56%	1,540	1,270	-270	-17.54%
		Total	**3,850**	**2,960**	**-890**	**-23.12%**	**4,297**	**3,438**	**-859**	**-20.00%**
	HT	**SPDCL**	565	386	-179	-31.73%	595	461	-134	-22.49%
		CPDCL	538	367	-171	-31.73%	621	481	-140	-22.49%
		EPDCL	803	734	-69	-8.59%	847	886	39	4.60%
		Total	**1,906**	**1,487**	**-419**	**-21.98%**	**2,063**	**1,828**	**-235**	**-11.37%**
Category-III: Industry	**LT**	**SPDCL**	774	569	-204	-26.41%	916	592	-324	-35.33%
		CPDCL	654	482	-173	-26.41%	726	469	-256	-35.33%
		EPDCL	554	442	-112	-20.16%	635	453	-182	-28.70%
		Total	**1,982**	**1,493**	**-489**	**-24.66%**	**2,277**	**1,515**	**-762**	**-33.48%**
	HT	**SPDCL**	5,711	5,806	95	1.66%	6,855	7,029	174	2.53%
		CPDCL	3,036	3,086	50	1.66%	2,490	2,553	63	2.53%
		EPDCL	8,970	8,639	-332	-3.70%	9,720	10,424	704	7.25%
		Total	**17,717**	**17,531**	**-186**	**-1.05%**	**19,065**	**20,006**	**941**	**4.94%**
	LT	**SPDCL**	650	708	58	8.94%	701	821	119	17.03%

All Figures in MU			4th Control Period Approved Vs Actuals							
Consumer Category			FY 2021-22				FY 2022-23			
			Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
Category-IV: Institutional		CPDCL	279	304	25	8.94%	276	323	47	17.02%
		EPDCL	328	393	65	19.73%	339	432	93	27.33%
		Total	**1,257**	**1,405**	**148**	**11.76%**	**1,316**	**1,575**	**259**	**19.68%**
	HT	SPDCL	573	809	235	41.09%	601	1,091	489	81.40%
		CPDCL	343	484	141	41.08%	334	605	272	81.40%
		EPDCL	764	965	201	26.34%	779	1,056	277	35.56%
		Total	**1,680**	**2,258**	**578**	**34.38%**	**1,714**	**2,752**	**1,038**	**60.56%**
Category-V: Agricultural & Related	LT	SPDCL	8,473	7,167	-1,306	-15.42%	8,748	6,944	-1,804	-20.62%
		CPDCL	3,490	2,952	-538	-15.42%	3,738	2,967	-771	-20.62%
		EPDCL	4,069	4,013	-56	-1.37%	4,413	3,932	-481	-10.90%
		Total	**16,032**	**14,132**	**-1,900**	**-11.85%**	**16,899**	**13,843**	**-3,056**	**-18.08%**
	HT	SPDCL	3,295	1,003	-2,292	-69.55%	3,468	895	-2,574	-74.21%
		CPDCL	230	70	-160	-69.56%	286	74	-212	-74.21%
		EPDCL	1,603	92	-1,511	-94.26%	1,685	84	-1,601	-95.04%
		Total	**5,128**	**1,165**	**-3,963**	**-77.28%**	**5,439**	**1,052**	**-4,387**	**-80.66%**
Total	LT	SPDCL	16,794	14,684	-2,110	-12.56%	18,034	14,688	-3,346	-18.55%
		CPDCL	11,323	9,990	-1,333	-11.78%	12,464	10,139	-2,325	-18.65%
		EPDCL	13,126	12,670	-456	-3.48%	14,361	12,862	-1,499	-10.44%
		Total	**41,243**	**37,343**	**-3,900**	**-9.46%**	**44,859**	**37,689**	**-7,170**	**-15.98%**
	HT	SPDCL	10,162	8,021	-2,141	-21.07%	11,538	9,490	-2,047	-17.74%
		CPDCL	4,161	4,021	-140	-3.37%	3,746	3,727	-19	-0.51%
		EPDCL	12,168	10,460	-1,708	-14.04%	13,060	12,482	-578	-4.43%
		Total	**26,491**	**22,502**	**-3,989**	**-15.06%**	**28,344**	**25,700**	**-2,644**	**-9.33%**
RESCOs		SPDCL	**494**	**468**	**-26**	**-5.26%**	**539**	**436**	**-103**	**-19.12%**
		CPDCL	-	-	-	-	-	-	-	-
		EPDCL	**462**		**-462**	**-100.0%**	**508**		**-508**	**-100.0%**
		Total	**956**	**468**	**-488**	**-51.04%**	**1,047**	**436**	**-611**	**-58.36%**
Grand Total		SPDCL	**27,450**	**23,173**	**-4,277**	**-15.58%**	**30,110**	**24,614**	**-5,496**	**-18.25%**
		CPDCL	**15,484**	**14,010**	**-1,473**	**-9.52%**	**16,211**	**13,866**	**-2,344**	**-14.46%**
		EPDCL	**25,756**	**23,130**	**-2,626**	**-10.20%**	**27,929**	**25,344**	**-2,585**	**-9.25%**
		Total	**68,690**	**60,313**	**-8,377**	**-12.20%**	**74,250**	**63,825**	**-10,425**	**-14.04%**

The reasons stated by the DISCOMS for the variation in sales are that the sales for commercial & industrial categories were affected due to the implementation of lockdowns and restrictions on business activities during the Covid-19 pandemic

in FY 2020-21 & FY 2021-22. The sales for the agriculture category were less than the approved quantum due to exceptional rains from FY 2020-21 to FY 2022-23. That the sales variations of HT agriculture in EPDCL are due to the Pattiseema LI Scheme not being operated fully due to water availability in River Krishna, Purushothapatnam was not operated at all due to pending litigations in Green Tribunal and non-commissioning of LI Schemes.

29. The technical losses approved vs actual and deviation for the first four years of the 4th control period in respect of APSPDCL, APCPDCL & APEPDCL are shown in the table below.

Table 40: Losses (%) - Approved Vs Actuals - APSPDCL - 4th Control Period

Voltage	2019-20		2020-21		2021-22		2022-23	
	Appr.	Act.	Appr.	Act.	Appr.	Act.	Appr.	Act.
LT	4.26	4.33	4.23	4.75	4.2	5.08	4.17	5.09
11KV	3.27	3.27	3.22	3.36	3.17	3.34	3.12	3.33
33KV	3.2	3.25	3.15	3.24	3.1	3.22	3.05	3.22

Table 41: Losses (%) - Approved Vs Actuals - APCPDCL - 4th Control Period

Voltage	2020-21		2021-22		2022-23	
	Appr.	Act.	Appr.	Act.	Appr.	Act.
LT	4.23	3.68	4.2	3.76	4.17	3.57
11KV	3.22	3.21	3.17	3.19	3.12	3.17
33KV	3.15	3.15	3.1	3.14	3.05	3.13

Table 42: Losses (%) - Approved Vs Actuals - APEPDCL - 4th Control Period

Voltage	2019-20		2020-21		2021-22		2022-23	
	Appr.	Act.	Appr.	Act.	Appr.	Act.	Appr.	Act.
LT	4.01	3.24	3.99	3.12	3.97	3.36	3.95	3.74
11KV	3.2	3.26	3.15	3.25	3.1	3.45	3.05	3.19
33KV	2.79	3.36	2.78	3.36	2.77	3.45	2.76	3.06

APSPDCL and APCPDCL have attributed to the bifurcation of the company for the higher losses over the approvals whereas the APEPDCL attributed to the change in methodology for computation of losses as per CEA's directions for higher losses over the approvals.

30. The energy requirement approved vs actual and deviation for the first four years of the 4th control period in respect of APSPDCL, APCPDCL & APEPDCL are shown in the table below.

Table 43: The energy requirement - Approved Vs Actuals - Three DISCOMS - 4th Control Period

All Figures in MU	4th Control Period Approved Vs Actuals							
	FY 2019-20				FY 2020-21			
	Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
SPDCL	41,605	40,345	-1,260	-3.03%	28,681	23,248	-5,433	-18.94%
CPDCL			-		16,141	14,221	-1,920	-11.89%
EPDCL	24,154	22,854	-1,300	-5.38%	26,246	22,445	-3,801	-14.48%
Total	**65,759**	**63,199**	**-2,560**	**-3.89%**	**71,068**	**59,914**	**-11,154**	**-15.69%**

All Figures in MU	4th Control Period Approved Vs Actuals							
DISCOMS	FY 2021-22				FY 2022-23			
	Appr.	Act.	Dev.	% Dev.	Appr.	Act.	Dev.	% Dev.
SPDCL	30,798	23,104	-7,694	-24.98%	33,733	27,556	-6,177	-18.31%
CPDCL	17,372	15,592	-1,780	-10.25%	18,161	15,508	-2,653	-14.61%
EPDCL	28,403	25,342	-3,061	-10.78%	30,773	27,723	-3,050	-9.91%
Total	**76,573**	**64,038**	**-12,535**	**-16.37%**	**82,667**	**70,787**	**-11,880**	**-14.37%**

The reasons stated by the DISCOMS for the variation in energy requirement are the same as mentioned for variation in sales.

31. The capital expenditure approved vs actual and deviation for the first four years of the 4th control period in respect of APSPDCL, APCPDCL & APEPDCL are shown in the table below.

Table 44: The Capital Expenditure (Cr.) - Approved Vs Actuals - APSPDCL - 4th Control Period

	Approved	Actual	Deviation (Actual - Approval)	% Deviation
FY20	1166	1204	38	3.26%
FY21	980	1417	437	44.59%
FY22	954	1667	713	74.74%
FY23	856	2169	1313	153.39%

Table 45: The Capital Expenditure (Cr) - Approved Vs Actuals - APCPDCL - 4th Control Period

	Approved	Actual	Deviation (actual - Approval)	% Deviation
FY20	733	919	186	25.38
FY21	683	513	-170	-24.89
FY22	811	627	-184	-22.69
FY23	970	1235	265	27.32

Table 46: The Capital Expenditure (Cr) - Approved Vs Actuals - APEPDCL 4th Control Period

	Approved	Actual	Deviation (actual - Approval)	% Deviation
FY20	1123.00	849.24	-274	-24%
FY21	700.00	797.30	97	14%
FY22	728.75	865.77	137	19%
FY23	824.75	1379.62	555	67%

Three DISCOMS stated that higher positive deviation of actual capital expenditure over the approved is due to implementation of 9 Hrs. agricultural supply scheme, HVDS, Jagananna housing colonies etc., The 9 Hrs. Agl. Scheme and Jagananna Housing Colonies scheme were implemented after the approval of the Resource Plan by the Hon'ble APERC.

APSPDCL & APCPDCL stated that the expenditure of the HVDS scheme has varied from the quantum approved as part of the wheeling tariff order for the 4th control

period due to the taking up of additional works for conversion of balance services from LVDS to HVDS.

32. The approved capacities vs the actual capacity addition of power plants for the 5th control period for three DISCOMS together are shown below:

Table 47: The Capacity additions variation in 4th Control Period

Sl.	Source	2019-20		2020-21		2021-22		2022-23		2023-24		Remarks
		Appr	Act.	Appr.	Act.	Appr.	Act.	Appr	Act.	Appr.	Act.	
1	APGENCO Thermal	0	0	1496	0	-	-	-	748	-	748	*
2	APGENCO Hydel	-	-	-	-	237.6	-	475.2	-	237.6	-	*
3	CGS	-	-	-625	-	-	-	-	-	-	-	*
4	IPP Gas	-	-	-566.71	-566.71	-	-	-	-	-	-	*
5	IPP Thermal	980.2	-	-		-400	+980.2 -400	-	+625	-	-	*
6	NCE Solar	-	+250	-	+250	-	+250	-	+250	-	-	*
7	NCE Wind	-	-	-4.97	-4.97	-5.28	-5.28	-	-	-124.17	-124.17	*
8	Mini Hydel	-	-	-	-	-10.4	-10.4	-6.03	-6.03	-3.26	-3.26	*
9	NCE others	-	-	-	-	-15.77	-15.77	-36.61	-36.61	-29.45	-29.45	*

The reasons stated by the DISCOMS for variation are as below:

Sl. No.1 of the above table:

- SDSTPS-Stage-II -800 MW achieved COD in March 2023.
- NTTPS-Stage V -800 MW is expected to achieve COD with effect from December -2023
- SDSTPS-Stage II & NTTPS-Stage V commissioning was delayed due to COVID 2019 Pandemic restrictions, lockdown etc

Sl. No.2 of the above table:

- The construction of the Polavaram Generating Station is linked with the Polavaram dam. As the Polavaram dam is not completed, the generating station is scheduled to be commissioned during the 5th control period.

Sl. No.3 of the above table:

- 625 MW of Thermal Power under JNNSM-Phase-II bundled power got deallocated w.e.f.FY 2020-21 as part of optimisation of PP cost.

Sl. No.4 of the above table:

- Procurement of power from APGPCL is discontinued w.e.f. FY 2021-22

Sl. No.5 of the above table:

- Procurement of 400 MW from KSK expired w.e.f 2021-22
- HNPCL scheduled in FY 2019-20 was considered w.e.f February 2022 in compliance with the Hon'ble Supreme Court Judgment.
- Procurement of power from Sembcorp-P2-625 MW under DBFOO is advanced to February 2023.

Sl. No.6 of the above table:

- Solar Capacity Additions: FY 2019-20 SBG-NP Kunta-250 MW, Solairepro Urja-Mylavaram-250, FY 2020-21 Ayana-NP Kunta-250, FY 2021-22 Spring Agnitra-NP Kunta-250 MW.

33. The technical losses approved vs actual and deviation for the 4th control period in respect of APTRANSCO are shown in the table below.

Table 48: Losses _ Approved Vs Actuals_APTRANSCO_4thControl Period

FY	4th Control Period				
	2019-20	2020-21	2021-22	2022-23	2023-24 (#)
Approved	3.10%	3.08%	3.06%	3.03%	3.00%
Actuals	2.91%	2.60%	2.80%	2.61%	2.74%
Deviation	0.19%	0.48%	0.26%	0.42%	0.26%

Expected figures based on actual values up to July 2023

34. The peak demands, energy requirements and load factors approved vs actual and deviation for the 4th control period in respect of the State are shown in the table below.

Table 49: Peak Demands (MW) - Approved Vs Actuals - STATE - 4th Control Period

FY	4th Control Period					Reasons for deviation
	2019-20	2020-21	2021-22	2022-23	2023-24 (#)	
Approved	11450	12219	13209	14315	15539	*
Actuals	10207	11193	12032	12293	13039	
Deviation	1243	1026	1177	2022	2039	
% Deviation	**-11%**	**-8%**	**-9%**	**-14%**	**-16.09%**	

Expected figures based on actual values up to July 2023

Table 50: Load factors - Approved Vs Actuals - STATE - 4th Control Period

FY	4th Control Period					Reasons for deviation
	2019-20	2020-21	2021-22	2022-23	2023-24#	
Approved	69.40%	68.40%	68.40%	68.40%	68.40%	*
Actual	72.55%	64.32%	65.44%	67.29%	67.00%	
Deviation	-3.15%	4.08%	2.96%	1.11%	1.40%	
% Deviation	**4.54%**	**-5.96%**	**-4.33%**	**-1.62%**	**-2.05%**	

Expected figures based on actual values up to July 2023

Table 51: Energy requirement (MU)_Approved Vs Actuals - STATE - 4th Control Period

FY	4th Control Period					Reasons for deviation
	2019-20	2020-21	2021-22	2022-23	2023-24#	
Approved	68946	74528	80360	86870	94080	*
Actual	65049	63070	68972	72466	79908	
Deviation	3897	11458	11388	14404	14172	
% Deviation	**-5.65%**	**-15.37%**	**-14.17%**	**-16.58%**	**-15.06%**	

Expected figures based on actual values up to July 2023

* That the global Covid Pandemic prevailed from March 2020 till March 2022 in three waves that had restricted people from stepping out of their homes, and stopped all transport services. All industries were given holidays due to non-availability of workers and lockdown restrictions. Hence, the peak demands, energy requirements and load factors were less than the approved ones.

35. The capital investments approved vs actual and deviation for the 4th control period in respect of the APTRANSCO are shown in the table below.

Table 52: Capital Investments (Cr) - Approved Vs Actuals - APTRANSCO – 4th Control Period

FY	4th Control Period					Total	Reasons for deviation
	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24 (#)**		
Approved	1462.55	2602.76	2790.71	2139.68	1700.63	**10696.34**	*
Actuals	1282.29	931.72	1018.04	768.37	1700.63	**5701.05**	
Deviation	180.26	1671.04	1772.67	1371.31	0.00	**4995.29**	
% Deviation	**-12.33%**	**-64.20%**	**-63.52%**	**-64.09%**	**-**	**-46.70%**	

(#) Taken approved value.

The COVID pandemic is the reason stated by APTRANSCO for the huge negative variations in the investments.

36. The transmission system availability approved vs actual and deviation for the 4th control period in respect of the APTRANSCO are shown in the table below.

Table 53: - Transmission System Availability - Approved Vs Actuals - APTRANSCO - 4th Control Period

Year	Approved	Transmission System Availability	Deviation
2019-20	99.80%	99.84%	-0.04%
2020-21	99.80%	99.82%	-0.02%
2021-22	99.80%	99.80%	0.00%
2022-23	99.80%	99.70%	0.10%

37. Objections/Views/Suggestions & Responses of Discoms/APTransco

a) Sri M.Venugopal Rao and 3 others stated that licensees should have made and submitted an analysis of the load forecast, etc., approved by the Commission for the 4th control period, actual position, reasons for variations, etc for getting a clear picture as to the correctness or otherwise of the load forecast, etc., approved by the Commission vis a vis ground reality.

b) A.P. Textile Mills Association, stated that ideally every business plan starts with a review of the previous period plan versus achieved with detailed explanatory notes for deviation with an action plan for corrective action. Surely the consumers of electricity in the state are entitled to such a review for the 4th CP, for that would show the consumers the historical trends based on the survey reports and any other national economic survey forecasts.

c) **DISCOMS & APTRANSCO's Response:** The approved Vs actuals regarding all the important parameters for the 4th control period have been submitted to the Commission as per its directions.

d) Prayas Energy Group stated that the investment made needs to be juxtaposed with additional parameters such as actual loading of transmission lines, change in transmission network reliability and change in voltage profile. As the STU, it has the role of providing a consolidated review of the demand and power purchase of the three DISCOMs. Power purchase in the state is coordinated by APPCC and such a consolidated review would help to provide a clear picture of the previous resource plan Approved Vs actuals.

e) **APTRANSCO's Reply:** The transmission capital investment plan is arrived at after conducting load flow studies duly considering all parameters such as loss reduction, voltage profiles, overloading of PTRs, Overloading of Lines, Reliability of network, meeting the anticipated load growth, anticipated generation evacuation etc. Even though the improvements are not measured after each investment, the overall improvement in Transmission Loss reduction, Voltage profile, Reliability, and meeting the load year on year will show the results of the investment. However, APTransco will take the suggestion and try to follow it in future. The resource plan was prepared by APTransco taking into consideration each Discom's sales forecast, load factor, and various influencing parameters in the Discoms and arrived at state-level demand/load and the requirement of power in coordination with APPCC.

38. **Commission's view:** Even much before being brought to its notice by the objectors, the Commission directed the DISCOMS to furnish the actuals vs approvals on important parameters of the load resource plans and accordingly they furnished the data. The reasons stated by the DISCOMS for variations in sales and accordingly the energy requirement are undeniable as the pandemics and nature can not be predicted and factored in estimations. These variations are already being discussed by the Commission in Retail Supply Tariff Orders every year and the directions were given to the DISCOMS in the RST Order for FY 2023-24 to furnish the detailed reasons for the variations of every year in the ARR & FPT filings to take a pragmatic view while finalising the estimations. The variation of losses at various voltage levels shown by the DISCOMS is at a reasonable level and hopefully, the DISCOMS will achieve the loss trajectory set by the Commission in the present Order. However, the effect of higher losses is limited to the loss level approved by the Commission in the RST Order every year and thus the consumers are not burdened with such loss variations. The reasons stated by the DISCOMS for the capital expenditure variations will be examined by the Commission in detail

at the time of consideration of the Trueup/down of the Distribution Business. The losses of APTRANSCO are significantly lesser than those approved by the Commission and the benefits of the lower losses of APTRANSCO have been passed on to the Consumers in the RST Orders of the Commission. The capital expenditure incurred by the APTRANSCO is lower than approved and did not affect the consumers in any manner as can be seen from its losses and network availability. The Commission will take into consideration the review in the present chapter in the estimations for the 5th control period. Further, the Commission decided to take up a review of the Resource plan every year during the 5th control period to take stock of the ground realities as opined by the objectors for taking necessary corrective steps in the road map approved in the present order on any aspect. **Therefore, the Commission hereby directs the DISCOMS and APTRANSCO to file a petition on their performance of the nth year by June 30 in (n+1) year regularly, along with the suggestions for corrections to be taken in the resource plan for (n+2) year.**

CHAPTER - III

LOAD FORECASTS

39. In this chapter, the Commission has examined the load forecasts for the 5th & 6th Control Periods proposed by the licensees in their respective Resource Plans. While examining the proposals, the Commission has reckoned /considered all the views/objections/suggestions expressed by the stakeholders in writing and during public hearings to the extent they are relevant to the subject matter.

Sales Forecast

40. The licensees have employed two distinct approaches for projecting Energy Sales: the Trend and End-User Method. These two methods capture the inherent characteristics of various categories at different voltage levels. Based on these two methods, sales are Forecasted for both Non-Scheduled and Scheduled Consumers.

41. For the projection of sales for Non-scheduled consumers, the DISCOMs have considered the actual sales of each Consumer Category from FY 2016-17 to FY 2022-23. For the projection of sales for Scheduled Consumers, the licensees analysed the Circle-wise actual demand for Open Access (OA) consumers from FY 2018-19 to FY 2022-23. Accordingly, actual OA sales have been aggregated to arrive at total OA sales for the Licensee.

42. The approach followed by the licensees for the Load Forecasts involves (i) analysing the historical sales data to arrive at the Compounded Annual Growth Rate (CAGR), (ii) moderating the CAGR with due regard to justifiable adjustments in trends, the various policy initiatives and directions of the State Government etc., (iii) projecting the sales for the next Control Period with the moderated CAGRs, (iv) grossing up the sales with voltage-wise losses to arrive at the energy requirement at the DISCOM level and then aggregating the same together with energy expected to be handled through Open Access (OA) transactions to arrive at the energy requirement at the State level, (v) deriving the system load factors at the base year and projecting the same into the future years of the Control Period under consideration and (vi) arriving at the State Peak Demand by applying respective annual load factors.

43. Licensees have taken historical data of seven (7) years from FY 2016-17 to FY 2022-23 on Circle-wise/ Category-wise sales to arrive at the load forecasts. FY 2022-23 is taken as the base year for Sales forecast exercise. In their Sales forecast

exercise, the licensees assessed, inter-alia, the impact on sales due to (a) Govt. Lift Irrigation Schemes, (b) Promotion of Electric Vehicles, and (c) Solar Roof Top Schemes based on End Use approach.

44. Accordingly, the following tables show the growth rates of historical and projected CAGRs for the 5th & 6th Control Periods filed by the licensees.

Table 54: Historical and Projected CAGRs of Energy Sales for 5th CP

	APSPDCL		APCPDCL		APEPDCL	
Category	**Historical CAGR**	**5th CP Projected CAGR**	**Historical CAGR**	**5th CP Projected CAGR**	**Historical CAGR**	**5th CP Projected CAGR**
LT Category						
LT Cat-I - Domestic	5.91%	5.31%	5.75%	5.14%	6.12%	6.42%
LT Cat-II: Commercial & Others	5.08%	4.86%	4.00%	4.74%	5.98%	5.84%
LT Cat-III: Industry	2.88%	3.33%	2.31%	4.36%	2.60%	3.95%
LT Cat-IV: Institutional	11.00%	8.62%	5.90%	5.67%	6.35%	5.97%
LT Cat-V: Agricultural & Related	0.23%	5.00%	3.15%	5.75%	5.56%	8.33%
LT Total	**2.95%**	**5.25%**	**4.58%**	**5.27%**	**5.80%**	**6.90%**
HT Category						
HT Cat-I: Domestic	-9.05%	5.00%	5.54%	3.95%	-0.06%	2.78%
HT Cat-II: Commercial	3.42%	5.15%	6.06%	4.37%	7.09%	8.28%
HT Cat-III: Industrial	7.19%	5.86%	-0.29%	19.83%	12.03%	6.03%
HT Cat-IV: Institutional	12.17%	9.74%	12.01%	4.04%	7.71%	8.66%
HT Cat-V: Agricultural & Related	19.48%	22.25%	0.97%	12.60%	-16.87%	13.83%
RESCO'S	5.52%	5.52%				
HT Total	**7.98%**	**8.08%**	**1.80%**	**16.28%**	**10.60%**	**6.49%**
LT+HT Total	**4.74%**	**6.43%**	**3.74%**	**8.96%**	**7.95%**	**6.70%**

Table 55: Historical and Projected CAGRs of Energy Sales for 6th CP

	APSPDCL		APCPDCL		APEPDCL	
Category	**Historical CAGR**	**6th CP Projected CAGR**	**Historical CAGR**	**6th CP Projected CAGR**	**Historical CAGR**	**6th CP Projected CAGR**
LT Category						
LT Cat-I - Domestic	5.91%	5.31%	5.75%	4.97%	6.12%	6.15%
LT Cat-II: Commercial & Others	5.08%	4.86%	4.00%	4.50%	5.98%	5.72%
LT Cat-III: Industry	2.88%	3.39%	2.31%	3.92%	2.60%	3.91%
LT Cat-IV: Institutional	11.00%	8.70%	5.90%	5.81%	6.35%	6.30%
LT Cat-V: Agricultural & Related	0.23%	5.00%	3.15%	5.41%	5.56%	8.29%
LT Total	**2.95%**	**5.29%**	**4.58%**	**5.04%**	**5.80%**	**6.79%**
HT Category						
HT Cat-I: Domestic	-9.05%	5.00%	5.54%	4.19%	-0.06%	2.66%
HT Cat-II: Commercial	3.42%	5.21%	6.06%	4.91%	7.09%	8.10%
HT Cat-III: Industrial	7.19%	5.90%	-0.29%	11.74%	12.03%	6.67%
HT Cat-IV: Institutional	12.17%	6.97%	12.01%	5.36%	7.71%	8.97%
HT Cat-V: Agricultural & Related	19.48%	11.62%	0.97%	7.08%	-16.87%	10.08%
RESCO'S	5.52%	5.52%				
HT Total	**7.98%**	**6.56%**	**1.80%**	**10.18%**	**10.60%**	**7.00%**
LT+HT Total	**4.74%**	**5.81%**	**3.74%**	**6.75%**	**7.95%**	**6.89%**

45. Based on the above-projected CAGRs, the licensees' Energy Sales estimates for the 5th and 6th control periods are shown below.

Table 56: Filings: Sales for the 5th Control Period (MU)

Discom FIlings	FY 25	FY 26	FY 27	FY 28	FY 29
SPDCL	28,226	30,155	31,685	33,283	35,354
CPDCL	16,738	17,528	21,927	22,800	23,696
EPDCL	28,950	31,029	33,101	35,338	37,771
Total	73,914	78,712	86,713	91,421	96,821

Table 57: Filings: Sales for the 6th Control Period (MU)

	Sales for the 6th Control Period (MU)				
Discom Filings	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
SPDCL	37,091	38,929	41,038	43,101	45,288
CPDCL	24,640	25,646	26,708	27,838	29,045
EPDCL	40,390	43,228	46,306	49,650	53,288
Total	102,121	107,803	114,052	120,589	127,621

Objections/Views/Suggestions

46. **A.P. Textile Mills Association** stated that Discoms' projections for irrigation in 6th CP are also going at 4% plus. Ministry of Railways had reported that they were a "Deemed distribution licensee under the Electricity Act 2003", and "Railway Energy Management Company Ltd (REMCL)" was tasked to economise & to source NCE for Traction and further reduce non-traction freight. An analysis of the Tariff Orders of the APERC from FY 2015-16 TO FY 2022-23 would reveal that the DISCOMs over-estimated sales from Revenue yielding HT Industry, Commercial & even Railways and whereas they have under-estimated LT Agriculture. Hence, the Commission may review the forecasted energy sales, procurement needs,

Generation capacity needs and, accordingly review the Transmission & Distribution network requirements.

DISCOMS' Response:

The projection for Lift Irrigation was made after obtaining data from the water resource department. The projection on railways was made after obtaining upcoming load data from the railway department. Page No.13 of the filings shows the upcoming railway loads. The CAGRs for different consumer categories were projected realistically by considering actual historical sales and additional loads.

The Prayas Energy Group stated that the petitions were prepared with many assumptions without detailed explanations. The TRANSCO's petition assumes that the CAGR of RTS would be 5%, whereas many industry reports suggest 10 or 15%. DISCOMs provided historical CAGR for some categories and assumed an unrelated figure for future growth rate. LT agriculture was a case in point. EPDCL separates free power and related agriculture demand, whereas the other two DISCOMs combine them. Historical agriculture demand growth was low or even negative, but a 5% CAGR was assumed, saying that rainfall would be less (SPDCL) or 9-hour daytime supply (EPDCL) is needed. Para 3.3 of the SPDCL petition states that the CAGR of open access during FY17-23 is low at 1.3%, but for the next two control periods, the CAGR would be 5%. The time series approach for MW analysis (Para 2.12 of TRANSCO petition), based on which hourly surplus/shortage is calculated, needs to be clearly explained. The time series equation is given as Y = (A+B*X)*S) without any detailed explanations. This point was also made in their submissions on the previous resource plans (prepared in 2018-19).

In response to the above, the three DISCOMS stated that the hourly loads for the period from FY 2016-17 to FY 2022-23 were considered for the computation of intercept, slope and seasonality indices. The projected loads were computed based on the intercept, slope, and seasonality indices computed for the historical loads. The terms in the equation were explained in the filings. Each DISCOM's & APTRANSCO's specific response on certain views is given below.

APSPDCL's Response: The reason for the projected increasing agricultural sales is mentioned on page 12 of the filings. Also, 78,515 nos. services were released during FY 2022-23. Further, due to the depletion of the water table, agricultural sales are projected to witness an increasing trend.

APEPDCL's Response: The DISCOM has worked out circle-wise CAGR for each

category and adopted moderate /suitable CAGR, removing exceptions/outliers due to a sudden increase/decrease in sales from 2016-17 to 2022-23, duly observing CAGRs of 6 years, 5 years,4 years,3 years, and 2 years. It has also adopted a % CAGR for Agl. consumers in view of extending 9 hours of supply during the daytime, and 11384 services were released during FY 2022-23.

Prayas Energy Group stated that resource planning exercises should be based on block-wise demand and supply projections to optimise cost while ensuring a reliable and quality supply. A modelling exercise is needed to arrive at the load profile. The justification for base load CAGR is not provided.

AP DISCOMs' Response: DISCOMs have carried out Load Forecasts and Supply projections hourly. The Deficit / Surplus situation for different time periods in a day across different months and for all planning periods is drawn up and presented.

APTransco's Response: Hourly load and generation analysis is considered for the 5th control period to assess the future capacity requirement to meet base and peak load, considering cost optimisation.

Commission's Decision on Sales Forecast.

47. After carefully examining the replies furnished by the licensees to the objectors on the various factors in sales forecast, the Commission proposes to finalise it as discussed infra.

48. The Guidelines for Medium and Long Term Power Demand Forecast was issued by the Central Electricity Authority in July 2023. These Guidelines, inter alia envisage as under.

    a. Demand forecasting for medium (more than 1 year and up to 5 years) and long-term (more than 5 years) should be prepared for at least three Scenarios: an optimistic scenario, a business as usual (BAU) scenario, and a pessimistic scenario.

    b. The forecasting should be worked out year-wise, at least. If adequate granular-level data is available, month-wise, day-wise, hour-wise, or time-block-wise forecasts should also be made.

    c. The power demand forecast should be done under the unrestricted scenario, which essentially reflects the case when all the unserved demand is currently not served by the utilities due to various supply-side barriers such as

generation and network constraints (resulting in planned load shedding and unplanned outages) is also included.

d. The method adopted for forecasting should analyse past consumption data of each consumption category separately and factor in the impacts of emerging aspects to arrive at appropriate future growth trends. Central Electricity Authority traditionally adopts the Partial End Use Method (PEUM) for carrying out Electric Power Survey (EPS) exercises.

e. In addition to past growth trends, the medium-term forecast should be based on assessing the impact of specific government policies, developmental plans, and other emerging aspects on the definite quantum of electrical energy.

f. The long-term forecast should be based on further extrapolating the growth trends estimated under the medium-term horizon.

g. The detailed power demand forecasting exercise should be undertaken every five years. However, it should also be reviewed yearly and updated if necessary.

49. The Forum of Regulators issued the model Regulation on Resource Adequacy Framework in June 2023. This Regulation, inter alia provides:

a. The distribution licensee shall determine the load forecast for a customer category by adopting any of the following and/or a combination of the following methodologies: a) compounded average growth rate (CAGR); b) end use or partial end use; c) trend analysis; d) Auto-regressive integrated moving average (ARIMA); e) AI including machine learning, ANN techniques; and f) econometric (specifying the parameters used, algorithm, and source of data).

b. policy influences such as 24X7 supply to all customers, LED penetration, efficient use of fans/appliances, increased use of appliances for cooking/heating applications, electrification policies, distributive energy resources, storage, and policies etc,

c. The distribution licensee must also develop long-term and medium-term demand forecasts for possible scenarios, ensuring that at least three scenarios (most probable, business as usual, and aggressive) are developed.

50. The Ministry of Power, GoI issued “GUIDELINES FOR RESOURCE ADEQUACY PLANNING FRAMEWORK FOR INDIA” in June 2023 under Rule 16 of Electricity (Amendments) Rules, 2022). These guidelines provide:

a. The Resource Adequacy exercise shall have a planning horizon of 10 years on a

rolling basis.

b. The detailed power demand forecasting exercise should be undertaken every five years. However, it should also be reviewed yearly and updated if necessary.

c. Spatial Granularity—Forecasts should be prepared at least at the DISCOM/State level. In addition, forecasts should be made at more granular levels, i.e., zonal, circle, district, etc.

d. Time Granularity—The forecast should at least be worked out year-wise. If adequate granular-level data is available, month-wise, day-wise, hour-wise, or time-block-wise forecasts should also be made.

e. The forecast should be carried out for at least three scenarios: optimistic, business as usual (BAU), and pessimistic. In the BAU scenario, Normal weather conditions (weather parameters need not be factored in separately) need to be considered.

f. The method adopted for forecasting should analyse past consumption data of each consumption category separately and factor in the impacts of emerging aspects to arrive at appropriate future growth trends.

51. The Commission issued "GUIDELINES FOR LOAD FORECASTS, RESOURCE PLANS, AND POWER PROCUREMENT" in December 2006. These guidelines, inter alia envisage, a detailed forecast for the Control Period under consideration for tariff review purposes (5th CP) and a simple forecast for the subsequent Control Period (6th CP) shall be done by the distribution licensees based on (a) the Forecast of energy in MWh, demand in MW for each class of consumers (category-wise) supplied by the distribution licensee; (b) Forecast of energy in MWh, demand in MW for each class of consumers (category-wise) supplied by a person other than the distribution licensee of his area of supply through open access. The load forecast shall also be based on the historical consumer category-wise, slab-wise, voltage-wise data of energy in MWh, demand in MW, number of consumers for the last 5 years considering the existing and proposed Demand Side Management (DSM) programmes and their impact on energy and demand considering alternative approaches (viz. simple trend approach, behavioural approach linking with key drivers, etc.,) for the forecast during the Control Period;

52. The licensee's filings on load forecasts broadly comply with the Guidelines issued by the Commission and the guidelines issued by CEA, FoR, and MoP. They have projected the load forecasts based on the last five years' trend, taking FY 2022-23

(T-2) as the base year. However, they have not projected the three scenarios as mentioned in the CEA, FoR and MoP guidelines/Regulations. Hence, the Commission proposes to forecast the three scenarios based on the data furnished by the licensees. Accordingly, it has been forecasted for a 10-year horizon, but approval is only for a five-year control period. The load forecast for the next control period is only indicative. The Commission's forecast is detailed in the following paragraphs. As suggested by one of the objectors, forecasting using modelling could not be done due to the lack of such modelling tools with the Commission.

53. The Commission used Compound Annual Growth Rates (CAGR) to forecast the sales of each consumer category for every Licensee, grossing up the losses accordingly to arrive at the yearly energy requirement. A time series of hourly data for the last five years is used to forecast the demand correlating with the energy requirement for the state, as the three DISCOMS have been dispatched together to optimise the power purchase cost. It forecasted the energy requirement & demand for the three scenarios as detailed below.

(a) Optimistic Scenario:

This Scenario represents the maximum energy sales during the year for DISCOMs. It factors in extreme weather conditions, driving power demand upwards, such as lesser rainfall. It also represents high growth and a positive and favourable situation in energy sales of the DISCOMs in view of increased economic activities, industrialisation, increased consumer consumption, etc.

(b) Business As Usual Scenario (BAU):

This scenario represents moderate growth, a normal increase in the DISCOMs' energy sales, and Normal weather conditions (weather parameters need not be factored in separately).

(c) Pessimistic Scenario:

This Scenario represents the minimum energy sales during the year for DISCOMs. It factors in extreme weather conditions, such as heavy rainfall, which drive power demand downward. It also represents low growth and minimal increase in the energy sales of the DISCOMs due to reduced economic activities, less industrialisation, saturation in consumer consumption, etc.

54. After analysing the CAGRs for various categories of consumers using different methods, as shown in the Annexure-B1-B3, the Commission is inclined to adopt the CAGRs shown in the table below for each DISCOM in three scenarios.

Table 58: Approved-Scenario Wise Growth rate considered for APSPDCL

Category	Optimistic	BAU	Pessimistic
LT-I: Domestic	7.75%	5.98%	4.09%
LT-II: Commercial & Others	10.19%	8.69%	5.08%
LT-III: Industrial	5.60%	5.00%	3.06%
LT-IV: Institutional	11.00%	10.01%	9.64%
LT-V: Irrigation and Agriculture	5.00%	4.00%	2.00%
HT-I: Townships and Colonies	7.25%	6.70%	4.09%
HT-II: Commercial & Others	12.30%	10.20%	3.42%
HT-III: Industrial	14.10%	11.60%	4.92%
HT-IV: Institutional	14.32%	12.17%	6.81%
HT-IV: Agricultural & Related	5.00%	3.75%	0.61%
RESCOs	6.82%	5.52%	3.18%

Table 59: Approved-Scenario Wise Growth rate considered for APCPDCL

Category	Optimistic	BAU	Pessimistic
LT-I: Domestic	6.20%	4.52%	2.36%
LT-II: Commercial & Others	8.51%	5.38%	2.60%
LT-III: Industrial	5.00%	2.93%	2.12%
LT-IV: Institutional	5.14%	3.00%	3.36%
LT-V: Irrigation and Agriculture	5.00%	4.00%	2.50%
HT-I: Townships and Colonies	7.24%	4.52%	2.36%
HT-II: Commercial & Others	11.30%	8.35%	3.08%
HT-III: Industrial	9.00%	2.59%	0.54%
HT-IV: Institutional	13.70%	4.06%	3.00%
HT-IV: Agricultural & Related	5.00%	3.75%	2.50%

Table 60: Approved-Scenario Wise Growth rate considered for APEPDCL

Category	Optimistic	BAU	Pessimistic
LT-I: Domestic	8.00%	6.34%	5.05%
LT-II: Commercial & Others	9.00%	7.60%	5.84%
LT-III: Industrial	5.00%	4.70%	1.37%
LT-IV: Institutional	6.68%	5.97%	5.00%
LT-V: Irrigation and Agriculture	5.00%	4.00%	2.00%
HT-I: Townships and Colonies	8.00%	7.00%	5.05%
HT-II: Commercial & Others	12.47%	9.97%	5.38%
HT-III: Industrial	11.81%	9.03%	5.98%
HT-IV: Institutional	15.60%	11.60%	4.77%
HT-IV: Agricultural & Related	5.00%	3.75%	0.61%

55. While forecasting the energy sales by the APCPDCL, it has claimed the addition of 170 MVA load of Indosol Solar Private Limited & 8 MVA load of Ramayapatnam Port during FY 2024-25 and 1078 MVA during FY 2026-27. The Commission sought clarification regarding the details of this load. In reply, the CPDCL submitted that Indosol requested a capacity of 2 MVA for Feb-24, 23 MVA in June-24, 145 MVA in Mar-25 and 730 MVA in Sept-25. CPDCL also stated that land acquisition for the plant is being processed. However, the Government Orders in this regard reveal that the supply from the DISCOM is only an ad-hoc arrangement, and it may use captive power or power from open access for its major consumption. Given this uncertainty, the Commission did not include the above requirement in its long term forecast for CPDCL.

56. Accordingly, by applying the CAGRs mentioned in the tables shown supra on base year data of FY 2022-23, the Commission's category-wise forecasted sales for the 5th and 6th control periods are shown in the Annexure-B4-B6. The sum total of

all categories for three DISCOMS together and each DISCOMS vis a vis CEA 20th EPS and Licensees filings are shown in the tables below.

Table 61: APERC's Energy Sales Approved Forecast for Three DISCOM (MU)- 5th CP

	FY 25	FY 26	FY 27	FY 28	FY 29
Optimistic	76,016	82,909	90,513	98,907	108,183
Business As Usual	73,053	78,085	83,524	89,408	95,777
Pessimistic	69,212	71,964	74,849	77,873	81,045
CEA 20th EPS Report	74,583	80,515	87,016	93,847	101,081
APDISCOMS' Filings	73,914	78,712	86,713	91,421	96,821

Table 62: APERC's Energy Sales Indicative Forecast for Three DISCOM (MU)- 6th CP

	FY 30	FY 31	FY 32	FY 33	FY 34
Optimistic	118,440	129,794	142,372	156,318	171,793
Business As Usual	102,675	110,153	118,263	127,067	136,628
Pessimistic	84,372	87,864	91,528	95,376	99,415
CEA 20th EPS Report	109,604	115,785	121,978		
APDISCOMS' Filings	102,121	107,803	114,052	120,589	127,621

Table 63: APERC's Energy Sales Approved Forecast for APSPDCL - 5th CP

	FY 25	FY 26	FY 27	FY 28	FY 29
Optimistic	29,061	31,823	34,891	38,304	42,102
Business As Usual	28,159	30,340	32,721	35,321	38,165
Pessimistic	26,281	27,330	28,429	29,582	30,791
CEA 20th EPS Report	28,017	29,967	32,119	34,344	36,684
SPDCL Filings	28,226	30,155	31,685	33,283	35,354

Table 64: APERC's Energy Sales Indicative Forecast for APSPDCL - 6th CP

	FY 30	FY 31	FY 32	FY 33	FY 34
Optimistic	46,335	51,056	56,327	62,217	68,806
Business As Usual	41,276	44,683	48,417	52,511	57,003
Pessimistic	32,060	33,393	34,792	36,262	37,807
CEA 20th EPS Report	39,451	41,355	43,261		
SPDCL Filings	37,091	38,929	41,038	43,101	45,288

Table 65: APERC's Energy Sales Approved Forecast for APCPDCL - 5th CP

	FY 25	FY 26	FY 27	FY 28	FY 29
Optimistic	16,246	17,413	18,673	20,034	21,503
Business As Usual	15,349	15,985	16,650	17,344	18,069
Pessimistic	14,765	15,079	15,401	15,731	16,069
CEA 20th EPS Report	17,947	19,121	20,388	21,679	23,015
CPDCL Filings	16,738	17,528	21,927	22,800	23,696

Table 66: APERC's Energy Sales Indicative Forecast for APCPDCL - 6th CP

	FY 30	FY 31	FY 32	FY 33	FY 34
Optimistic	23,091	24,808	26,666	28,678	30,858
Business As Usual	18,828	19,621	20,450	21,318	22,225
Pessimistic	16,416	16,770	17,134	17,506	17,888
CEA 20th EPS Report	24,515	25,737	26,933		
CPDCL Filings	24,640	25,646	26,708	27,838	29,045

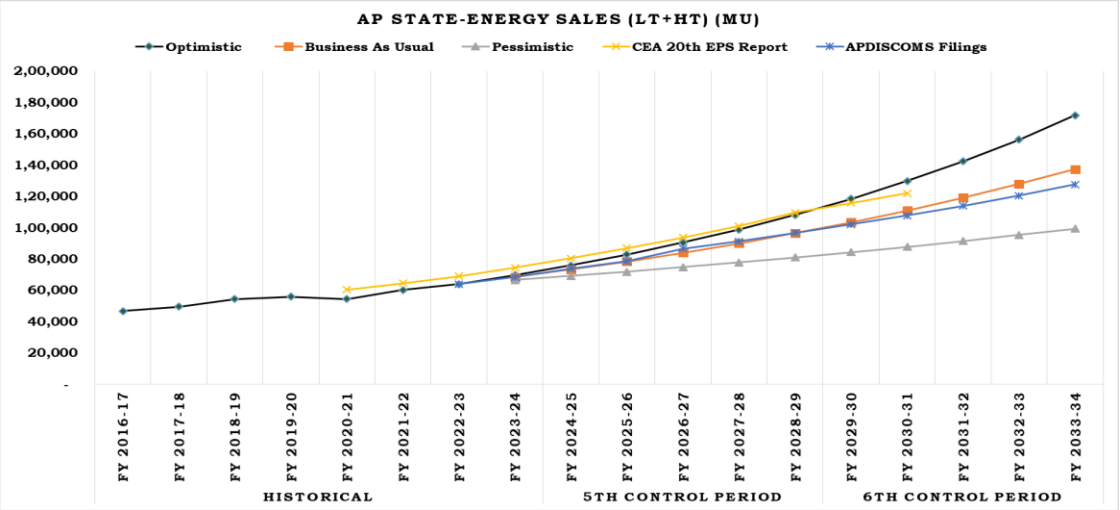
Table 67: APERC's Energy Sales Approved Forecast for APEPDCL - 5th CP

Approved for EPDCL	FY 25	FY 26	FY 27	FY 28	FY 29
Optimistic	30,710	33,673	36,948	40,570	44,578
Business As Usual	29,545	31,760	34,154	36,743	39,542
Pessimistic	28,166	29,555	31,018	32,560	34,184
CEA 20th EPS Report	28,619	31,427	34,509	37,825	41,382
EPDCL Filings	28,950	31,029	33,101	35,338	37,771

Table 68: APERC's Energy Sales Indicative Forecast for APEPDCL - 6th CP

Approved for EPDCL	FY 30	FY 31	FY 32	FY 33	FY 34
Optimistic	49,015	53,931	59,380	65,423	72,128
Business As Usual	42,571	45,848	49,397	53,239	57,400
Pessimistic	35,896	37,701	39,603	41,608	43,721
CEA 20th EPS Report	45,638	48,693	51,784		
EPDCL Filings	40,390	43,228	46,306	49,650	53,288

57. The Commission's approved forecast of Energy Sales in the Optimistic Scenario, business as usual scenario, and Pessimistic Scenario, as compared to the Discom Filings and CEA 20th EPS Report, is shown graphically below.



Loss Trajectory – Distribution and Transmission Loss

58. The Distribution Licensees projected the network Losses based on their historical performance and loss reduction measures. The voltage-wise Distribution losses filed by DISCOMs for the 5th and 6th Control Periods are given in the tables below.

Table 69: Filings: Voltage-wise Loss Trajectory for 5th & 6th CP - APSPDCL

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34
LT	5.07%	5.06%	5.04%	5.03%	5.02%	5.01%	4.99%	4.98%	4.97%	4.96%
11kV	3.30%	3.29%	3.29%	3.28%	3.27%	3.26%	3.25%	3.24%	3.24%	3.23%
33kV	3.19%	3.18%	3.18%	3.17%	3.16%	3.15%	3.14%	3.14%	3.13%	3.12%

Table 70: Filings: Voltage-wise Loss Trajectory for 5th & 6th CP - APCPDCL

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34
LT	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.68%	3.67%	3.66%	3.65%
11kV	3.16%	3.15%	3.15%	3.14%	3.13%	3.12%	3.11%	3.11%	3.10%	3.09%
33kV	3.11%	3.10%	3.10%	3.09%	3.08%	3.07%	3.07%	3.06%	3.05%	3.04%

Table 71: Filings: Voltage-wise Loss Trajectory for 5th & 6th CP - APEPDCL

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34
LT	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
11kV	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%	3.32%	3.31%	3.31%	3.30%
33kV	3.34%	3.33%	3.32%	3.31%	3.30%	3.30%	3.29%	3.29%	3.28%	3.28%

59. As per filings, the losses projected by the transmission licensee (APTransco) for the intrastate transmission system and losses likely to be incurred in the ISTS system for the power purchases from CGS are shown in the table below.

Table 72: Filings: Transmission System (InSTS & ISTS) Loss Trajectory – AP Transco

FY	5th Control Period						
	FY23	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
APTransco Transmission loss %	2.75	2.75	2.75	2.75	2.7	2.7	2.7
PGCIL loss %	0.8	0.8	0.8	0.9	0.95	0.95	0.95
APTransco & PGCIL Losses %	3.55	3.55	3.55	3.65	3.65	3.65	3.65

FY	6th Control Period					
	FY29	**FY30**	**FY31**	**FY32**	**FY33**	**FY 34**
APTransco Transmission loss %	2.7	2.65	2.65	2.65	2.6	2.6
PGCIL loss %	0.95	0.95	0.95	0.95	0.95	0.95
APTransco & PGCIL Losses %	3.65	3.6	3.6	3.6	3.55	3.55

60. The distribution licensees stated that Transmission and PGCIL losses are expected to increase slightly from FY 2025-26 due to the procurement of 7000 MW of Solar Power from Rajasthan through SECI, 100 MW from Nuclear Bhavini from FY 2024-25 and 264 MW from Talcher Stage-III from FY 2027-28. Accordingly, the DISCOMs/APTransco projected a slight increase in the PGCIL losses compared to the present losses for the 5th and 6th Control Periods.

Commissions' Decision

Determination of Distribution Loss trajectory

61. The Commission has examined the following vis-a-vis filings for fixing the Distribution and Transmission system loss trajectory of the Distribution Licensees and transmission licensee for the 5th and 6th control periods.:

- The loss levels achieved by the licensees in the 4th Control Period up to Aug-23 of FY24 against the targets fixed by the Commission.
- The capacity of the existing network.

- The capital works in progress, and the investments proposed to be approved in this order.

- Loss reduction measures being followed and proposed by the licensees, viz., implementation of RDSS for Loss Reduction, such as installation of Smart Meters, Modernisation, Augmentation of Power Transformers, Installation of star-rated DTRs, and Erection of line capacitor banks.

62. The Commission's analysis of the network losses is shown in the Annexure-B7. Based on this analysis and the other reasons mentioned in the previous paragraph, the Commission is inclined to approve voltage-wise loss trajectory for DISCOMS's network for the 5th control period and indicative losses for the 6th control period, as shown below.

Table 73: Approved: Voltage-wise Loss Trajectory - APSPDCL for 5th CP

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29
LT	4.13%	4.12%	4.11%	4.10%	4.09%
11 kV	3.06%	3.05%	3.04%	3.03%	3.02%
33 kV	2.99%	2.98%	2.97%	2.96%	2.95%

Table 74: Indicative: Voltage-wise Loss Trajectory - APSPDCL for 6th CP

Voltage Level	FY30	FY31	FY32	FY33	FY 34
LT	4.08%	4.07%	4.06%	4.05%	4.04%
11 kV	3.01%	3.00%	2.99%	2.98%	2.97%
33 kV	2.94%	2.93%	2.92%	2.91%	2.90%

Table 75: Approved: Voltage-wise Loss Trajectory - APCPDCL

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29
LT	3.73%	3.72%	3.71%	3.70%	3.69%
11 kV	3.06%	3.05%	3.04%	3.03%	3.02%
33 kV	2.99%	2.98%	2.97%	2.96%	2.95%

Table 76: Indicative: Voltage-wise Loss Trajectory - APCPDCL for 6th CP

Voltage Level	FY30	FY31	FY32	FY33	FY 34
LT	3.68%	3.67%	3.66%	3.65%	3.64%
11 kV	3.01%	3.00%	2.99%	2.98%	2.97%
33 kV	2.94%	2.93%	2.92%	2.91%	2.90%

Table 77: Approved: Voltage-wise Loss Trajectory - APEPDCL

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29
LT	3.42%	3.41%	3.40%	3.40%	3.39%
11 kV	3.39%	3.38%	3.37%	3.36%	3.35%
33 kV	2.74%	2.73%	2.72%	2.71%	2.70%

Table 78: Indicative: Voltage-wise Loss Trajectory - APEPDCL for 6th CP

Voltage Level	FY30	FY31	FY32	FY33	FY 34
LT	3.38%	3.37%	3.36%	3.35%	3.34%
11 kV	3.34%	3.32%	3.31%	3.31%	3.30%
33 kV	2.69%	2.68%	2.67%	2.66%	2.65%

InSTS & ISTS Transmission System Losses

63. After examination of the submissions of the DISCOMS and APTRANSCO on actual performance, the Commission is inclined to approve the APTRANSCO System (InSTS) and ISTS loss trajectory for the 5th Control Period and indicatively for the 6th control period as shown in the tables below:

Table 79: Approved: Transmission Loss Trajectory for 5th CP

Financial Year	FY 25	FY 26	FY 27	FY 28	FY 29
APTransco Transmission loss %	2.75%	2.75%	2.70%	2.70%	2.70%
PGCIL loss %	0.80%	0.90%	0.95%	0.95%	0.95%
APTransco & PGCIL Losses %	3.55%	3.65%	3.65%	3.65%	3.65%

Table 80: Indicative: Transmission Loss Trajectory for 6th CP

Financial Year	FY30	FY31	FY32	FY33	FY 34
APTransco Transmission loss %	2.65%	2.65%	2.65%	2.60%	2.60%
PGCIL loss %	0.95%	0.95%	0.95%	0.95%	0.95%
APTransco & PGCIL Losses %	3.60%	3.60%	3.60%	3.55%	3.55%

Energy Requirement for the State and Peak Demands:

64. Two components of state-wide energy are being handled at the grid level. They are

a) Energy procurement by the DISCOMs for serving their Consumers and

b) Third-party energy handled by the Grid pertaining to Inter-State & Intra-State Open Access transactions.

65. The Open Access transactions that are embedded into the Transmission & Distribution networks are stated to be in the range of 1,827 MU to 2,133 MU for each year of the 5th Control period. The DISCOM-wise Open Access sales as per filings are shown in the Tables below:

Table 81: Filings: DISCOM Wise Open Access Transactions (MU)

Financial Year	FY 25	FY 26	FY 27	FY 28	FY 29
SPDCL Area	976	1025	1076	1130	1187
CPDCL Area	338	359	380	403	428
EPDCL Area	513	519	525	532	518
Total State	1827	1903	1981	2065	2133

After analysing the above figures, the Commission proposes considering the same for arriving at State Grid Peak Demand.

66. Based on the estimated sales, projected losses and open access sales, the Energy requirement at the State level & the corresponding Grid Peak demand expected to be incident on the AP Power system as per filing are shown in the tables below.

Table 82: Filings: Energy Requirement (MU) at State Level and Peak Demand (MW)

5th Control Period					
	FY 25	**FY 26**	**FY 27**	**FY 28**	**FY 29**
SPDCL	32,446	34,639	36,401	38,252	40,616
CPDCL	19,142	20,077	24,744	25,761	26,815
EPDCL	32,006	34,334	36,609	39,067	41,736
The Energy Requirement for three DISCOMS together	83,275	88,713	97,396	1,02,700	1,08,765
OA Energy	2,090	2,211	2,334	2,478	2,613
Total Energy Requirement for State (MU)	85,365	90,924	99,731	1,05,179	1,11,378
State Peak Demand	15,226	16,256	17,831	18,805	19,913

6th Control Period					
	FY 30	**FY 31**	**FY 32**	**FY 33**	**FY 34**
SPDCL	42,646	44,764	47,175	49,527	52,044
CPDCL	27,925	29,092	30,327	31,624	33,025
EPDCL	44,587	47,692	51,064	54,696	58,673
The Energy Requirement for three DISCOMS together	1,14,730	1,21,095	1,28,085	1,35,336	1,43,200
OA Energy	2,780	2,971	3,183	3,416	3,677
The Energy Requirement for three DISCOMS together	1,17,510	1,24,067	1,31,269	1,38,753	1,46,877
State Peak Demand	21,042	22,251	23,561	24,944	26,870

Views/objections/suggestions

67. Sri M. Venugopal Rao and others stated that the licensees' projection of load factor stagnating or decreasing during the 5th control period confirms their failure to ensure power supply patterns to various categories of consumers to increase load factor.

DISCOMS Response: The System Load factor has been projected based on the growth trajectories of different sales categories with different usage patterns.

The Prayas Energy Group stated that assumptions of different load factors based on historical data for different DISCOMs were understandable. However, the **TRANSCO** load factor pattern appears very different from those of the DISCOMs. SPDCL assumes a constant load factor for the next two control periods, whereas the other two DISCOMs assume a reducing load factor. Assumptions on open access figures also do not have any explanation.

DISCOMS Response: **:** The open access sales have grown marginally during the period FY 2017-23 due to factors such as high prices in IEX, COVID-19, etc. However, the same is projected to increase at a higher rate due to changes in the above-mentioned conditions. APEPDCL stated that the system load factor has been projected based on the growth trajectories of different sales categories with different usage patterns. Assumptions for Open-access sales were explained in section 3.5 of Page 18 of the filings.

APTRANSCO's Response: The State-Level forecast is arrived at by aggregating the Discoms Forecast; the Load Factor depends on the Mix of consumers and the Schedule of Agricultural load. The load factor has been altered by changing the Agriculture schedule to match solar generation at the State Level and from outside the state.

Commission's Decision on the Energy Requirement & Peak Demands at the State Level:

68. The Commission has arrived at the Sales for each DISCOM in three scenarios based on CAGRs and also approved (indicative for 6th CP) the losses of the DISCOMS and APTRANSCO & PGCIL's drawal in earlier paragraphs. Accordingly, by grossing up with approved losses with sales voltage-wise, as shown in the Annexure-B8-B10, the energy requirement of each DISCOMS has been arrived. The sum of the energy requirement of three DISCOMS is the total energy requirement for the retail consumers in the State. The yearly energy requirements

for Retail consumers, each DISCOM wise and three DISCOMS together vis a vis the energy requirement projected in CEA 20th EPS and filings are shown in the tables below.

Table 83: Approved: Scenario-wise Energy Requirement of three Discoms for 5th CP

Approved for three DISCOMs	Energy Requirement for 5th CP (MU)- Three DISCOMs				
	FY 25	FY 26	FY 27	FY 28	FY 29
Optimistic	84,247	91,871	100,175	109,335	119,443
Business As Usual	81,025	86,594	92,538	98,963	105,910
Pessimistic	76,814	79,912	83,074	86,390	89,865
CEA 20th EPS Report	83,613	90,207	97,426	104,999	113,005
APDISCOMS Filings	83,275	88,713	97,396	1,02,700	1,08,765

Table 84: Indicative: Scenario-wise Energy Requirement of three Discoms for 6th CP

Approved for three DISCOMs	Energy Requirement for 6th CP (MU)- Three DISCOMS				
	FY 30	FY 31	FY 32	FY 33	FY 34
Optimistic	130,543	142,881	156,538	171,581	188,342
Business As Usual	113,370	121,505	130,324	139,819	150,192
Pessimistic	93,461	97,278	101,287	105,441	109,855
CEA 20th EPS Report	122,436	129,219	135,995	-	-
APDISCOMS Filings	1,14,730	1,21,095	1,28,085	1,35,336	1,43,200

Table 85: Approved: Scenario-wise Energy Requirement of APSPDCL for 5th CP

	Energy Requirement for 5th CP (MU)				
Approved for SPDCL	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Optimistic	32,285	35,342	38,696	42,422	46,565
Business As Usual	31,294	33,712	36,314	39,153	42,254
Pessimistic	29,250	30,436	31,646	32,915	34,246
CEA 20th EPS Report	31,360	33,487	35,830	38,242	40,769
SPDCL Filings	32,446	34,639	36,401	38,252	40,616

Table 86: Indicative: Scenario-wise Energy Requirement of APSPDCL for 6th CP

	Energy Requirement for 6th CP (MU)				
Approved for SPDCL	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
Optimistic	51,148	56,282	62,008	68,364	75,502
Business As Usual	45,619	49,325	53,383	57,798	62,668
Pessimistic	35,624	37,090	38,628	40,223	41,920
CEA 20th EPS Report	43,758	45,775	47,785	-	-
SPDCL Filings	42,646	44,764	47,175	49,527	52,044

Table 87: Approved: Scenario-wise Energy Requirement of APCPDCL for 5th CP

	Energy Requirement for 5th CP (MU)				
Approved for CPDCL	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Optimistic	18,257	19,575	20,976	22,486	24,117
Business As Usual	17,282	18,001	18,745	19,523	20,336
Pessimistic	16,614	16,983	17,344	17,714	18,092
CEA 20th EPS Report	19,962	21,219	22,572	23,944	25,358
CPDCL Filings	19,142	20,077	24,744	25,761	26,815

Table 88: Indicative: Scenario-wise Energy Requirement of APCPDCL for 6th CP

Energy Requirement for 6th CP (MU)					
Approved for CPDCL	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
Optimistic	25,864	27,766	29,822	32,030	34,437
Business As Usual	21,175	22,062	22,990	23,948	24,962
Pessimistic	18,470	18,867	19,273	19,679	20,105
69. CEA 20th EPS Report	26,944	28,216	29,452	-	-
CPDCL Filings	27,925	29,092	30,327	31,624	33,025

Table 89: Approved: Scenario-wise Energy Requirement of APEPDCL for 5th CP

Energy Requirement for 5th CP (MU)					
Approved for EPDCL	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Optimistic	33,705	36,954	40,503	44,426	48,762
Business As Usual	32,448	34,882	37,479	40,287	43,320
Pessimistic	30,950	32,493	34,084	35,762	37,527
CEA 20th EPS Report	32,292	35,502	39,024	42,814	46,878
EPDCL Filings	32,006	34,334	36,609	39,067	41,736

Table 90: Indicative: Scenario-wise Energy Requirement of APEPDCL for 6th CP

Energy Requirement for 6th CP (MU)					
Approved for EPDCL	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
Optimistic	53,530	58,832	64,708	71,186	78,402
Business As Usual	46,575	50,117	53,951	58,073	62,562
Pessimistic	39,366	41,322	43,386	45,540	47,830
CEA 20th EPS Report	51,734	55,228	58,758	-	-
EPDCL Filings	44,587	47,692	51,064	54,696	58,673

70. Having finalised the energy requirement as above, the Commission has examined the peak demands filed by the DISCOMS for their respective consumers and APTRANSCO for the State during the 5th and 6th Control Periods. They have computed the peak demand using the following formula.

Peak demand = Energy Requirement/Load Factor.

71. The actual load factor for FY 2022-23 is suitably modified for future projections to arrive at the peak demands by the utilities based on their estimated energy requirements. After examining the load factor pattern of the past and future energy requirements, the Commission modified the load factors for APCPDCL & APTRANSCO. It adopted the same for APSPDCL & APEPDCL as per their filings. The load factors adopted by the Commission vs utilities are shown in the tables below.

Table 91: Approved: Load Factors of the State for 5th CP

Particulars	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
APERC	67.84%	67.25%	66.56%	65.95%	65.36%
APTRANSCO	64.00%	63.85%	63.85%	63.85%	63.85%

Table 92: Indicative: Load Factors of the State for 5th CP

Particulars	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
APERC	64.82%	64.32%	63.88%	63.44%	63.04%
APTRANSCO	63.75%	63.65%	63.60%	63.50%	62.40%

Table 93: Approved: Load Factors of the SPDCL for 5th CP

Particulars	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
APERC	55.05%	55.25%	55.45%	55.65%	55.85%
SPDCL	55.05%	55.25%	55.45%	55.65%	55.85%

Table 94: Approved: Load Factors of the CPDCL for 5th CP

Particulars	FY25	FY26	FY27	FY28	FY29
APERC	66.00%	66.20%	66.40%	66.60%	66.80%
CPDCL	73.85%	73.60%	73.38%	73.16%	72.99%

Table 95: Approved: Load Factors of the EPDCL for 5th CP

Particulars	FY25	FY26	FY27	FY28	FY29
APERC	73.85%	73.60%	73.38%	73.16%	72.99%
EPDCL	73.85%	73.60%	73.38%	73.16%	72.99%

Table 96: Indicative: Load Factors of the SPDCL for 6th CP

Filings	FY30	FY31	FY32	FY33	FY34
APERC	56.05%	56.25%	56.45%	56.65%	56.85%
SPDCL	56.05%	56.25%	56.45%	56.65%	56.85%

Table 97: Indicative: Load Factors of the CPDCL for 6th CP

Filings	FY30	FY31	FY32	FY33	FY34
APERC	67.00%	67.20%	67.40%	67.60%	67.80%
CPDCL	72.81%	72.63%	72.40%	72.20%	72.02%

Table 98: Indicative: Load Factors of the EPDCL for 6th CP

Filings	FY30	FY31	FY32	FY33	FY34
APERC	72.81%	72.63%	72.40%	72.20%	72.02%
EPDCL	72.81%	72.63%	72.40%	72.20%	72.02%

By adopting the above load factors, based on the energy requirement finalised in the earlier paragraphs, the Commission has computed the peak demands for each DISCOM, excluding Open Access in the BAU Scenario. The energy requirement & Peak demands estimated by the DISCOMS & APERC are shown in the table below.

Table 99: Filings -Energy Requirement, Load Factor and Peak Demand for 5th & 6th CP

SPDCL	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
Energy Requirement (MU)	32,446	34,639	36,401	38,252	40,616	42,646	44,764	47,175	49,527	52,044
Load Factor (MW)	55.05%	55.05%	55.05%	55.05%	55.05%	55.05%	55.05%	55.05%	55.05%	55.05%
Peak demand (MW)	6,728	7,183	7,549	7,932	8,422	8,843	9,283	9,782	10,270	10,792
CPDCL	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
Energy Requirement (MU)	19,142	20,077	24,744	25,761	26,815	27,925	29,092	30,327	31,624	33,025
Load Factor (MW)	84.00%	73.39%	86.20%	85.39%	84.58%	83.78%	83.09%	82.41%	81.71%	81.09%
Peak demand (MW)	2971	3123	3277	3444	3619	3805	3997	4201	4418	4649
EPDCL	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
Energy Requirement (MU)	32,006	34,334	36,609	39,067	41,736	44,587	47,692	51,064	54,696	58,673
Load Factor (MW)	73.85%	73.60%	73.38%	73.16%	72.99%	72.81%	72.63%	72.40%	72.20%	72.02%
Peak demand (MW)	4,953	3,802	4,033	4,281	4,546	4,831	5,136	5,464	5,817	6,196
Three Discoms	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
Energy Requirement (MU)	83,594	89,050	97,754	103,080	109,167	115,158	121,548	128,566	135,847	143,742
Load Factor (MW)	64.00%	63.85%	63.85%	63.85%	63.85%	63.75%	63.65%	63.60%	63.50%	62.40%
Peak demand (MW)	15,226	16,256	17,830	18,805	19,913	21,042	22,252	23,562	24,944	26,870

Table 100: Approved -Energy Requirement, Load Factor and Peak Demand for 5th & 6th CP

SPDCL	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Energy Requirement (MU)	31,294	33,712	36,314	39,153	42,254	45,619	49,325	53,383	57,798	62,668
Load Factor (%)	55.05%	55.25%	55.45%	55.65%	55.85%	56.05%	56.25%	56.45%	56.65%	56.85%
Peak demand (MW)	6,489	6,965	7,476	8,031	8,636	9,291	10,010	10,795	11,646	12,583

CPDCL	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Energy Requirement (MU)	17,282	18,001	18,745	19,523	20,336	21,175	22,062	22,990	23,948	24,962
Load Factor (%)	66.00%	66.20%	66.40%	66.60%	66.80%	67.00%	67.20%	67.40%	67.60%	67.80%
Peak demand (MW)	2,989	3,104	3,223	3,346	3,475	3,608	3,748	3,894	4,044	4,203

EPDCL	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Energy Requirement (MU)	32,449	34,882	37,479	40,287	43,320	46,575	50,117	53,951	58,073	62,562
Load Factor (%)	73.85%	73.60%	73.38%	73.16%	72.99%	72.81%	72.63%	72.40%	72.20%	72.02%
Peak demand (MW)	5,016	5,410	5,831	6,286	6,775	7,302	7,877	8,507	9,182	9,916

72. The Peak Demand for the State can be estimated using two methods.

i. The energy requirement at the state level /load factor for the state.

ii. The sum of the individual maximum demands of DISCOMs/Diversity factor

The Commission has computed the State Peak Demands using the above two methods. The Peak demands for the State for the BAU scenario during the 5th & 6th Control Periods computed by the Commission based on the load factors adopted by the Commission in the Order are given in the table below,

Table 101: Approved: State Peak Demand based on LF for 5th CP

5th Control Period					
	FY 25	**FY 26**	**FY 27**	**FY 28**	**FY 29**
SPDCL	31,294	33,712	36,314	39,153	42,254
CPDCL	17,282	18,001	18,745	19,523	20,336
EPDCL	32,449	34,882	37,479	40,287	43,320
The Energy Requirement for three DISCOMS together (MU)	81,025	86,595	92,538	98,963	105,910
OA Energy (MU)	2,090	2,211	2,334	2,478	2,613
Total Energy Requirement for State (MU)	83,115	88,806	94,872	101,441	108,523
State Peak Demand (MW)	13,986	15,076	16,271	17,559	18,957

Table 102: Indicative: State Peak Demand based on LF for 6th CP

6th Control Period					
	FY 30	**FY 31**	**FY 32**	**FY 33**	**FY 34**
SPDCL	45,619	49,325	53,383	57,798	62,668
CPDCL	21,175	22,062	22,990	23,948	24,962
EPDCL	46,575	50,117	53,951	58,073	62,562
The Energy Requirement for three DISCOMS together (MU)	113,369	121,504	130,324	139,819	150,192
OA Energy (MU)	2,780	2,971	3,183	3,416	3,677
Total Energy Requirement for State (MU)	116,149	124,475	133,507	143,235	153,869
State Peak Demand (MW)	20,456	22,092	23,858	25,777	27,865

73. Accordingly, the break-up of the peak demands for the State, three DISCOMS and open access consumers are shown in the table below during the 5th & 6th CP.

FY	State Peak Demand (MW)	three Discoms Demand (MW)	OA (MW)
FY25	13,986	13,631	355
FY26	15,076	14,700	376
FY27	16,271	15,871	400
FY28	17,559	17,137	422
FY29	18,957	18,500	457
FY30	20,456	19,967	489
FY31	22,092	21,564	528
FY32	23,858	23,298	560
FY33	25,777	25,162	615
FY34	27,865	27,200	665

In a similar manner, the peak demands (MW) estimated by the Commission in the other two scenarios based on the load factor method are shown in the table below.

Scenario	FY25	FY26	FY27	FY28	FY29
Optimistic	14,528	15,971	17,581	19,354	21,321
Pessimistic	13,277	13,939	14,649	15,382	16,153

Scenario	FY30	FY31	FY32	FY33	FY34
Optimistic	23,481	25,886	28,541	31,492	34,773
Pessimistic	16,950	17,791	18,669	19,589	20,560

74. Peak Demands based on the Diversity factor

The actual diversity factor during the FY 2022-23 was observed to be 1.02, as per the information available with the Commission. Based on the diversity factor, the peak demand computed for three scenarios by the Commission for the State is shown in the table below.

State Peak Demands Excluding OA Demand based on the Diversity Factor

Particulars	FY25	FY26	FY27	FY28	FY29
Optimistic	14,795	16,118	17,556	19,142	20,888
BAU	14,237	15,205	16,236	17,350	18,552
Pessimistic	13,480	14,004	14,536	15,095	15,677

Particulars	FY30	FY31	FY32	FY33	FY34
Optimistic	22,804	24,935	27,300	29,900	32,793
BAU	19,843	21,251	22,784	24,431	26,229
Pessimistic	16,280	16,921	17,599	18,298	19,040

State Peak Demands, including OA Demand based on the Diversity Factor

State Peak Demand with OA based on DF	FY25	FY26	FY27	FY28	FY29
Optimistic	15,168	16,513	17,973	19,585	21,355
BAU	14,610	15,600	16,653	17,793	19,019
Pessimistic	13,853	14,399	14,953	15,538	16,144

State Peak Demand with OA based on DF	FY30	FY31	FY32	FY33	FY34
Optimistic	23,302	25,468	27,871	30,514	33,466
BAU	20,341	21,784	23,355	25,045	26,902
Pessimistic	16,778	17,454	18,170	18,912	19,713

75. Though the Commission has computed the projected peak demand based on the load factor method and the diversity factor, it proposes to approve the peak demand for the State computed based on the diversity factor method to align with the CEA guidelines issued in June 2023. The table below shows the Comparison of peak demands estimated by the Commission in BAU scenario with 20th EPS and APTRANSCO filings.

Table 103: Approved - Comparison of State Peak Demands (MW) for 5th & 6th CP- Approved Vs EPS Report Vs Filings

Particulars	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
BAU Scenario-APERC	14,610	15,600	16,653	17,793	19,019	20,341	21,784	23,355	25,045	26,902
20th EPS	15,337	16,495	17,758	19,076	20,461	22,091	23,243	24,387	-	-
Filings of APTRANSCO	15,226	16,256	17,830	18,805	19,913	21,042	22,252	23,562	24,944	26,870

76. The load forecast approved in this chapter is the basis for finalising the power procurement plan in the next chapter. As stated in Chapter II, it is reiterated that the Commission proposes to review the above load forecast every year to make suitable corrections.

CHAPTER - IV

POWER PROCUREMENT PLAN

77. In this chapter, the Commission proposes to examine the Power Procurement Plan for the 5th & 6th Control Periods proposed by the licensees in their respective Resource Plans. While examining the proposals, the Commission has reckoned /considered all the views/objections/suggestions expressed by the stakeholders in writing and during public hearings to the extent they are relevant to the subject matter. Before proceeding further and at the outset, it may be noted that the licensees have deducted the energy handled through Open Access transactions from the total energy requirement at the State level while drawing up the Power Procurement Plan.

Licensees' Submissions:

78. Chapter One, in this Order, discussed the filings. However, licensees' main submissions regarding the Power Procurement plan are summarized herein for ready reference.

(a) In pursuance of the provisions of the Electricity Act 2003, Bulk Power Purchase activity has been vested with APDISCOMs through a transfer scheme notified by the State Govt in June 2005.

(b) With effect from 1st April 2020, a new distribution licensee, named Central Power DISCOM (APCPDCL) has been carved out of APSPDCL to serve three erstwhile Districts of Krishna, Guntur and Prakasam. Consequent to the formation of APCPDCL, the State Govt vide GO Ms No 13, dt 6th April 2020, has specified sharing Ratios to the three DISCOMs to procure power through PPAs. These ratios are applicable for all the existing Power Purchase Agreements (PPAs) of combined purchases in respect of all ongoing and under-construction Generation Stations for which PPAs have been signed, except for the projects exclusively allocated based on geographical location by the Government of Andhra Pradesh and other PPAs entered into by individual DISCOMs.

(c) Further, vide GO Rt No. 146, dated 02.12.2022, the geographical allocation of NCE PPAs prevailing thereto was changed to proportionate allocation. The current proportionate percentages are 36.22% for APEPDCL, 40.44% for APSPDCL and 23.44% for APCPDCL in the Power Purchase Agreements (PPAs).

(d) In accordance with the GoAP letter dated 29.06.2022, the APCPDCL has been designated as the Lead Procurer on behalf of APDISCOMs for bulk power purchase activity from all shared power projects.

(e) The details of capacities being availed by APDISCOMs from various power stations as of 31st March 2023 are indicated below:

Table 104: Filings - APDISCOMs Contracted Capacity

Source	AP Discoms Contracted Capacity(MW)
APGENCO-THERMAL	3,410.00
APGENCO-HYDEL	1,773.60
JOINT SECTOR	2,456.82
CGS	1,978.63
IPPs (Thermal)	1,895.55
IPPs (Gas)	690.80
NCE	7,626.94
TOTAL	**19,832.30**

(f) The detailed source-wise capacity existing as of 31.03.2023 and the capacity additions and Retirements shown by the licensees in their filings are shown in the table below:

Table 105: Filings - Source wise capacity

S. No.	Source of Power	MW Capacity As on 31st Mar-2023	MW Capacity Addition/ (Retirement) for 5th CP
1	VTPS I	420	-
2	VTPS II	420	-
3	VTPS III	420	-
4	VTPS IV	500	-
5	RTPP I	420	-
6	RTPP Stage-II	420	-
7	RTPP Stage-III	210	-
8	RTPP Stage IV Unit- 6 (600MW)	600	-
9	VTPS Stage V (1x800 MW)		800
	APGENCO-THERMAL	**3,410**	**800**
10	MACHKUND PH AP Share	60	-
11	TUNGBHADRA PH AP Share	58	-
12	USR	240	-
13	LSR	460	-

S. No.	Source of Power	MW Capacity As on 31st Mar-2023	MW Capacity Addition/ (Retirement) for 5th CP
14	DONKARAYI	25	-
15	SRBEHS	770	-
16	NSRCPH	90	-
17	PABM	20	-
18	MINI HYDRO (Chettipetta)	1	-
19	Nagarjunasagar Tail pond (1x25 MW) Unit-1	25	-
20	Nagarjunasagar Tail pond (1x25 MW) Unit-2	25	-
21	Polavaram (12x80MW)		960
22	Lower Sileru (2X115MW)		230
23	Upper sileru Pumped storage (9X150)		1,350
	APGENCO-HYDEL	**1,774**	**2,540**
24	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-1	720	-
25	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-2	720	-
26	Krishnapatnam TPP (JVP) Stage II (1X800MW) Unit-3	800	-
27	Godavari Gas Power Plant (GGPP)	216	-
	JOINT SECTOR	**2,456**	**-**
28	NTPC-(SR) Ramagundam I & II	276	-
29	NTPC-(SR) Ramagundam- III	69	-
30	NTPC-Talcher-II	176	-
31	NTPCSimhadri Stage-I	461	-
32	NTPC Simhadri Stage-II	214	-
33	NLC TS II Stage-I	47	-
34	NLC TS II Stage-II	86	-
35	NPC-MAPS	18	-
36	NPC-Kaiga 1 & 2	55	-
37	NPC-Kaiga 3 & 4	59	-
38	NTPC JNNSM Phase I	39	-
39	Vallur (JV) NTPC with TANGEDCO	86	-
40	NLC-TNPL Tuticorin	121	-
41	NTPC-Kudigi	211	-
42	NNTPS	53	-
43	Kudankulam unit 1	2	-
44	NLC TPS I Exp	2	-
45	NLC TPS II Exp	3	-
46	Telangana STPS Phase I (Unit-1&2)		16
47	Bhavani		100
48	Talcher Stage-III		264
	Total CGS	**1,979**	**380**
49	HNPCL	1,040	-
50	M/s SEMBCORP ENERGY INDIA LIMITED(SEIL)	231	-

S. No.	Source of Power	MW Capacity As on 31st Mar-2023	MW Capacity Addition/ (Retirement) for 5th CP
51	M/s SEMBCORP ENERGY INDIA LIMITED(SEIL)	625	-
	IPPs (Thermal)	**1,896**	**-**
52	M/s GVK Extn	101	(101)
53	M/s GVK Gouthami (GGPL)	214	(214)
54	M/s GMR Vemagiri GVPGL)	171	(171)
55	M/s Konaseema (KGPL)	205	(205)
	IPPs (Gas)	**691**	**(691)**
56	NCE Biomass	72	-
57	NCE Bagasse	74	-
58	NCE - Industrial waste-based power project	22	-
59	NCE - Municipal Solid Waste Projects	36	-
60	NCE- Wind	3,639	-
61	NCE – Solar	3,756	-
62	NCE- Mini Hydel	29	-
63	Solar (SECI from Rajasthan)	-	6,999
64	Wind	-	1,158
65	Other NCE	-	(136)
	NCE	**7,627**	**8,021**
Total		**19,832**	**11,050**

(g) In addition to the above, the capacity retirement of 21 MW in other NCE sources has been shown in the filings. Accordingly, the capacities considered year-wise during the 5th and 6th control periods from various sources by APDISCOMs are shown in the table below.

Table 106: DISCOM Filings 5th Control Period-Contracted Capacities (MW)

	FY 25	FY 26	FY 27	FY 28	FY 29
APGENCO& APPDCL	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	2,563	2,964	2,964	4,164	4,314
APDISCOMs Gas	-	-	-	-	-
CGS	2,095	2,095	2,095	2,359	2,359
IPPs Gas	-	-	-	-	-
IPPS Others	1,896	1,896	1,896	1,896	1,896
NCE	10,542	14,680	15,664	15,662	15,647
Total	23,546	28,083	29,068	30,530	30,665

DISCOM Flings 6th Control Period- Contracted Capacities (MW)					
	FY 30	**FY 31**	**FY 32**	**FY 33**	**FY 34**
APGENCO APPDCL	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	4,314	4,314	4,314	4,314	4,314
APDISCOMs Gas	-	-	-	-	-
CGS	2,359	2,359	2,359	2,359	2,359
IPPs Gas	-	-	-	-	-
IPPS Others	1,896	1,896	1,896	1,896	1,896
NCE	15,627	15,539	15,503	15,474	15,474
Total	30,645	30,557	30,521	30,492	30,492

(h) With the capacities shown in the above tables, considering the normative availabilities for thermal generation and based on historical generation, projecting the generation from hydel, wind, solar and other NCE sources for respective capacities during the year against the forecasted energy/demand the DISCOMS have arrived at the energy deficit for 5th & 6th CPs, as shown in the tables below.

Table 107: Energy Surplus/Deficit Summary for 5th Control Period

Year /Mus	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
Energy Requirement	83,275	88,713	97,396	102,700	108,765
Energy Despatch	81,610	88,476	95,086	100,910	103,729
Surplus/(Deficit)	-1,665	-237	-2,310	-1,790	-5,036

Table 108: Energy Surplus/Deficit Summary for 6th Control Period

Year /Mus	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
Energy Requirement	1,14,730	1,21,095	1,28,085	1,35,336	1,43,200
Energy Despatch	1,05,673	1,06,995	1,07,802	1,03,223	1,03,223
Deficit MU (-)	-9,057	-14,100	-20,283	-32,113	-39,977

(i) The DISCOMS individually showed average MW surplus/deficit during the time blocks Morning (4:00-8:00), Day (8:00-17:00), Evening (17:00-23:00), and Night (23:00 - 4:00) in their respective filings for two control periods. However, APTRANSCO, after considering the three DISCOMS together, has projected the power surplus/deficit as shown in the table below in MW terms for the fifth control period.

Year	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
Daytime Average Surplus/(Deficit) MW (9:00 to 16:00 hrs)	-324	1225	1479	449	-428
Evening peak Average Surplus/(Deficit) MW (18:00 to 21:00 hrs)	-442	-832	-1924	-1072	-1840

(j) The DISCOMS, in their respective filings, has stated that the deficit projected, particularly the base demand shortage, will be met through the Generating Stations capable of operating Round the Clock (RTC) with a PLF from 60% to 85%. The remaining procurement would be undertaken with intermediate sources. Further, in the event any gap arises on a day-ahead/week-ahead basis due to a shortfall in availability from the committed sources or any variations in the generation forecast as may be made available; short-term procurement will be undertaken in compliance with the Regulation in force. The DISCOMS also stated that they are required to procure ancillary services (Secondary or Tertiary) in terms of maintaining the required Reserves in compliance to the CERC's Indian Electricity Grid Code (IEGC), Deviation Settlement Mechanism (DSM) and Ancillary Services Regulations.

(k) Regarding the RPO, DISCOMS stated that in the absence of any specified RPPO by the appropriate authority beyond FY 2027, they consider the same percentage of 24% specified for FY 2027 till the end of the 6th Control Period.

Objections/Views/Suggestions & Responses of Discoms/APTransco

79. In response to the public notice issued by the Commission, six objectors have submitted their views/objections/suggestions. Three objectors' submissions are

similar to Mr VenuGopala Rao's. The views/objections/suggestions of each objector and the DISCOM's & APTRANSCO's responses are discussed herein.

A. Sri Venu Gopala Rao & Others

That the DISCOMs were constrained to make self-contradictory claims and arguments on their justification for entering or not entering into long-term PPAs for purchasing RE or refusing to seek the consent of APERC for some of the PPAs they entered into and even withdrawing their petitions seeking consent to such PPAs and resubmitting the same to the Commission seeking its consent over the years. That APERC blatantly violated the order given by it on load forecast, procurement plan, etc., for the 4th control period by giving consents for purchase of a large quantum of RE from NTPC, etc., before retirement of the earlier incumbents in the Commission and after change of GoAP after the earlier elections, is also a matter of record. That avoiding public hearings on the subject issues also contributes to such an unresponsive tendency and lack of transparency. Such approaches need to be corrected to make the regulatory process meaningful and fruitful to protect larger consumer interests.

AP DISCOMs' Response: The DISCOMs made no self-contradictory claims regarding procuring power through Long-Term PPAs, as raised by the objector. DISCOMs are committed to procuring Power at least cost and obtaining the Commission's consent for all PPAs.

That the DISCOMs were expected to purchase power from NCE sources of 10,542.4 MW in 2024-25, 14679.5 MW in 2025-26, 15,664 MW in 2026-27, 15,662 MW in 2027-28 and 15,647.3 MW in 2028-29, causing RPPO percentages 27.41%, 37.20%, 38.16%, 36.16% and 33.95% for respective years of 5th control period. The said percentages are much more than the targets fixed by the Commission. That the Commission may consider the same percentage of 24% specified for FY 2007 for the period till the horizon of the 6thcontrol period. That the DISCOMs should have analysed the impending impact of their expected over-compliance under RPPO during the 5th control period.

AP DISCOMs' Response: APDISCOMs have surpassed the RPPO targets specified by the Hon'ble Commission for FY 2022-23 base year through procuring RE power from long-term PPAs consented to by the Commission. The Solar procurement to the extent of 7000 MW is expected from September 2024

in three tranches through PSA with SECI, Govt. of India undertaking. The Hon'ble Commission has accorded procurement permission for the same. This Solar power is intended to be channelised to free Agriculture Supply commitment of GoAP through a separate entity. The cost of procurement is to be borne by the GoAP, and as per the PSA, GOAP is also a party. The present RPPO target for APDISCOMs is specified up to the year FY-2027 as per the APERC Regulation. As per the updated Nationally Determined Contributions (NDCs), India is committed to reducing the Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. It is expected that the trajectory of RPPO will be enhanced accordingly.

That AP State Grid Demand was expected to increase from the existing level of 12,293 MW to 26870 MW by 2033-34 at a compounded annual growth rate (CAGR) of 7.37%. As per the 20th Electric Power Survey (EPS) conducted by the Central Electricity Authority (CEA), the expected peak demand to be met in AP is 27,461 MW by the horizon year at a CAGR of 7.58%. The DISCOMS explained that the Minimum Grid Demand incident on the system (100% Base Load) is expected to increase from the existing level of 5600 MW to 9200 MW by 2034 at a CAGR of 4.6%. The DISCOMs have to explain how their projected power procurement plan, with their expected compliance under RPPO, increasing abnormally every year during the 5th control period, would contribute to meeting the state grid demand and peak demand without creating avoidable technical and financial problems to the DISCOMs and AP GENCO and imposing avoidable burdens on consumers of power. The DISCOMs had repeatedly claimed during the 4th control period that 90-95% of the backing down of generating capacity of thermal power stations had been on account of purchasing must-run RE and that they have been incurring a loss of more than Rs.5000 crore per annum as a result of the same.

AP DISCOMS' Response: The Central Electricity Authority (CEA), MoP Govt. of India in their report of " THE TECHNICAL COMMITTEE ON STUDY OF OPTIMAL LOCATION OF VARIOUS TYPES OF BALANCING ENERGY SOURCES/ENERGY STORAGE DEVICES TO FACILITATE GRID INTEGRATION OF RENEWABLE ENERGY SOURCES AND ASSOCIATED ISSUES, December 2017" have revealed that there would be additional burden caused by Grid integration of Variable Renewable Energy Projects in terms of Adequacy Cost,

Balancing Cost and Grid Integration cost. Absorption of VRE generation involves a flexible operation of schedulable plants. Since AP don't have much-needed flexible resources in terms of Hydro or Gas, the existing thermal plants are being availed for flexibilisation so that wide variations in RE generation don't endanger Grid safety and security since RE sources are conferred Must Run Status. Since RE generation, particularly wind is very seasonal and causes a lot of intermittencies on the grid, all the ramifications are to be absorbed by thermal plants. These thermal plants are to be frequently backed down, ramped up or operated at sub-optimal loading conditions, i.e. less than 80% and up to a Technical Minimum of 55%, in order to address the intermittency caused by the RE generation. This causes an additional cost burden to the DISCOMs.

That power availability from committed sources should be worked out on a normative basis per the terms and conditions of the PPAs concerned. Further, they stated that Discoms should do its best through its dedicated round-the-clock cell to dispose of the surplus energy at appropriate periods/time blocks with state-of-the-art estimation methods/AI tools as specified in Regulation 1 of 2022 of APERC.

AP DISCOMs' Response: Availabilities from committed plants are worked out using normative parameters mentioned in the respective PPAs for the planning period. AI-based tools are presently used in APSLDC to estimate Grid demand on a day-ahead basis. The scope is also being extended to realistically estimate DISCOM-wise, Time block-wise Demand, and Market prices in the short term.

That a balanced stand on procurement of power to meet the requirement of AP DISCOMs and its financial impact needs to be analysed. A prudent decision shall be taken after due consideration with regard to the decision of the MoP not to retire any thermal units till 2030 and urged for carrying out R&M for life extension and improving the flexibility and reliability of thermal units. That AP DISCOMs are expected to lose allocation from Ramagundam stages 1&2 immediately. To get power to the extent of share from Ramagundam stages 1 and 2, the Discoms had to apply spontaneously to the common pool portal then. The scheme's impact on the beneficiaries is yet to be studied in depth.

AP DISCOMs' Response: It is gathered that the implementation of the MoP scheme for pooling PPA of expired plants has been put on hold due to legal disputes. The DISCOMs are studying the impact of the scheme. Presently, Ramagundam Stages-I&II plants are expected to be covered by the scheme. A

balanced stand on the procurement of power to meet the requirements of AP DISCOMs and its financial impact will be certainly analysed, and DISCOMs will make a prudent decision in the best interests of the electricity consumers in the state.

APTRANSCO's Response: Discoms have decided to include the above CGS generation after thorough studies and analyses of state demand and financial impact in consultation with APSLDC.

That ignoring the benefits of generating stations set up within the state and nearer to load centres, and looking after the opportunities available and preferring purchase of power, especially RE, from projects set up in other states, AP Discoms are planning to procure the power from plants situated in Rajasthan. The Commission gave consent for procurement of power from Adani plants in Rajasthan, in both the RSTOs for the current and last financial years. The reality is that the financial impact of transmission and PGCIL losses and inter-state transmission charges outwardly claimed to be waived as a matter of policy but imposed on consumers in a manipulative way through the orders issued by CERC, for the said power would turn out to be substantial running into thousands of Crores of Rupees during the period of the PPAs, apart from several other adverse consequences detrimental to the interest of the state and consumers of power as explained in our earlier submissions and otherwise.

AP DISCOMs' Response: Solar procurement to the extent of 7000 MW is expected from September 2024 in three tranches through PSA with SECI, Govt. of India undertaking. The Hon'ble Commission has accorded procurement permission for the same. This Solar power is intended to be channelised to free Agriculture Supply commitment of GoAP through a separate entity. The cost of procurement is to be borne by the GoAP, and as per the PSA, GOAP is also a party. The Backing down of Thermal Generation can be attributed to two factors, the first one being Loss of Load/Grid Demand, and the second one is an account of absorbing Must Run RE generation. The statement of the objector that "Procurement of power from generating stations set up within the state and nearer to load centres, with well-known benefits, should be the standard practice within given circumstances" needs correction. With the advent of new technologies in Power Transmission and the introduction of Ultra High Voltage (UHV) transmission systems of 765 kV and even 1200 KV, power is transmitted at a cheaper cost over long distances from the pit head stations of thermal

category and geographically dependent RE sources. Now, it is not necessary for power plants to be located at load centres. Even due to environmental concerns, thermal plants can not be located at load centres.

That the DISCOMs' generalised approach with regard to power procurement planning does not reflect effective planning in the sense that it does not contain specific steps for ensuring the ideal power mix to meet growing and fluctuating demand, with a provision for reserve margin or spinning reserve at prudent levels. This is another extremity compared to the other extremity of haphazard planning for procurement, which led to the availability of an abnormal quantum of surplus power during the 4th control period. When changed circumstances demand review and modification of the subject plans as approved by the Commission, it should be done through the process of public hearings, ensuring transparency and substantiation of proposals made for such a review and modification and their justification.

AP DISCOMs' Response: DISCOMs have considered all future generation projects in the pipeline in the capacity addition plan for the 5th and 6th Control periods. Further, there is no visibility or likelihood of different entities setting up future generating stations.

i. New technology sources such as RE Hybrid/ Pumped storage Hydro sources are also being explored and studied by the DISCOMs to increase capacity to meet future requirements.

ii. As soon as some clarity arises on the new plants from which the DISCOMs feel that power could be procured long-term at least cost, the same will be brought to the Hon'ble Commission's kind notice for permission. There is no question of haphazard planning in procurement.

APTRANSCO Response: As requested, public hearings are scheduled for 19.08.2023 in Visakhapatnam. Regarding future capacity additions and surplus/deficit scenarios, AP Discoms /APPCC are the appropriate ones to deliberate on the matter. However, AP Discoms conduct prudent analysis and studies to forecast future demands and surplus/deficit situations. Because of some unforeseen situations, such as the COVID-19 pandemic, the projections may deviate from actuals in some cases.

That the total installed capacity addition and total availability year-wise during the 5th control period are projected to increase substantially, and the licensees

have projected energy deficits, especially daily evening peak deficits, during the 5th control period. This shows that there are imbalances in terms of power mix vis a vis fluctuating demand for various reasons, especially decisions of the central and state governments.

AP DISCOMs' Response: Even though there is an increase in installed capacity, there is no corresponding increase in expected energy generation. This is because most of the projected generation capacity comes from renewable energy sources, such as Wind, Solar & Hybrid and Hydro Generation which yield less energy per MW due to seasonality and Time of the Day generation. The total net Capacity addition projected for the 5th Control period is 11,050 MW, which consists of SECI Solar-7000 MW, Wind-765 MW, Wind Hybrid-400 MW, Thermal-1080 MW, Hydro-1130 MW, Nuclear-100 MW, Upper Sileru Pumped Storage-1350 MW and Retirements (majorly four stranded Gas plants). The above capacity addition plan is worked out based on expected future capacity additions already identified/ committed so far, and the yearly deficit/surplus scenario has been evaluated and presented accordingly. The DISCOM expects to meet the base load capacity requirement to be procured through the Generating Stations capable of operating Round the Clock (RTC) with a PLF from 60% to 85%. The remaining procurement maybe with intermediate sources. Further, suppose any gap arises on a day-ahead/week-ahead basis due to a shortfall in availability from the committed sources or any variations in the generation forecast as may be made available; in that case, short-term procurement will be undertaken in compliance with the Regulation in force. The DISCOM is also required to procure ancillary services (Secondary or Tertiary) in terms of maintaining the required Reserves in compliance with the CERC's Indian Electricity Grid Code (IEGC), Deviation Settlement Mechanism (DSM) and Ancillary Services Regulations. New technology sources such as RE Hybrid/ Pumped storage Hydro sources are also being explored & studied by the DISCOMs to tie up the capacity to meet future requirements.

B. Prayas Energy Group:

That considering the 10-year planning horizon, many more important parameters need to be considered. These include BESS for managing demand-supply gaps, operation of planned PSPs to manage demand-supply gaps, non-solar captive, Behind the Meter systems, impact of energy efficiency initiatives, demand shift options, and impact of a better ToD regime.

AP DISCOMS' Response: The DISCOMs are also exploring and studying new technology sources, such as hybrid renewable energy (RE) / hydro-pumped storage sources, to increase capacity and meet future requirements. BESS is not being pursued since the storage cost is higher, the Battery system's life is shorter (6-8 years) compared to 40-50 years in Pumped hydro projects, and environmental issues are associated with its disposal.

APTRANSCO's Response: Load forecasts, resource plans and power procurement Plans are being done with the motto of achieving adequate, reliable and safe supply of least-cost power to the consumers, duly considering past trends in load growth. AP Transco considered the available parameters in preparation for the Resource Plan. APTransco put all efforts into better planning & utilisation of available sources to meet load growth, such as proper scheduling of power plants to meet the load/demand requirements and scheduling of Agriculture loads to match solar generation at the State Level. Etc

That APGENCO had some units in its fleet that have been operational for over 40 years (VTPS I). While no decommissioning or retirement has been planned for the considered control periods, some plants will likely have to be retired. As the transition progresses, decommissioning will take on a more central role. Like capacity additions, capacity decommissioning also has far-reaching impacts on the sector and requires appropriate scrutiny and transparency. From a process standpoint, it is critical to have guidelines and protocols in place to ensure smooth and just decommissioning. Such decommissioning guidelines should consider the repurposing and rehabilitation needed on the socio-environmental and economic fronts, and they are good practices as opposed to ad hoc addressing of TPP closures.

AP DISCOMs' Response: Presently, there are no plans for the decommissioning of old units as submitted in the Resource Plan

That despite the timelines, as per CEA's FGD status report for June 2023, the feasibility study has only been completed for the 1760 MW, and no tender has been awarded yet. The amendment also includes a penalty for noncompliance, ranging from Rs. 0.20/unit to Rs. 0.40/unit of generation, based on the duration of delay in compliance. If the delays persist, APGENCO plants could be saddled with the environmental compensation applicable for non-adherence. The deadlines fall within the considered control periods, and there are related cost impacts, which makes milestone-wise reporting of progress and costs

across the timeline a much-needed part of the resource plan toward ensuring transparency and accountability of the process.

AP DISCOMs' Response: Because of the paucity of baseload capacity addition, the old plants are being considered in the planning period pursuant to the direction of CEA, Ministry of Power, not to retire the thermal plants until 2030.

That AP Discoms' submitted resource plan did not cover cost optimisation details at all. The exercise was limited to meeting demand and supply requirements and planning the required network. The 2006 guidelines include preparing a State Electricity plan, which requires plans for the location of capacity addition and incorporating efficient technologies for generation, transmission, and distribution. The current petitions didn't cover these aspects.

AP DISCOMs' Response: Reiterating their submissions in the filings on power procurement, the DISCOMS have stated that the capacity addition plan is based on expected future capacity additions already identified/committed so far; a deficit/surplus scenario has been evaluated and presented in the resource plan for each ToD slot (morning, daytime, evening, and night). It has reiterated its submissions in the filings in this regard. Given uncertainties in the cost of incremental/additional generation from different source mixes, the DISCOMs could not conduct a least-cost study on procurement options.

APTransco Reply: The capacity addition is shown according to the committed contracts/ availability of resources; hence, locations are not indicated separately. The technologies adopted by APGenco for efficient generation are discussed on Pages 39 and 40 of SEP.

That despite retaining generation from legacy base load capacity, the petitions still project deficits in meeting demand. Instead, using long-term contracting for select capacity to ensure meeting only base demand must be considered. The remaining demand should and can be addressed through shorter-term procurements, which can be easily revisited and reassessed based on the DISCOM's changing demand requirement across the two control periods. However, in order to do so optimally, a realistic estimation of demand across multiple scenarios becomes even more essential.

AP DISCOMs' Response: The shortages are projected to increase significantly because of the continuous increase in Load against the almost stagnated Base Load thermal capacity addition in the forthcoming 5th and 6th Control periods.

Base load thermal generating plants are taken as a flat source at normative availability factor for the entire planning period in the hourly projections. The generation pattern is flexible to the extent of technical constraints and ramping up/down rates for individual plants. Even after considering all Old Thermal Generating Units to the extent of 210X10=2100 MW to continue on board and after the required Renovation and modernisation, there will be a dire shortage of baseload power, as can be observed from the monthly deficit/surplus situation indicated in the Resource Plan submissions by the DISCOMs.

C. A.P. Textile Mills Association:

That the energy shortage was expected, as per the forecast for every year of both the CPs. In the 5th CP, expected shortfalls to range from 237 MU to a max of 5036 MU in FY 2029-30. The SEP states, "peak energy deficit will be met either by purchasing from Power exchange or power procurement through bidding". The shortage ranges from 0.26% to 4.6% in terms of energy. This shortage can be met by 800 MW running at 80% of its normative load. Further, Regulation 1 of 2008 should be updated on the lines of CERC. That there exists a deficit in MU forecasted for the 6th CP ranging between 9057 MU in FY 2029-30 to 39977 MU by FY 2033-34, equivalent to a capacity addition of 1300 MW to 5700 MW thermal plant running at 80% of the normative load. That SEP confirms that "The state would be in deficit in the 5th control period as there is no significant capacity addition. That it is unclear why there is no plan to overcome the deficit. That is a deliberate plan to study new technological emerging options like Hydrogen. A Greenfield Power Plant takes six to seven years from conception to commissioning.

AP DISCOMS' Response: The total net Capacity addition projected for the 5th Control period is 11,050 MW, which consists of SECI Solar (7000 MW), Wind (765 MW), Wind Hybrid (400 MW), Thermal (1080 MW), Hydro (1130 MW), Nuclear (100 MW), Upper Sileru Pumped Storage (1350 MW), and Retirements (mainly four stranded Gas plants). The DISCOMS reiterated their submissions in the filings on power procurement planning.

That the SEP Document apparently understates the AP State share of installed capacity available as of 31-3-2023 by 1074 MW, whereas T.O. 2023-24 shows APGENCO NEW Thermal Dr.NTTPS V 800 MW available. The SEP document

shows NCE Availability as 7627 MW, whereas APERC considered 8253 MW in the last Tariff order.

AP DISCOMS' Response: ARR filings for FY 2023-24 were made at the end of November 2022. The Resource Plan and State Electricity Plan for the 5th and 6th Control Periods were submitted on 30-04-2023 and in May 2023, respectively. The main differences are due to the following factors.

i) As per the ARR filings, VTPS-Stage-V of 800 MW, which was expected to come on bars in March 2023, didn't achieve CoD.

ii) In respect of CGS Stations, the Hon'ble Commission didn't consider dispatch from four CGS Stations (NTPC-Kudgi, NTECL-Vallur, NTPL-Tuticorin, NNTPC-Nyveli) aggregating to a capacity of around 500 MW in the Retail Supply Tariff Order for FY 2023-24. The DISCOMs continue to procure power from these four stations in view of the power plant's grid requirement and base load nature. Hence, they are considered in the Resource Plan capacity as of 31st March 2023.

iii) Regarding GGPP, the Tariff Order considers an installed capacity of 216 MW, while the State Electricity Plan considers the present effective usage capacity as per the Gas allocation of 56 MW.

iv) The remaining differences in NCE/RE installed capacities will be reconciled.

APTransco's Response: There are some discrepancies in the installed capacities due to consideration of ex-bus in some cases and installed capacities in others. Differences are also present in NCE/RE installed capacities. The capacities will be reconciled in consultation with AP Discoms/APPCC.

That the report does not provide details about flexibility, life extension, and reliability. It does not explain whether the technical minimum PLF will be 40% or 45%. It also does not explain how long the life extension will last for the old APGENCO thermal units and the proposed capital expenditure. Has it been factored in the Rs122515 crores CAPEX proposed in the 5th and 6th CP?

AP DISCOMs' Response: AP Genco is preparing projected capital expenditures for the life extension of the old thermal projects. DISCOM's capital expenditure projections did not include that, as it will be covered in AP Genco's MYT filings. It is gathered that AP Genco is proposing a Capex of Rs 30 Lakhs/ MW for Renovating and modernising Old Thermal Units to run during the 5th and 6th Control periods.

Commission's Analysis and Decision.

80. The Commission carefully examined the objections and responses furnished by the Utilities to the objections. The utilities furnished the clarifications sought by the objectors on various aspects of power procurement planning, and the Commission found no unreasonableness in their responses. The Commission followed the prescribed regulatory process and conducted a public hearing regarding transparency. The Commission deals with all matters transparently. There is no merit in the suggestion to fix RPO at 24 percent till the end of the 6th control period, in view of RE's cost competitiveness and environmental friendliness, even after accounting for all aspects of integration issues of RE as per CEA's technical committee report. Thus, there would be no additional cost to the consumers because of the addition of more RE, particularly solar, with the combination of storage services in the power portfolio of the DISCOMS in the future, leading to cost optimisation. As regards the suggestion of considering normative availabilities for thermal plants in the supply forecast, it may be noted that the Commission proposes to discuss the two scenarios of supply forecast, one at the normative availability and the other at the actual performance of the thermal power plants particularly the power plants located intrastate. It would be prudent to consider the actual performance of the intrastate thermal power plants to arrive at the supply forecasts realistically. Regarding the power procurement from CGSs, the Commission discussed all the aspects of CGS's power procurement in its Order dated 30.10.2023. As regards the imbalances in the power mix, as explained supra, the future power portfolio will be dominated by RE due to cost competitiveness, particularly solar power. However, arriving at the ratios for the right energy mix is a complex exercise given the dynamic nature of prices of various RE technologies, and it should be determined more pragmatically. As regards the suggestion of BESS and the operation of pumped hydro storage plants in power planning, the Commission will keep the same in view while arriving at the final power procurement planning in this chapter. As regards the point raised on Flue-Gas Desulfurization (FGD) unit installation for intrastate thermal power plants, the Commission will take an appropriate view as per MoEF/MoP notifications as and when the proposals are received from the respective power plants. Regarding the cost optimisation due to the addition of the incremental capacities, though the DISCOMS have not discussed it in their filings, it may be noted that the Commission, while giving its approval, applies optimisation of the cost as one of the main criteria for incremental capacity addition, except for certain

legacy intra-state state-owned power plants due to their importance to the grid requirement and energy security. As regards the suggestion of a realistic estimation of demand across multiple scenarios, it may be noted that the Commission discussed three scenarios of load forecasting and proposes to approve the BAU scenario, which is more likely to reflect near reality. Regarding the supply, two scenarios are proposed to be discussed. As regards the suggestion of flexibility of the operation of the thermal power plants and power planning for meeting the energy/MW deficits projected, it may be noted that procedures and timelines are being formulated by the CEA regarding the flexible operation of the thermal power plants and the same will have to be complied with by the GENCOS. The DISCOMs will have to procure energy/MW forecasted in the order, as per the APERC guidelines/regulations in vogue. Regarding the views expressed by one of the objectors on power procurement of 7000 MW from SECI, the Commissions' comments are expressed at relevant place in this Order. Having finalised the load forecasts in the previous chapter of this Order and expressed its opinion on various suggestions supra regarding power planning, the Commission proposes to examine the various sources proposed by the licensees for supply forecast for only the 5th control period as there is uncertainty in power availability from some power plants of APGENCO & CGS even though the Commission made demand forecast analysis for the 6th control period indicatively before taking up the supply forecast exercise vis a vis the energy/demand as detailed in paragraphs infra.

AP GENCO & APPDCL

81. Regarding APGENCO and APPDCL's plants, DISCOMS has proposed procuring power from all the APGENCO & APPDCL power plants (thermal, hydel, and RE). All these plants have valid power purchase agreements with DISCOMS except Dr. NTTPS stage V and SDSTPS stage II. The composite Power Purchase Agreements (PPA) pertaining to 1260 MW of NTTPS (1 to 6 Units), 420 MW of RTPP Stage-I and 1723.60 MW of Hydel stations (USL, LSR, Donkarayi, SRBPH, NSRCPH, NSTPHES, PABM, Mini Hydro-Chettipeta including Inter State projects Machkund PH, Tungabhadra PH) expire on 31.03.2024. The Commission accorded in-principle permission by its letter dated 20.05.2022 for entering into Amended and Restated PPA with APGENCO's Dr NTTPS Stage-V (1X800 MW) and APPDCL stage II (1X800 MW) by the DISCOMS. The licensees filed a petition before the Commission seeking approval of the composite PPA, which was recorded as OP No. 2 of 2024. The approval for the said PPA is under consideration by the

Commission. The following hydel stations of APGENCO have been shown in a phased manner under capacity addition.

Sr.No.	Plant	Capacity (in MW)
1	Lower Sileru -2 units (2*115MW)	230
2	Polavaram – 1st to 7th Units (8*80MW)	560
3	Polavaram – 8th to 12th Units (5*80MW)	400
4	Upper Sileru Pumped Storage 1st to 8th Units	1,200
5	Upper Sileru Pumped Storage 9th Unit	150

82. The Lower Sileru two 230 MW units are primarily intended for flexible operation of the power plant to meet peak demand. After due consideration of advantages, the Commission has yet to approve them. Even if approved, there will not be any additional generation from these units. Hence, the Commission is not inclined to consider them under capacity addition.

83. Regarding the Polavaram Hydro Project 960 MW (12*80 MW), no restated PPA proposal from the DISCOMS has been received yet. The erstwhile Commission in the Resource plan for the 4th control period has been considered in the supply forecast. The licensees considered the capacity addition of 560 MW (7*80MW) during FY 2024-25 and 400 MW (5*80MW) during FY 2025-26. Despite there being no fresh proposal received yet, in view of its requirement to meet the peak demand and flexible operation of the plant, pending approval and regulatory scrutiny, the Commission considers that capacity addition of 560 MW (7*80MW) during FY 2025-26 and 400 MW (5*80MW) during FY 2026-27 as the expected date of the Commissioning of the project got delayed.

84. The Upper Sileru Pumped Storage Plant is also meant to manage grid demand, using it as a flexible storage capacity. Hence, there will not be any additional generation. The DISCOMS submitted a proposal for approval, which will be

granted following the regulatory process. However, the Commission is not inclined to consider it a capacity addition.

85. Further, the Godavari Gas Power Plant (GGPP), owned by DISCOMS and operated by APGENCO, is also considered in the Commission's supply forecast.

86. As discussed above, the Commission is inclined to consider power from APGENCO & APPDCL power stations in the supply forecast.

CGSs

87. As regards CGS, the four CGS viz NTPC- Kudgi, NTECL - Vallur, NTPL, and NNTPS were not included in the power procurement plan in RST Orders from FY2022-23, and the Appeals filed before the APTEL by the DISCOMs on these four CGS are pending. By Common Order dated 30.10.2023 in OP Nos 34 to 44 of 2023, the Commission has not approved the PPAs with the said four CGS. The Appeal filed regarding NTPC- Kudgi, NTECL - Vallur PPAs by NTPC before Hon'ble APTEL on APERC Order dated 30.10.2023 is also pending. Keeping in view the consumer's interest in the long term, the Commission passed the Order dated 30.10.2023. Be that as it may, subject to the Hon'ble APTEL judgement in this regard, the Commission is not inclined to include the four CGSs viz NTPC- Kudgi, NTECL - Vallur, NTPL, and NNTPS in the supply forecast. All the remaining CGSs approved by the Commission in the Order dated 30.10.2023 have been considered in the supply forecast. However, the PPAs with some CGS's have expired, and some are expiring in the near future, as stated in the filing, as shown below.

- Ramagundam Stage-I&II – 289.17 MW expired on 31.10.2017.
- NLC TPS-II Stage-I & Stage-II 132.573 MW expired on 31.03.2021
- Kaiga 1 to 4 units – 114.264 MW & MAPS -18.136 MW will expire during FY2026-27.
- Simhadri Stage-I - 461.1 MW will expire during FY 2027-28.
- Ramagundam Stage-III – 72.572 MW will expire during FY2029-30
- Talcher Stage-II – 181.103 MW will expire during FY2030-31.

DISCOMS have shown the above power plants in the supply forecast throughout the 5th control period based on the Renewal clauses in the respective PPAs/expected pooling Scheme. Given the cheaper cost of power from these power plants, the Commission is inclined to consider them in the supply forecast

for the 5th control period, accepting the DISCOMS' proposal. **The DISCOMS shall approach the Commission after the expiry of the said PPAs for further directions.** It is also to be noted that the following CGSs proposed by the DISCOMS under capacity addition in the supply forecast has not been considered by the Commission as there is no consent to them, uncertainty in the landed cost of the price per unit and also expected to be not helpful to optimise the power purchase cost of the DISCOMS in long term in the Commission's assessment.

Sl. No.	Name of CGS	Capacity in MW
1	NPC-KKNPP-Unit-I	1.78
2	NLC-TPS-I Expansion	2.24
3	NLC-TPS-I Expansion	2.67
4	NTPC_Telangana-STPP-Unit I	8.05
5	Bhavni	100
6	Talcher	264

As discussed above, the Commission is inclined to consider power from other CGSs in the supply forecast.

IPPs-Gas Sources

88. The Gas Plants, GMR Vemagiri, GVK Extn., GVK Gouthami, and Konaseema, are stranded due to gas unavailability, and these are not included in the supply forecast by the DISCOMS. Their PPAs are also shown to be expiring during the 5th control period. The Commission is also not inclined to consider power from these stations as there seems to be no possibility of the APM gas's availability in the near future, even though they are shown in the installed capacities head.

IPPs – Other (Thermal) Sources

89. The licensees have considered Hinduja Power Plants and Sembcorp Energy India Limited under this category. The Commission considered the same as filed by the licensees for the Power Supply forecast as their PPAs' approval is in place.

Non-Conventional Energy (NCE) Sources

90. The capacity of Biomass, Bagasse, Industrial Waste, Municipal Solid Waste, and Mini-hydel plants, including their retirement, are considered as filed by the DISCOMS in the supply forecast.

91. Regarding Wind power, DISCOMS have shown 774.9 MW wind power from AXIS Energy under the supply forecast. The Commission, in its Order dated 19.04.2024, has rejected the proposal of 774.9 MW of wind power from AXIS. The Wind capacity from multiple PPAs as filed by the DISCOMS, including the retirement of a certain capacity as filed, has been considered by the Commission in the supply forecast.

92. Regarding Solar power, the Licensees proposed a capacity addition of the 7000 MW through SECI from September 2023 onwards in a phased manner, i.e., 3000 MW as of 2024, 6000 MW as of 2025 and 7000 MW as of Sep 2026. In this regard, by order dated 11.11.2021, APERC permitted DISCOMS to procure 7000 MW solar power from SECI in three tranches from October 2024-25. The Commission has approved the tripartite PSA by the Order dated 12.04.2024. This power procurement is intended to supply free power to farmers in the State through Andhra Pradesh Rural Agriculture Power Supply Company Ltd (APRAPSCL) directly by the Government, which agreed to bear the entire power and network cost without any burden on the DISCOMS and its consumers. Under a transition arrangement, the PSA was entered by DISCOMS. The arrangement for the direct supply of free power by GoAP to the farmers has not yet been finalised. The GoAP has agreed to bear the entire cost of free power through its statement before the Commission at the end of Retail Supply Tariff public hearings for FY2024-25. The free power sales, therefore, are included in the sales of the DISCOMS and accordingly in power requirement. Further, the inclusion of SECI power in DISCOMS's power procurement in the transition period is expected to reduce about 40-50 paise per unit of the weighted average power purchase cost of NCE. Therefore, it will be beneficial to all consumers. One of the objectors raised the issue of the additional burden on sharing the ISTS charges due to the policy exemption on waiving ISTS charges to RE power plants. It may be noted that as

all these ISTS charges under the waiver are being shared by all the GNA grantees, the net incremental burden may be small on beneficiary state receiving power from ISTS under waiver of charges. Even after accounting for the same, it would still benefit the State given the availability of the huge land bank earmarked for developing big solar parks which can be used for industrial development. Hence, there is no rationale in the comments of the objector. As discussed above, in addition to the solar power from SECI, the Solar capacity from multiple PPAs as filed by the DISCOMS, including the retirement of certain capacity, has been considered by the Commission in the supply forecast.

93. Further, the DISCOMS have shown 400 MW of Wind-Solar hybrid Power under the Bundling, Balancing & Banking (BBB) scheme in their supply forecast. This bundling proposal of 400 MW of Wind-Solar hybrid was not approved by the Commission. The Commission communicated its remarks to the DISCOMS by letter dated 11.07.2023, duly returning the draft PPAs. Hence, the same is not shown in the Commission's supply forecast.

94. As discussed above, the Commission is inclined to consider power from NCE power stations in the supply forecast.

95. Accordingly, the details of the year-wise installed capacity in MW as per the filing and approval by the Commission for supply forecast are shown in the table below.

Capacity Addition -As per filings					
Source	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
THERMAL	-	-	-	-	-
HYDEL	790	400	-	1,200	150
TOTAL APGENCO & Interstate	790	400	-	1,200	150
Joint Sector	-	-	-	-	-
CGS Station	100	-	-	264	-
IPPs-Gas based IPPs	-315	-	-205	-	-171
IPPs-Thermal	-	-	-	-	-
Non-Conventional Energy Sources (NCE)	2,995	4,138	985	-2	-15
Grand Total	**3,570**	**4,538**	**780**	**1,462**	**-36**

Capacity Addition – Approved					
Source	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
THERMAL	-	-	-	-	-
HYDEL	-	560	400	-	-
TOTAL APGENCO & Interstate	-	560	400	-	-
Joint Sector	-	-	-	-	-
CGS Station	-	-	-	-	-
IPPs-Gas based IPPs	-315	-	-205	-	-171
IPPs-Thermal	-	-	-	-	-
Non-Conventional Energy Sources (NCE)	2,995	2,962	985	-2	-15
Grand Total	**2,680**	**3,522**	**1,180**	**-2**	**-186**

Summary of Capacities	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**
Year Wise Capacity Addition- Filings	3,570	4,538	780	1,462	-36
Year Wise Capacity Addition Approved	2,680	3,522	1,180	-2	-186
Diff	890	1,015	-400	1,464	150

96. The details of the year-wise installed capacity in MW as per the filing and approval by the Commission for supply forecast are shown in the table below.

Filings: Installed Capacity- for 5th Control Period					
Claimed	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
APGENCO APPDCL	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	2,563	2,964	2,964	4,164	4,314
APDISCOMs Gas	-	-	-	-	-
CGS	2,095	2,095	2,095	2,359	2,359
IPPs Gas	-	-	-	-	-
IPPS Others	1,896	1,896	1,896	1,896	1,896
NCE	10,542	14,680	15,664	15,662	15,647
Total	23,546	28,083	29,068	30,530	30,665

Approved: Installed Capacity for 5th Control Period					
Approved	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
APGENCO APPDCL	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	1,774	2,334	2,734	2,734	2,734
APDISCOMs Gas	216	216	216	216	216
CGS	1,501	1,501	1,501	1,501	1,501
IPPs Gas	375	171	171	0	0
IPPS Others	1,896	1,896	1,896	1,896	1,896
NCE	10,542	13,505	14,489	14,487	14,472
Total	22,754	26,072	27,456	27,284	27,269

97. The station-wise capacities as of 31st Mar 2023 and Net Capacity addition filed by the licensees and approved by the Commission during the 5th control period are shown in the table below.

S. No.	**Source of Power**	**Filings**		**Approved**	
		Capacity MW As on 31st Mar 2023 AP Share MW	**Net Capacity MW Addition/(Retirement) for 5th CP**	**Capacity MW As on 31st Mar 2023 AP Share MW**	**Net Capacity MW Addition/ (Retirement) for 5th CP**
1	VTPS I	420		420	
2	VTPS II	420		420	
3	VTPS III	420		420	
4	VTPS IV	500		500	
5	RTPP I	420		420	
6	RTPP Stage-II	420		420	
7	RTPP Stage-III	210		210	
8	Rayalaseema TPP Stage IV Unit-6 (600MW)	600		600	
9	Vijayawada TPS Stage V (1x800 MW)		800		800

S. No.	Source of Power	Filings		Approved	
		Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/(Retirement) for 5th CP	Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/ (Retirement) for 5th CP
	APGENCO-THERMAL	**3,410**	**800**	**3,410**	**800**
10	MACHKUND PH AP Share	60		60	
11	TUNGBHADRA PH AP Share	58		58	
12	USR	240		240	
13	LSR	460		460	
14	DONKARAYI	25		25	
15	SRBEHS	770		770	
16	NSRCPH	90		90	
17	PABM	20		20	
18	MINI HYDRO (Chettipetta)	1		1	
19	Nagarjunasagar Tail pond (1x25 MW) Unit-1	25		25	
20	Nagarjunasagar Tail pond (1x25 MW) Unit-2	25		25	
21	Polavaram (12x80MW)		960		960
22	Lower Sileru (2X115MW)		230		
23	Upper sileru Pumped storage (9X150)		1,350		
	APGENCO-HYDEL	**1,774**	**2,540**	**1,774**	**960**
24	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-1	720		720	
25	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-2	720		720	
26	Krishnapatnam TPP (JVP) Stage II (1X800MW) Unit-3	800		800	
27	Godavari Gas Power Plant (GGPP)	216		216	
	JOINT SECTOR	**2,456**	**0**	**2,456**	**0**
28	NTPC-(SR) Ramagundam I & II	276		276	
29	NTPC-(SR) Ramagundam- III	69		69	

S. No.	Source of Power	Filings		Approved	
		Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/(Retirement) for 5th CP	Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/ (Retirement) for 5th CP
30	NTPC-Talcher-II	176		176	
31	NTPCSimhadri Stage-I	461		461	
32	NTPC Simhadri Stage-II	214		214	
33	NLC TS II Stage-I	47		47	
34	NLC TS II Stage-II	86		86	
35	NPC-MAPS	18		18	
36	NPC-Kaiga 1 & 2	55		55	
37	NPC-Kaiga 3 & 4	59		59	
38	NTPC JNNSM Phase I	39		39	
39	Vallur (JV) NTPC with TANGEDCO	86			
40	NLC-TNPL Tuticorin	121			
41	NTPC-Kudigi	211			
42	NNTPS	53			
43	Kudankulam unit 1	2			
44	NLC TPS I Exp	2			
45	NLC TPS II Exp	3			
46	Telangana STPS Phase I (Unit-1&2)		16		
47	Bhavani		100		
48	Talcher stg=III		264		
	Total CGS	**1,979**	**380**	**1,501**	**0**
49	HNPCL	1,040		1,040	
50	M/s SEMBCORP ENERGY INDIA LIMITED(SEIL)	231		231	
51	M/s SEMBCORP ENERGY INDIA LIMITED(SEIL)	625		625	
	IPPs (Thermal)	**1,896**	**0**	**1,896**	**0**
52	M/s GVK Extn	101	(101)	101	(101)

S. No.	Source of Power	Filings		Approved	
		Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/(Retirement) for 5th CP	Capacity MW As on 31st Mar 2023 AP Share MW	Net Capacity MW Addition/ (Retirement) for 5th CP
53	M/s GVK Gouthami (GGPL)	214	(214)	214	(214)
54	M/s GMR Vemagiri GVPGL)	171	(171)	171	(171)
55	M/s Konaseema (KGPL)	205	(205)	205	(205)
	IPPs (Gas)	**691**	**(691)**	**691**	**(691)**
56	NCE Biomass	72		72	
57	NCE Bagasse	74		74	
58	NCE - Industrial Waste based power project	22		22	
59	NCE - Municipal Solid Waste Projects	36		36	
60	NCE- Wind	3,639		3,639	(16)
61	NCE – Solar	3,756		3,756	6,999
62	NCE- Mini Hydel	29		29	
63	Solar (SECI from Rajasthan)		6,999		
64	Wind		1,158		
65	Other NCE		(136)		(59)
	NCE	**7,627**	**8,021**	**7,627**	**6,925**
	Total	**19,832**	**11,050**	**19,354**	**7,994***

*VTPS Stage-V (800 MW) was commissioned in the last year of the 4th Control Period.

98. **However, the inclusion of any project / plant under the above sources is only for the purpose of estimating the capacity availability during the Control Period. It does not in any way confer regulatory approval, which has to be obtained separately based on merits in accordance with law. Further, with respect to the Generating stations included in the sources of supply shown above which either have no Power Purchase Agreements or have no approval from the Commission for their Power Purchase Agreements and/or whose**

tariff is still not determined by the Commission, except in the cases where there is an adhoc tariff already being paid as per the Orders of the Commission, the licensees shall not receive any supply of power without prior intimation to and prior approval of the Commission.

Supply forecast Scenarios

99. It may be noted that all thermal power stations in the State are non-pit head station. Therefore, their actual performance depends on the supply and quality of the coal. Railway corridor congestion issues also lead to an insufficient supply of coal. Hence, their actual performance during the past few years is less than normative availability. Therefore, as stated supra, the Commission proposes to analyse the Power Supply forecast in two scenarios. (i) Supply forecast at Normative Performance of the thermal stations (ii) Supply forecast at Actual Performance of the thermal stations. The supply forecast and resource adequacy were done for three DISCOMS to optimise power purchase cost as their energy requirement was dispatched together.

(i) Supply forecast at Normative Performance of the thermal stations: The supply forecast is based on the normative availability of the thermal power stations located intra-state as per the regulations and/or orders issued by the Commission from time to time.

(ii) Supply forecast at Actual Performance of the thermal stations: The supply forecast is based on the actual availability of the thermal power stations located intra-state, as considered in the RST Order for FY 2023-24.

The supply forecast for the remaining thermal power stations and other sources in DISCOMS's power portfolio is the same in the two scenarios.

Base Load Supply Stations (BS)/ Other than Base Load Supply Stations (OTBS)

The Commission classified the supply sources in the forecast as Base load Supply Stations and other than Base load supply Stations. The table below shows the year-wise summary break-up of approved BS and OTBS installed capacities for the 5th CP, and each station-wise break-up is shown in the Annexure-C1.

Table 109: Installed Capacity-Approved for 5th Control Period (MW)

Base Load Supply Stations	FY 25	FY 26	FY 27	FY 28	FY 29
AP Genco Thermal	4,210	4,210	4,210	4,210	4,210
Joint Sector	2,456	2,456	2,456	2,456	2,456
CGS Station	1,501	1,501	1,501	1,501	1,501
IPPs-Thermal	1,896	1,896	1,896	1,896	1,896
Total- Base Supply	**10,063**	**10,063**	**10,063**	**10,063**	**10,063**
Other than Base Load Supply Stations					
IPPs-Gas based IPPs	375	171	171	0	0
HYDEL	1,774	2,334	2,734	2,734	2,734
Non-Conventional Energy Sources (NCE)	10,542	13,505	14,489	14,487	14,472
Total - Other than Base Supply	**12,692**	**16,009**	**17,394**	**17,221**	**17,206**
Base Load & OTB					
Base Supply	10,063	10,063	10,063	10,063	10,063
Other than Base Supply	12,692	16,214	17,394	17,392	17,206
Total	**22,754**	**26,072**	**27,456**	**27,284**	**27,269**

100. The summary of capacities of the Base Power Supply Stations at Ex-bus at Normative Performance of the thermal stations (Scenario 1) are shown in the table below, and full details is shown in the Annexure-C2**.**

Table 110: Approved: Ex Bus BS Capacity at Normative Performance for 5th Control Period (MW)

Base Load Supply Stations	FY 25	FY 26	FY 27	FY 28	FY 29
AP Genco Thermal	3,164	3,164	3,164	3,164	3,164
Joint Sector	1,909	1,909	1,909	1,909	1,909
CGS Station	1,171	1,171	1,171	1,171	1,171
IPPs-Thermal	1,534	1,534	1,534	1,534	1,534
Total- Base Supply	**7,778**	**7,778**	**7,778**	**7,778**	**7,778**

101. The summary of capacities of the Base Power Supply Stations at Ex-bus at Actual Performance of the thermal stations (Scenario II) are shown in the table below, and full details is shown in the Annexure-C3**.**

Table 111: Approved: Ex BUs OTBS at Actual Performance for 5th Control Period (MW)

Base Load Supply Stations	FY 25	FY 26	FY 27	FY 28	FY 29
AP Genco Thermal	2,182	2,182	2,182	2,182	2,182
Joint Sector	1,547	1,547	1,547	1,547	1,547
CGS Station	1,171	1,171	1,171	1,171	1,171
IPPs-Thermal	1,481	1,481	1,481	1,481	1,481
Total- Base Supply	**6,382**	**6,382**	**6,382**	**6,382**	**6,382**

102. The summary of the installed capacities, capacity at ex bus at normative performance of thermal power stations and actual performance of thermal power stations as considered by the Commission in the supply forecast is shown in the table below.

Table 112: summary of the installed capacities, capacity at ex bus at normative performance

Base Supply (MW)	FY 25	FY 26	FY 27	FY 28	FY 29
Installed Capacity (MW)	10,063	10,063	10,063	10,063	10,063
At Normative Performance (MW)	7,778	7,778	7,778	7,778	7,778
At Actual Performance (MW)	6,382	6,382	6,382	6,382	6,382
Diff Normative & Actual (MW)	1,396	1,396	1,396	1,396	1,396

As can be seen from the above table, the capacity of the base load thermal stations has come down by 1,396 MW compared to normative performance. This has a significant bearing on the optimisation of the power purchase cost. Therefore, the utilities should take up the performance improvement measures of base supply thermal stations located intrastate as a top priority with the intervention of the State Government.

103. Having fixed the sources and supply scenarios as discussed supra, the Commission determined exbus capacities for estimating the energy availability in scenarios one and two, as shown in the Annexures-C4-C5.

104. The hourly energy/MW available for the entire 5th control period has been arrived at based on the ex-bus capacities fixed for each source. In scenario one, the normative energy/MW in each one-hour time block is considered for all thermal

stations. In scenario two, the energy/MW in each one-hour time block has been considered based on the PLFs considered in RSTO for FY 2023-24 issued by APERC for intra-state thermal stations and whereas for other thermal stations, normative energy/MW has been considered. The energy/MW for hydel, wind and solar sources has been considered based on the historical profile of generation corresponding to the capacities considered in both the scenarios. Accordingly, the summary of energy availability for each year of the control period is arrived at for both the scenarios. The energy availability estimated by the Commission in two scenarios vs filings is shown in the tables below.

Table 113: Filings: Energy Availability for 5th CP (MU)

Source	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
AP Genco & (APPDCL & Godavari Gas)	35,249	33,836	34,833	36,577	38,105
AP Genco-Hydel	4,482	4,563	4,563	4,563	4,563
CGS	12,643	12,074	12,476	14,839	15,533
IPPs-Thermal	12,164	11,675	11,912	12,256	12,853
Wind	7,205	9,513	9,503	9,503	9,503
Solar	9,202	16,150	21,135	22,507	22,507
NCE-Others	665	665	665	665	665
Total	**81,610**	**88,476**	**95,087**	**100,910**	**103,729**

Table 114: Approved: Energy Availability for 5th CP (MU) -Scenario-I

Source	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
AP Genco & (APPDCL & Godavari Gas)	44,440	44,440	44,440	44,562	44,440
APGenco-Hydel	3,875	5,099	5,972	5,985	5,972
CGS	10,254	10,254	10,254	10,282	10,254
IPPs	13,436	13,436	13,436	13,473	13,436
Wind	6,549	6,529	6,521	6,534	6,521
Solar	10,678	17,725	22,465	23,733	23,661
NCE-Others	350	350	350	351	350
Total	**89,584**	**97,835**	**103,441**	**104,921**	**104,636**

Table 115: Approved: Energy Availability for 5th CP (MU) -Scenario-II

Source	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
AP Genco & (APPDCL & Godavari Gas)	36,651	36,651	36,651	36,751	36,651
APGenco-Hydel	3,875	5,099	5,972	5,972	5,972
CGS	10,254	10,254	10,254	10,282	10,254
IPPs	11,030	11,030	11,030	11,060	11,030
Wind	6,549	6,529	6,521	6,521	6,521
Solar	10,678	17,725	22,465	23,733	23,661
NCE-Others	350	350	350	351	350
Total	**79,388**	**87,639**	**93,244**	**94,672**	**94,440**

105. Having determined the energy availability as above for the 5th control period, the Commission proposes to compare it with the energy requirement for the BAU scenario as determined in Chapter III to determine the adequacy of the energy in each year. The comparative tables are shown below.

Particulars	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Energy Requirement (MU)-BAU	81,025	86,596	92,538	99,276	105,910
Energy Availability -Scenario-I (MU)	89,584	97,835	103,441	104,921	104,636
Energy Availability -Scenario II (MU)	79,388	87,639	93,244	94,672	94,440
Difference =Availability (MU) -Energy Requirement (MU)					
Surplus/(deficit) -Scenario-I (MU)	8,559	11,239	10,903	5,645	-1,274
Surplus/(deficit) -Scenario-II (MU)	-1,637	1,043	706	-4,604	-11,470

As can be seen from the table above, the energy availability in scenario one is sufficient up to FY 2027-28, and there will be a shortage in the last year of the control period. In scenario II, there will be energy shortages in three years and a surplus of energy in two years. This comparison would not be useful for checking the adequacy of the capacity requirement to meet the fluctuating demand across the months in a year. In this regard, it is relevant to refer to the relevant points in APERC's load forecast and power procurement guidelines 2006, FOR model Regulation on Resource Adequacy Framework, the MoP/CEA rules on resource

adequacy and power procurement and the CERC (Ancillary Services) Regulations, 2022. The relevant guidelines/Regulations are extracted herein for ready reference.

The Commission's Guidelines 2006:

" *3.3.4 (iv) the plan for additional power procurement indicating portfolio mix of unit sizes, technology and fuel type, capacity contracted to meet peak / offpeak and seasonal load, year and duration of procurement, any uncontracted load with risks quantified and mitigation measures considered, and expected unit cost (to include energy, capacity and where appropriate transmission costs, the costs of DSM measures if any, and cost of risk coverage). The plan should show the options that were evaluated and the results or expected results of evaluation of alternative options. The plan should justify, in terms of economic advantage, the preferred options for meeting new capacity requirements;*

The Licensee shall follow the Guidelines for Determination of Tariff by Bidding Process for Procurement of Power by Distribution Licensees (for short, the Competitive Bidding Guidelines or CBG) issued by Ministry of Power on 19.01.2005 in respect of procurement of power for a period of more than one year. If the Licensee proposes to procure the power by a process other than that specified by the Competitive Bidding Guidelines, it shall, in its filing with the Commission, seek the consent of the Commission and demonstrate to the Commission's satisfaction that the proposed procurement is the preferred least cost option, with reference to the economic, technical, system and environmental aspects of commercially viable alternatives, including arrangements for reducing the level of demand. The Licensee shall describe the procurement procedure proposed to be adopted, including the steps to be taken to ensure that the purchase is made on the best possible terms.

4.1.3 In respect of procurement of power for a period not exceeding one year, the Licensees shall be guided by the Short term power procurement guidelines as issued by the Commission from time to time.

FOR model Regulations, June 2023:

"Resource Adequacy" or "RA" means a mechanism to ensure adequate supply of generation to serve expected demand (including peak, off peak and in all operating conditions) reliably in compliance with specified reliability standards for serving the load with an optimum generation mix with a focus on integration of environmentally benign technologies after taking into account the need, inter alia, for flexible resources, storage systems for energy shift, and demand response measures for managing the intermittency and variability of renewable energy sources.

GUIDELINES FOR RESOURCE ADEQUACY PLANNING FRAMEWORK FOR INDIA (Framed under the Rule 16 of Electricity (Amendments) Rules, 2022), Issued by CEA June 2023.

1.2 Resource Adequacy means tying up sufficient capacity to reliably serve expected demand of the consumers in the DISCOMs license area in a cost effective manner. ……. A key aspect of resource adequacy planning is to ensure that adequate generation capacities are available, round-the-clock, to reliably serve demand, under various scenarios. This translates into requirement of an adequate reserve to cater to varying levels of demand and supply conditions prevailing in the grid.

1.3. The resource adequacy framework lays down the optimal capacity mix required to meet the projected demand at minimum cost. New generation capacities, energy storage and other flexible resources needed to reliably meet future demand growth

at optimal cost to the system will be timely assessed. It must also incorporate likely retirement of existing capacity on account of completion of economic life.

1.4. Procurement actions according to Resource Adequacy framework must be taken up timely by DISCOMs so that generation capacity becomes available well before its requirement to meet projected growth.

4.4 The states can either put up their own generation capacities for meeting their future demand or the respective state distribution licensee shall procure the required resources through the tariff based competitive bidding guidelines for procurement of power notified under the provisions of section 63 of the Electricity Act 2003.

4.5 The power capacity procurement from renewable energy sources for fulfilling the RPO targets shall be carried out taking into account the RE potential in that State and fungibility within the RE resources as per the latest RPO order. The power procurement corresponding to wind, solar PV, Wind solar Hybrid, Round the Clock (RTC) power shall be carried out as per the guidelines for tariff based competitive bidding process for procurement of power from respective grid connected wind, solar PV, Wind solar Hybrid, Round the Clock (RTC) power projects.

The Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2022.

Objective: While it is desirable in the interest of grid security that adequate reserves are maintained locally at the State level for each state control area as per the Grid Code or the State Grid Code as the case may be, these regulations aim to provide mechanisms for procurement, through administered as well as market-based mechanisms, deployment and payment of Ancillary Services at the regional and national level for maintaining the grid frequency close to 50 Hz, and restoring the grid frequency within the allowable band as specified in the Grid Code and for relieving congestion in the transmission network, to ensure smooth operation of the power system, and safety and security of the grid.

Scope; These regulations shall be applicable to regional entities, including entities having energy storage resources and entities capable of providing demand response qualified to provide Ancillary Services and other entities as provided in these regulations.

"Primary Reserve Ancillary Service" or "PRAS" means the Ancillary Service which immediately comes into service through governor action of the generator or through any other resource in the event of sudden change in frequency;

"Secondary Control Signal" means automated signal generated from the Nodal Agency through which injection or drawal or consumption of an SRAS provider is adjusted, and includes AGC signal;

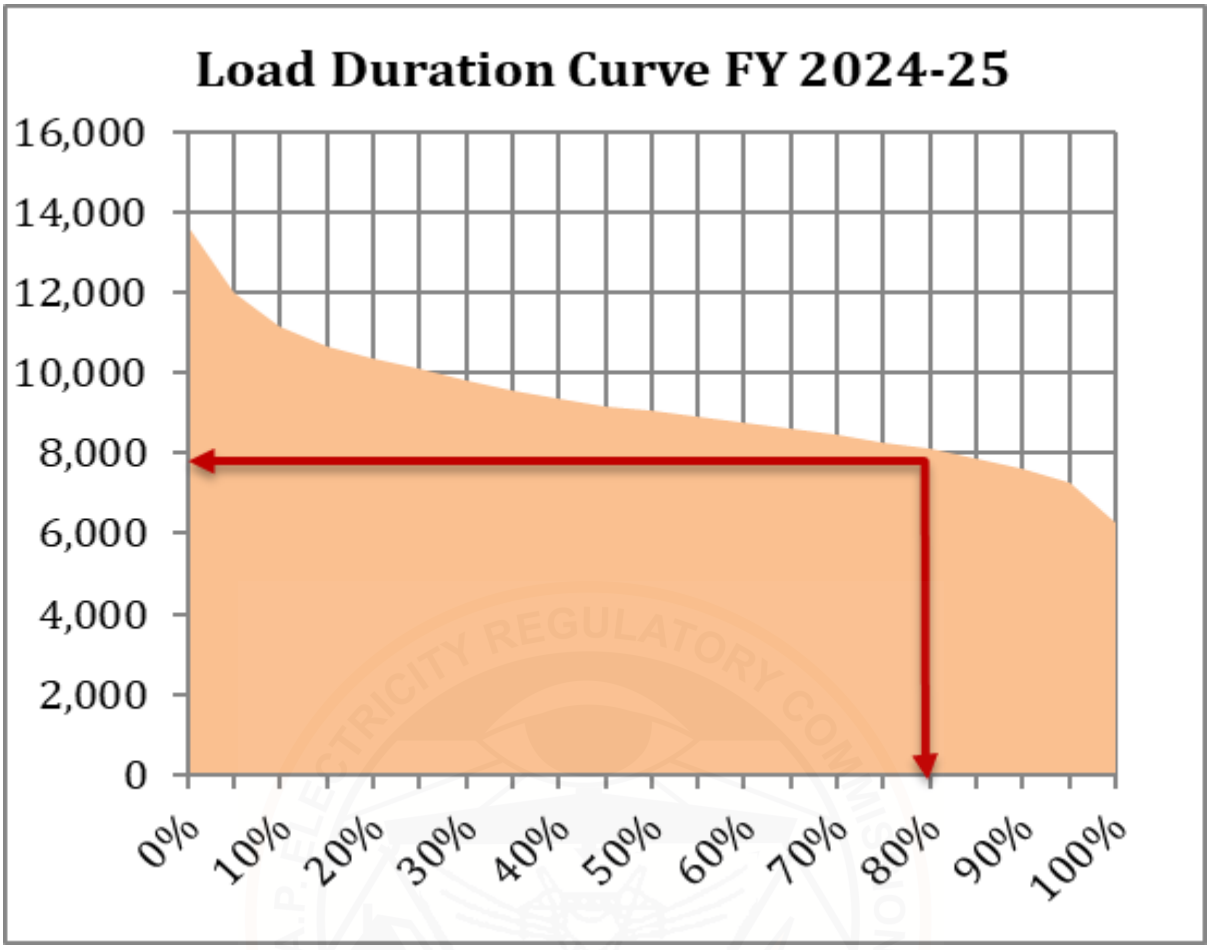
"Secondary Reserve Ancillary Service" or "SRAS" means the Ancillary Service comprising SRASUp and SRAS-Down, which is activated and deployed through secondary control signal;

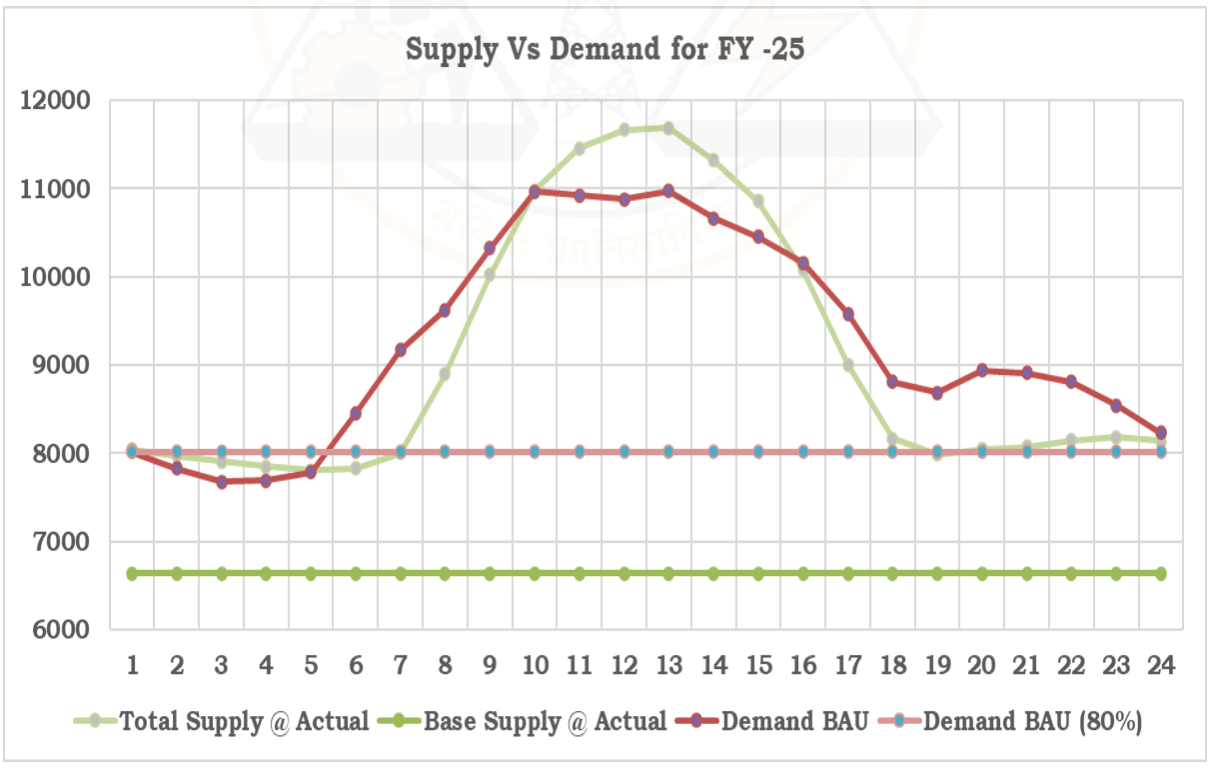
"Tertiary Reserve Ancillary Service" or "TRAS" means the Ancillary Service comprising TRAS-Up and TRAS-Down and consists of spinning reserve or non-spinning reserve, which responds to despatch instructions from the Nodal Agency; "

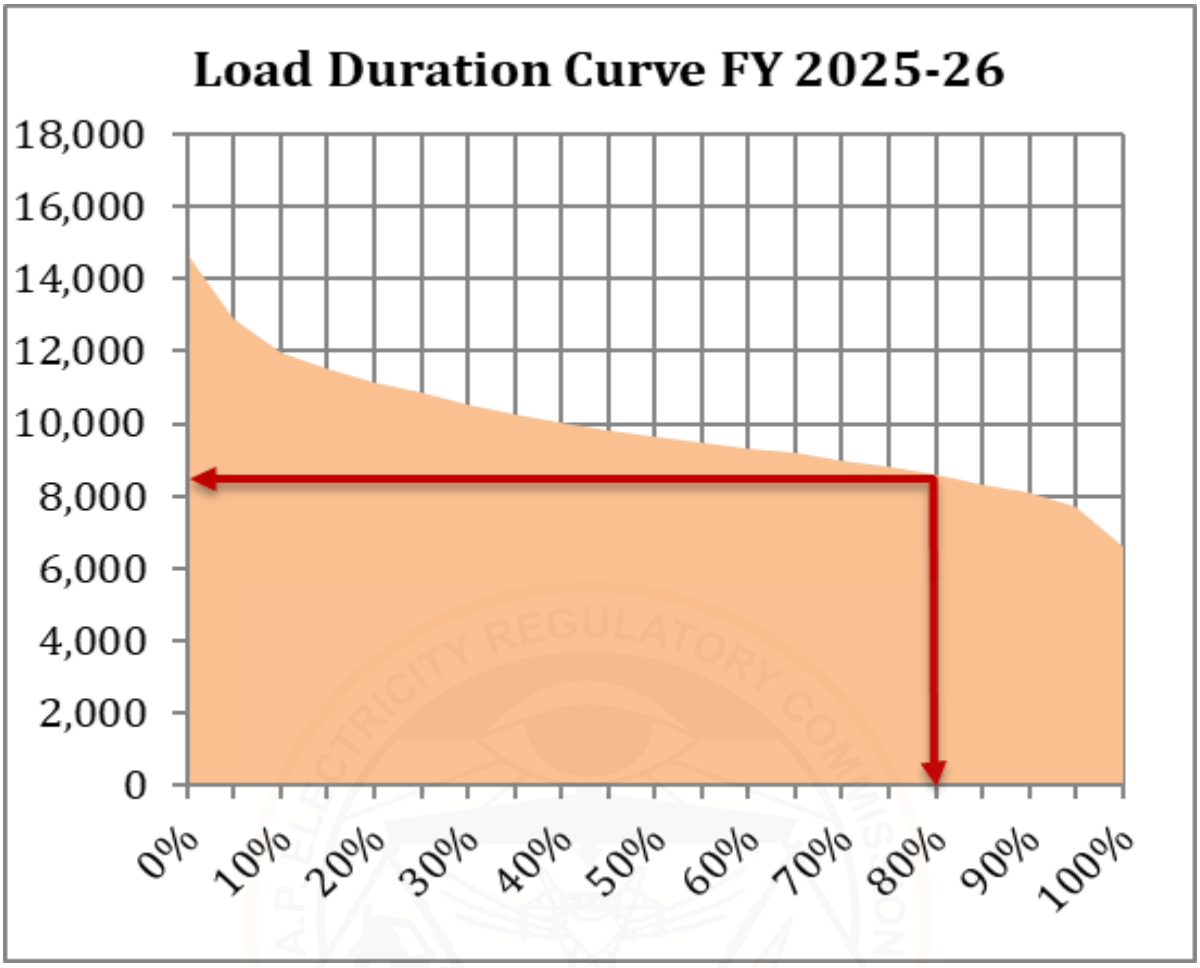
The summary of the above relevant guidelines/Regulations is that "Resource Adequacy" or "RA" means a mechanism to ensure adequate supply of generation to serve expected demand (including peak, off-peak and in all operating conditions) reliably at minimum cost and a key aspect of resource adequacy planning is to ensure that adequate generation capacities are available, round-the-clock, to serve

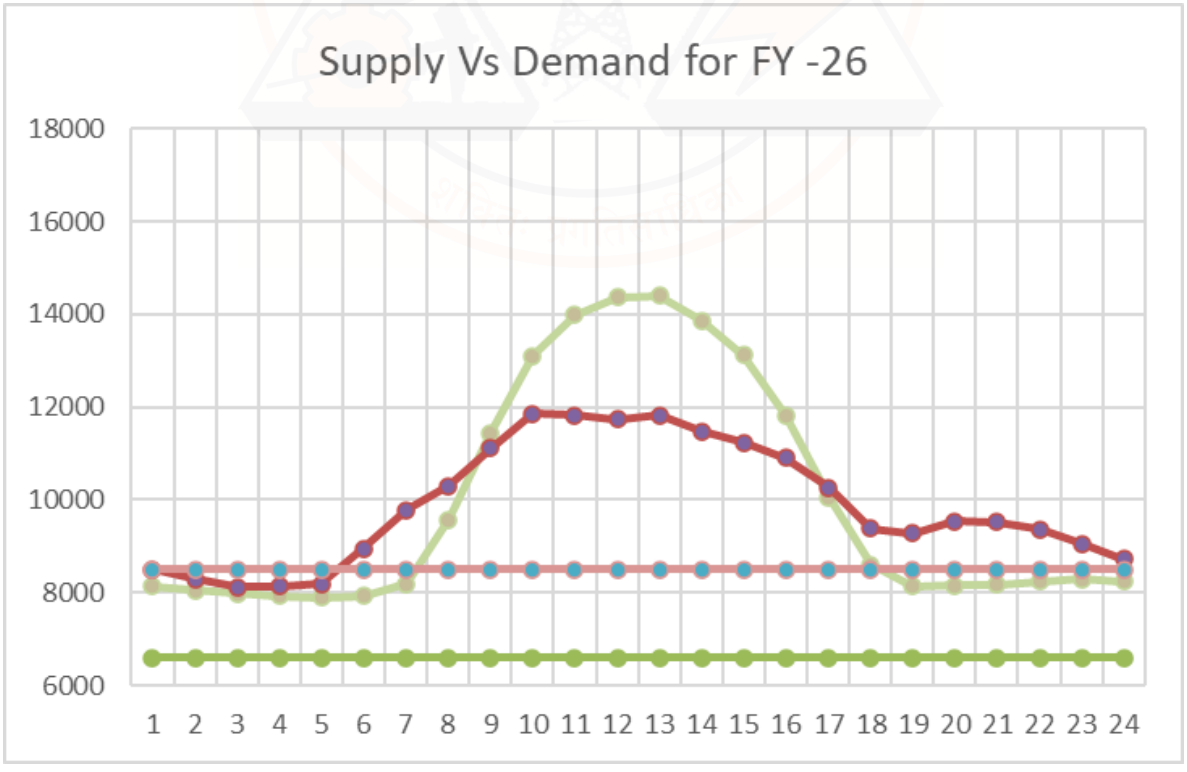
demand, under various scenarios reliably. The procurement shall be under competitive bidding. However, if the licensees propose to procure an alternative method, they shall demonstrate to the Commission's satisfaction that the proposed procurement is the preferred leastcost option. The licensees may use ancillary services to manage the intermittent RE generation in real-time. Therefore, there will be a skew if resource adequacy is determined only in terms of energy. Hence, to meet the demand round the clock in various seasons, the Commission analysed the demand and Supply data in MW terms hourly for the entire control period. The MW analysis for determining resource adequacy is detailed in the paragraphs infra.

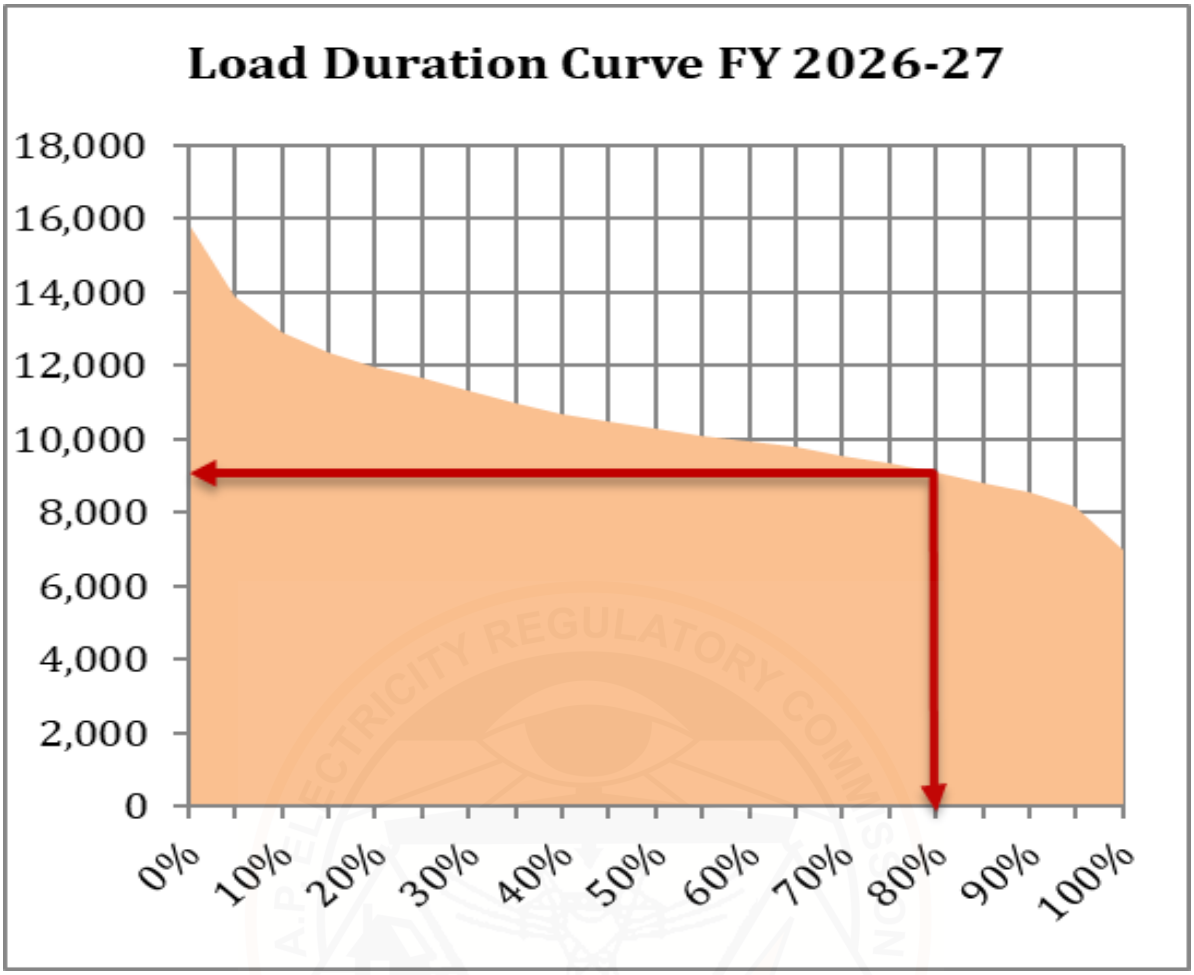
106. The yearly and monthly load duration curves for the demand estimated in Chapter III are used to check the resource adequacy for meeting the base load. The load vs supply curves are used to check the adequacy for meeting the peak loads and loads during the time of the day (TOD as per the RST Orders). The curves developed in MW terms are shown below.

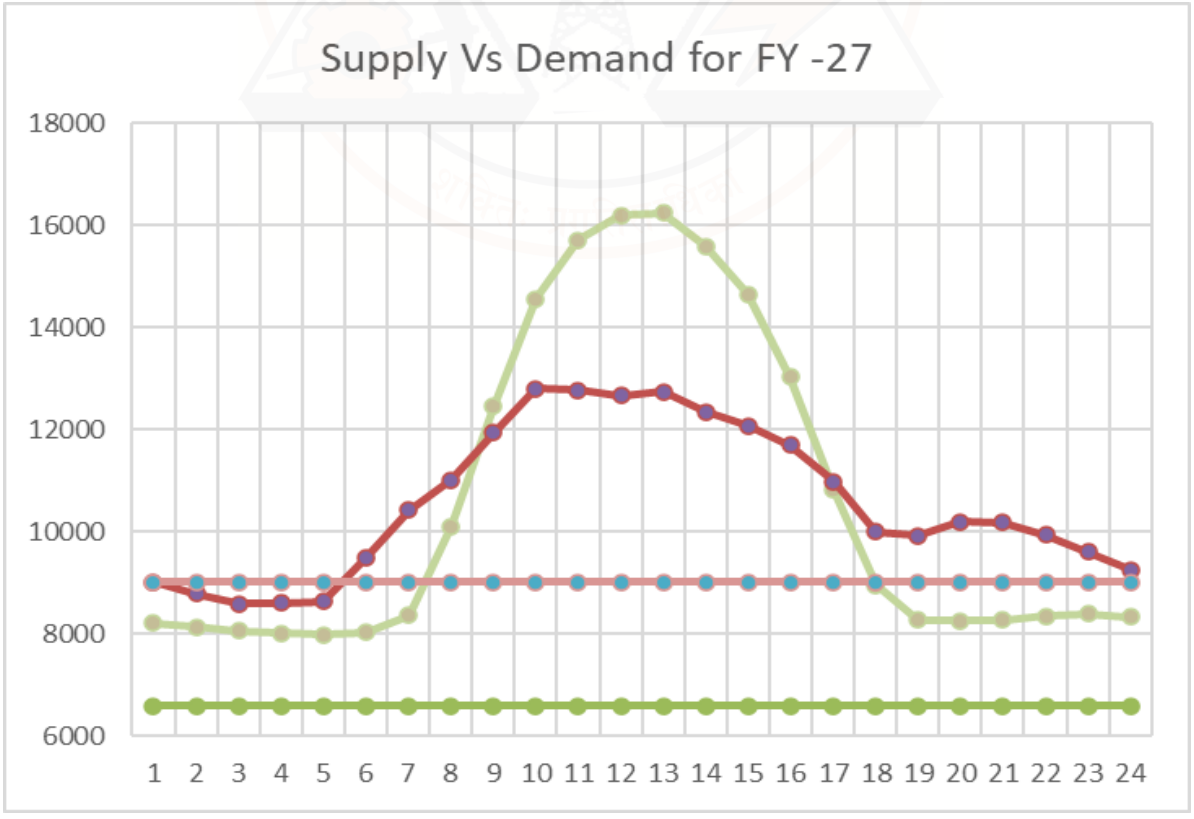

Load Duration Curve FY 2024-25
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

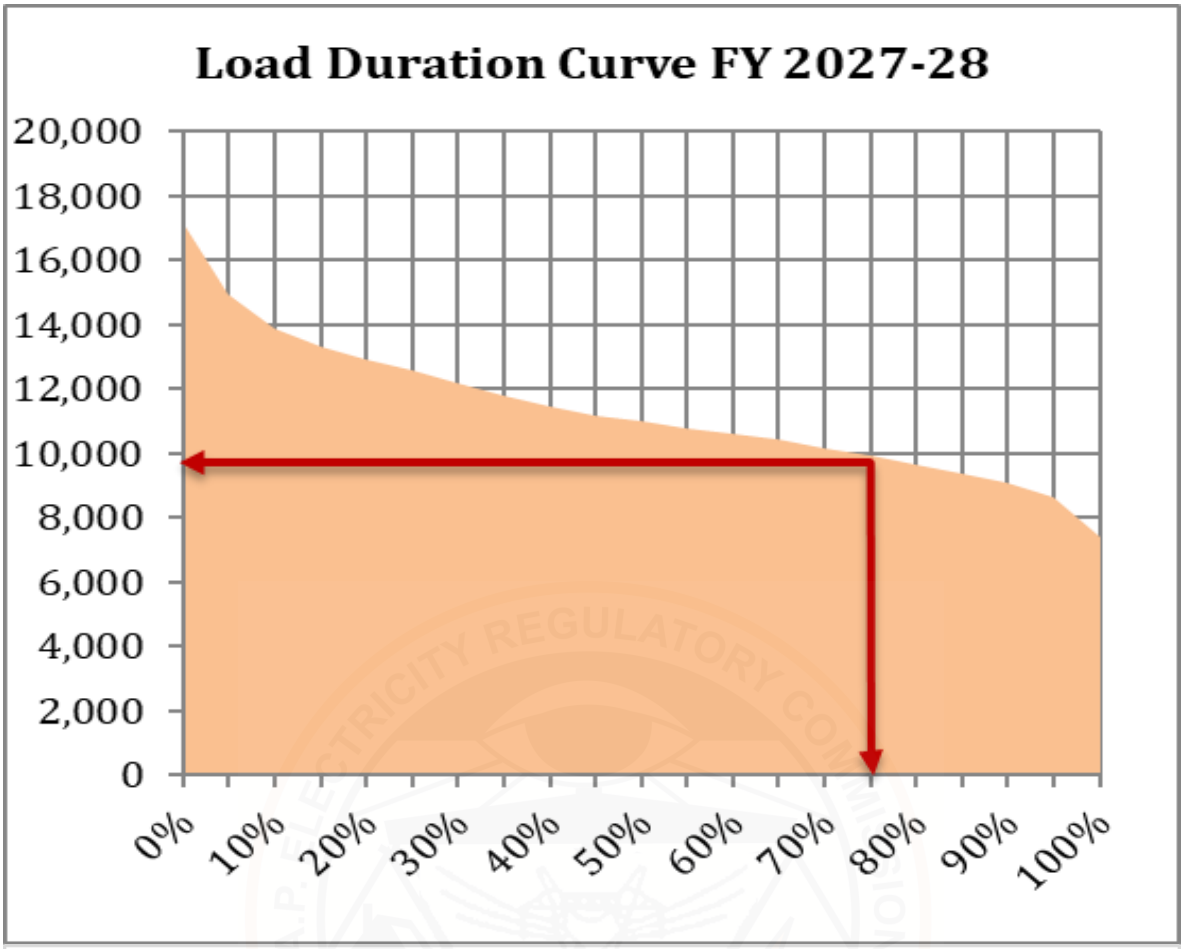

Supply Vs Demand for FY -25
12000
11000
10000
9000
8000
7000
6000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Total Supply @ Actual
Base Supply @ Actual
Demand BAU
Demand BAU (80%)

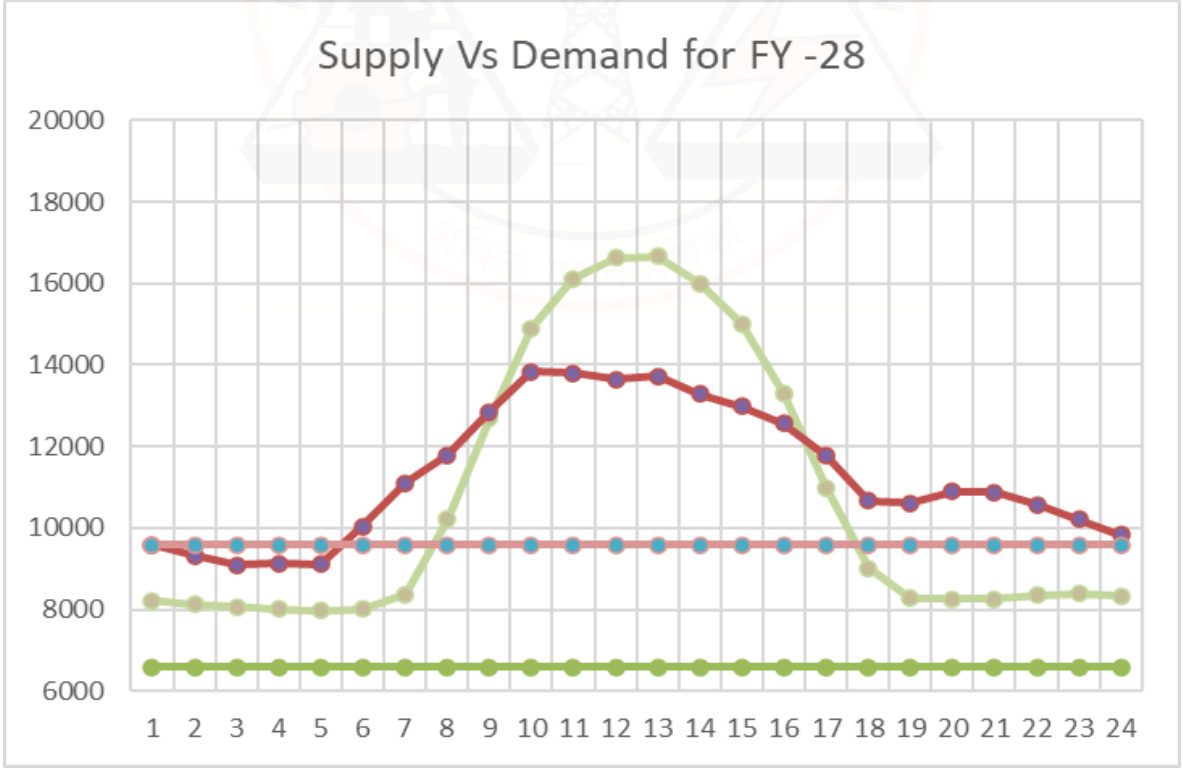

Load Duration Curve FY 2025-26
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

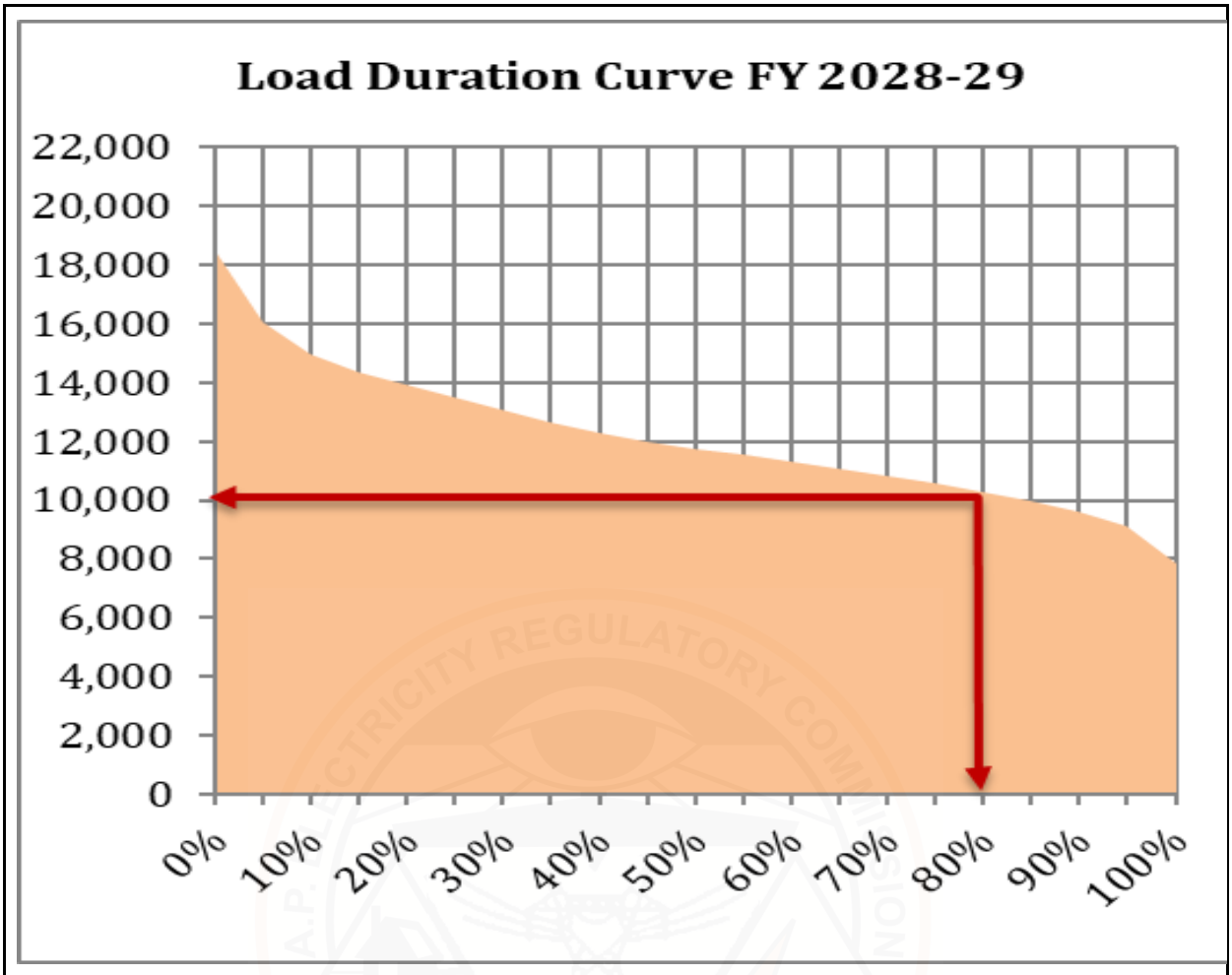

Supply Vs Demand for FY -26
18000
16000
14000
12000
10000
8000
6000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

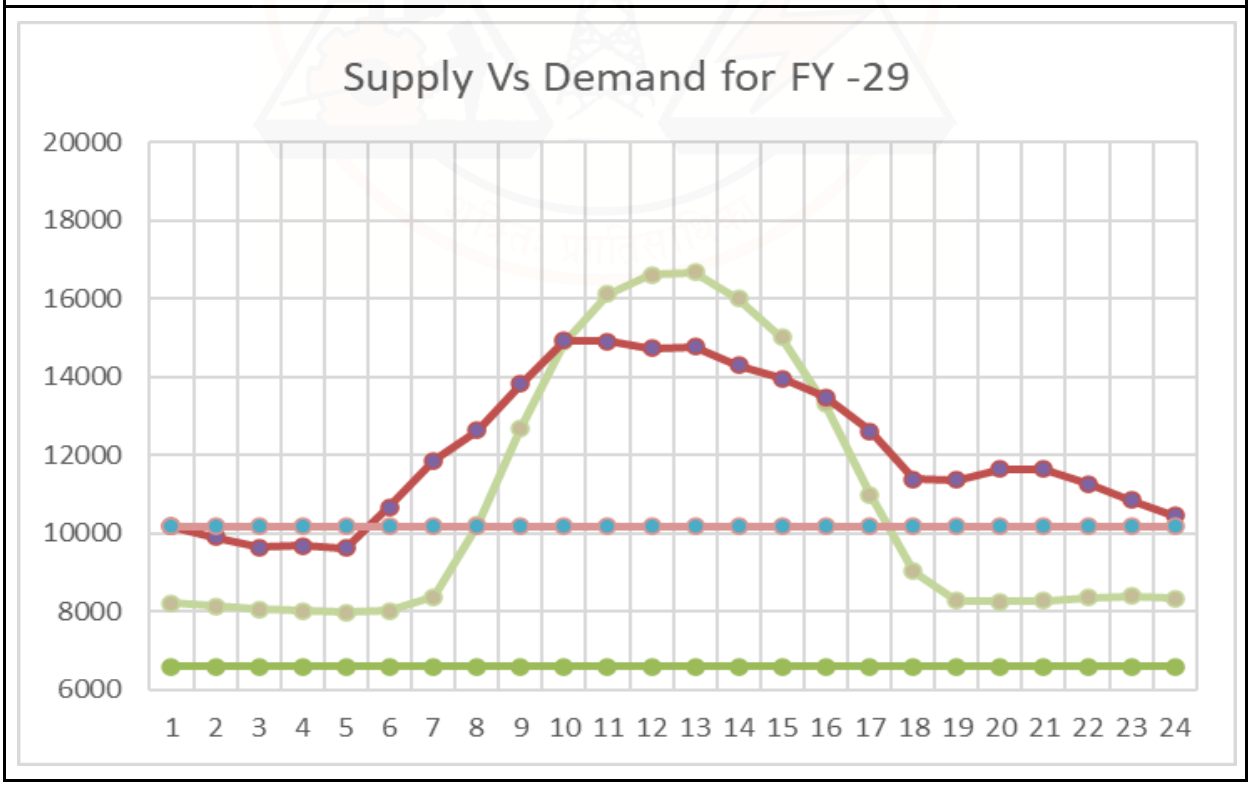

Load Duration Curve FY 2026-27
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%


Supply Vs Demand for FY -27
18000
16000
14000
12000
10000
8000
6000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


Load Duration Curve FY 2027-28
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%


Supply Vs Demand for FY -28
20000
18000
16000
14000
12000
10000
8000
6000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


Load Duration Curve FY 2028-29
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%


Supply Vs Demand for FY -29
20000
18000
16000
14000
12000
10000
8000
6000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

The scenario of base load at 100 per cent of the time and at 80 per cent of the time with a Reserve Margin (RM) of 5 percent is considered to ensure 24 x 7 supply in all seasons as the power portfolio of the licensees has already crossed more than 50 percent with RE. Accordingly, the base demands and peak loads are enhanced by 5 percent in computations to take care of the reserve margin in the generation to arrive at the shortage of generation capacity. But, while arriving at the average shortages/surplus of energy on a Time of Day (ToD as per the RST Order) basis, the actual demand and energy on an average basis in the TOD block are taken in computations. Based on the above graphs, the base loads, base supplies and peak loads and the surplus/deficit of capacity in two scenarios are arrived at as shown in the tables below.

Table 116: Base Supply, Base loads and Peak loads for 5th CP (MW)

S.No.	Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
1	Base Supply-Scenario-I	7,778	7,778	7,778	7,778	7,778
2	Base Supply-Scenario-II	6,382	6,382	6,382	6,382	6,382
3	Peak Load without RM	14,237	15,205	16,236	17,350	18,552
4	Base Load (100% of Time) without RM	6,254	6,612	6,993	7,406	7,852
5	Base Load (80% of Time) without RM	8,092	8,574	9,100	9,667	10,273
6	Peak Load with RM	14,313	15,435	16,664	17,993	19,425
7	Base Load (100% of Time) with RM	6,567	6,943	7,343	7,776	8,245
8	Base Load (80% of Time) with RM	8,497	9,003	9,555	10,151	10,786

Table 117: Surplus/Deficit Computations of the Generation Capacity in Different Scenarios.

	Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
1. BAU Base Demand(100% of time) Vs Base Supply Scenario-I						
A	Base Load (100% of Time)	6,567	6,943	7,343	7,776	8,245
B	Base Supply-Scenario-I	7,778	7,778	7,778	7,778	7,778
C=B-A	(Deficit)/Surplus	1,210	834	435	1	-467
2. BAU Base Demand(100% of time) Vs Base Supply Scenario-II						
A	Base Load (100% of Time)	6,567	6,943	7,343	7,776	8,245
B	Base Supply-Scenario-II	6,382	6,382	6,382	6,382	6,382
C=B-A	(Deficit)/Surplus	-186	-562	-961	-1,395	-1,863
3. BAU Base Demand(80% of time) Vs Base Supply Scenario-I						
A	Base Load (80% of Time)	8,497	9,003	9,555	10,151	10,786
B	Base Supply-Scenario-I	7,778	7,778	7,778	7,778	7,778
C=B-A	(Deficit)/Surplus	-719	-1,226	-1,778	-2,373	-3,009

	Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
4. BAU Base Demand(80% of time) Vs Base Supply Scenario-II						
A	Base Load (80% of Time)	8,497	9,003	9,555	10,151	10,786
B	Base Supply-Scenario-II	6,382	6,382	6,382	6,382	6,382
C=B-A	(Deficit)/Surplus	-2,115	-2,622	-3,174	-3,769	-4,405
Note: All Loads are inclusive of 5% of the Reserve Margin						

The summary of the surplus/deficit of the generation capacity is shown in the table below.

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
At 100% of the Time of Base Load					
Scenario-I: Normative Performance of Supply	1,210	834	435	1	-467
Scenario-II: Actual Performance of Supply	-186	-562	-961	-1,395	-1,863
At 80% of the Time of Base Load					
Scenario-I: Normative Performance of Supply	-719	-1,226	-1,778	-2,373	-3,009
Scenario-II: Actual Performance of Supply	-2,115	-2,622	-3,174	-3,769	-4,405

Table 118: Incremental Capacity addition requirement for 5th CP

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
At 100% of the Time of Base Load					
Scenario-I: Normative Performance of Supply	1,210	834	435	1	-467
Scenario-II: Actual Performance of Supply	-186	-562	-961	-1,395	-1,863
At 80% of the Time of Base Load					
Scenario-I: Normative Performance of Supply	-719	-1,226	-1,778	-2,373	-3,009
Scenario-II: Actual Performance of Supply	-2,115	-2,622	-3,174	-3,769	-4,405

Table 119: Incremental Capacity Requirement for 5th CP (MW)

	FY 25	FY 26	FY 27	FY 28	FY 29
At 100% of Time of Base Load					
Scenario-I: Normative Performance of Supply	-	-	-	-	467
Scenario-II: Actual Performance of Supply	186	376	399	434	468
At 80% of Time of Base Load					
Scenario-I: Normative Performance of Supply	719	507	552	595	636
Scenario-II: Actual Performance of Supply	2,115	507	552	595	636

As can be seen from the yearly graphs, the peak loads are observed to be during the daytime, and the total supply easily meets them. However, there will be shortages of energy/MW in the morning and evening hours.

Similarly, the load duration curves and load and supply curves for the months are used to see Resource Adequacy in each month and TOD-wise. The curves, the base

supplies, base demands, peak demands, and the surplus and deficit in each month year-wise are shown in the Annexures.

Annexure-C6- Graphs, Annexure-C7 monthly base load analysis, and Annexure C8-C12-Yearly TOD Analysis.

Assumptions and Limitations

107. Every forecasting and Resource adequacy exercise is based on certain assumptions and limitations. The present exercise has the following **limitations and assumptions**.

i. Although the demand analysis is done for three scenarios, the BAU scenario is used to determine resource adequacy. The BAU scenario most likely assumes normal weather conditions.

ii. While forecasting supply availability, the capacity of the thermal stations in each hour was considered as the same in all time blocks of the year. The planned and forced outages were not factored in. The Hydel, Wind, and Solar power capacities were taken hourly based on the past generation profile.

iii. The capacity of the gas power stations was assumed to be zero in the supply forecast.

iv. In line with the Commission's earlier position, the four CGSs with a capacity of about 471 MW have not been considered in the supply forecast.

v. The Commission's demand estimations included the DSM measures, energy efficiency measures, migration to OA, and Rooftop solar penetration. Any significant variation, such as measures like the PM Surya Ghar, will impact the estimations if its adoption is significant.

Therefore, any variations in the above assumptions will vary the power requirement.

Way forward

108. Though the Commission has done a resource adequacy exercise for multiple scenarios, the actual performance is likely to lead to more backing-down costs. Therefore, it is inclined to approve the scenario at 80 percent base load and normative performance of the supply stations for meeting the base load requirement to ensure 24X7 supply to the consumers. Accordingly, the incremental capacity required each year in the 5th control period is as shown below.

Table 120: Incremental Capacity Requirement for 5th CP (MW)

	FY 25	FY 26	FY 27	FY 28	FY 29
At 80% of the Time of Base Load					
Scenario-I: Normative Performance of Supply	719	507	552	595	636

The DISCOMS shall take action to improve the performance of the intra-state power stations through the state government's intervention. However, it is also to be noted that the capacity requirements shown above during the day are likely to be met from solar power generation. During the hydel and wind season, the wind and hydel power are also likely to contribute significantly to the above requirement. During the next five years, as assessed by this Commission and APTRANSCO, there will be shortages during the morning and evening hours. Therefore, contracting the BESS or Pumped storage for intra-day banking needs to be explored in addition to the tertiary ancillary services. Even though the Commission considers power from gas power stations to be zero in the supply forecast, it is inclined to approve the operation of the gas power plant GGPP, owned by DISCOMS, with gas procuring from the market based on the grid requirements. Further, it may be noted that the demand shortages as arrived at in the RST Order and this Order for FY 2024-25 are at variance due to the consideration of 625 MW from SEMBCORP in the RST Order in addition to the variation in actual performance of the intra-state thermal stations. The additional 625 MW from SEMBCORP is not factored in the present order since no contract has been finalised at the time of the finalisation of this Order.

Power procurement proposals received from the DISCOMS.

109. After filing the resource plan, DISCOMS submitted the following power procurement proposals. The proposals briefly and the Commission's decision on each proposal is shown below.

i. **DISCOMS' proposal**: Procuring 280 MW from 840 MW of the ASHVINI nuclear project and 560 MW from the Mahi Bhanswara Nuclear power project (4*700MW) by letters dated 16.03.2024 & 24.11.2023. Their expected COD is in the year 2028-29. The expected tariff is also not indicated.

Commission's decision: The tariff for such projects is to be determined by the CERC, and there is no certainty on the final tariff. Hence, without such clarity,

the Commission is not inclined to accept the proposal in this regard, keeping the long-term financial implications in mind.

ii. **DISCOMS' proposal**: Procurement of 600 MW wind solar hybrid power from SECI out of the offer of 1200 MW was submitted by letter dated 26.12.2023 stating that the peak power availability is 600 MW and RTC would be 300 MW. The tariff ranges from Rs.4.64 to 4.73. The CUF ranges from 52 - 72 percent. The scheduled commissioning of the plant is 18 months from the date of signing of PPA and likely availability of power is in FY 26-27. Peak demand is falling in the afternoon and can be met by solar generation, but there will be a deficit in the morning and evening peaks.

Commission's decision: As can be seen from the proposal, the DISCOMS intended to procure primarily to meet the morning and evening shortages. As per the analysis in this order, there will be surplus energy during day hours, and if the same is banked and availed intra-day by contracting with the other utilities or pumped storage plant/BESS, it would be more economical. Hence, the Commission is not inclined to accept this proposal also.

iii. **DISCOMS' proposal**: DISCOMS, by letter dated 15.02.2024, have requested approval of power procurement from the following stations.

Sl. No.	Name of CGS	Capacity in MW
1	NPC-KKNPP-Unit-I	1.78
2	NLC-TPS-I Expansion	2.24
3	NLC-TPS-I Expansion	2.67
4	NTPC_Telangana-STPP-Unit I	8.05

Their submission on the above proposal is that it was allotted by MoP from an unallocated quota, and the price of the power procurement is not indicated. This has a less impact on the overall power procurement cost. If the DISCOSMs do not procure the same based on the allocation, they may have to forego the entire unallocated quota as per the information provided.

Commission's decision: This proposal was discussed in the RST Order for FY 2024-25. This is the unrequested CGS allocation from the unallocated pool, as per the submissions of the DISCOMS, which have stated that NTPC is pressing for PPAs. The Commission, by letters dated 11.01.2023 and 05.12.2023, already communicated its decision not to approve the proposal of PPAs with

the above power plants. In line with the above decision, the Commission is not inclined to accept this proposal too.

iv. **DISCOMS' proposal**: DISCOMS submitted a proposal to contract for 1350 MW of pumped storage capacity to be established by APGENCO on a cost-plus mechanism. The estimated capital cost of the project is Rs.10 455 crores, as indicated in the latest letter dated 29.12.2023. The estimated levelised tariff is Rs.5.39 per unit for a duration of 40 years. It is further informed that the cycle efficiency is less than the prescribed cycle efficiency by CERC regulations for pumped storage plants.

Commission's decision: In view of the huge long-term financial implications and complexities involved in arriving at a final decision, DISCOMS may file a petition, and the Commission will take a decision after following the regulatory process.

v. **DISCOMS' proposal**: DISCOMS, by letter dated 24.11.2023, submitted the power procurement proposals from the following NHPC hydel power plants. They propose to procure 20 percent of the available capacity, i.e. 333 MW.

S. No.	Projects	Inst. Capacity (MW)	Project Ownership	Available Power for Sale (MW)	Levilised Tariff (Rs./Unit)	Status of Project	Excepted commissioning
1	Teesta VI	500	LTHPL (Wholly owned subsidiary of NHPC)	435	04.02	Under construction	July'2025
2	Rangit IV	120	JPCL (Wholly owned subsidiary of NHPC)	104	4.37	Under construction	Aug'2024
3	Ratle	850	RHPCL (Joint venture of NHPC ltd & JKSPDC)	444	4.28	Under construction	July'2025
4	Pakaldul	1000	CVPPL (Joint Venture of NHPC ltd & JKSPDC)	444	4.28	Under construction	July'2025
5	Kwar	540	CVPPL (Joint Venture of NHPC ltd & JKSPDC)	240	4.44	Under construction	Nov'2026
Total		3010		1667			

Regarding the above proposals, the DISCOMS stated the following.

- The useful life of the project is 40 years
- Waiver of ISTS applicable
- Useful to meet the Compliance of HPO
- Allocation is to be done by the MoP based on consent received from the states.
- Helpful in managing RE power
- Tariffs shall be determined by the CERC

Commission's decision: The proposals are based on the correspondence made by NHPC between the financial years FY21 and FY23. Though the expected tariff is indicated, as these projects were taken up on cost plus mechanism in joint venture mode, the CERC has to determine the tariff based on the final capital cost. Hence, after taking into consideration the final outcome regarding power requirement in this order, the DISCOMS may reexamine the proposal and approach the Commission with a proper petition with the latest status of the projects for taking a final decision by the Commission duly following the Regulartoy process.

Renewable Power Purchase Obligation (RPPO)

110. The table below shows the PPR for the DISCOMS in Business As Usual (BAU) scenario estimated by the Commission during the 5th CP to examine RPO compliance.

FY	PPR in MUs
2024-25	81,025
2025-26	86,595
2026-27	92,538
2027-28	98,963
2028-29	105,910

The Ministry of Power vide Letter No. F.No. 09/13/2021-RCM dated 22.07.2022 issued the Renewable Power Purchase Obligation (RPPO) and the Energy Storage Obligation (ESO) Trajectory up to FY2029-30 under the National Tariff Policy 2016. The APERC has specified the RPPO trajectory up to FY 2026-27 under section 86 (1) (e) of the Electricity Act, 2003. The RPPO trajectory specified by the MoP vis a vis the RPO trajectory specified by the APERC is shown in the table below.

Year	MoP Notification dt: 22-07-2022				APERC Regulation No. 5 of 2022
	Wind RPO	Hydro RPO	Other RPO	Total RPO	
2022-23	0.81%	0.35%	23.44%	24.61%	18%
2023-24	1.60%	0.66%	24.81%	27.08%	19%
2024-25	2.46%	1.08%	26.37%	29.91%	20%
2025-26	3.36%	1.48%	28.17%	33.01%	22%
2026-27	4.29%	1.80%	29.86%	35.95%	24%
2027-28	5.23%	2.15%	31.43%	38.81%	-
2028-29	6.16%	2.51%	32.69%	41.36%	-
2029-30	6.94%	2.82%	33.57%	43.33%	-

In exercise of the powers under clauses (n) and (x) of Section 14 of the Energy Conservation Act, 2001, the Central Government by MoP notification dated 20.10.2023 has specified the minimum share of the consumption from non-fossil sources as a percentage of their total energy consumption for designated consumers up to FY2029-30. The Respondents being designated consumers under the Energy Conservation Act, have to comply with the same. The non-fossil trajectory specified by the MoP vis a vis the RPO trajectory specified by the APERC is shown in the table below:

Year	MNRE Notification dt: 20-10-2023					APERC Regulation No. 5 of 2022
	Wind RE	Hydro RE	Distributed RE	Other RE	Total RE	
2024-25	0.67%	0.38%	1.50%	27.35%	29.91%	20%
2025-26	1.45%	1.22%	2.10%	28.24%	33.01%	22%
2026-27	1.97%	1.34%	2.70%	29.94%	35.95%	24%
2027-28	2.45%	1.42%	3.30%	31.64%	38.81%	-
2028-29	2.95%	1.42%	3.90%	33.10%	41.36%	-
2029-30	3.48%	1.33%	4.50%	34.02%	43.33%	-

Despite the MoP trajectory on RPO under the NTP 2016, the RPO trajectory specified by the APERC under Section 86 (1) (e) of the Electricity Act, 2003 is binding on the Respondent DISCOMS. The Central Government notification under the Energy Conservation Act 2001 is also binding on the Respondent DISCOMS. The RPO trajectory specified by the APERC and the Renewable Energy Consumption (RCO) specified by the central government will coexist and the Respondent DISCOMS have to comply with the higher of these two trajectories to

comply with the law. The total Renewable Energy (RE) projected to be available with the DISCOMS as per the Commission's estimations and the RE requirement as per the MoP Notifications under the Energy Conservation Act 2001, NTP and APERC Regulation are shown in the table below:

(MU)				
FY	**Total RE Available**	**RE Requirement as per MoP Notification Dated 20.10.2023**	**RE Requirement as per MoP Notification Dated 22.07.2022**	**RE Requirement as per APERC Regulation**
2024-25	21,452	24,229	24,229	16,719
2025-26	29,703	28,585	28,585	19,591
2026-27	35,308	33,267	33,267	23,461
2027-28	36,577	38,408	38,408	
2028-29	36,504	43,804	43,804	

As can be seen from the table above, the projected RE available with Respondent DISCOMS falls short of meeting the RCO compliance from FY 2027-28 as per the Energy Conservation Act. Hence, DISCOMS's proposed power procurement to meet the future energy requirement shall keep the above in view and shall endeavor to procure RE at the least cost.

The power requirement assessed in this chapter is subject to annual review by the Commission.

CHAPTER - V

DISTRIBUTION (CAPITAL INVESTMENT) PLAN

111. The Commission proposes to examine the investments projected by the licensees in the Resource Plans for the 5th and 6th Control Periods, considering all the views/objections/suggestions expressed by the stakeholders in writing and during public hearings.

112. The summary of the investments filed by the licensees for the 5th & 6th Control Periods vis a vis FY24 is as under:

Table 121: Filings: Investments (Rs. Cr) for 5th Control Period - DISCOMS

Item		Discoms	5th Control Period						
			FY24	FY25	FY26	FY27	FY28	FY29	5th CP
Ongoing Schemes	**A**	SPDCL	3732	2716	3795	1986	429	430	**9356**
	CPDCL	CPDCL	1012	2432	1007	251	251	251	**4192**
	EPDCL	EPDCL	2249	2550	2425	300	300	300	**5875**
Total for three DISCOMS			**6993**	**7698**	**7227**	**2537**	**980**	**981**	**19423**
Substations (New & Augmentation)	**B**	SPDCL	381	381	358	404	448	509	**2100**
	EPDCL	CPDCL	211	162	190	202	233	258	**1044**
	SPDCL	EPDCL	372	350	397	431	461	510	**2149**
Distribution Transformer Additions	**C**	SPDCL	810	644	747	832	938	1056	**4217**
	EPDCL	CPDCL	387	312	362	389	437	488	**1988**
	SPDCL	EPDCL	567	567	639	682	737	826	**3451**
Lines, Cables & Network	**D**	SPDCL	468	366	422	468	524	588	**2368**
	EPDCL	CPDCL	346	274	312	332	369	406	**1693**
	SPDCL	EPDCL	710	692	777	839	902	1012	**4222**
Sub-Total	**B+C+D**	**SPDCL**	**1659**	**1391**	**1527**	**1704**	**1910**	**2153**	**8685**
	EPDCL	**CPDCL**	**944**	**747**	**864**	**923**	**1039**	**1152**	**4725**
	SPDCL	**EPDCL**	**1649**	**1609**	**1813**	**1952**	**2100**	**2348**	**9822**

Item		Discoms		5th Control Period					
			FY24	FY25	FY26	FY27	FY28	FY29	5th CP
Total for three DISCOMS			**4252**	**3747**	**4204**	**4579**	**5049**	**5653**	**23232**
Metering & Associated equipment	**E**	SPDCL	105	113	114	116	118	120	**581**
	SPDCL	CPDCL	0	0	0	0	0	0	**0**
	CPDCL	EPDCL	11	12	67	74	82	90	**325**
Loss reduction measures	**F**	SPDCL	0	0	0	0	0	0	**0**
	SPDCL	CPDCL	0	0	0	0	0	0	**0**
	CPDCL	EPDCL	106	117	128	136	150	165	**696**
Technology Upgradation and R&M	**G**	SPDCL	190	201	212	224	237	250	**1124**
	SPDCL	CPDCL	1760	55	61	67	73	81	**336**
	CPDCL	EPDCL	1	1	1	1	1	1	**5**
Civil Works & Others	**H**	SPDCL	33	45	45	45	45	45	**225**
	SPDCL	CPDCL	30	20	10	11	12	13	**66**
	CPDCL	EPDCL	21	23	26	28	31	34	**143**
Sub-Total	**E+G+H**	**SPDCL**	**328**	**359**	**371**	**385**	**400**	**415**	**1930**
	SPDCL	**CPDCL**	**1790**	**75**	**71**	**78**	**85**	**94**	**402**
	CPDCL	**EPDCL**	**140**	**153**	**222**	**240**	**264**	**290**	**1169**
Total for three DISCOMS			**2258**	**587**	**663**	**702**	**749**	**799**	**3501**
Grand Total		**SPDCL**	**5719**	**4466**	**5693**	**4075**	**2739**	**2998**	**19971**
		CPDCL	**3746**	**3254**	**1942**	**1251**	**1376**	**1496**	**9319**
		EPDCL	**4037**	**4312**	**4460**	**2492**	**2664**	**2938**	**16866**
Grand Total for three DISCOMS			**13502**	**12032**	**12094**	**7818**	**6778**	**7433**	**46156**

Table 122: Filings: Investments (Rs. Cr) for 6th Control Period - DISCOMS

Item		Discoms	6th Control Period					
			FY30	FY31	FY32	FY33	FY34	6thCP
Ongoing Schemes	A	SPDCL	430	428	119	0	0	**977**
		CPDCL	144	144	144	144	0	**576**
		EPDCL	300	300	282	229	0	**1112**
Total for three DISCOMS			**874**	**872**	**545**	**373**	**0**	**2665**
Substations(New & Augmentation)	B	SPDCL	577	626	704	789	882	**3578**
		CPDCL	291	315	354	398	450	**1808**
		EPDCL	566	638	714	802	896	**3616**
Distribution Transformer Additions	C	SPDCL	1195	1296	1447	1617	1806	**7361**
		CPDCL	550	595	663	741	826	**3375**
		EPDCL	932	1047	1182	1332	1503	**5997**
Lines, Cables & Network	D	SPDCL	661	713	792	879	977	**4022**
		CPDCL	452	483	532	589	650	**2706**
		EPDCL	1141	1283	1446	1631	1839	**7341**
Sub-Total	B+C+D	**SPDCL**	**2433**	**2635**	**2943**	**3285**	**3665**	**14961**
		CPDCL	**1293**	**1393**	**1549**	**1728**	**1926**	**7889**
		EPDCL	**2639**	**2968**	**3342**	**3766**	**4238**	**16954**
Total for three DISCOMS			**6365**	**6996**	**7834**	**8779**	**9829**	**39804**
Metering & Associated equipment	E	SPDCL	122	125	127	129	132	**635**
		CPDCL	0	0	0	0	0	**0**
		EPDCL	99	109	119	131	144	**602**
Loss reduction	F	SPDCL	0	0	0	0	0	**0**

Item measures		Discoms	6th Control Period					
			FY30	FY31	FY32	FY33	FY34	6thCP
		CPDCL	0	0	0	0	0	**0**
		EPDCL	182	200	220	242	266	**1108**
Technology Upgradation and R&M	**G**	SPDCL	265	280	295	312	330	**1482**
		CPDCL	210	220	231	137	151	**949**
		EPDCL	1	1	2	2	2	**8**
Civil Works & Others	**H**	SPDCL	45	45	45	45	45	**225**
		CPDCL	15	16	18	19	21	**89**
		EPDCL	38	41	46	50	55	**230**
Sub-Total	**E+F+G+H**	SPDCL	**432**	**450**	**467**	**486**	**507**	**2342**
		CPDCL	**225**	**236**	**249**	**156**	**172**	**1038**
		EPDCL	**319**	**351**	**386**	**425**	**467**	**1948**
Total for three DISCOMS			**976**	**1037**	**1102**	**1067**	**1146**	**5328**
Total		**SPDCL**	**3295**	**3513**	**3529**	**3771**	**4172**	**18280**
		CPDCL	**1662**	**1773**	**1942**	**2028**	**2098**	**9503**
		EPDCL	**3259**	**3620**	**4011**	**4419**	**4706**	**20014**
Grand Total for three DISCOMS			**8216**	**8906**	**9482**	**10218**	**10976**	**47797**

113. The Commission would like to examine the investments projected above each headwise as detailed in the subsequent paragraphs. The investments projected for the 6th control period are only projections (perspective), and discussion will be limited to the investments projected for the 5th control period. Further, the Commission while finalising the investments for the 5th Control Period, is guided by the following:

i) As per Section 42 of the Electricity Act, 2003 read with clause 22 of

Regulation 10 of 2013, it shall be the duty of the Distribution Licensee to develop and maintain an efficient, coordinated and economical distribution system in its area of supply and to supply electricity in accordance with the provisions contained in the Act.

ii) Under Section 61 (c) of the Electricity Act, 2003, the determination of the tariff is guided by the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments.

iii) Paragraphs 18 and 19 of the Distribution and Retail Supply License stipulate that subject to the availability of adequate generating and transmission capacity, within its area of supply, the system shall be capable of providing consumers with an adequate, safe and economical supply of electricity, having regard to quality, continuity and reliability of service.

iv) Historic Investment made by the DISCOMS after the bifurcation of the State

v) The Investment Guidelines 2006 issued by the APERC.

vi) The Various Schemes formulated by the Government of India and the Government of Andhra Pradesh.

Keeping all the above in view, the Commission examines the investments under different heads hereunder:

Investments under On-Going Schemes: The DISCOMS main submissions on the ongoing schemes are as below:

ELECTRIFICATION OF YSR JAGANANNA HOUSING COLONIES:

The Government of Andhra Pradesh is implementing the "Navaratnalu - Pedalandariki Illu'' (NPI) scheme, aimed at providing housing to all eligible individuals in the state. Under this initiative, the government has allocated house sites to 30.69 Lakhs beneficiaries in two phases across 17,005 layouts known as YSR Jagananna colonies. As part of the project, a comprehensive basic infrastructure will be provided to these colonies, including the electrification of layouts to supply power to households. PFC has provided a loan for this endeavour.

Direct Benefit Transfer (DBT)

The Government of Andhra Pradesh has mandated the execution of the YSR Uchita Vyavasaya Vidyut Pathakamn by GO.MS.No.22 Energy (Power-1) Department

dated 01.09.2020. This involves the installation of Smart Energy Meters for all agricultural services. The subsidies for agricultural consumption will be credited into farmers' bank accounts based on the consumption recorded in meters, followed by an automatic transfer of the same amount to Discom's Account. As part of this initiative, the installation of Smart meters for 11 Lakh Agl Services in APSPDCL, 5.0 Lakh Agl Services in APCPDCL, and 1.755 Lakh Agl Services in APEPDCL has been taken up. Additionally, auxiliary materials like SMC Boxes to house the meter, the other components such as MCCB, Capacitor, Weatherproof PVC wire, and Earthing will be provided to ensure safety and prevent accidents. The cost of providing meters to all farmers under this scheme will be borne by the Government and there will not be a burden on the farmers on this account.

Revamped Distribution Sector Scheme (RDSS):

The Govt. of India has approved a Reform-based and Results-linked, “Revamped Distribution Sector Scheme” with an outlay of Rs.3,03,758 Cr. This scheme aims to improve the quality & reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. The Ministry of Power has notified the Scheme vide Office Memorandum dt:20.07.2021. The Agl. feeder segregation, bifurcation of 33 KV Overloaded feeders and installation of smart prepayment meters have been taken up under RDSS Phase-I. Smart meter installation, loss reduction measures and upgradation of technology for improving the operational efficiency of the DISCOMS have been proposed to be taken up under RDSS phase II.

Objections/Views/Suggestions & Responses of Discoms

Sri M.Venugopala Rao and 3 others raised concerns regarding the lack of official information and transparency in the implementation of the YSR Uchita Vyavasaya Vidyut Pathakam. They requested the Commission to direct DISCOMs to disclose details about the tendering process, selection criteria for companies, and pricing for purchasing and maintaining smart energy meters for agriculture services. He also strongly opposed the installation of smart meters for all categories of consumers as per the GoI directions.

Responses of the DISCOMS.

The Government of Andhra Pradesh initiated the YSR Uchita Vyavasaya Vidyut Pathakam, directing the installation of Smart Energy Meters for Agriculture Services. The entire process, involving substantial costs, underwent scrutiny and

public participation as per the Andhra Pradesh Infrastructure Act. Judicial Previews were conducted, after feedback from prospective bidders and the public. Administrative Sanctions were granted, and open tenders were floated, maintaining transparency in the process. Revised Administrative Sanctions were later issued based on the Government's approval of the DBT Scheme.

Commission's Decision: The Commission has examined the investments proposed under the ongoing schemes in detail. The installation of smart meters, and feeder segregation works under RDSS phase I have been approved by the Commission in various orders keeping in view the grants provided by the Government of India and also the need for installation of smart prepayment meters to the consumers as per the mandate of NTP, the relevant Rules and Regulations in force. The need for the installation of smart meters is explained by the Commission in the RST Order for FY 2023-24 at para 302, page 262. The cost analysis report regarding the installation of smart meters and the tender details of the smart meters have been provided by the DISCOMS in reply to the directions of the Commission during the public hearing held on 19.08.2023 and the same has been placed on the Commission's website for the stakeholders. The Government of Andhra Pradesh is committed to bear the total expenditure relating to the DBT Scheme. Hence the same was excluded under the ongoing schemes for consideration of the Commission for approval. As regards the electrification of Jagananna Colonies, the Commission's approval is already in place. However the Commission finds that the expenditure shown is more than the approved values of the Commission, and hence the same is limited to the approved values in the present Order. As regards expenditure under RDSS I, the Commission finds that the cost shown by the DISCOMS under RDSS phase 1 is more than the approval of the Commission, and therefore the same is also limited to the approved value for the proposed expenditure shown in the 5th control period. As regards RDSS phase II, under which installation of smart meters is proposed to be taken up for balance consumers along with other important loss reduction measures with the support of government grants, the Commission is inclined to consider the same amounts as shown in the filings broadly at present. However, this approved shall not be understood as the Commission approving cost of the items as provided by the DISCOMS. The DISCOMS have to submit the scheme details in full along with the grants to be provided by the GoI while seeking the specific approval of the Commission as per the investment guidelines and Regulations in force. The expenditure under RDSS II will be examined in detail after receiving the request of

the DISCOMS and the same may vary with the values approved in the present order. Further, some continuation works under various schemes and HVDS are being shown and the same have been approved as filed to ensure the continuity of the works. Accordingly, the Commission finalises the expenditure under ongoing schemes. The Expenditure shown by the DISCOMS in the filings and the Commission approval are shown in the tables below:

Table 123: Filings- Investments (Rs. Cr) for On-Going Schemes - APSPDCL

SPDCL Scheme	FY25	FY26	FY27	FY28	FY29	5th CP
Agl DBT	305	305	305	305	305	**1,525**
Jagananna Housing Colonies	300	0	0	0	0	**300**
Works under the RDSS scheme (Approval already granted):						
RDSS Ph-I (Loss Reduction)	2,000	2,160	0	0	0	**4,160**
RDSS Ph-I (Smart Meters)	106	96	96	96	96	**490**
Works under the RDSS scheme (to be approved):						
RDSS Ph-II (Smart Meters)	5	34	28	28	29	**124**
RDSS Ph-II (Modernisation)	0	1,200	1,557	0	0	**2,757**
Total	**2,716**	**3,795**	**1,986**	**429**	**430**	**9,356**

Table 124: Approved- Investments (Rs. Cr) for On-Going Schemes - APSPDCL

SPDCL Scheme	FY25	FY26	FY27	FY28	FY29	5th CP
Agl DBT	0	0	0	0	0	**0**
Jagananna Housing Colonies	212	0	0	0	0	**212**
Works under the RDSS scheme (Approval already granted):						
RDSS Ph-I (Loss Reduction)	2,000	2,160	0	0	0	**4,160**
RDSS Ph-I (Smart Meters)	106	96	96	96	96	**490**
Works under the RDSS scheme (to be approved):						
RDSS Ph-II (Smart Meters)	5	34	28	28	29	**124**
RDSS Ph-II (Modernisation)	0	1,200	1,557	0	0	**2,757**
Total	2,323	3,490	1,681	124	125	**7,743**

Table 125: Filings- Investments (Rs. Cr) for On-Going Schemes- APCPDCL

CPDCL Scheme	FY25	FY26	FY27	FY28	FY29	5th CP
	Fillings					
HVDS	109	0	0	0	0	**109**
JHC	380	0	0	0	0	**380**
AGL DBT	356	144	144	144	144	**932**
SI under REC funding	25	0	0	0	0	**25**
Works under the RDSS scheme (Approval already granted):						
Agriculture Feeder Segregation RDSS	421	227	0	0	0	**648**
Overload feeder bifurcation	148	0	0	0	0	**148**
Smart metering works	161	163	107	107	107	**645**
Works under the RDSS scheme (to be approved):						
Overload feeder bifurcation	54	74	0	0	0	**128**
Replacement of old/ frayed conductor	815	496	0	0	0	**1311**
IT & ERP	166	108	0	0	0	**274**
SCADA/DMS	128	85	0	0	0	**213**
Total	**2763**	**1297**	**251**	**251**	**251**	**4813**

Table 126: Approved- Investments (Rs. Cr) for On-Going Schemes- APCPDCL

Scheme	FY25	FY26	FY27	FY28	FY29	5th CP
	5th Control Period					
HVDS	109	0	0	0	0	**109**
AGL DBT	0	0	0	0	0	**0**
JHC	363	0	0	0	0	**363**
SI under REC funding	25	0	0	0	0	**25**
Works under the RDSS scheme(Approval already granted):						
Agriculture Feeder Segregation RDSS	421	227	0	0	0	**648**
Overload feeder bifurcation	148	0	0	0	0	**148**
Smart metering works	161	163	107	107	107	**645**
Works under the RDSS scheme (to be approved):						
Overload feeder bifurcation	54	74	0	0	0	**128**
Replacement of old/ frayed conductor	815	496	0	0	0	**1311**
IT & ERP	166	108	0	0	0	**274**
SCADA/DMS	128	85	0	0	0	**213**
Total	**2390**	**1153**	**107**	**107**	**107**	**3864**

Table 127: Filings- Investments (Rs. Cr) for On-Going Schemes- APEPDCL

Scheme	FY25	FY26	FY27	FY28	FY29	5 th CP
	Fillings					
Agl DBT	71.75	71.75	71.75	71.75	71.75	**359**
Jagananna Housing Colonies	39	0	0	0	0	**39**
AT&C Loss Reduction measures	28.1	0	0	0	0	**28**
RDSS Ph-I (Loss Reduction) approved	1742.09	206.09	0	0	0	**1948**
RDSS Ph-I (Loss Reduction) to be approved	0	1036.01	0	0	0	**1036**
RDSS Ph-I (Smart Meters) approved	46.17	76.11	72.06	72.06	72.06	**338**
RDSS Ph-II (Smart Meters) approved	4.37	32.1	22.53	22.53	22.53	**104**
RDSS Ph-I (Smart Meters) * to be approved	30.65	50.54	47.85	47.85	47.85	**225**
RDSS Ph-II (Smart Meters) to be approved	2.13	15.66	10.99	10.99	10.99	**51**
RDSS Ph-II (Modernisation) to be approved	599.52	882.29	0	0	0	**1482**
Total	**2,564**	**2,371**	**225**	**225**	**225**	**5610**

Table 128: Approved- Investments (Rs. Cr) for On-Going Schemes- APEPDCL

Scheme	FY25	FY26	FY27	FY28	FY29	5th CP
	Approved					
Agl DBT	0	0	0	0	0	**0**
Jagananna Housing Colonies	0	0	0	0	0	**0**
AT&C Loss Reduction measures	28.1	0	0	0	0	**28**
RDSS Ph-I (Loss Reduction) approved	1742.09	206.09	0	0	0	**1948**
RDSS Ph-I (Loss Reduction) to be approved	0	0	0	0	0	**0**
RDSS Ph-I (Smart Meters) approved	46.17	76.11	72.06	72.06	72.06	**338**
RDSS Ph-II (Smart Meters) approved	4.37	32.1	22.53	22.53	22.53	**104**
RDSS Ph-I (Smart Meters) * to be approved	0	0	0	0	0	**0**
RDSS Ph-II (Smart Meters) to be approved	0	0	0	0	0	**0**
RDSS Ph-II (Modernisation) to be approved	599.52	882.29	0	0	0	**1482**
Total	**2420**	**1197**	**95**	**95**	**95**	**3901**

114. **Investments for the development of the network to commensurate with the projected demand**: The following methodology has been adopted by DISCOMs to arrive at the network elements and accordingly investments for the 5th and 6th Control Periods for the development of the network to commensurate with the projected demand.

(i) Forecasting circle-wise total Power Transformer (PTR) capacities and No. of PTRs:

- The circle-wise and accordingly DISCOM-wise non-coincident peak demands are arrived at based on the year-wise estimated energy requirement with projected loss trajectory on sales for the 5th and 6th Control Periods taking the non-coincident load factors of the FY2022-23.

*Peak Demand (MW) = Energy Required/ (24*365/1000)/Load Factor.*

- The non-coincident peak demands observed during the FY 2022-23 have been used to calculate the diversity factor of PTRs in all circles as per the formula given below:

PTR diversity factor = Total PTR Capacity/Non-coincident peak demand

- The PTR diversity factor calculated above has been adopted for each year of the Control Period.
- Based on the PTR diversity factor and non-coincident demands, the circle-wise cumulative PTR capacities were arrived at.
- The PTR capacity so arrived is divided by 5 MVA (assumed for a basic 33/11 kV SS) to arrive no. of PTRs.

(ii) Forecasting circle-wise total Distribution Transformer (DTR) capacities and No. of DTRs and accordingly for the whole DISCOM:

- Using the following formula, DTR to PTR ratios for each year of the Control Periods have been arrived at by taking FY 2022-23 as a base.

  DTR to PTR capacity ratio for year t = (DTR to PTR capacity ratio for year t-1) * (LT/(LT+11 kV) sales ratio for year t)/(LT/(LT+11 kV) sales ratio for year t-1)

- Using the following formula, circle-wise cumulative DTR capacity was arrived at.

DTR capacity = DTR to PTR capacity ratio * forecasted PTR Capacity

- The DTR capacity so arrived is divided by 100 kVA (assumed as basic DTR capacity) to arrive at no. of DTRs.

(iii) Line Lengths estimation:

- The line length norms (a) LT km per DTR, (b) 11 kV km per DTR and (c) 33kV km per 33/11 kV SS have been arrived at based on the actual data of FY 2022-23.
- The line length required at different voltage levels i.e. 33 kV, 11 kV and LT line has been estimated based on the assumption of maintaining a High Tension (HT): Low Tension (LT) ratio of 1 during the control periods for 11 kV and LT lines whereas current standards have been assumed to be continued for 33kV lines.

Based on the methodology described above, the total 33/11 kV SS, DTRs and line lengths were estimated for each circle and the total of all circles was made to arrive at the DISCOM level. The figures arrived at each DISCOM level for the 5th and 6th control periods are shown in the tables below

Table 129: Filings: the network elements required during the 5th control period

Item	Discoms		5th Control Period					
		FY24	FY25	FY26	FY27	FY28	FY29	5 th CP
33/11 kV SS Nos	SPDCL	210	196	178	190	196	212	**972**
	CPDCL	114	84	92	94	102	106	**478**
	EPDCL	178	158	172	177	179	186	**872**
DTRs Nos	SPDCL	13720	10320	11330	11940	12740	13580	**59910**
	CPDCL	7200	5490	6040	6130	6530	6890	**31080**
	EPDCL	9680	9220	9900	10070	10360	11060	**50610**
33 kV Lines ckm	SPDCL	1111	1030	908	971	1017	1095	**5021**
	CPDCL	668	491	552	553	604	632	**2832**
	EPDCL	1100	959	1034	1077	1106	1185	**5361**

Item	Discoms		5th Control Period					
		FY24	FY25	FY26	FY27	FY28	FY29	5 th CP
11 kV Lines ckm	SPDCL	2947	2196	2412	2542	2711	2892	**12753**
	CPDCL	2099	1600	1762	1787	1904	2009	**9062**
	EPDCL	2517	2434	2590	2651	2711	2890	**13276**
LT Lines ckm	SPDCL	2971	2223	2441	2574	2745	2928	**12911**
	CPDCL	2099	1600	1762	1787	1904	2009	**9062**
	EPDCL	2517	2434	2590	2651	2711	2890	**13276**

Table 130: Filings: the network elements required during the 6th control period

Item	Discoms	6th Control Period					
		FY30	FY31	FY32	FY33	FY34	6 th CP
33/11 kV SS Nos	SPDCL	228	232	246	262	278	**1246**
	CPDCL	114	116	124	130	140	**624**
	EPDCL	194	209	223	237	250	**1113**
DTRs Nos	SPDCL	14540	14920	15770	16670	17620	**79520**
	CPDCL	7360	7530	7940	8400	8860	**40090**
	EPDCL	11880	12710	13670	14670	15760	**68690**
33 kV Lines ckm	SPDCL	1172	1201	1279	1355	1432	**6439**
	CPDCL	673	691	733	780	834	**3711**
	EPDCL	1270	1360	1453	1571	1686	**7340**
11 kV Lines ckm	SPDCL	3095	3173	3353	3544	3745	**16910**
	CPDCL	2145	2196	2315	2449	2583	**11688**
	EPDCL	3102	3317	3561	3814	4095	**17889**
LT Lines ckm	SPDCL	3134	3214	3396	3590	3795	**17129**
	CPDCL	2145	2196	2315	2449	2583	**11688**
	EPDCL	3102	3317	3561	3814	4095	**17889**

The DISCOMS have considered the following cost data for FY 2022-23 as a base for estimating their investments for the 5th & 6th control periods.

Table 131: Filings - Cost Data for FY 2022-23 - DISCOMS

Description	Unit	Value Rs.in Lakhs (APSPDCL)	Value Rs.in Lakhs (APCPDCL)	Value Rs.in Lakhs (APEPDCL)
33/11kV SS per Unit (5 MVA)	Each	244.55	251	221.92
5.0 MVA PTR	Each	103.88	102	96.62
DTR Installation per Unit (100 kVA)	Each	5.59	5.08	5.58
33 kV Line	Per Km	10.55	13.81	14.25
11 kV Line	Per Km	6.82	8.03	12.34
LT Line	Per Km	7.86	6.99	8.34

The DISCOMS have considered an escalation factor of 5.67%, derived from a combination of variations in the Wholesale Price Index (WPI) and Consumer Price Index (CPI) with a weightage of 60% and 40%, respectively. This factor was applied to FY 2022-23 data to determine the cost data for the year FY 2023-24 and each subsequent year of the 5th Control Period and 6th Control Period. Accordingly, the DISCOMS arrived at the investments.

Commission's Analysis and Decision

The Commission, upon reviewing the methodology adopted by the DISCOMS for the estimation of network elements to arrive at the investments commensurate with the increased future load, has decided to adopt the same methodology for the estimation of elements as the same is in line with the methodology adopted in previous Orders of the Commission. However, the Commission has changed some parameters after due diligence of the parameters considered by the DISCOMS. Based on existing line lengths of LT, 11 kV and 33 kV, the number of DTR's and PTRs in each DISCOM and their losses at each voltage level, the Commission has changed the parameters. The parameters considered by the DISCOMS and the Commission and accordingly the network elements arrived at by the DISCOMS

and the Commission are shown in Annexures D1 - D4. The network elements required at each DISCOM level as arrived by the DISCOMS and the Commission are shown in the tables below:

Table 132: Filings and Approved: Network Elements for 5th CP-APSPDCL

Sl.No	Voltage	FY25	FY26	FY27	FY28	FY29	5 th CP
Fillings							
1	**33/11 kV SS Nos**	196	178	190	196	212	**972**
2	**DTRs Nos**	10,260	11,430	11,580	12,820	14,170	**60,260**
3	**33 kV ckm**	1,029	909	973	1,017	1,094	**5,021**
4	**11kV ckm**	2,188	2,430	2,464	2,724	3,037	**12,843**
5	**LT ckm**	2,214	2,459	2,496	2,758	3,074	**13,001**
Approved							
1	**33/11 kV SS Nos**	127	114	123	128	137	**629**
2	**DTRs Nos**	6,330	7,020	6,950	7,870	8,650	**36,820**
3	**33 kV ckm**	318	285	308	320	343	**1,573**
4	**11kV ckm**	1,266	1,404	1,390	1,574	1,730	**7,364**
5	**LT ckm**	1,266	1,404	1,390	1,574	1,730	**7,364**

Table 133: Filings and Approved: Network Elements for 5th CP-APCPDCL

Sl.No	Voltage	FY25	FY26	FY27	FY28	FY29	5 th CP
Fillings							
1	**33/11 kV SS Nos**	84	92	94	102	106	**478**
2	**DTRs Nos**	5,490	6,040	6,130	6,530	6,890	**31,080**
3	**33 kV ckm**	491	552	554	604	632	**2,833**
4	**11kV ckm**	1,600	1,762	1,787	1,903	2,009	**9,061**
5	**LT ckm**	1,405	1,528	1,567	1,671	1,760	**7,931**
Approved							
1	**33/11 kV SS Nos**	56	62	63	68	71	**320**
2	**DTRs Nos**	3,320	3,620	3,700	3,940	4,160	**18,740**
3	**33 kV ckm**	140	155	158	170	178	**800**
4	**11kV ckm**	963	1,050	1,073	1,143	1,206	**5,435**
5	**LT ckm**	830	905	925	985	1,040	**4,685**

Table 134: Filings and Approved: Network Elements for 5th CP-APEPDCL

Sl.No	Voltage	FY25	FY26	FY27	FY28	FY29	5 th CP
Fillings							
1	**33/11 kV SS Nos**	158	173	177	178	186	**872**
2	**DTRs Nos**	9,110	10,200	9,670	11,020	10,700	**50,700**
3	**33 kV ckm**	885	963	999	1,020	1,105	**4,971**
4	**11kV ckm**	2,409	2,681	2,561	2,837	2,817	**13,306**
5	**LT ckm**	2,409	2,681	2,561	2,837	2,817	**13,306**
Approved							
1	**33/11 kV SS Nos**	104	113	116	119	126	**577**
2	**DTRs Nos**	6,040	6,760	6,400	7,350	7,110	**33,660**
3	**33 kV ckm**	417	450	463	475	504	**2,308**
4	**11kV ckm**	1,510	1,690	1,600	1,838	1,778	**8,415**
5	**LT ckm**	1,510	1,690	1,600	1,838	1,778	**8,415**

To arrive at the investments based on the above network elements, the Commission examined the cost data adopted by the DISCOMS. It has been observed that the cost data considered for FY 2022-23 has risen sharply compared to the cost data considered for FY 2017-18. The Commission has called for the explanation of DISCOMS on the same and the DISCOMS have furnished their reasons for such an increase in cost data. The Commission's letter and the reasons furnished by the DISCOMS are shown in the Annexure D5-D8. After due consideration of the explanations submitted by DISCOMS, the Commission decided to modify the cost data as shown in the table below to arrive at the investments for the 5th control period.

Table 135: Approved - Cost Data for FY 2022-23 - DISCOMS

Description	Unit	Value Rs.in Lakhs (APSPDCL)	Value Rs.in Lakhs (APCPDCL)	Value Rs.in Lakhs (APEPDCL)
33/11kV SS per Unit (5 MVA PTR)	Each	185.04	185.04	185.04
5.0 MVA PTR	Each	77.44	77.44	77.44
DTR Installation per Unit (100 kVA)	Each	4.84	4.84	4.84
33 kV Line	Per Km	9.76	9.76	12.00
11 kV Line	Per Km	6.40	6.40	9.00
LT Line	Per Km	5.79	5.79	6.50

With the changes mentioned above, the Commission has estimated the investments for network elements required during the 5th control period. The cost data mentioned above is only indicative and not conclusive and while giving approvals scheme-wise concerning the investments approved in the present Order, the Commission will examine in detail each scheme and cost data therein and hence may be variations in the approved cost data with that indicated in the present order. The investment proposed by the DISCOMS vis a vis approved by the Commission are shown in the tables below:

Table 136: Filings and Approved: Investments (Rs. Cr) for Network enhancement during 5th control period-APSPDCL

Sl.No	Item	FY25	FY26	FY27	FY28	FY29	5 th CP
Fillings							
1	Substations(New & Augmentation)	381	358	404	448	509	**2,100**
2	Distribution Transformer Additions	644	747	832	938	1,056	**4,217**
3	Lines, Cables & Network	366	422	468	524	588	**2,368**
	Total	**1,391**	**1,527**	**1,704**	**1,910**	**2,153**	**8,685**
Approved							
1	Substations(New & Augmentation)	186	177	201	221	250	**1,036**
2	Distribution Transformer Additions	342	401	419	502	583	**2,247**
3	Lines, Cables & Network	207	235	249	294	340	**1,324**
	Total	**735**	**812**	**869**	**1,017**	**1,173**	**4,607**

Table 137: Filings and Approved: Investments (Rs. Cr) for Network enhancement during 5th control period-APCPDCL

Sl.No	Item	FY25	FY26	FY27	FY28	FY29	5 th CP
	Fillings						
1	Substations(New & Augmentation)	162	190	202	233	258	**1,044**
2	Distribution Transformer Additions	312	362	389	437	488	**1,988**
3	Lines, Cables & Network	274	312	332	369	406	**1,693**
	Total	**747**	**864**	**923**	**1,039**	**1,152**	**4,725**
	Approved						
1	Substations(New & Augmentation)	82	96	103	118	130	**528**
2	Distribution Transformer Additions	179	207	223	251	280	**1,141**
3	Lines, Cables & Network	138	159	172	193	215	**877**
	Total	**399**	**462**	**498**	**562**	**625**	**2,547**

Table 138: Filings and Approved: Investments (Rs. Cr) for Network enhancement during 5th control period-APEPDCL

Sl.No.	Item	FY25	FY26	FY27	FY28	FY29	5th CP
	Fillings						
1	Substations(New & Augmentation)	350	397	431	461	510	**2,149**
2	Distribution Transformer Additions	567	639	682	737	826	**3,451**
3	Lines, Cables & Network	692	777	839	902	1,012	**4,222**
	Total	**1,609**	**1,813**	**1,952**	**2,100**	**2,348**	**9,822**
	Approved						
1	Substations(New & Augmentation)	190	217	236	256	287	**1,186**
2	Distribution Transformer Additions	326	386	386	469	479	**2,046**
3	Lines, Cables & Network	317	373	378	450	468	**1,987**
	Total	**834**	**976**	**1,000**	**1,175**	**1,234**	**5,219**

115. Further, in addition to the network elements as discussed above, the DISCOMs have proposed investments towards (i) Civil Works (ii) Technology upgradation and R&M, and (iii) Metering and associated equipment. Additionally, APEPDCL has proposed some investments towards loss reduction measures. The DISCOMS have not provided specific details in this regard. The modernisation, metering, and loss reduction measures have already been covered in the RDSS schemes and hence the Commission is not inclined to consider the same separately in the present Order. However, after due diligence, a part of the proposed investment towards R&M and civil works has been approved. The other investments proposed by the DISCOMS vis a vis approved by the Commission are shown in the tables below.

Table 139: Filings and Approved: Other investments (Rs. Cr) during 5th control period-APSPDCL:

Sl.No	Item	FY25	FY26	FY27	FY28	FY29	5 Th CP
Fillings							
1	Metering & Associated equipment	108	110	112	114	147	**591**
2	Loss reduction measures	0	0	0	0	0	**0**
3	Technology Upgradation and R&M	201	212	224	237	250	**1124**
4	Civil Works & Others	45	45	45	45	45	**225**
	Total	**354**	**367**	**381**	**396**	**442**	**1940**
Approved							
1	Metering & Associated equipment	0	0	0	0	0	**0**
2	Loss reduction measures	0	0	0	0	0	**0**
3	Technology Upgradation and R&M	20	20	20	20	20	**100**
4	Civil Works & Others	20	20	20	20	20	**100**
	Total	**40**	**40**	**40**	**40**	**40**	**200**

Table 140: Filings and Approved: Other investments(Rs. Cr) during 5th control period- APCPDCL:

Sl.No	Item	FY25	FY26	FY27	FY28	FY29	5 Th CP
Fillings							
1	Metering & Associated equipment	37	40	43	47	50	**217**
2	Loss reduction measures	0	0	0	0	0	**0**
3	Technology Upgradation and R&M	55	61	67	73	81	**336**
4	Civil Works & Others	20	10	11	12	13	**66**
	Total	**112**	**111**	**121**	**132**	**144**	**619**
Approved							
1	Metering & Associated equipment	0	0	0	0	0	**0**
2	Loss reduction measures	0	0	0	0	0	**0**
3	Technology Upgradation and R&M	12	12	12	12	12	**60**
4	Civil Works & Others	12	12	12	12	12	**60**
	Total	**24**	**24**	**24**	**24**	**24**	**120**

Table 141: Filings and Approved: Other investments (Rs. Cr) during 5th control period - APEPDCL:

Sl.No.	Item	FY25	FY26	FY27	FY28	FY29	5 Th CP
Fillings							
1	Metering & Associated equipment	12	67	74	82	90	**325**
2	Loss reduction measures	117	128	136	150	165	**696**
3	Technology Upgradation and R&M	1	1	1	1	1	**5**
4	Civil Works & Others	23	26	28	31	34	**143**
	Total	**153**	**222**	**240**	**264**	**290**	**1169**
Approved							
1	Metering & Associated equipment	0	0	0	0	0	**0**
2	Loss reduction measures	0	0	0	0	0	**0**
3	Technology Upgradation and R&M	20	20	20	20	20	**100**
4	Civil Works & Others	20	20	20	20	20	**100**
	Total	**40**	**40**	**40**	**40**	**40**	**200**

116. As detailed above, the Commission has approved the investments at Rs.**12,550** Cr.as against Rs. **19,971 Cr.** in respect of APSPDCL. Rs.**6,530** Cr. as against Rs.**9,319** Cr. in respect of APCPDCL, and Rs.**9,319** Cr. as total against Rs.**16,866** Cr. in respect of APEPDCL. The DISCOM-wise investments approved by the Commission in detail are shown in the tables below:

Table 142: Approved: Total Investments (Rs. Cr.) for the 5th control period - APSPDCL

Sl.No	Item		FY25	FY26	FY27	FY28	FY29	5 th CP
1	**(a)Ongoing Schemes**	**A**	**2,323**	**3,490**	**1,681**	**124**	**125**	**7,743**
2	Substations(New & Augmentation)	**B**	186	177	201	221	250	**1,036**
3	Distribution Transformer Additions	**C**	342	401	419	502	583	**2,247**
4	Lines, Cables & Network	**D**	207	235	249	294	340	**1,324**
	(b)Sub-Total	**B+C+D**	**735**	**812**	**869**	**1,017**	**1,173**	**4,607**
5	Metering & Associated equipment	**E**	0	0	0	0	0	**0**
6	Loss reduction measures	**F**	0	0	0	0	0	**0**
7	Technology Upgradation and R&M	**G**	20	20	20	20	20	**100**
8	Civil Works & Others	**H**	20	20	20	20	20	**100**
	(c)Sub-Total	**E+F+G+H**	**40**	**40**	**40**	**40**	**40**	**200**
	Grand Total (a)+(b)+(c)		**3,098**	**4,342**	**2,590**	**1,181**	**1,338**	**12,550**

Table 143: Approved: Total Investments (Rs. Cr.) for the 5th control period - APCPDCL

Sl.No	Item		FY25	FY26	FY27	FY28	FY29	5 th CP
1	**(a)Ongoing Schemes**	**A**	**2,390**	**1,153**	**107**	**107**	**107**	**3,864**
2	Substations(New & Augmentation)	**B**	82	96	103	118	130	**528**
3	Distribution Transformer Additions	**C**	179	207	223	251	280	**1,141**
4	Lines, Cables & Network	**D**	138	159	172	193	215	**877**
	(b)Sub-Total	**B+C+D**	**399**	**462**	**498**	**562**	**625**	**2,547**
5	Metering & Associated equipment	**E**	0	0	0	0	0	**0**
6	Loss reduction measures	**F**	0	0	0	0	0	**0**
7	Technology Upgradation and R&M	**G**	12	12	12	12	12	**60**
8	Civil Works & Others	**H**	12	12	12	12	12	**60**
	(c)Sub-Total	**E+F+G+H**	**24**	**24**	**24**	**24**	**24**	**120**
	Grand Total (a)+(b)+(c)		**2,813**	**1,639**	**629**	**693**	**756**	**6,530**

Table 144: Approved: Total Investments (Rs. Cr.) for the 5th control period - APEPDCL

Sl.No	Item		FY25	FY26	FY27	FY28	FY29	5 th CP
1	**(a)Ongoing Schemes**	**A**	**2,420**	**1,197**	**95**	**95**	**95**	**3,901**
2	Substations(New & Augmentation)	**B**	190	217	236	256	287	**1,186**
3	Distribution Transformer Additions	**C**	326	386	386	469	479	**2,046**
4	Lines, Cables & Network	**D**	317	373	378	450	468	**1,987**
	(b)Sub-Total	**B+C+D**	**834**	**976**	**1,000**	**1,175**	**1,234**	**5,219**
5	Metering & Associated equipment	**E**	0	0	0	0	0	**0**
6	Loss reduction measures	**F**	0	0	0	0	0	**0**
7	Technology Upgradation and R&M	**G**	20	20	20	20	20	**100**
8	Civil Works & Others	**H**	20	20	20	20	20	**100**
	(c)Sub-Total	**E+F+G+H**	**40**	**40**	**40**	**40**	**40**	**200**
	Grand Total (a)+(b)+(c)		**3,294**	**2,213**	**1,135**	**1,309**	**1,368**	**9,319**

Conclusion

117. The DISCOMs shall note that the investments approved above are only a roadmap for the next five years, and specific scheme-wise approvals are to be obtained from the Commission as per the investment guidelines and applicable regulations. The Commission will examine the cost of various elements with reference to the cost data to be approved by the Commission from time to time as per clause 9 of Regulation 4 of 2013 before granting approval. The licensees are hereby directed to submit the cost data annually on or before the 31st of December for the succeeding financial year and shall obtain approval from the Commission. The approved cost data shall be published on their websites. Further, the actuals may vary with the above-approved investments. At the end of each financial year, the DISCOMS shall submit the actual investments incurred vis a vis the approved

investments and shall justify variations. In respect of the schemes sponsored by the GoAP, like Agl. smart meters for DBT, the DISCOMS shall submit the amount spent and the amount received from the GoAP through half-yearly reports till the completion of the said works. Also, the half-yearly reports shall be submitted to the Commission regarding the grants received against the estimated grants under the RDSS from GoI.

CHAPTER - VI

TRANSMISSION (CAPITAL INVESTMENT) PLAN

118. The Commission proposes to examine the investments projected by the Transmission licensee (AP Transco) in the Resource Plans for the 5th and 6th Control Periods. The Commission, while examining the investment proposals, has considered all the views/objections/suggestions expressed by the stakeholders in writing and during public hearings.

119. The summary of the investments filed by the Transmission licensee for the 5th & 6th Control Periods is as below:

Table 145: Filings: APTransco Investments (Rs.Cr.) for 5th Control Period

Financial Year	Evacuation and System Improvement		Augmentation and R&M Works	Total
	400 kV	220 kV & 132 kV		
2024-25	1699.56	1093.02	1162.71	**3955.29**
2025-26	1276.00	1062.90	725.51	**3064.41**
2026-27	1021.37	897.52	739.12	**2658.01**
2027-28	1320.00	1038.40	707.28	**3065.68**
2028-29	1320.00	1024.59	641.43	**2986.02**
Total	**6636.93**	**5116.43**	**3976.05**	**15729.41**

Table 146: Filings: APTransco Investments (Rs.Cr.) for 6th control period

Financial Year	Evacuation and System Improvement			Total
	765 kV	400 Kv	220 kV & 132 kV	
2029-30	400	392	1376.5	**2168.5**
2030-31	3400	553.6	1637.5	**5591.1**
2031-32	0	689.6	1277.5	**1967.1**
2032-33	0	392	1077.5	**1469.5**
2033-34	0	392	1332.5	**1724.5**
Total	**3800.00**	**2419.20**	**6701.5**	**12920.7**

120. The APTRANSCO, according to the investments filed, has proposed the following number of substations, voltage-wise, during the 5th and 6th Control Periods:

Table 147: Filings: No. of EHV substations proposed to be commissioned during the 5th Control Period

Voltage Level	FY 25	FY 26	FY 27	FY 28	FY 29	Total Substations
400 kV	1	3	1	0	2	7
220 kV	3	6	5	3	6	23
132 kV	6	10	6	6	14	41
Total	**10**	**19**	**12**	**9**	**22**	**71**

Table 148: Filings: No. of EHV substations proposed to be commissioned during the 6th Control Period

Voltage Level	FY 30	FY 31	FY 32	FY 33	FY 34	Total Substations
765 kV	1	1	0	0	0	2
400 kV	1	2	1	1	1	6
220 kV	8	7	6	6	10	37
132 kV	11	11	10	5	6	43
Total	**21**	**21**	**17**	**12**	**17**	**88**

121. The APTRANSCO, according to the investments filed, has proposed the following lines, voltage-wise, during the 5th and 6th Control Periods:

Table 149: Filings: Ckm of Transmission lines proposed to be commissioned during the 5th Control Period

Financial Year	400kV	220kV	132kV	Total
2024-25	320.96	329.90	302.09	**952.95**
2025-26	182.00	374.39	620.15	**1176.54**
2026-27	392.00	290.61	212.18	**894.80**
2027-28	320.00	86.00	100.30	**506.30**
2028-29	24.00	634.00	507.73	**1165.73**
Total	**1238.96**	**1714.91**	**1742.45**	**4696.32**

Table 150: Filings: Ckm of Transmission lines proposed to be commissioned during the 6th Control Period

Financial Year	765kV	400kV	220kV	132kV	Total
2029-30	-	40	254	650	**944**
2030-31	600	32	632	554	**1818**
2031-32	-	102	345	550	**997**
2032-33	-	40	522	214	**776**
2033-34	-	40	500	310	**850**
Total	**600**	**254**	**2253**	**2278**	**5385**

122. The Summary of the Investments proposed by the Transmission licensee for the 5th & 6th Control Periods is shown in Annexure-E1-E2.

Objections/Views/Suggestions & Responses of APTransco

123. Sri. M.Venugopala Rao stated that APTRANSCO projected an expenditure of Rs.5701.05 crore only against an approved capital investment of Rs.10696.34 crore. i.e., less than Rs.4995.29 crore or 46.70%. In other words, TRANSCO has been able to meet transmission requirements in the State with a capital expenditure of 46.70% of the approved sum. That energy requirement fell significantly below the approved levels, indicating inflated forecasts by DISCOMs and TRANSCO. This discrepancy led to TRANSCO collecting higher transmission charges, resulting in a considerable surplus of revenue. Therefore, there is a necessity for a realistic evaluation of the state electricity and investment plans for APTRANSCO in the 5th control period.

APTRANSCO's Response: The demand was lower by 2039 MW and energy by 14172 MU due to COVID-19 impact during the 4th CP. With the expenditure incurred, APTransco managed transmission requirements. However, the proposed capital investment is based on the projected requirement of demand and system reliability. APTransco's forecast relied on scientific analysis using DISCOMs' sales predictions and network loads. The pandemic-induced global slowdown reduced sector demand, impacting these projections. Despite lower demand, APTransco efficiently managed transmission needs, avoiding potential constraints during the 4th CP. APTransco regularly adjusted plans to changing conditions. Forecasting

challenges persist due to dynamic changes, and the Commission would true up/down based on actual expenditure.

Commission's decision on Investments:

124. As the investments proposed for the 6th control period are perspective, the approval is limited to only the 5th control period. The Commission considered the following points while approving the investments for the 5th and 6th Control periods.

i. The APTRANSCO, as the State Transmission Utility (STU), has to ensure the development of an efficient, coordinated, and economical system of intra-state transmission lines and substations for the smooth flow of electricity from a generation station to the load centres, as per the provisions of the Electricity Act, 2003.

ii. Investments in telecom are required for real-time data transfer to the system operator, SLDC.

iii. The cost of investment in the Lift Irrigation schemes, being contributory, is borne by GoAP.

iv. The Government of Andhra Pradesh (GoAP) has made a PSA with SECI to supply 7,000 MW of Solar power to APDISCOMs from Solar Power Projects in Rajasthan. The investment is required for the Network expansion such as new Substations, Connected lines, Augmentation of PTRs, 400 kV Reactors etc

v. The assets are not invested by APTRANSCO, but are invested by consumers.

vi. Augmentation, Renovation, and modernization are required to maintain the present transmission system availability at 99.7% during the 5th Control Period.

vii. System improvement to be made and strengthening work to be done to meet the projected maximum demand growth and reliability levels as envisaged in the Indian Electricity Grid Code.

viii. The Commission approved a capital investment of Rs.10,696.34 Crores for the 4th control period, but AP Transco expended only Rs.5,701.05 Crores.

ix. Keeping the above in view, the Commission has approved the investments as detailed hereunder.

a. The investments at all voltage levels already approved by the Commission have been considered in toto. Out of the total investment of Rs.11753.36 Cr proposed in respect of Evacuation & System Improvements for the 5th Control Period, the Commission approved Rs. 4835.56 Cr investments.

b. The Investments for all voltage levels that are yet to be submitted by the licensee and approved by the Commission have been considered at 50% of the amounts proposed.

c. The investments proposed for the expansion of the network to evacuate 7000 MW of power from SECI are considered at 100% as proposed

d. The investments proposed under the augmentation and R&M head are considered at 50%.

e. Accordingly, the Commission is inclined to approve the investments as shown in the table below for the 5th control period.

Table 151: Approved: Investments (Rs.Cr.) for 5th Control Period

Financial Year	Evacuation and System Improvement	Augmentation and R&M Works	Total
2024-25	2089.19	576.53	2665.72
2025-26	1740.99	357.85	2098.84
2026-27	1392.79	377.73	1770.52
2027-28	1740.99	357.85	2098.84
2028-29	1740.99	318.08	2059.08
Total	**8704.96**	**1988.03**	**10692.99**

125. Conclusion

As replied by APTRANSCO to the objections, it shall update its transmission investment plan dynamically to meet the changing requirements. APTRANSCO shall note that the investments approved above are only a roadmap for the next five years and specific scheme-wise approvals are to be obtained from the Commission as per the investment guidelines and applicable regulations. The Commission will examine the cost of various elements in the Scheme in detail before approval. Therefore, the actuals may vary with the above-approved investments. At the end of each financial year, APTRANSCO shall submit the actual investments incurred vis a vis the approved investments and shall justify variations. As the Commission approved only two-thirds of the investment proposed for the 5th control period, APTRANSCO shall diligently prioritise the execution of proposed planned lines, substations, augmentation, and R&M works for the 5th control period and seek necessary directions from the Commission if required.

CHAPTER-VII

STATE ELECTRICITY PLAN

126. Para 5.1 of APERC guidelines for Load Forecasts, Resource Plans and Power Procurement, 2006 stipulates that APTRANSCO shall formulate a State Electricity Plan in coordination with others for the promotion of generation, transmission, distribution and supply of electricity and notify the same once in the Control Period under consideration for tariff review.

127. The Guidelines further state that APTRANSCO, in preparing the State Electricity Plan shall publish the draft State Electricity Plan and invite suggestions and objections thereon from licensees, generating companies, the Commission and the public within such time as specified by the Commission.

128. In this context, it may be noted that the draft State Electricity Plan was submitted by APTRANSCO to the Commission on 05-06-2023 and the Commission vide public notice dt. 07.06.2023 sought for the views of all the stakeholders. In response to the Commission's notice, the comments /suggestions /objections from only AP Textile Mills Association (APTMA) have been received by the Commission and the same were sent to APTRANSCO and responses of APTRANSCO were also received by the Commission. The objections were mostly regarding the deficiencies and method of presentation, and sought certain clarifications from APTRANSCO. They also expressed the concern on the proper power procurement plan to meet the expected demands and the investments made in Transmission and Distribution Companies. The APTRANSCO provided clarification and proper responses to the objector and the Commission found reasonableness in its replies. The Commission mostly kept all the relevant objections in view while finalising investments, load forecasts and power procurement. Therefore, the process of public hearing stood concluded. It is also to be noted here that the State Electricity Plan was also hosted on the official website of APTRANSCO. Hence, the requirement of APTRANSCO in publishing the draft State Electricity Plan and inviting suggestions/ objections thereon as indicated supra also can be construed to be complied with.

129. The views expressed in this order by the Commission may be treated as the comments of the Commission. APTRANSCO shall notify the plan after considering the comments of the Commission and all stakeholders, and obtain the approval of the State Coordination Forum and shall accordingly revise the plan after incorporating the directions, if any, given by the State Coordination Forum.

Sd/-	**Sd/-**	**Sd/-**
P.V.R Reddy	**Justice C.V. Nagarjuna Reddy**	**Thakur Rama Singh**
Member	**Chairman**	**Member**

Annexure-A1: List of Objectors

Sl.No	Name of Objector
1	Secretary A.P TMA, A.P Textiles Mills Association, 2nd Floor Manoharam Skin Clinic, 4/2, Lakshmipuram, Guntur - 522 007.
2	Sreekumar Nhalur and Maria Chirayil. Prayas (Energy Group) Unit III A&B, Devgiri, Joshi Rail Museum Lane Kothrud, Pune, Maharashtra, 411038.
3	Sri M.Venugopala Rao, Senior Journalist & Convener, Sri M Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, H.No.1- 100/MP/101, Monarch Prestige, Journalists' Colony, Serilingampally Mandal , Hyderabad - 500 032.
4	L.S Bharavi, Secretary, Federation of Apartments & Colonies welfare Association Flat No:301,LRK Residency , 3rd line Shyamala Nagar, Guntur.
5	M.V. Anjaneyulu, Secretary, Tax Payers Association, MIG-85, UDA Colony, Vijayawada- 520015.
6	CH.Baburao, CPI(M) State Secretariat Member AP Committee, H.No.27-30-9, Akulavari Street, Governorpeta, Vijayawada - 520 002

Annexure-B1: Analysis of CAGRs for Approval of the Energy Sales of the APSPDCL

SPDCL	Analysis of the CAGRS							Considered for Projections		
Category	**Avg of CAGR**	**Avg(Max, Min) CAGR**	**7 yrs CAGR**	**Y-Y**	**Regression Method**	**Growth considered in CEA Report**	**DISCOM Submission**	**Optimistic**	**BAU**	**Pessimistic**
LT-I: Domestic	4.09%	3.87%	5.91%	5.98%	4.30%	10.00%	5.31%	7.75%	5.98%	4.09%
LT-II: Commercial & Others	6.52%	10.19%	5.08%	5.68%	2.86%	5.00%	4.86%	10.19%	8.69%	5.08%
LT-III: Industrial	4.27%	5.60%	2.88%	3.06%	2.02%	5.00%	3.33%	5.60%	5.00%	3.06%
LT-IV: Institutional	9.64%	10.01%	11.00%	11.27%	5.44%	8.00%	8.62%	11.00%	10.01%	9.64%
LT-V: Irrigation and Agriculture	-2.13%	-2.14%	0.23%	0.61%	-0.19%	2.00%	5.00%	5.00%	4.00%	2.00%
LT Total	**1.27%**	**1.33%**	**2.95%**	**3.10%**	**2.17%**		**5.25%**	**6.77%**	**5.47%**	**3.49%**
HT-I: Townships and Colonies	-3.17%	-3.67%	-9.05%	-6.84%	-18.96%	10.00%	5.00%	7.25%	6.70%	4.09%
HT-II: Commercial & Others	6.41%	12.30%	3.42%	6.12%	1.51%	5.00%	5.15%	12.30%	10.20%	3.42%
HT-III: Industrial	14.10%	17.41%	7.19%	8.24%	4.92%	10.00%	5.86%	14.10%	11.60%	4.92%
HT-IV: Institutional	20.93%	27.03%	12.17%	14.32%	6.81%	8.00%	9.74%	14.32%	12.17%	6.81%
HT-IV: Agricultural & Related	-9.24%	-6.20%	19.48%	46.76%	4.89%	2.00%	22.25%	5.00%	3.75%	0.61%
RESCOs	1.25%	1.98%	5.52%	6.82%	3.18%		5.52%	6.82%	5.52%	3.18%
HT Total	**9.59%**	**11.63%**	**7.98%**	**8.36%**	**4.87%**		**5.08%**	**13.05%**	**10.75%**	**4.66%**
LT + HT Total	**4.22%**	**4.41%**	**4.74%**	**4.91%**	**3.23%**	**6.00%**	**6.43%**	**9.23%**	**7.54%**	**3.93%**

Annexure-B2: Analysis of CAGRs for Approval of the Energy Sales of the APCPDCL

CPDCL	Analysis of the CAGRS							Considered for Projections		
Category	**Avg of CAGR**	**Avg(Max, Min) CAGR**	**7 yrs CAGR**	**Y-Y**	**Regression Method**	**Growth considered in CEA Report**	**DISCOM Submission**	**Optimistic**	**BAU**	**Pessimistic**
LT-I: Domestic	4.58%	3.85%	6.14%	6.20%	4.52%	6.00%	5.14%	6.20%	4.52%	2.36%
LT-II: Commercial & Others	5.38%	8.51%	4.92%	5.69%	2.60%	6.00%	4.74%	8.51%	5.38%	2.60%
LT-III: Industrial	1.13%	0.99%	2.81%	2.93%	2.12%	5.00%	4.36%	5.00%	2.93%	2.12%
LT-IV: Institutional	5.14%	4.87%	3.54%	4.48%	3.36%	3.00%	5.67%	5.14%	3.00%	3.36%
LT-V: Irrigation and Agriculture	2.71%	2.77%	3.87%	3.91%	2.70%	6.00%	5.75%	5.00%	4.00%	2.50%
LT Total	**3.87%**	**3.84%**	**5.05%**	**5.07%**	**3.68%**		**5.27%**	**6.00%**	**4.33%**	**2.45%**
HT-I: Townships and Colonies	6.56%	7.24%	4.52%	4.66%	3.55%	6.00%	3.95%	7.24%	4.52%	2.36%
HT-II: Commercial & Others	10.63%	19.63%	8.35%	11.30%	3.08%	6.00%	4.37%	11.30%	8.35%	3.08%
HT-III: Industrial	0.54%	1.71%	-0.51%	-0.01%	-0.45%	9.00%	19.83%	9.00%	2.59%	0.54%
HT-IV: Institutional	18.78%	27.52%	11.17%	13.70%	5.91%	3.00%	4.04%	13.70%	4.06%	3.00%
HT-IV: Agricultural & Related	-4.55%	-3.42%	-5.96%	-3.98%	-5.18%	6.00%	12.60%	5.00%	3.75%	2.50%
RESCOs	0.00%	0.00%	0.00%	0.00%						
HT Total	**3.46%**	**6.28%**	**1.49%**	**2.04%**	**0.89%**		**16.28%**	**9.94%**	**3.61%**	**1.29%**
LT + HT Total	**3.68%**	**4.12%**	**3.94%**	**4.01%**	**2.97%**	**7.00%**	**8.96%**	**7.10%**	**4.12%**	**2.12%**

Annexure-B3: Analysis of CAGRs for Approval of the Energy Sales of the APEPDCL

EPDCL	Analysis of the CAGRS							Considered for Projections		
Category	Avg of CAGR	Avg(Max, Min) CAGR	7 yrs CAGR	Y-Y	Regression Method	Growth considered in CEA Report	DISCOM Submission	Optimistic	BAU	Pessimistic
LT-I: Domestic	5.55%	5.05%	6.29%	6.34%	4.67%	8.00%	6.42%	8.00%	6.34%	5.05%
LT-II: Commercial & Others	7.60%	11.47%	6.25%	7.00%	3.50%	9.00%	5.84%	9.00%	7.60%	5.84%
LT-III: Industrial	-2.07%	-2.43%	-7.34%	1.37%	-198.06%	5.00%	3.95%	5.00%	4.70%	1.37%
LT-IV: Institutional	9.81%	10.51%	6.40%	6.68%	4.81%	5.00%	5.97%	6.68%	5.97%	5.00%
LT-V: Irrigation and Agriculture	7.80%	8.23%	9.97%	11.35%	6.16%	7.00%	8.33%	5.00%	4.00%	2.00%
LT Total	**5.81%**	**5.31%**	**6.47%**	**6.52%**	**4.50%**		**6.90%**	7.01%	5.66%	4.05%
HT-I: Townships and Colonies	0.57%	0.11%	-0.08%	0.19%	0.02%	8.00%	2.78%	8.00%	7.00%	5.05%
HT-II: Commercial & Others	8.16%	12.47%	4.35%	5.38%	3.06%	9.00%	8.28%	12.47%	9.97%	5.38%
HT-III: Industrial	14.26%	17.54%	11.81%	12.39%	5.98%	13.00%	6.03%	11.81%	9.03%	5.98%
HT-IV: Institutional	10.60%	15.60%	7.13%	8.59%	4.77%	5.00%	8.66%	15.60%	11.60%	4.77%
HT-IV: Agricultural & Related	-28.96%	-26.53%	-3.63%	15.92%	-12.01%	7.00%	13.83%	5.00%	3.75%	0.61%
RESCOs										
HT Total	**10.94%**	**13.73%**	**9.73%**	**10.17%**	**5.18%**		**6.49%**	12.14%	9.28%	5.80%
LT + HT Total	**8.13%**	**9.39%**	**7.96%**	**8.08%**	**4.82%**	**9.00%**	**6.70%**	**9.49%**	**7.42%**	**4.89%**

Annexure- B4: Approved –Optimistic Scenario-Category-wise, Discom-wise Sales for 5th CP and Indicative for 6th CP

Optimistic														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
Consumer Category-I: Domestic	LT	SPDCL	6,033	6,501	7,005	7,547	8,132	7.75%	8,763	9,442	10,173	10,962	11,811	7.75%
		CPDCL	5,972	6,343	6,736	7,154	7,598	6.20%	8,069	8,570	9,101	9,666	10,266	6.20%
		EPDCL	7,904	8,536	9,219	9,956	10,753	8.00%	11,613	12,542	13,545	14,629	15,799	8.00%
		Total	**19,909**	**21,379**	**22,960**	**24,658**	**26,483**	**7.39%**	**28,445**	**30,554**	**32,820**	**35,257**	**37,876**	**7.42%**
	HT	SPDCL	18	20	21	23	24	7.25%	26	28	30	32	34	7.25%
		CPDCL	16	17	19	20	21	7.24%	23	24	26	28	30	7.24%
		EPDCL	37	40	44	47	51	8.00%	55	59	64	69	75	8.00%
		Total	**72**	**77**	**83**	**90**	**96**	**7.64%**	**104**	**112**	**120**	**129**	**139**	**7.65%**
Consumer Category-II: Commercial & Others	LT	SPDCL	1,340	1,477	1,627	1,793	1,976	10.19%	2,177	2,399	2,643	2,912	3,209	10.19%
		CPDCL	1,229	1,334	1,447	1,571	1,704	8.51%	1,849	2,007	2,177	2,363	2,564	8.51%
		EPDCL	1,509	1,645	1,793	1,954	2,130	9.00%	2,321	2,530	2,758	3,006	3,277	9.00%
		Total	**4,078**	**4,455**	**4,867**	**5,317**	**5,810**	**9.25%**	**6,348**	**6,936**	**7,579**	**8,281**	**9,050**	**9.27%**
	HT	SPDCL	590	663	745	836	939	12.30%	1,055	1,184	1,330	1,494	1,677	12.30%
		CPDCL	633	705	784	873	971	11.30%	1,081	1,203	1,339	1,490	1,659	11.30%
		EPDCL	1,121	1,260	1,417	1,594	1,793	12.47%	2,016	2,268	2,550	2,868	3,226	12.47%
		Total	**2,344**	**2,628**	**2,946**	**3,303**	**3,703**	**12.11%**	**4,152**	**4,655**	**5,219**	**5,852**	**6,562**	**12.12%**
Consumer Category-III: Industry	LT	SPDCL	670	708	748	790	834	5.60%	881	930	982	1,037	1,095	5.60%
		CPDCL	526	552	580	609	639	5.00%	671	705	740	777	816	5.00%
		EPDCL	499	524	550	578	607	5.00%	637	669	702	737	774	5.00%
		Total	**1,696**	**1,784**	**1,878**	**1,976**	**2,080**	5.24%	**2,189**	**2,304**	**2,424**	**2,552**	**2,685**	5.24%
	HT	SPDCL	9,049	10,325	11,781	13,442	15,338	14.10%	17,501	19,969	22,785	25,998	29,665	14.10%
		CPDCL	3,324	3,623	3,950	4,305	4,693	9.00%	5,115	5,575	6,077	6,624	7,220	9.00%

Optimistic														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
		EPDCL	13,032	14,571	16,292	18,216	20,368	11.81%	22,773	25,463	28,470	31,833	35,592	11.81%
		Total	**25,405**	**28,519**	**32,023**	**35,964**	**40,398**	**12.30%**	**45,389**	**51,007**	**57,332**	**64,455**	**72,477**	**12.41%**
Consumer Category-IV: Institutional	LT	SPDCL	1,015	1,127	1,251	1,388	1,541	11.00%	1,711	1,899	2,108	2,339	2,597	11.00%
		CPDCL	356	374	393	414	435	5.14%	457	481	505	531	559	5.14%
		EPDCL	491	524	559	596	636	6.68%	679	724	772	824	879	6.68%
		Total	**1,862**	**2,025**	**2,203**	**2,398**	**2,612**	**8.83%**	**2,846**	**3,103**	**3,385**	**3,695**	**4,034**	**9.11%**
	HT	SPDCL	1,425	1,629	1,862	2,129	2,434	14.32%	2,782	3,180	3,636	4,156	4,751	14.32%
		CPDCL	768	873	993	1,129	1,283	13.70%	1,459	1,659	1,886	2,144	2,438	13.70%
		EPDCL	1,412	1,633	1,887	2,182	2,522	15.60%	2,916	3,371	3,897	4,505	5,208	15.60%
		Total	**3,605**	**4,135**	**4,742**	**5,439**	**6,239**	**14.70%**	**7,157**	**8,210**	**9,418**	**10,805**	**12,397**	**14.72%**
Consumer Category-V: Agricultural & Related	LT	SPDCL	7,575	7,954	8,352	8,769	9,208	5.00%	9,668	10,152	10,659	11,192	11,752	5.00%
		CPDCL	3,339	3,506	3,682	3,866	4,059	5.00%	4,262	4,475	4,699	4,934	5,181	5.00%
		EPDCL	4,613	4,843	5,085	5,340	5,607	5.00%	5,887	6,181	6,490	6,815	7,156	5.00%
		Total	**15,527**	**16,304**	**17,119**	**17,975**	**18,874**	**5.00%**	**19,817**	**20,808**	**21,848**	**22,941**	**24,088**	**5.00%**
	HT	SPDCL	848	891	935	982	1,031	5.00%	1,083	1,137	1,194	1,253	1,316	5.00%
		CPDCL	82	86	90	94	99	5.00%	104	109	115	121	127	5.00%
		EPDCL	92	97	102	107	112	5.00%	118	123	130	136	143	5.00%
		Total	**1,022**	**1,073**	**1,127**	**1,183**	**1,242**	**5.00%**	**1,304**	**1,370**	**1,438**	**1,510**	**1,586**	**5.00%**
Total	LT	SPDCL	16,634	17,766	18,982	20,288	21,691	6.86%	23,199	24,821	26,565	28,443	30,464	7.05%
		CPDCL	11,423	12,110	12,839	13,613	14,435	6.03%	15,309	16,237	17,223	18,271	19,385	6.08%
		EPDCL	15,015	16,072	17,206	18,424	19,732	7.07%	21,137	22,646	24,268	26,011	27,885	7.17%
		Total	**43,072**	**45,947**	**49,026**	**52,324**	**55,858**	**6.71%**	**59,645**	**63,704**	**68,057**	**72,725**	**77,734**	**6.85%**
		SPDCL	11,931	13,527	15,344	17,412	19,766	13.45%	22,446	25,498	28,974	32,934	37,444	13.65%

Optimistic														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
	HT	CPDCL	4,823	5,304	5,835	6,421	7,067	10.02%	7,782	8,571	9,443	10,407	11,473	10.19%
		EPDCL	15,695	17,601	19,742	22,146	24,846	12.17%	27,878	31,284	35,111	39,411	44,244	12.24%
		Total	**32,448**	**36,432**	**40,921**	**45,978**	**51,679**	**12.34%**	**58,106**	**65,353**	**73,528**	**82,752**	**93,161**	**12.53%**
RESCOs		SPDCL	496	530	566	604	646	6.82%	690	737	787	841	898	6.82%
		CPDCL												
		EPDCL												
		Total	**496**	**530**	**566**	**604**	**646**	6.82%	**690**	**737**	**787**	**841**	**898**	6.82%
Grand Total		SPDCL	29,061	31,823	34,891	38,304	42,102	9.71%	46,335	51,056	56,327	62,217	68,806	10.39%
		CPDCL	16,246	17,413	18,673	20,034	21,503	7.26%	23,091	24,808	26,666	28,678	30,858	7.52%
		EPDCL	30,710	33,673	36,948	40,570	44,578	9.76%	49,015	53,931	59,380	65,423	72,128	10.14%
		Total	**76,016**	**82,909**	**90,513**	**98,907**	**108,183**	9.22%	**118,440**	**129,794**	**142,372**	**156,318**	**171,793**	9.74%

Annexure- B5: Approved – BAU Scenario-Category-wise, Discom-wise Sales for 5th CP and Indicative for 6th CP

BAU Scenario														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
Consumer Category-I: Domestic	LT	SPDCL	5,837	6,186	6,556	6,948	7,363	5.98%	7,804	8,270	8,765	9,289	9,845	5.98%
		CPDCL	5,784	6,045	6,318	6,604	6,902	4.52%	7,213	7,539	7,880	8,236	8,607	4.52%
		EPDCL	7,662	8,148	8,665	9,214	9,798	6.34%	10,419	11,080	11,782	12,529	13,323	6.34%
		Total	**19,283**	**20,379**	**21,539**	**22,765**	**24,063**	**5.69%**	**25,436**	**26,889**	**28,427**	**30,053**	**31,775**	**5.72%**
	HT	SPDCL	18	19	21	22	23	6.70%	25	27	29	30	32	6.70%
		CPDCL	15	16	17	17	18	4.52%	19	20	21	22	23	4.52%
		EPDCL	37	39	42	45	48	7.00%	51	55	59	63	67	7.00%
		Total	**70**	**75**	**79**	**84**	**90**	**6.40%**	**96**	**102**	**108**	**115**	**123**	**6.44%**
Consumer Category-II: Commercial & Others	LT	SPDCL	1,304	1,417	1,540	1,674	1,820	8.69%	1,978	2,150	2,336	2,539	2,760	8.69%
		CPDCL	1,159	1,222	1,287	1,357	1,430	5.38%	1,507	1,588	1,673	1,763	1,858	5.38%
		EPDCL	1,470	1,582	1,702	1,831	1,970	7.60%	2,120	2,281	2,454	2,641	2,841	7.60%
		Total	**3,933**	**4,221**	**4,530**	**4,862**	**5,220**	**7.33%**	**5,604**	**6,018**	**6,464**	**6,943**	**7,459**	**7.41%**
	HT	SPDCL	569	627	690	761	838	10.20%	924	1,018	1,122	1,237	1,363	10.20%
		CPDCL	600	650	704	763	827	8.35%	896	971	1,052	1,140	1,235	8.35%
		EPDCL	1,071	1,178	1,296	1,425	1,567	9.97%	1,723	1,894	2,083	2,291	2,519	9.97%
		Total	**2,240**	**2,455**	**2,690**	**2,949**	**3,232**	**9.60%**	**3,543**	**3,884**	**4,257**	**4,667**	**5,117**	**9.63%**
Consumer Category-III: Industry	LT	SPDCL	663	696	731	767	806	5.00%	846	888	933	979	1,028	5.00%
		CPDCL	505	520	535	551	567	2.93%	584	601	618	637	655	2.93%
		EPDCL	496	520	544	570	596	4.70%	624	654	684	717	750	4.70%

BAU Scenario														
All Figures in MU			5th Control Period						6th Control Period					
Consumer Category			FY 25	FY 26	FY 27	FY28	FY29	CAGR (%)	FY 30	FY 31	FY 32	FY 33	FY 34	CAGR (%)
		Total	**1,664**	**1,736**	**1,810**	**1,888**	**1,969**	4.29%	**2,054**	**2,143**	**2,236**	**2,333**	**2,434**	4.33%
	HT	SPDCL	8,656	9,661	10,782	12,033	13,429	11.60%	14,987	16,726	18,666	20,832	23,249	11.60%
		CPDCL	2,945	3,021	3,099	3,180	3,262	2.59%	3,346	3,433	3,522	3,613	3,707	2.59%
		EPDCL	12,392	13,511	14,731	16,061	17,512	9.03%	19,093	20,817	22,697	24,746	26,981	9.03%
		Total	**23,993**	**26,193**	**28,612**	**31,274**	**34,202**	**9.27%**	**37,426**	**40,976**	**44,885**	**49,192**	**53,937**	**9.57%**
Consumer Category-IV: Institutional	LT	SPDCL	997	1,097	1,207	1,328	1,461	10.01%	1,607	1,768	1,945	2,140	2,354	10.01%
		CPDCL	342	352	362	373	384	3.00%	396	408	420	433	446	3.00%
		EPDCL	485	514	544	577	611	5.97%	648	686	727	771	817	5.97%
		Total	**1,823**	**1,962**	**2,114**	**2,278**	**2,456**	**7.73%**	**2,651**	**2,862**	**3,092**	**3,343**	**3,616**	**8.08%**
	HT	SPDCL	1,372	1,539	1,726	1,936	2,172	12.17%	2,436	2,732	3,065	3,438	3,856	12.17%
		CPDCL	643	669	697	725	754	4.06%	785	817	850	884	920	4.06%
		EPDCL	1,316	1,469	1,639	1,830	2,042	11.60%	2,279	2,543	2,838	3,168	3,535	11.60%
		Total	**3,331**	**3,677**	**4,062**	**4,491**	**4,968**	**10.51%**	**5,500**	**6,092**	**6,753**	**7,490**	**8,312**	**10.88%**
Consumer Category-V: Agricultural & Related	LT	SPDCL	7,432	7,729	8,038	8,360	8,694	4.00%	9,042	9,403	9,780	10,171	10,578	4.00%
		CPDCL	3,276	3,407	3,544	3,685	3,833	4.00%	3,986	4,145	4,311	4,484	4,663	4.00%
		EPDCL	4,525	4,706	4,894	5,090	5,294	4.00%	5,506	5,726	5,955	6,193	6,441	4.00%
		Total	**15,233**	**15,842**	**16,476**	**17,135**	**17,820**	**4.00%**	**18,533**	**19,275**	**20,046**	**20,847**	**21,681**	**4.00%**
	HT	SPDCL	828	859	892	925	960	3.75%	996	1,033	1,072	1,112	1,154	3.75%
		CPDCL	80	83	86	89	92	3.75%	96	99	103	107	111	3.75%
		EPDCL	90	93	97	100	104	3.75%	108	112	116	121	125	3.75%

BAU Scenario														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
		Total	**998**	**1,035**	**1,074**	**1,114**	**1,156**	**3.75%**	**1,200**	**1,244**	**1,291**	**1,340**	**1,390**	**3.75%**
Total	LT	SPDCL	16,232	17,125	18,072	19,076	20,143	5.55%	21,276	22,479	23,758	25,118	26,564	5.71%
		CPDCL	11,066	11,546	12,047	12,570	13,116	4.34%	13,686	14,281	14,903	15,552	16,229	4.35%
		EPDCL	14,639	15,469	16,349	17,282	18,270	5.70%	19,317	20,426	21,603	22,850	24,172	5.77%
		Total	**41,937**	**44,140**	**46,468**	**48,928**	**51,528**	**5.28%**	**54,278**	**57,187**	**60,264**	**63,519**	**66,966**	**5.39%**
	HT	SPDCL	11,443	12,705	14,110	15,677	17,422	11.08%	19,368	21,536	23,954	26,649	29,654	11.24%
		CPDCL	4,283	4,439	4,603	4,774	4,954	3.70%	5,142	5,340	5,548	5,766	5,996	3.91%
		EPDCL	14,906	16,291	17,805	19,461	21,273	9.30%	23,254	25,422	27,794	30,389	33,228	9.33%
		Total	**30,632**	**33,435**	**36,518**	**39,912**	**43,648**	**9.26%**	**47,764**	**52,298**	**57,295**	**62,804**	**68,878**	**9.58%**
RESCOs		SPDCL	484	511	539	568	600	5.52%	633	668	705	743	784	5.52%
		CPDCL												
		EPDCL												
		Total	**484**	**511**	**539**	**568**	**600**	5.52%	**633**	**668**	**705**	**743**	**784**	5.52%
Grand Total		SPDCL	28,159	30,340	32,721	35,321	38,165	7.90%	41,276	44,683	48,417	52,511	57,003	8.41%
		CPDCL	15,349	15,985	16,650	17,344	18,069	4.16%	18,828	19,621	20,450	21,318	22,225	4.23%
		EPDCL	29,545	31,760	34,154	36,743	39,542	7.56%	42,571	45,848	49,397	53,239	57,400	7.76%
		Total	**73,053**	**78,085**	**83,524**	**89,408**	**95,777**	7.01%	**102,675**	**110,153**	**118,263**	**127,067**	**136,628**	7.40%

Annexure- B6: Approved –Pessimistic Scenario-Category-wise, Discom-wise Sales for 5th CP and Indicative for 6th CP

Pessimistic Scenario														
All Figures in MU			5th Control Period						6th Control Period					
Consumer Category			FY 25	FY 26	FY 27	FY28	FY29	CAGR (%)	FY 30	FY 31	FY 32	FY 33	FY 34	CAGR (%)
Consumer Category-I: Domestic	LT	SPDCL	5,631	5,861	6,101	6,351	6,610	4.09%	6,881	7,163	7,456	7,761	8,079	4.09%
		CPDCL	5,548	5,679	5,813	5,950	6,090	2.36%	6,234	6,381	6,532	6,686	6,844	2.36%
		EPDCL	7,477	7,854	8,251	8,667	9,104	5.05%	9,564	10,046	10,553	11,086	11,645	5.05%
		Total	**18,656**	**19,394**	**20,164**	**20,968**	**21,805**	**3.98%**	**22,679**	**23,590**	**24,541**	**25,533**	**26,567**	**4.04%**
	HT	SPDCL	17	18	19	19	20	4.09%	21	22	23	24	25	4.09%
		CPDCL	15	15	15	16	16	2.36%	16	17	17	18	18	2.36%
		EPDCL	35	37	39	41	43	5.05%	45	48	50	52	55	5.05%
		Total	**67**	**70**	**73**	**76**	**79**	**4.23%**	**83**	**86**	**90**	**94**	**98**	**4.28%**
Consumer Category-II: Commercial & Others	LT	SPDCL	1,219	1,281	1,346	1,414	1,486	5.08%	1,561	1,641	1,724	1,812	1,904	5.08%
		CPDCL	1,099	1,128	1,157	1,187	1,218	2.60%	1,250	1,282	1,316	1,350	1,385	2.60%
		EPDCL	1,423	1,506	1,594	1,687	1,785	5.84%	1,889	2,000	2,116	2,240	2,371	5.84%
		Total	**3,740**	**3,914**	**4,096**	**4,288**	**4,489**	**4.67%**	**4,700**	**4,923**	**5,156**	**5,401**	**5,659**	**4.75%**
	HT	SPDCL	501	518	535	554	573	3.42%	592	612	633	655	677	3.42%
		CPDCL	543	560	577	595	613	3.08%	632	651	671	692	713	3.08%
		EPDCL	984	1,037	1,092	1,151	1,213	5.38%	1,278	1,347	1,420	1,496	1,577	5.38%
		Total	**2,027**	**2,114**	**2,205**	**2,300**	**2,399**	**4.29%**	**2,502**	**2,611**	**2,724**	**2,843**	**2,967**	**4.35%**
Consumer Category-III: Industry	LT	SPDCL	639	658	678	699	720	3.06%	742	765	788	812	837	3.06%
		CPDCL	497	508	519	530	541	2.12%	553	564	576	588	601	2.12%
		EPDCL	465	472	478	485	491	1.37%	498	505	512	519	526	1.37%

Pessimistic Scenario														
All Figures in MU			5th Control Period						6th Control Period					
Consumer Category			FY 25	FY 26	FY 27	FY28	FY29	CAGR (%)	FY 30	FY 31	FY 32	FY 33	FY 34	CAGR (%)
		Total	**1,601**	**1,638**	**1,675**	**1,713**	**1,752**	2.28%	**1,793**	**1,834**	**1,876**	**1,920**	**1,964**	2.31%
	HT	SPDCL	7,651	8,027	8,422	8,837	9,272	4.92%	9,728	10,206	10,709	11,236	11,788	4.92%
		CPDCL	2,828	2,844	2,859	2,875	2,891	0.54%	2,906	2,922	2,938	2,954	2,970	0.54%
		EPDCL	11,709	12,410	13,152	13,939	14,773	5.98%	15,657	16,594	17,587	18,639	19,754	5.98%
		Total	**22,189**	**23,281**	**24,434**	**25,651**	**26,935**	**4.97%**	**28,291**	**29,722**	**31,233**	**32,828**	**34,512**	**5.09%**
Consumer Category-IV: Institutional	LT	SPDCL	990	1,086	1,190	1,305	1,431	9.64%	1,569	1,720	1,886	2,068	2,267	9.64%
		CPDCL	344	356	367	380	393	3.36%	406	419	434	448	463	3.36%
		EPDCL	476	500	525	551	578	5.00%	607	638	670	703	738	5.00%
		Total	**1,810**	**1,941**	**2,083**	**2,236**	**2,402**	**7.33%**	**2,582**	**2,777**	**2,989**	**3,219**	**3,469**	**7.66%**
	HT	SPDCL	1,244	1,329	1,419	1,516	1,619	6.81%	1,729	1,847	1,972	2,107	2,250	6.81%
		CPDCL	630	649	669	689	709	3.00%	731	752	775	798	822	3.00%
		EPDCL	1,160	1,215	1,273	1,334	1,398	4.77%	1,465	1,534	1,608	1,684	1,765	4.77%
		Total	**3,034**	**3,193**	**3,361**	**3,538**	**3,726**	**5.27%**	**3,924**	**4,134**	**4,355**	**4,589**	**4,837**	**5.37%**
Consumer Category-V: Agricultural & Related	LT	SPDCL	7,149	7,292	7,437	7,586	7,738	2.00%	7,893	8,050	8,211	8,376	8,543	2.00%
		CPDCL	3,182	3,262	3,343	3,427	3,513	2.50%	3,601	3,691	3,783	3,877	3,974	2.50%
		EPDCL	4,353	4,440	4,529	4,619	4,712	2.00%	4,806	4,902	5,000	5,100	5,202	2.00%
		Total	**14,684**	**14,993**	**15,309**	**15,632**	**15,962**	**2.11%**	**16,299**	**16,643**	**16,994**	**17,353**	**17,719**	**2.11%**
	HT	SPDCL	779	784	788	793	798	0.61%	803	808	813	818	823	0.61%
		CPDCL	78	80	82	84	86	2.50%	88	90	92	95	97	2.50%
		EPDCL	85	85	86	86	87	0.61%	87	88	88	89	89	0.61%

Pessimistic Scenario														
All Figures in MU			**5th Control Period**						**6th Control Period**					
Consumer Category			**FY 25**	**FY 26**	**FY 27**	**FY28**	**FY29**	**CAGR (%)**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**CAGR (%)**
		Total	**941**	**948**	**956**	**963**	**971**	**0.77%**	**978**	**986**	**993**	**1,001**	**1,009**	**0.79%**
Total	LT	SPDCL	15,627	16,177	16,752	17,355	17,985	3.58%	18,646	19,339	20,066	20,828	21,630	3.78%
		CPDCL	10,671	10,932	11,200	11,474	11,755	2.45%	12,043	12,338	12,640	12,950	13,267	2.45%
		EPDCL	14,193	14,771	15,376	16,008	16,671	4.10%	17,364	18,090	18,851	19,647	20,482	4.21%
		Total	**40,491**	**41,880**	**43,328**	**44,837**	**46,411**	**3.47%**	**48,053**	**49,767**	**51,556**	**53,425**	**55,379**	**3.61%**
	HT	SPDCL	10,192	10,675	11,184	11,719	12,281	4.77%	12,873	13,495	14,150	14,839	15,563	4.86%
		CPDCL	4,094	4,147	4,202	4,258	4,315	1.32%	4,373	4,433	4,494	4,557	4,621	1.39%
		EPDCL	13,973	14,784	15,643	16,552	17,514	5.81%	18,532	19,611	20,752	21,960	23,239	5.82%
		Total	**28,259**	**29,607**	**31,028**	**32,528**	**34,110**	**4.82%**	**35,778**	**37,539**	**39,396**	**41,356**	**43,424**	**4.96%**
RESCOs		SPDCL	463	477	493	508	524	3.18%	541	558	576	594	613	3.18%
		CPDCL												
		EPDCL												
		Total	**463**	**477**	**493**	**508**	**524**	3.18%	**541**	**558**	**576**	**594**	**613**	3.18%
Grand Total		SPDCL	26,281	27,330	28,429	29,582	30,791	4.04%	32,060	33,393	34,792	36,262	37,807	4.21%
		CPDCL	14,765	15,079	15,401	15,731	16,069	2.14%	16,416	16,770	17,134	17,506	17,888	2.17%
		EPDCL	28,166	29,555	31,018	32,560	34,184	4.96%	35,896	37,701	39,603	41,608	43,721	5.05%
		Total	**69,212**	**71,964**	**74,849**	**77,873**	**81,045**	4.02%	**84,372**	**87,864**	**91,528**	**95,376**	**99,415**	4.19%

Annexure- B7: Analysis of Voltage-Wise, Discom-Wise Distribution Losses

A. Voltage-wise Loss Trajectory(%) Approved Vs Actuals Vs Filings - Discoms Network

		APSPDCL					APCPDCL					APEPDCL				
Category		**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
LT	Approved	4.26	4.23	4.20	4.17	4.14	4.26	4.23	4.20	4.17	4.14	4.01	3.99	3.97	3.95	3.93
	Actual	4.33	4.75	5.08	5.09	3.93*	4.33	3.68	3.76	3.57	3.42*	3.24	3.12	3.36	3.74	3.74*
FY		**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
Projected by Licensee		5.07	5.06	5.04	5.03	5.02	3.73	3.72	3.71	3.70	3.69	3.42	3.41	3.40	3.40	3.39
11 KV	Approved	3.27	3.22	3.17	3.12	3.07	3.27	3.22	3.17	3.12	3.07	3.20	3.15	3.10	3.05	3.00
	Actual	3.27	3.36	3.34	3.33	3.87*	3.27	3.21	3.19	3.17	3.15*	3.26	3.25	3.45	3.19	3.19%
FY		**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
Projected by Licensee		3.30	3.29	3.29	3.28	3.27	3.16	3.15	3.15	3.14	3.13	3.39	3.38	3.37	3.36	3.35
33 KV	Approved	3.20	3.15	3.10	3.05	3.00	3.20	3.15	3.10	3.05	3.00	2.79	2.78	2.77	2.76	2.75
	Actual	3.25	3.24	3.22	3.22	3.74*	3.25	3.15	3.14	3.13	3.11*	3.36	3.36	3.45	3.06	3.06%
FY		**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
Projected by Licensee		3.19	3.18	3.18	3.17	3.16	3.11	3.10	3.10	3.09	3.08	3.34	3.33	3.32	3.31	3.30

B. AP Transco-Loss Trajectory(%) Approved Vs Actuals Vs Filings.

		AP Transco				
Category		**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
AP Transco	Approved	3.10%	3.08%	3.06%	3.03%	3.00%
	Actual	2.91%	2.60%	2.80%	2.61%	2.83%

		AP Transco & PGCIL Loss				
Category		**FY 19**	**FY 20**	**FY 21**	**FY 22**	**FY 23**
AP Transco & PGCIL Loss	Approved	-	-	-	--	-
	Actual	3.17	3.48	3.25	4.05	3.75
FY		**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Projected by Licensee		3.55%	3.65%	3.65%	3.65%	3.65%

C. Actual Distribution System, AP Transco & PGCIL Losses

	APSPDCL						APCPDCL				APEPDCL				
	FY 19	**FY 20**	**FY 21**	**FY 22**	**FY 23**	**FY 24**	**FY 21**	**FY 22**	**FY 23**	**FY 24**	**FY 20**	**FY 21**	**FY 22**	**FY 23**	**FY 24**
% Distribution System Losses (Excluding EHT Sales)	9.45	9.26	9.78	9.86	9.70	9.65	8.62	8.55	8.64	8.60	8.39	8.31	8.69	8.92	8.87
% Distribution System Losses (Including EHT Sales)	8.26	8.19	8.21	8.10	7.75	7.63	8.29	8.05	8.12	8.05	6.56	6.61	6.60	6.51	6.48
Transco + PGCIL		3.17	3.48	3.25	4.05	3.75	2.51	2.28	3.73	3.75	2.91	2.60	2.80	3.85	3.75

Annexure- B8 : Approved- Optimistic Scenario-Power Purchase Requirement for 5th CP and Indicative for 6th CP

I. Optimistic Scenario-PPR-Three DISCOMs-(MU)											
Three DISCOMs	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	43,072	45,947	49,026	52,324	55,858	59,645	63,704	68,057	72,725	77,734
	11kV	7,015	7,854	8,798	9,860	11,055	12,399	13,912	15,616	17,536	19,698
	33kV	8,446	9,462	10,603	11,888	13,335	14,963	16,798	18,864	21,194	23,820
	EHT	17,483	19,646	22,085	24,834	27,935	31,433	35,380	39,835	44,863	50,540
	Total	**76,016**	**82,909**	**90,513**	**98,907**	**108,183**	**118,440**	**129,794**	**142,372**	**156,318**	**171,792**
Losses	L.T.	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
	11kV	3.19%	3.18%	3.17%	3.16%	3.15%	3.14%	3.13%	3.12%	3.11%	3.10%
	33kV	2.90%	2.89%	2.88%	2.87%	2.86%	2.85%	2.84%	2.83%	2.82%	2.81%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	44,763	47,746	50,940	54,363	58,028	61,956	66,166	70,679	75,520	80,712
LT Sales @11kV	11kV	46,231	49,307	52,600	56,129	59,907	63,956	68,292	72,943	77,934	83,284
LT Sales @33kV	33kV	47,613	50,776	54,161	57,789	61,672	65,833	70,289	75,069	80,196	85,693
LT Sales @EHT	EHT	49,366	52,699	56,213	59,978	64,009	68,291	72,914	77,872	83,148	88,847
11kV Sales @11kV	11kV	7,246	8,112	9,087	10,182	11,414	12,801	14,361	16,119	18,099	20,329
11kV Sales @33kV	33kV	7,461	8,353	9,355	10,482	11,749	13,175	14,780	16,587	18,622	20,915
11kV Sales @EHT	EHT	7,736	8,669	9,710	10,879	12,194	13,667	15,332	17,206	19,308	21,684
33kV Sales @33kV	33kV	8,698	9,743	10,918	12,239	13,727	15,402	17,288	19,413	21,808	24,508
33kV Sales @EHT	EHT	9,019	10,112	11,331	12,703	14,247	15,977	17,934	20,138	22,611	25,410
132kV Sales @EHT	EHT	18,126	20,390	22,921	25,775	28,994	32,607	36,702	41,322	46,514	52,401
Total Energy Requirement		**84,247**	**91,871**	**100,175**	**109,335**	**119,443**	**130,543**	**142,881**	**156,538**	**171,581**	**188,342**
Three DISCOMs-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.22%	8.14%	8.07%	8.00%	7.92%	7.84%	7.76%	7.68%	7.60%	7.52%
Losses upto 11kV	%	6.34%	6.30%	6.26%	6.22%	6.18%	6.14%	6.09%	6.05%	6.01%	5.97%
Losses upto LT	%	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
T&D Loss	%	9.77%	9.75%	9.65%	9.54%	9.43%	9.27%	9.16%	9.05%	8.90%	8.79%

II. Optimistic Scenario-PPR-SPDCL-(MU)											
APSPDCL	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	16,634	17,766	18,982	20,288	21,691	23,199	24,821	26,565	28,443	30,464
	11kV	2,522	2,853	3,229	3,656	4,142	4,695	5,324	6,040	6,854	7,781
	33kV	3,324	3,760	4,256	4,820	5,460	6,189	7,018	7,962	9,035	10,257
	EHT	6,580	7,444	8,425	9,540	10,809	12,251	13,892	15,760	17,885	20,304
	Total	29,061	31,823	34,891	38,304	42,102	46,335	51,056	56,327	62,217	68,806
Losses	L.T.	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	17,351	18,530	19,795	21,155	22,616	24,186	25,874	27,690	29,644	31,747
LT Sales @11kV	11kV	17,898	19,113	20,416	21,816	23,320	24,936	26,674	28,543	30,554	32,719
LT Sales @33kV	33kV	18,450	19,700	21,041	22,481	24,029	25,691	27,479	29,402	31,470	33,696
LT Sales @EHT	EHT	19,129	20,446	21,838	23,333	24,939	26,651	28,505	30,500	32,628	34,936
11kV Sales @11kV	11kV	2,602	2,943	3,330	3,771	4,271	4,841	5,489	6,226	7,065	8,020
11kV Sales @33kV	33kV	2,682	3,033	3,432	3,886	4,401	4,988	5,655	6,413	7,277	8,259
11kV Sales @EHT	EHT	2,780	3,148	3,562	4,033	4,568	5,174	5,866	6,653	7,545	8,563
33kV Sales @33kV	33kV	3,427	3,876	4,386	4,967	5,626	6,377	7,230	8,201	9,306	10,563
33kV Sales @EHT	EHT	3,553	4,023	4,552	5,155	5,839	6,615	7,500	8,507	9,648	10,952
132kV Sales @EHT	EHT	6,823	7,726	8,744	9,902	11,218	12,709	14,411	16,348	18,543	21,051
Total Energy Requirement		**32,285**	**35,342**	**38,696**	**42,422**	**46,565**	**51,148**	**56,282**	**62,008**	**68,364**	**75,502**
Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.46%	8.38%	8.29%	8.20%	8.11%	8.02%	7.93%	7.84%	7.74%	7.65%
Losses upto 11kV	%	6.56%	6.51%	6.47%	6.42%	6.37%	6.32%	6.27%	6.22%	6.17%	6.12%
Losses upto LT	%	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
T&D Loss	%	9.99%	9.96%	9.83%	9.71%	9.58%	9.41%	9.29%	9.16%	8.99%	8.87%

III. Optimistic Scenario--PPR-CPDCL-(MU)											
APCPDCL	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	11,423	12,110	12,839	13,613	14,435	15,309	16,237	17,223	18,271	19,385
	11kV	1,699	1,869	2,056	2,262	2,490	2,741	3,019	3,327	3,666	4,042
	33kV	1,993	2,191	2,411	2,653	2,920	3,215	3,541	3,902	4,300	4,740
	EHT	1,131	1,244	1,368	1,506	1,657	1,825	2,010	2,215	2,441	2,691
	Total	**16,246**	**17,413**	**18,673**	**20,034**	**21,503**	**23,091**	**24,808**	**26,666**	**28,678**	**30,858**
-Losses	L.T.	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	11,865	12,577	13,333	14,136	14,989	15,894	16,856	17,878	18,963	20,117
LT Sales @11kV	11kV	12,240	12,973	13,751	14,578	15,455	16,387	17,377	18,429	19,546	20,733
LT Sales @33kV	33kV	12,617	13,372	14,172	15,022	15,925	16,884	17,902	18,983	20,132	21,352
LT Sales @EHT	EHT	13,082	13,878	14,709	15,591	16,528	17,514	18,570	19,692	20,872	22,138
11kV Sales @11kV	11kV	1,753	1,927	2,120	2,333	2,567	2,826	3,113	3,429	3,779	4,166
11kV Sales @33kV	33kV	1,807	1,987	2,185	2,404	2,645	2,912	3,207	3,532	3,892	4,290
11kV Sales @EHT	EHT	1,873	2,062	2,268	2,495	2,746	3,021	3,327	3,664	4,035	4,448
33kV Sales @33kV	33kV	2,054	2,259	2,485	2,734	3,009	3,313	3,648	4,019	4,429	4,882
33kV Sales @EHT	EHT	2,130	2,344	2,579	2,837	3,123	3,436	3,784	4,169	4,592	5,062
132kV Sales @EHT	EHT	1,173	1,291	1,420	1,563	1,720	1,893	2,085	2,297	2,531	2,790
Total Energy Requirement		**18,257**	**19,575**	**20,976**	**22,486**	**24,117**	**25,864**	**27,766**	**29,822**	**32,030**	**34,437**
CPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.27%	8.22%	8.16%	8.10%	8.04%	7.97%	7.91%	7.85%	7.79%	7.72%
Losses upto 11kV	%	6.22%	6.19%	6.16%	6.12%	6.09%	6.05%	6.02%	5.98%	5.95%	5.91%
Losses upto LT	%	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
T&D Loss	%	11.02%	11.04%	10.98%	10.91%	10.84%	10.72%	10.65%	10.58%	10.47%	10.39%

IV. Optimistic-Scenario--PPR-EPDCL-(MU)											
APEPDCL	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
-Sales	L.T.	15,015	16,072	17,206	18,424	19,732	21,137	22,646	24,268	26,011	27,885
	11kV	2,794	3,133	3,514	3,942	4,422	4,962	5,568	6,250	7,015	7,875
	33kV	3,129	3,510	3,937	4,416	4,954	5,559	6,238	7,001	7,859	8,822
	EHT	9,771	10,959	12,292	13,788	15,469	17,357	19,478	21,860	24,538	27,546
	Total	**30,710**	**33,673**	**36,948**	**40,570**	**44,578**	**49,015**	**53,931**	**59,379**	**65,422**	**72,128**
Losses	L.T.	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
	11kV	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%	3.32%	3.31%	3.31%	3.30%
	33kV	2.74%	2.73%	2.72%	2.71%	2.70%	2.69%	2.68%	2.67%	2.66%	2.65%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	15,547	16,639	17,812	19,072	20,424	21,876	23,436	25,112	26,913	28,848
LT Sales @11kV	11kV	16,092	17,221	18,433	19,735	21,132	22,632	24,241	25,972	27,834	29,833
LT Sales @33kV	33kV	16,546	17,705	18,948	20,285	21,719	23,258	24,909	26,684	28,595	30,645
LT Sales @EHT	EHT	17,155	18,375	19,666	21,054	22,541	24,126	25,839	27,681	29,647	31,773
11kV Sales @11kV	11kV	2,892	3,243	3,637	4,079	4,576	5,134	5,760	6,464	7,255	8,144
11kV Sales @33kV	33kV	2,973	3,334	3,738	4,193	4,703	5,276	5,918	6,641	7,453	8,366
11kV Sales @EHT	EHT	3,082	3,460	3,880	4,351	4,881	5,473	6,139	6,889	7,728	8,673
33kV Sales @33kV	33kV	3,218	3,608	4,047	4,539	5,092	5,713	6,410	7,193	8,073	9,062
33kV Sales @EHT	EHT	3,336	3,745	4,200	4,711	5,285	5,926	6,649	7,462	8,371	9,396
132kV Sales @EHT	EHT	10,131	11,374	12,757	14,311	16,055	18,005	20,205	22,677	25,441	28,560
Total Energy Requirement		**33,705**	**36,954**	**40,503**	**44,426**	**48,762**	**53,530**	**58,832**	**64,708**	**71,186**	**78,402**
EPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	7.91%	7.84%	7.77%	7.70%	7.63%	7.56%	7.48%	7.40%	7.34%	7.26%
Losses upto 11kV	%	6.19%	6.15%	6.11%	6.08%	6.04%	6.00%	5.95%	5.91%	5.88%	5.84%
Losses upto LT	%	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
T&D Loss	%	8.89%	8.88%	8.78%	8.68%	8.58%	8.43%	8.33%	8.23%	8.10%	8.00%

Annexure- B9: Approved- BAU Scenario-Power Purchase Requirement for 5th CP and Indicative for 6th CP

I. BAU-Scenario--PPR-Three DISCOMs (MU)											
Three DISCOMs Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
-Sales	L.T.	41,937	44,140	46,468	48,928	51,528	54,278	57,187	60,264	63,519	66,966
	11kV	6,874	7,146	7,764	8,443	9,189	10,010	10,912	11,906	13,000	14,204
	33kV	7,908	8,618	9,371	10,199	11,110	12,112	13,215	14,431	15,770	17,246
	EHT	16,334	18,182	19,922	21,838	23,949	26,275	28,838	31,663	34,778	38,213
	Total	73,053	78,085	83,524	89,408	95,776	102,675	110,153	118,263	127,067	136,628
-Losses	L.T.	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
	11kV	3.19%	3.18%	3.17%	3.17%	3.16%	3.15%	3.13%	3.12%	3.12%	3.11%
	33kV	2.90%	2.89%	2.88%	2.87%	2.85%	2.84%	2.83%	2.82%	2.81%	2.80%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	43,584	45,868	48,282	50,835	53,531	56,382	59,397	62,586	65,961	69,532
LT Sales @11kV	11kV	45,013	47,368	49,855	52,486	55,265	58,202	61,306	64,591	68,070	71,749
LT Sales @33kV	33kV	46,359	48,779	51,335	54,038	56,893	59,910	63,099	66,473	70,045	73,823
LT Sales @EHT	EHT	48,065	50,627	53,280	56,085	59,048	62,148	65,455	68,956	72,624	76,540
11kV Sales @11kV	11kV	7,101	7,381	8,018	8,719	9,489	10,335	11,265	12,290	13,418	14,660
11kV Sales @33kV	33kV	7,312	7,599	8,255	8,975	9,767	10,637	11,593	12,646	13,805	15,081
11kV Sales @EHT	EHT	7,582	7,887	8,568	9,315	10,137	11,034	12,026	13,118	14,313	15,637
33kV Sales @33kV	33kV	8,144	8,874	9,648	10,500	11,436	12,466	13,601	14,850	16,226	17,743
33kV Sales @EHT	EHT	8,443	9,210	10,014	10,897	11,869	12,932	14,109	15,405	16,824	18,396
132kV Sales @EHT	EHT	16,935	18,871	20,677	22,666	24,857	27,256	29,915	32,846	36,058	39,619
Total Energy requirement		**81,025**	**86,594**	**92,538**	**98,963**	**105,910**	**113,370**	**121,505**	**130,324**	**139,819**	**150,192**
Three DISCOMs-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.25%	8.20%	8.14%	8.08%	8.03%	7.97%	7.90%	7.84%	7.78%	7.72%
Losses upto 11kV	%	6.36%	6.32%	6.29%	6.26%	6.23%	6.20%	6.16%	6.13%	6.10%	6.06%
Losses upto LT	%	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
Overall Losses	%	9.82%	9.83%	9.74%	9.66%	9.57%	9.43%	9.34%	9.25%	9.12%	9.03%

II. BAU Scenario-PPR-SPDCL-(MU)											
APSPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	16,232	17,125	18,072	19,076	20,143	21,276	22,479	23,758	25,118	26,564
	11kV	2,433	2,682	2,973	3,297	3,658	4,059	4,506	5,004	5,559	6,178
	33kV	3,144	3,535	3,919	4,346	4,821	5,350	5,940	6,596	7,328	8,143
	EHT	6,351	6,998	7,757	8,602	9,543	10,591	11,758	13,058	14,505	16,119
	Total	28,160	30,340	32,721	35,321	38,165	41,276	44,683	48,417	52,511	57,003
Losses	L.T.	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @ L.T.	L.T.	16,932	17,861	18,846	19,892	21,002	22,181	23,433	24,764	26,178	27,683
LT Sales @11kV	11kV	17,467	18,422	19,437	20,514	21,656	22,869	24,158	25,527	26,982	28,530
LT Sales @33kV	33kV	18,005	18,988	20,032	21,139	22,314	23,562	24,887	26,295	27,791	29,382
LT Sales @EHT	EHT	18,668	19,708	20,791	21,940	23,160	24,442	25,816	27,277	28,814	30,464
11kV Sales @11kV	11kV	2,509	2,766	3,066	3,400	3,771	4,185	4,646	5,159	5,730	6,367
11kV Sales @33kV	33kV	2,587	2,851	3,160	3,504	3,886	4,312	4,786	5,314	5,902	6,557
11kV Sales @EHT	EHT	2,682	2,959	3,280	3,636	4,033	4,473	4,965	5,512	6,119	6,798
33kV Sales @33kV	33kV	3,240	3,644	4,039	4,478	4,968	5,512	6,119	6,795	7,547	8,386
33kV Sales @EHT	EHT	3,360	3,782	4,192	4,648	5,156	5,718	6,348	7,049	7,825	8,695
132 KV Sales @EHT		6,585	7,263	8,051	8,928	9,905	10,987	12,197	13,545	15,039	16,712
Total Energy Requirement		**31,294**	**33,712**	**36,314**	**39,153**	**42,254**	**45,619**	**49,325**	**53,383**	**57,798**	**62,668**
SPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.48%	8.40%	8.33%	8.25%	8.17%	8.09%	8.01%	7.93%	7.84%	7.76%
Losses upto 11kV	%	6.56%	6.52%	6.48%	6.44%	6.40%	6.36%	6.31%	6.27%	6.22%	6.17%
Losses upto LT	%	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
Overall Losses	%	10.02%	10.00%	9.89%	9.79%	9.68%	9.52%	9.41%	9.30%	9.15%	9.04%

III. BAU-Scenario–PPR-CPDCL-(MU)											
APCPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
-Sales	L.T.	11,066	11,546	12,047	12,570	13,116	13,686	14,281	14,903	15,552	16,229
	11kV	1,737	1,564	1,621	1,682	1,745	1,812	1,881	1,954	2,031	2,112
	33kV	1,681	1,834	1,902	1,973	2,047	2,125	2,206	2,292	2,382	2,477
	EHT	865	1,041	1,079	1,120	1,162	1,206	1,252	1,301	1,352	1,406
	Total	15,349	15,985	16,650	17,344	18,069	18,828	19,621	20,450	21,318	22,225
-Losses	L.T.	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	11,495	11,992	12,511	13,053	13,618	14,209	14,825	15,469	16,141	16,842
LT Sales @11kV	11kV	11,858	12,370	12,903	13,461	14,042	14,650	15,284	15,945	16,636	17,358
LT Sales @33kV	33kV	12,224	12,749	13,298	13,871	14,469	15,093	15,745	16,425	17,135	17,876
LT Sales @EHT	EHT	12,674	13,232	13,802	14,397	15,017	15,657	16,333	17,038	17,766	18,534
11kV Sales @11kV	11kV	1,792	1,613	1,672	1,734	1,799	1,868	1,939	2,015	2,094	2,177
11kV Sales @33kV	33kV	1,847	1,663	1,723	1,787	1,854	1,924	1,998	2,075	2,157	2,242
11kV Sales @EHT	EHT	1,915	1,726	1,789	1,855	1,924	1,996	2,073	2,153	2,236	2,324
33kV Sales @33kV	33kV	1,733	1,890	1,960	2,033	2,109	2,189	2,273	2,361	2,454	2,551
33kV Sales @EHT	EHT	1,797	1,962	2,034	2,110	2,189	2,271	2,358	2,449	2,544	2,645
132kV Sales @EHT		897	1,081	1,120	1,162	1,206	1,251	1,299	1,350	1,402	1,458
Total Energy Requirement		**17,282**	**18,001**	**18,745**	**19,523**	**20,336**	**21,175**	**22,062**	**22,990**	**23,948**	**24,962**
CPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.35%	8.33%	8.31%	8.29%	8.27%	8.25%	8.23%	8.21%	8.19%	8.16%
Losses upto 11kV	%	6.26%	6.24%	6.22%	6.21%	6.19%	6.18%	6.16%	6.14%	6.13%	6.11%
Losses upto LT	%	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
Overall Losses	%	11.12%	11.20%	11.18%	11.16%	11.15%	11.08%	11.07%	11.05%	10.98%	10.96%

IV. BAU Scenario–PPR-EPDCL-(MU)											
APEPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	14,639	15,469	16,349	17,282	18,270	19,317	20,426	21,603	22,850	24,172
	11kV	2,705	2,900	3,169	3,464	3,786	4,139	4,525	4,947	5,409	5,914
	33kV	3,083	3,248	3,550	3,881	4,242	4,637	5,069	5,542	6,060	6,626
	EHT	9,118	10,143	11,085	12,116	13,244	14,478	15,828	17,304	18,920	20,688
	Total	29,545	31,760	34,154	36,743	39,542	42,571	45,848	49,396	53,238	57,400
Losses	L.T.	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
	11kV	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%	3.32%	3.31%	3.31%	3.30%
	33kV	2.74%	2.73%	2.72%	2.71%	2.70%	2.69%	2.68%	2.67%	2.66%	2.65%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.		15,156	16,015	16,925	17,890	18,911	19,992	21,139	22,354	23,642	25,007
LT Sales @11kV		15,688	16,576	17,515	18,512	19,566	20,683	21,865	23,119	24,451	25,861
LT Sales @33kV		16,130	17,041	18,005	19,028	20,109	21,255	22,467	23,753	25,119	26,565
LT Sales @EHT		16,724	17,686	18,687	19,748	20,871	22,049	23,306	24,640	26,044	27,542
11kV Sales @11kV		2,800	3,001	3,280	3,584	3,918	4,282	4,680	5,116	5,594	6,116
11kV Sales @33kV		2,878	3,085	3,371	3,684	4,026	4,400	4,809	5,257	5,747	6,283
11kV Sales @EHT		2,984	3,202	3,499	3,824	4,179	4,565	4,989	5,453	5,959	6,514
33kV Sales @33kV		3,170	3,340	3,650	3,989	4,359	4,765	5,209	5,694	6,225	6,806
33kV Sales @EHT		3,287	3,466	3,788	4,140	4,525	4,943	5,403	5,907	6,454	7,057
132kV Sales @EHT		9,453	10,527	11,505	12,575	13,746	15,019	16,419	17,951	19,616	21,449
Total Energy Requirement		**32,448**	**34,882**	**37,479**	**40,287**	**43,320**	**46,575**	**50,117**	**53,951**	**58,073**	**62,562**
EPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	7.93%	7.88%	7.82%	7.77%	7.71%	7.65%	7.59%	7.53%	7.48%	7.42%
Losses upto 11kV	%	6.20%	6.17%	6.14%	6.11%	6.08%	6.05%	6.00%	5.97%	5.95%	5.91%
Losses upto LT	%	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
Overall Losses	%	8.93%	8.95%	8.87%	8.80%	8.72%	8.60%	8.52%	8.44%	8.33%	8.25%

Annexure- B10: Approved- Pessimistic Scenario-Power Purchase Requirement for 5th CP and Indicative for 6th CP

I. Pessimistic Scenario-PPR-Three DISCOMs											
Three DISCOMs Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	40,491	41,880	43,328	44,837	46,411	48,053	49,767	51,556	53,425	55,379
	11kV	6,092	6,356	6,634	6,927	7,236	7,562	7,904	8,266	8,646	9,047
	33kV	7,328	7,645	7,979	8,330	8,701	9,091	9,501	9,934	10,390	10,871
	EHT	15,302	16,083	16,908	17,778	18,697	19,667	20,691	21,772	22,914	24,119
	Total	69,212	71,964	74,848	77,873	81,045	84,372	87,864	91,528	95,375	99,415
Losses	L.T.	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
	11kV	3.20%	3.19%	3.18%	3.17%	3.16%	3.15%	3.14%	3.13%	3.13%	3.12%
	33kV	2.90%	2.88%	2.87%	2.86%	2.85%	2.84%	2.83%	2.82%	2.80%	2.79%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	42,080	43,519	45,018	46,583	48,213	49,914	51,688	53,541	55,476	57,498
LT Sales @11kV	11kV	43,460	44,942	46,486	48,097	49,775	51,526	53,351	55,258	57,252	59,333
LT Sales @33kV	33kV	44,759	46,280	47,865	49,519	51,241	53,037	54,910	56,867	58,912	61,047
LT Sales @EHT	EHT	46,407	48,034	49,678	51,395	53,182	55,018	56,960	58,990	61,080	63,294
11kV Sales @11kV	11kV	6,293	6,565	6,852	7,154	7,473	7,808	8,161	8,533	8,926	9,339
11kV Sales @33kV	33kV	6,480	6,760	7,054	7,364	7,691	8,035	8,398	8,779	9,182	9,606
11kV Sales @EHT	EHT	6,718	7,016	7,321	7,643	7,983	8,335	8,711	9,107	9,520	9,960
33kV Sales @33kV	33kV	7,546	7,872	8,215	8,576	8,956	9,356	9,778	10,222	10,690	11,183
33kV Sales @EHT	EHT	7,824	8,170	8,526	8,901	9,295	9,706	10,143	10,604	11,083	11,595
132kV Sales @EHT	EHT	15,865	16,692	17,548	18,452	19,405	20,402	21,464	22,585	23,757	25,007
Total Energy Requirement		**76,814**	**79,912**	**83,074**	**86,390**	**89,865**	**93,461**	**97,278**	**101,287**	**105,441**	**109,855**
Three DISCOMs-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.29%	8.26%	8.23%	8.19%	8.16%	8.13%	8.09%	8.06%	8.03%	7.99%
Losses upto 11kV	%	6.37%	6.35%	6.33%	6.31%	6.29%	6.27%	6.24%	6.22%	6.20%	6.18%
Losses upto LT	%	3.78%	3.77%	3.76%	3.75%	3.74%	3.73%	3.72%	3.71%	3.70%	3.69%
Overall Losses	%	9.90%	9.95%	9.90%	9.86%	9.82%	9.72%	9.68%	9.63%	9.55%	9.50%

II. Pessimistic-Scenario-PPR-SPDCL (MU)											
APSPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	15,627	16,177	16,752	17,355	17,985	18,646	19,339	20,066	20,828	21,630
	11kV	2,162	2,263	2,370	2,481	2,599	2,722	2,852	2,989	3,132	3,283
	33kV	2,850	2,983	3,124	3,271	3,426	3,588	3,760	3,939	4,129	4,327
	EHT	5,642	5,906	6,183	6,475	6,781	7,103	7,442	7,798	8,173	8,566
	Total	26,281	27,330	28,429	29,582	30,791	32,060	33,393	34,792	36,262	37,807
Losses	L.T.	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	16,300	16,872	17,471	18,097	18,752	19,439	20,159	20,915	21,708	22,540
LT Sales @11kV	11kV	16,814	17,403	18,018	18,662	19,336	20,043	20,783	21,559	22,374	23,230
LT Sales @33kV	33kV	17,333	17,937	18,570	19,231	19,924	20,650	21,410	22,208	23,045	23,924
LT Sales @EHT	EHT	17,971	18,617	19,273	19,960	20,679	21,421	22,210	23,037	23,893	24,805
11kV Sales @11kV	11kV	2,231	2,335	2,444	2,559	2,680	2,807	2,940	3,081	3,228	3,384
11kV Sales @33kV	33kV	2,299	2,406	2,519	2,637	2,761	2,892	3,029	3,173	3,325	3,485
11kV Sales @EHT	EHT	2,384	2,497	2,614	2,737	2,866	3,000	3,142	3,292	3,448	3,613
33kV Sales @33kV	33kV	2,938	3,075	3,219	3,371	3,530	3,697	3,873	4,058	4,252	4,457
33kV Sales @EHT	EHT	3,046	3,192	3,341	3,498	3,664	3,835	4,018	4,209	4,409	4,621
132kV Sales @EHT	EHT	5,849	6,130	6,417	6,720	7,038	7,369	7,720	8,089	8,473	8,882
Total Energy Requirement		**29,250**	**30,436**	**31,646**	**32,915**	**34,246**	**35,624**	**37,090**	**38,628**	**40,223**	**41,920**
SPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.55%	8.52%	8.48%	8.45%	8.41%	8.38%	8.34%	8.31%	8.27%	8.24%
Losses upto 11kV	%	6.59%	6.57%	6.55%	6.53%	6.50%	6.48%	6.46%	6.44%	6.41%	6.39%
Losses upto LT	%	4.13%	4.12%	4.11%	4.10%	4.09%	4.08%	4.07%	4.06%	4.05%	4.04%
Overall Losses	%	10.15%	10.20%	10.17%	10.13%	10.09%	10.00%	9.97%	9.93%	9.85%	9.81%

III. Pessimistic Scenario-PPR-CPDCL (MU)											
APCPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	10,671	10,932	11,200	11,474	11,755	12,043	12,338	12,640	12,950	13,267
	11kV	1,442	1,461	1,480	1,500	1,520	1,541	1,562	1,583	1,605	1,628
	33kV	1,692	1,714	1,736	1,759	1,783	1,807	1,832	1,857	1,883	1,909
	EHT	960	973	985	999	1,012	1,026	1,040	1,054	1,069	1,084
	Total	14,765	15,079	15,401	15,731	16,069	16,416	16,770	17,134	17,506	17,888
Losses	L.T.	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
	11kV	3.06%	3.05%	3.04%	3.03%	3.02%	3.01%	3.00%	2.99%	2.98%	2.97%
	33kV	2.99%	2.98%	2.97%	2.96%	2.95%	2.94%	2.93%	2.92%	2.91%	2.90%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	11,084	11,354	11,631	11,915	12,205	12,503	12,808	13,120	13,440	13,768
LT Sales @11kV	11kV	11,434	11,711	11,996	12,287	12,585	12,891	13,204	13,525	13,853	14,190
LT Sales @33kV	33kV	11,786	12,071	12,363	12,662	12,968	13,281	13,602	13,931	14,268	14,613
LT Sales @EHT	EHT	12,220	12,529	12,831	13,141	13,459	13,777	14,110	14,452	14,793	15,151
11kV Sales @11kV	11kV	1,488	1,507	1,527	1,547	1,567	1,588	1,610	1,632	1,655	1,678
11kV Sales @33kV	33kV	1,534	1,553	1,573	1,594	1,615	1,637	1,659	1,681	1,704	1,728
11kV Sales @EHT	EHT	1,590	1,612	1,633	1,654	1,676	1,698	1,720	1,744	1,767	1,791
33kV Sales @33kV	33kV	1,744	1,766	1,789	1,813	1,837	1,862	1,887	1,913	1,939	1,966
33kV Sales @EHT	EHT	1,808	1,833	1,857	1,881	1,906	1,931	1,957	1,984	2,010	2,039
132kV Sales @EHT	EHT	996	1,010	1,023	1,036	1,050	1,064	1,078	1,093	1,108	1,124
Total Energy Requirement		**16,614**	**16,983**	**17,344**	**17,714**	**18,092**	**18,470**	**18,867**	**19,273**	**19,679**	**20,105**
CPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	8.36%	8.34%	8.33%	8.31%	8.30%	8.28%	8.26%	8.25%	8.23%	8.21%
Losses upto 11kV	%	6.26%	6.25%	6.23%	6.22%	6.20%	6.19%	6.17%	6.16%	6.14%	6.13%
Losses upto LT	%	3.73%	3.72%	3.71%	3.70%	3.69%	3.68%	3.67%	3.66%	3.65%	3.64%
Overall Losses	%	11.13%	11.21%	11.20%	11.19%	11.18%	11.12%	11.11%	11.10%	11.04%	11.03%

IV. Pessimistic Scenario-PPR-EPDCL											
APEPDCL Sales	**MU**	**5th Control Period**					**6th Control Period**				
	Voltage	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**	**FY-32**	**FY-33**	**FY-34**
Sales	L.T.	14,193	14,771	15,376	16,008	16,671	17,364	18,090	18,851	19,647	20,482
	11kV	2,487	2,631	2,784	2,946	3,117	3,299	3,491	3,694	3,909	4,136
	33kV	2,786	2,948	3,119	3,300	3,492	3,695	3,910	4,138	4,379	4,634
	EHT	8,700	9,205	9,739	10,305	10,904	11,538	12,210	12,920	13,673	14,469
	Total	28,166	29,555	31,018	32,560	34,184	35,896	37,701	39,603	41,608	43,721
Losses	L.T.	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
	11kV	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%	3.32%	3.31%	3.31%	3.30%
	33kV	2.74%	2.73%	2.72%	2.71%	2.70%	2.69%	2.68%	2.67%	2.66%	2.65%
	EHT	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
LT Sales @L.T.	L.T.	14,696	15,293	15,917	16,572	17,256	17,972	18,721	19,506	20,328	21,189
LT Sales @11kV	11kV	15,212	15,827	16,472	17,148	17,854	18,593	19,364	20,174	21,024	21,913
LT Sales @33kV	33kV	15,640	16,272	16,932	17,625	18,349	19,106	19,897	20,727	21,599	22,509
LT Sales @EHT	EHT	16,216	16,888	17,574	18,293	19,044	19,820	20,640	21,501	22,394	23,338
11kV Sales @11kV	11kV	2,574	2,724	2,881	3,049	3,225	3,413	3,610	3,820	4,043	4,278
11kV Sales @33kV	33kV	2,647	2,800	2,962	3,133	3,315	3,507	3,710	3,925	4,153	4,394
11kV Sales @EHT	EHT	2,744	2,906	3,074	3,252	3,440	3,638	3,848	4,072	4,306	4,556
33kV Sales @33kV	33kV	2,865	3,031	3,206	3,392	3,589	3,797	4,018	4,251	4,499	4,760
33kV Sales @EHT	EHT	2,970	3,145	3,328	3,521	3,725	3,939	4,168	4,410	4,664	4,935
132kV Sales @EHT	EHT	9,020	9,553	10,108	10,695	11,317	11,969	12,666	13,403	14,176	15,002
Total Energy Requirement		**30,950**	**32,493**	**34,084**	**35,762**	**37,527**	**39,366**	**41,322**	**43,386**	**45,540**	**47,830**
EPDCL-Overall Losses (%)											
Losses of EHT	%	3.55%	3.65%	3.65%	3.65%	3.65%	3.60%	3.60%	3.60%	3.55%	3.55%
Losses upto 33 kV	%	7.97%	7.93%	7.89%	7.85%	7.81%	7.77%	7.72%	7.69%	7.65%	7.61%
Losses upto 11kV	%	6.22%	6.19%	6.17%	6.15%	6.13%	6.10%	6.07%	6.04%	6.03%	6.00%
Losses upto LT	%	3.42%	3.41%	3.40%	3.40%	3.39%	3.38%	3.37%	3.36%	3.35%	3.34%
Overall Losses	%	8.99%	9.04%	8.99%	8.95%	8.91%	8.81%	8.76%	8.72%	8.63%	8.59%

Annexure-C1: Approved - Year-wise, Installed Capacities for 5th CP (MW)

		Yearly installed capacity				
S.No.	**Source**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
A	**THERMAL**	**4,210**	**4,210**	**4,210**	**4,210**	**4,210**
1	NTTPS I	420	420	420	420	420
2	NTTPS II	420	420	420	420	420
3	NTTPS III	420	420	420	420	420
8	NTTPS IV	500	500	500	500	500
4	RTPP-I	420	420	420	420	420
5	RTPP-II	420	420	420	420	420
6	RTPP- III	210	210	210	210	210
7	RTPP IV	600	600	600	600	600
9	VTPS – V	800	800	800	800	800
B	**HYDEL**	**1,774**	**2,334**	**2,734**	**2,734**	**2,734**
B1	**Interstate projects:**	**118**	**118**	**118**	**118**	**118**
10	Machkund, Orissa (AP Share 70%)	60	60	60	60	60
11	T.B. Station, Karnataka (AP Share 80%)	58	58	58	58	58
B2	**State projects:**	**1,656**	**2,216**	**2,616**	**2,616**	**2,616**
12	Donkarayi (1X25MW)	25	25	25	25	25
13	Upper Sileru (4x 60 MW)	240	240	240	240	240
14	Lower Sileru (4 X 115 MW)	460	460	460	460	460
15	Srisailam right bank PH (7 X 110 MW)	770	770	770	770	770
16	Nagarjunsagar right canal PH (3 X 30 MW)	90	90	90	90	90
17	PABM (2 X 10 MW)	20	20	20	20	20
18	Mini hydro (2 X 0.5 MW)	1	1	1	1	1
19	Nagarjuna Sagar Tail Pond (2 X 25 MW)	50	50	50	50	50
20	Lower Sileru -2 units	-	-	-	-	-
21	Polavaram – 1st to 7th Units	-	560	560	560	560
22	Polavaram – 8th to 12th Units	-	-	400	400	400
23	Upper Sileru Pumped Storage 1st to 8th Units	-	-	-	-	-
24	Upper Sileru Pumped Storage 9th Unit	-	-	-	-	-
A+B	**TOTAL APGENCO & Interstate**	**5,984**	**6,544**	**6,944**	**6,944**	**6,944**
C	**Joint Sector**	**2,456**	**2,456**	**2,456**	**2,456**	**2,456**
20	SDSTPS – I	720	720	720	720	720
21	SDSTPS – II	720	720	720	720	720
22	SDSTPS – III	800	800	800	800	800
23	Godavari Power (GGPP)	216	216	216	216	216
D	**CGS Station**	**1,501**	**1,501**	**1,501**	**1,501**	**1,501**
24	NTPC-(SR) Ramagundam I & II	276	314	314	314	314
25	NTPC-(SR) Ramagundam- III	69	73	73	73	73
26	NTPC-Talcher-II	176	177	177	177	177
27	NTPCSimhadri Stage-I	461	461	461	461	461

		Yearly installed capacity				
S.No.	**Source**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
28	NTPC Simhadri Stage-II	214	214	214	214	214
29	NLC TS II Stage-I	47	50	50	50	50
30	NLC TS II Stage-II	86	89	89	89	89
31	NPC-MAPS	18	18	18	18	18
32	NPC-Kaiga 1 & 2	55	55	55	55	55
33	NPC-Kaiga 3 & 4	59	59	59	59	59
34	Vallur (JV) NTPC with TANGEDCO	-	-	-	-	-
35	NLC-TNPL Tuticorin	-	-	-	-	-
36	NTPC-Kudigi	-	-	-	-	-
37	NTPC JNNSM Phase I	39	39	39	39	39
38	NNTPS	-	-	-	-	-
39	Kudankulam unit 1	-	-	-	-	-
40	NLC TPS I Exp	-	-	-	-	-
41	NLC TPS II Exp	-	-	-	-	-
42	Bhavni	-	-	-	-	-
43	Telangana STPS	-	-	-	-	-
44	Talcher	-	-	-	-	-
E	**IPPs-Gas based IPPs**	**375**	**171**	**171**	**-**	**-**
42	GVK Extension	-	-	-	-	-
43	Gautami	-	-	-	-	-
44	Konaseema	205	-	-	-	-
45	GMR Vemagiri	171	171	171	-	-
F	**IPPs-Thermal**	**1,896**	**1,896**	**1,896**	**1,896**	**1,896**
46	HNPCL	1,040	1,040	1,040	1,040	1,040
47	M/s. SEIL-1 (SEMBCORP ENERGY INDIA LIMITED)	231	231	231	231	231
48	M/s. SEIL -2 (SEMBCORP ENERGY INDIA LIMITED)	625	625	625	625	625
G	**Non-Conventional Energy Sources (NCE)**	**10,542**	**13,505**	**14,489**	**14,487**	**14,472**
49	NCE Biomass	72	72	72	72	72
50	NCE Bagasse	74	74	74	74	74
51	NCE – Industrial Waste based Power project	22	22	22	22	22
52	NCE – Municipal Solid Waste Projects	36	36	36	36	36
53	NCE- Wind	3,636	3,626	3,621	3,621	3,621
54	NCE – Solar	6,756	9,756	10,755	10,755	10,755
55	NCE- Mini Hydel	29	29	29	29	29
56	NCE- Others	-82	-109	-119	-121	-136
57	BBB Scheme (Wind & Solar)	-	-	-	-	-
H	**Grand Total**	**22,754**	**26,072**	**27,456**	**27,284**	**27,269**

Annexure-C2: Approved-Scenario-I: Ex-bus Energy Available for 5th CP (MW)

SCENARIO-I											
S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Normative				
			%	MW	Aux	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
A	**THERMAL**	**4,210**		**4,210**	**%**	**%**	**3,164**	**3,164**	**3,164**	**3,164**	**3,164**
1	NTTPS I	420	100%	420	8.75%	80%	307	307	307	307	307
2	NTTPS II	420	100%	420	8.75%	80%	307	307	307	307	307
3	NTTPS III	420	100%	420	8.75%	80%	307	307	307	307	307
4	NTTPS IV	500	100%	500	7.50%	80%	370	370	370	370	370
5	RTPP-I	420	100%	420	9.00%	80%	306	306	306	306	306
6	RTPP-II	420	100%	420	9.00%	80%	306	306	306	306	306
7	RTPP- III	210	100%	210	9.00%	80%	153	153	153	153	153
8	RTPP IV	600	100%	600	7.00%	85%	474	474	474	474	474
9	VTPS – V	800	100%	800	6.50%	85%	636	636	636	636	636
B	**Joint Sector**	**2,616**		**2,456**			**1,909**	**1,909**	**1,909**	**1,909**	**1,909**
10	KTPP (JVP) Stage I (2X800MW) Unit-1	800	90%	720	6.50%	85%	572	572	572	572	572
11	KTPP (JVP) Stage I (2X800MW) Unit-2	800	90%	720	6.50%	85%	572	572	572	572	572
12	KTPP (JVP) Stage II (1X800MW) Unit-3	800	100%	800	5.75%	85%	641	641	641	641	641
13	Godavari Gas Power Plant (GGPP)	216	100%	216	3.97%	60%	123	123	123	123	123
C	**CGS Station**	**14,540**		**1,507**			**1,171**	**1,171**	**1,171**	**1,171**	**1,171**
14	NTPC-(SR) Ramagundam I & II	2,100	13%	276	6.68%	85%	213	213	213	213	213
15	NTPC-(SR) Ramagundam-III	500	14%	69	5.75%	85%	54	54	54	54	54
16	NTPC-Talcher-II	2,000	9%	176	5.75%	85%	137	137	137	137	137
17	NTPCSimhadri Stage-I	1,000	46%	461	5.25%	85%	360	360	360	360	360
18	NTPC Simhadri Stage-II	1,000	21%	214	5.25%	85%	167	167	167	167	167
19	NLC TS II Stage-I	630	7%	47	10.0%	85%	35	35	35	35	35
20	NLC TS II Stage-II	840	10%	86	10.0%	85%	64	64	64	64	64
21	NPC-MAPS	440	4%	18	0.00%	85%	15	15	15	15	15
22	NPC-Kaiga 1 & 2	440	13%	55	0.00%	85%	46	46	46	46	46
23	NPC-Kaiga 3 & 4	440	13%	59	0.00%	85%	49	49	49	49	49
24	NTPC JNNSM Phase I	-	-	39	-	85%	32	32	32	32	32
D	**IPPs-Thermal**						**1,534**	**1,534**	**1,534**	**1,534**	**1,534**
25	HNPCL	1,040	100%	1,040	6.00%	85%	833	833	833	833	833
26	M/s. SEIL-1	1,320	17%	231	6.00%	85%	196	196	196	196	196
27	M/s. SEIL -2	975	64%	625	6.00%	85%	505	505	505	505	505

Note: Wind, Solar & Hydel capacities are same in both scenarios as shown in Annexure-C4 & C5

Annexure-C3: Approved-Scenario-II: Ex-bus Energy Available for 5th CP (MW)

SCENARIO-II											
S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Actuals				
			%	MW	Aux n	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
A	**THERMAL**	**4,210**		**4,210**	**%**	**%**	2,924	2,924	2,924	2,924	2,924
1	NTTPS I	420	100%	420	8.75%	75%	287	287	287	287	287
2	NTTPS II	420	100%	420	8.75%	75%	287	287	287	287	287
3	NTTPS III	420	100%	420	8.75%	75%	287	287	287	287	287
4	NTTPS IV	500	100%	500	7.50%	85%	393	393	393	393	393
5	RTPP-I	420	100%	420	9.00%	70%	268	268	268	268	268
6	RTPP-II	420	100%	420	9.00%	80%	306	306	306	306	306
7	RTPP- III	210	100%	210	9.00%	75%	143	143	143	143	143
8	RTPP IV	600	100%	600	7.00%	70%	391	391	391	391	391
9	VTPS - V	800	100%	800	6.50%	75%	561	561	561	561	561
B	**Joint Sector**	**2,616**		**2,456**			**1,260**	**1,260**	**1,260**	**1,260**	**1,260**
10	SDSTPS – I	800	90%	720	6.50%	60%	404	404	404	404	404
11	SDSTPS – II	800	90%	720	6.50%	60%	404	404	404	404	404
12	SDSTPS – III	800	100%	800	5.75%	60%	452	452	452	452	452
13	Godavari Power	216	100%	216	4.73%	0%	-	-	-	-	-
D	**CGS Station**	**14,540**		**1,507**			**1,176**	**1,176**	**1,176**	**1,176**	**1,176**
14	NTPC-(SR) Ramagundam I & II	2,100	13%	276	6.68%	85%	213	213	213	213	213
15	NTPC-(SR) Ramagundam- III	500	14%	69	5.75%	85%	54	54	54	54	54
16	NTPC-Talcher-II	2,000	9%	176	5.75%	85%	137	137	137	137	137
17	NTPCSimhadri Stage-I	1,000	46%	461	5.25%	85%	360	360	360	360	360
18	NTPC Simhadri Stage-II	1,000	21%	214	5.25%	85%	167	167	167	167	167
19	NLC TS II Stage-I	630	7%	47	10%	85%	35	35	35	35	35
20	NLC TS II Stage-II	840	10%	86	10%	85%	64	64	64	64	64
21	NPC-MAPS	440	4%	18	0.00%	85%	15	15	15	15	15
22	NPC-Kaiga 1 & 2	440	13%	55	0.00%	85%	46	46	46	46	46
23	NPC-Kaiga 3 & 4	440	13%	59	0.00%	85%	49	49	49	49	49
24	NTPC JNNSM Phase I			39	0.00%	85%	32	32	32	32	32
F	**IPPs-Thermal**						**1,259**	**1,259**	**1,259**	**1,259**	**1,259**
25	HNPCL	1,040	100%	1,040	5.75%	60%	588	588	588	588	588
26	M/s. SEIL-1	1,320	17%	231	0.00%	85%	196	196	196	196	196
27	M/s. SEIL -2	975	64%	625	5.00%	80%	475	475	475	475	475

Note: Wind, Solar & Hydel capacities are same in both scenarios as shown in Annexure-C4 & C5

Annexure-C4: Approved- Total Ex-bus Energy Available in Scenario-I for 5th CP

S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Normative				
			%	MW	Aux	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
A	**THERMAL**	**4,210**		**4,210**	**%**	**%**	**3,164**	**3,164**	**3,164**	**3,164**	**3,164**
1	NTTPS I	420	100%	420	8.75%	80%	307	307	307	307	307
2	NTTPS II	420	100%	420	8.75%	80%	307	307	307	307	307
3	NTTPS III	420	100%	420	8.75%	80%	307	307	307	307	307
8	NTTPS IV	500	100%	500	7.50%	80%	370	370	370	370	370
4	RTPP-I	420	100%	420	9.00%	80%	306	306	306	306	306
5	RTPP-II	420	100%	420	9.00%	80%	306	306	306	306	306
6	RTPP- III	210	100%	210	9.00%	80%	153	153	153	153	153
7	RTPP IV	600	100%	600	7.00%	85%	474	474	474	474	474
9	VTPS - V	800	100%	800	6.50%	85%	636	636	636	636	636
B	**HYDEL**	**2,734**		**2,734**			**1,756**	**2,311**	**2,707**	**2,707**	**2,707**
B1	**Interstate projects:**	**118**		**118**			**117**	**117**	**117**	**117**	**117**
10	Machkund, Orissa (AP Share 70%)	60	100%	60	1.00%	100%	59	59	59	59	59
11	T.B. Station, Karnataka (AP share 80%)	58	100%	58	1.00%	100%	57	57	57	57	57
B2	**State projects:**	**2,616**		**2,616**			**1,639**	**2,194**	**2,590**	**2,590**	**2,590**
12	Donkarayi (1X25MW)	25	100%	25	1.00%	100%	25	25	25	25	25
13	Upper Sileru (4x 60 MW)	240	100%	240	1.00%	100%	238	238	238	238	238
14	Lower Sileru (4 X 115 MW)	460	100%	460	1.00%	100%	455	455	455	455	455
15	Srisailam right bank PH (7 X 110 MW)	770	100%	770	1.00%	100%	762	762	762	762	762
16	Nagarjunsagar right canal PH (3 X 30 MW)	90	100%	90	1.00%	100%	89	89	89	89	89
17	PABM (2 X 10 MW)	20	100%	20	1.00%	100%	20	20	20	20	20
18	Mini hydro (2 X 0.5 MW)	1	100%	1	1.00%	100%	1	1	1	1	1
19	Nagarjuna Sagar Tail Pond (2 X 25 MW)	50	100%	50	1.00%	100%	50	50	50	50	50
20	Lower Sileru -2 units	-	100%	0	1.00%	100%	-	-	-	-	-
21	Polavaram – 1st to 7th Units	560	100%	560	1.00%	100%	-	554	554	554	554
22	Polavaram – 8th to 12th Units	400	100%	400	1.00%	100%	-	-	396	396	396
23	Upper Sileru Pumped Storage 1st to 8th Units	-	100%	0	1.00%	100%	-	-	-	-	-
24	Upper Sileru Pumped Storage 9th Unit	-	100%	0	1.00%	100%	-	-	-	-	-
A+B	**TOTAL APGENCO & Interstate**	**6,944**		**6,944**			**4,921**	**5,475**	**5,871**	**5,871**	**5,871**
C	**Joint Sector**	**2,616**		**2,456**			**1,909**	**1,909**	**1,909**	**1,909**	**1,909**
25	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-1	800	90%	720	6.50%	85%	572	572	572	572	572
26	Krishnapatnam TPP (JVP) Stage I (2X800MW) Unit-2	800	90%	720	6.50%	85%	572	572	572	572	572
27	Krishnapatnam TPP (JVP) Stage II (1X800MW) Unit-3	800	100%	800	5.75%	85%	641	641	641	641	641
28	Godavari Gas Power Plant (GGPP)	216	100%	216	3.97%	60%	123	123	123	123	123
D	**CGS Station**	**14,540**		**1,507**			**1,171**	**1,171**	**1,171**	**1,171**	**1,171**
29	NTPC-(SR) Ramagundam I & II	2,100	13%	276	6.68%	85%	213	213	213	213	213
30	NTPC-(SR) Ramagundam- III	500	14%	69	5.75%	85%	54	54	54	54	54
31	NTPC-Talcher-II	2,000	9%	176	5.75%	85%	137	137	137	137	137
32	NTPCSimhadri Stage-I	1,000	46%	461	5.25%	85%	360	360	360	360	360

S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Normative				
			%	MW	Aux	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
33	NTPC Simhadri Stage-II	1,000	21%	214	5.25%	85%	167	167	167	167	167
34	NLC TS II Stage-I	630	7%	47	10.0%	85%	35	35	35	35	35
35	NLC TS II Stage-II	840	10%	86	10.0%	85%	64	64	64	64	64
36	NPC-MAPS	440	4%	18	0.00%	85%	15	15	15	15	15
37	NPC-Kaiga 1 & 2	440	13%	55	0.00%	85%	46	46	46	46	46
38	NPC-Kaiga 3 & 4	440	13%	59	0.00%	85%	49	49	49	49	49
39	NTPC JNNSM Phase I	-	-	39	-	85%	32	32	32	32	32
40	Vallur (JV) NTPC with TANGEDCO	-	-	-	-	-	-	-	-	-	-
41	NLC-TNPL Tuticorin	-	-	-	-	-	-	-	-	-	-
42	NTPC-Kudigi										
43	NNTPS	-	-	-	-	-	-	-	-	-	-
44	Kudankulam unit 1	-	-	-	-	-	-	-	-	-	-
45	NLC TPS I Exp	-	-	-	-	-	-	-	-	-	-
46	NLC TPS II Exp	-	-	-	-	-	-	-	-	-	-
47	Bhavni	-	-	-	-	-	-	-	-	-	-
48	Telangana STPS	-	-	-	-	-	-	-	-	-	-
49	Talcher	-	-	-	-	-	-	-	-	-	-
E	**IPPs-Gas based IPPs**	**1,498**		**691**			**364**	**165**	**165**	**-**	**-**
50	GVK Extension	220	46%	101	3.00%		-	-	-	-	-
51	Gautami	464	46%	214	3.00%		-	-	-	-	-
52	Konaseema	444	46%	205	3.00%		199	-	-	-	-
53	GMR Vemagiri	370	46%	171	3.00%		165	165	165	-	-
F	**IPPs-Thermal**						**1,534**	**1,534**	**1,534**	**1,534**	**1,534**
54	HNPCL	1,040	100%	1,040	6.00%	85%	833	833	833	833	833
55	M/s. SEIL-1 (SEMBCORP ENERGY INDIA LIMITED)	1,320	17%	231	6.00%	85%	196	196	196	196	196
56	M/s. SEIL -2 (SEMBCORP ENERGY INDIA LIMITED)	975	64%	625	6.00%	85%	505	505	505	505	505
G	**Non-Conventional Energy Sources (NCE)**						**10,542**	**13,505**	**14,489**	**14,487**	**14,472**
57	NCE Biomass	72	100%	72	-	100%	72	72	72	72	72
58	NCE Bagasse	74	100%	74	-	100%	74	74	74	74	74
59	NCE - Industrial Waste based Power project	22	100%	22	-	100%	22	22	22	22	22
60	NCE - Municipal Solid Waste Projects	36	100%	36	-	100%	36	36	36	36	36
61	NCE- Wind	3,474	100%	3,474	-	100%	3,636	3,626	3,621	3,621	3,621
62	NCE - Solar	10,755	100%	10,755	-	100%	6,756	9,756	10,755	10,755	10,755
63	NCE- Mini Hydel	29	100%	29	-	100%	29	29	29	29	29
64	NCE- Others	-157	100%	-157	-	100%	-82	-109	-119	-121	-136
65	BBB Scheme (Wind & Solar)	-	-	-	-	-	-	-	-	-	-
H	**Grand Total**						**20,440**	**23,758**	**25,139**	**24,971**	**24,957**

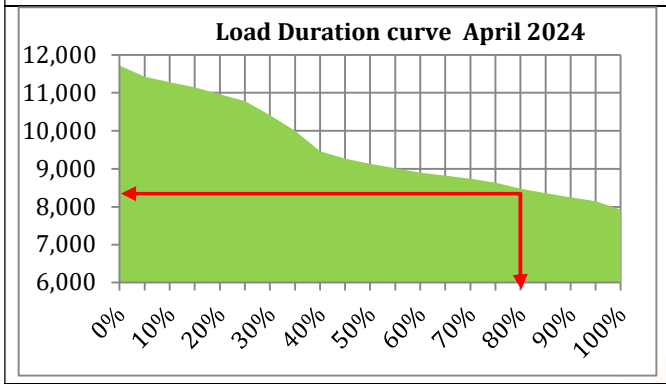
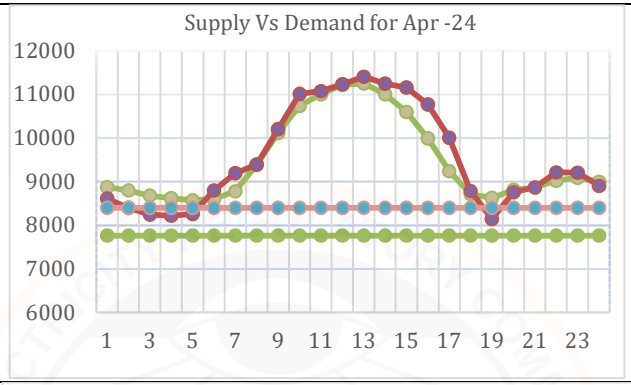
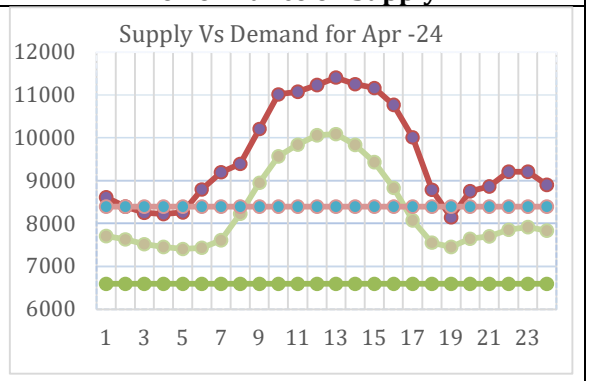
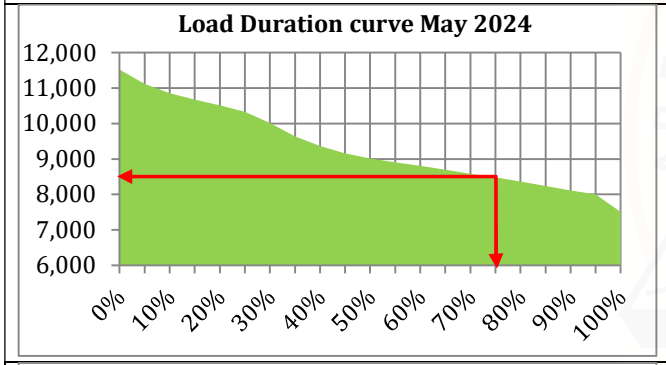
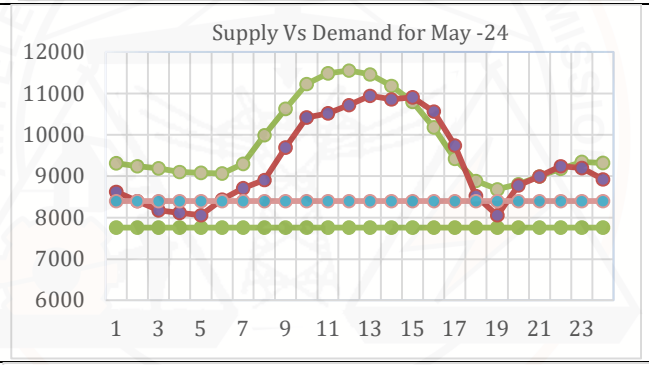
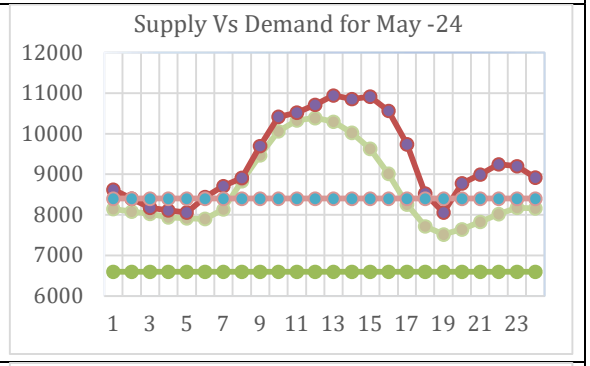
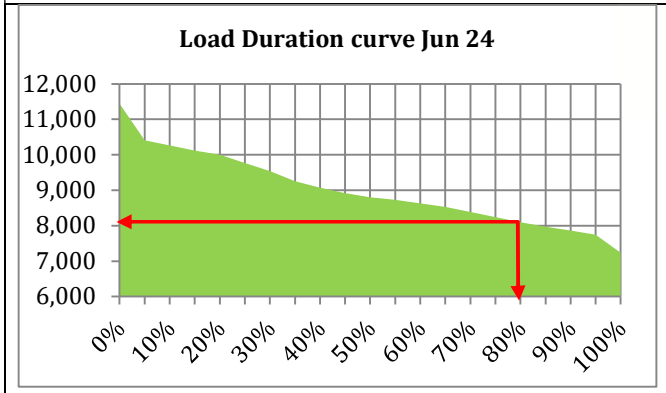
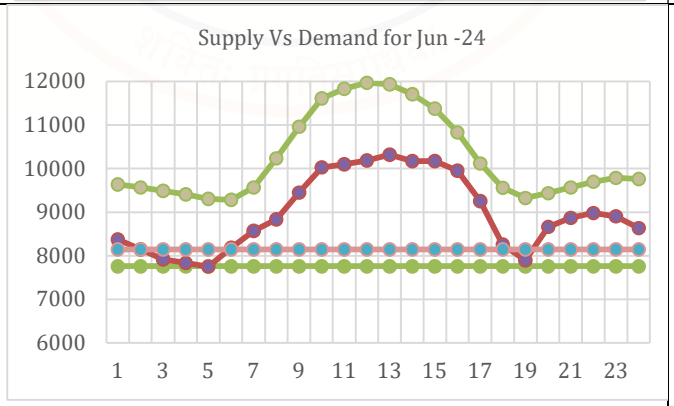
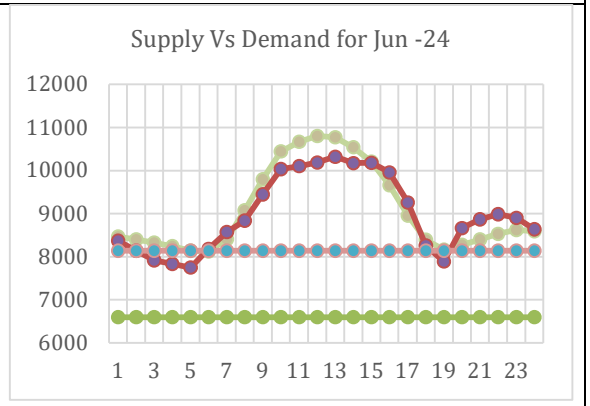
Annexure-C5: Approved- Total Ex-bus Energy Available in Scenario-II for 5th CP

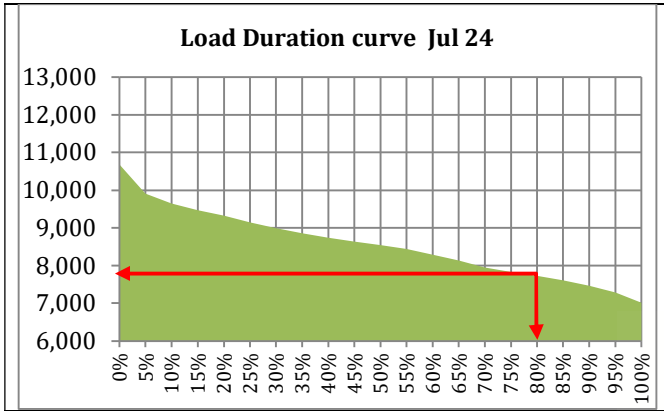
S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Actuals				
			%	MW	Aux n	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
A	**THERMAL**	**4,210**		**4,210**	**%**	**%**	2,924	2,924	2,924	2,924	2,924
1	NTTPS I	420	100%	420	8.75%	75%	287	287	287	287	287
2	NTTPS II	420	100%	420	8.75%	75%	287	287	287	287	287
3	NTTPS III	420	100%	420	8.75%	75%	287	287	287	287	287
8	NTTPS IV	500	100%	500	7.50%	85%	393	393	393	393	393
4	RTPP-I	420	100%	420	9.00%	70%	268	268	268	268	268
5	RTPP-II	420	100%	420	9.00%	80%	306	306	306	306	306
6	RTPP- III	210	100%	210	9.00%	75%	143	143	143	143	143
7	RTPP IV	600	100%	600	7.00%	70%	391	391	391	391	391
9	VTPS - V	800	100%	800	6.50%	75%	561	561	561	561	561
B	**HYDEL**	**2,734**		**2,734**			**1,756**	**2,311**	**2,707**	**2,707**	**2,707**
B1	**Interstate projects:**	**118**		**118**			**117**	**117**	**117**	**117**	**117**
10	Machkund, Orissa (AP Share 70%)	60	100%	60	1.00%	100%	59	59	59	59	59
11	T.B. Station, Karnataka (AP Share 80%)	58	100%	58	1.00%	100%	57	57	57	57	57
B2	**State projects:**	**2,616**		**2,616**			**1,639**	**2,194**	**2,590**	**2,590**	**2,590**
12	Donkarayi (1X25MW)	25	100%	25	1.00%	100%	25	25	25	25	25
13	Upper Sileru (4x 60 MW)	240	100%	240	1.00%	100%	238	238	238	238	238
14	Lower Sileru (4 X 115 MW)	460	100%	460	1.00%	100%	455	455	455	455	455
15	Srisailam right bank PH (7 X 110 MW)	770	100%	770	1.00%	100%	762	762	762	762	762
16	Nagarjunsagar right canal PH (3 X 30 MW)	90	100%	90	1.00%	100%	89	89	89	89	89
17	PABM (2 X 10 MW)	20	100%	20	1.00%	100%	20	20	20	20	20
18	Mini hydro (2 X 0.5 MW)	1	100%	1	1.00%	100%	1	1	1	1	1
19	Nagarjuna Sagar Tail Pond (2 X 25 MW)	50	100%	50	1.00%	100%	50	50	50	50	50
20	Lower Sileru -2 units	-	100%	0	1.00%	100%	-	-	-	-	-
21	Polavaram – 1st to 7th Units	560	100%	560	1.00%	100%	-	554	554	554	554
22	Polavaram – 8th to 12th Units	400	100%	400	1.00%	100%	-	-	396	396	396
23	Upper Sileru Pumped Storage 1st to 8th Units	-	100%	0	1.00%	100%	-	-	-	-	-
24	Upper Sileru Pumped Storage 9th Unit	-	100%	0	1.00%	100%	-	-	-	-	-
A+B	**TOTAL APGENCO & Interstate**	**6,944**		**6,944**			**4,680**	**5,234**	**5,630**	**5,630**	**5,630**
C	**Joint Sector**	**2,616**		**2,456**			**1,260**	**1,260**	**1,260**	**1,260**	**1,260**
25	SDSTPS – I	800	90%	720	6.50%	60%	404	404	404	404	404
26	SDSTPS – II	800	90%	720	6.50%	60%	404	404	404	404	404
27	SDSTPS – III	800	100%	800	5.75%	60%	452	452	452	452	452
28	Godavari Power	216	100%	216	4.73%	0%	-	-	-	-	-
D	**CGS Station**	**14,540**		**1,507**			**1,176**	**1,176**	**1,176**	**1,176**	**1,176**
29	NTPC-(SR) Ramagundam I & II	2,100	13%	276	6.68%	85%	213	213	213	213	213

S. No.	Source of Power	IC	AP Share		Norms		Ex Bus Energy Available (MW) @ Actuals				
			%	MW	Aux n	PLF	FY 25	FY 26	FY 27	FY 28	FY 29
30	NTPC-(SR) Ramagundam- III	500	14%	69	5.75%	85%	54	54	54	54	54
31	NTPC-Talcher-II	2,000	9%	176	5.75%	85%	137	137	137	137	137
32	NTPCSimhadri Stage-I	1,000	46%	461	5.25%	85%	360	360	360	360	360
33	NTPC Simhadri Stage-II	1,000	21%	214	5.25%	85%	167	167	167	167	167
34	NLC TS II Stage-I	630	7%	47	10%	85%	35	35	35	35	35
35	NLC TS II Stage-II	840	10%	86	10%	85%	64	64	64	64	64
36	NPC-MAPS	440	4%	18	0.00%	85%	15	15	15	15	15
37	NPC-Kaiga 1 & 2	440	13%	55	0.00%	85%	46	46	46	46	46
38	NPC-Kaiga 3 & 4	440	13%	59	0.00%	85%	49	49	49	49	49
39	NTPC JNNSM Phase I			39	0.00%	85%	32	32	32	32	32
40	Vallur (JV) NTPC with TANGEDCO	-	-	-	-	-	-	-	-	-	-
41	NLC-TNPL Tuticorin	-	-	-	-	-	-	-	-	-	-
42	NTPC-Kudigi										
43	NNTPS	-	-	-	-	-	-	-	-	-	-
44	Kudankulam unit 1	-	-	-	-	-	-	-	-	-	-
45	NLC TPS I Exp	-	-	-	-	-	-	-	-	-	-
46	NLC TPS II Exp	-	-	-	-	-	-	-	-	-	-
47	Bhavni	-	-	-	-	-	-	-	-	-	-
48	Telangana STPS	-	-	-	-	-	-	-	-	-	-
49	Talcher	-	-	-	-	-	-	-	-	-	-
E	**IPPs-Gas based IPPs**	**1,498**		**691**			**364**	**165**	**165**	**-**	**-**
50	GVK Extension	220	46%	101	3.00%		-	-	-	-	-
51	Gautami	464	46%	214	3.00%		-	-	-	-	-
52	Konaseema	444	46%	205	3.00%		199	-	-	-	-
53	GMR Vemagiri	370	46%	171	3.00%		165	165	165	-	-
F	**IPPs-Thermal**						**1,259**	**1,259**	**1,259**	**1,259**	**1,259**
54	HNPCL	1,040	100%	1,040	5.75%	60%	588	588	588	588	588
55	M/s. SEIL-1	1,320	17%	231	0.00%	85%	196	196	196	196	196
56	M/s. SEIL -2	975	64%	625	5.00%	80%	475	475	475	475	475
G	**Non-Conventional Energy Sources (NCE)**						**10,542**	**13,505**	**14,489**	**14,487**	**14,472**
57	NCE Biomass	72	100%	72	-	-	72	72	72	72	72
58	NCE Bagasse	74	100%	74	-	-	74	74	74	74	74
59	NCE - Industrial Waste based Power project	22	100%	22	-	-	22	22	22	22	22
60	NCE - Municipal Solid Waste Projects	36	100%	36	-	-	36	36	36	36	36
61	NCE- Wind	3,474	100%	3,474	-	-	3,636	3,626	3,621	3,621	3,621
62	NCE - Solar	10,755	100%	10,755	-	-	6,756	9,756	10,755	10,755	10,755
63	NCE- Mini Hydel	29	100%	29	-	-	29	29	29	29	29
64	NCE- Others	-	-	-	-	-	-82	-109	-119	-121	-136
65	BBB Scheme (Wind & Solar)	-	-	-	-	-	-	-	-	-	-
H	**Grand Total**						**19,276**	**22,594**	**23,975**	**23,807**	**23,793**

Annexure-C6: Approved - ToD-wise, Month-wise Surplus/(Deficit) in Power Supply for 5th CP

BAU Scenario-FY 25

Month-Wise Load Duration Curve	Demand at BAU Scenario Vs Supply at Normative Performance Generation	Demand at BAU Scenario Vs Actual Performance of Supply
		
		
		


Load Duration curve Jul 24
13,000
12,000
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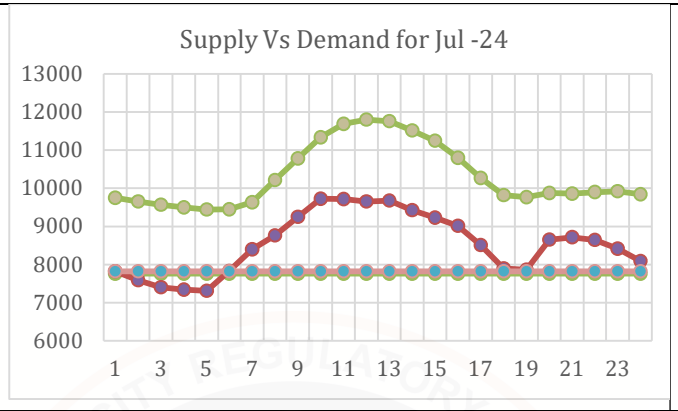
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%


Supply Vs Demand for Jul -24
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12000
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10000
9000
8000
7000
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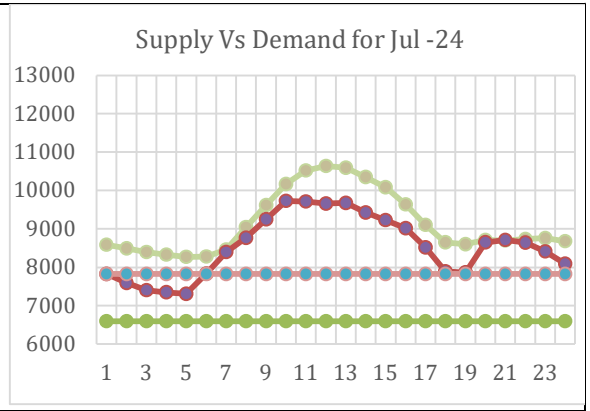
1 3 5 7 9 11 13 15 17 19 21 23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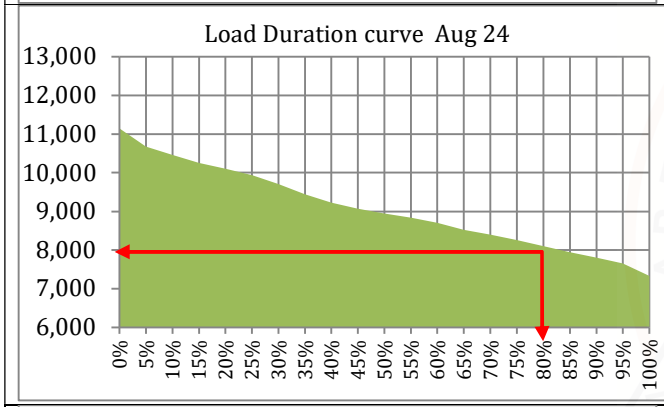
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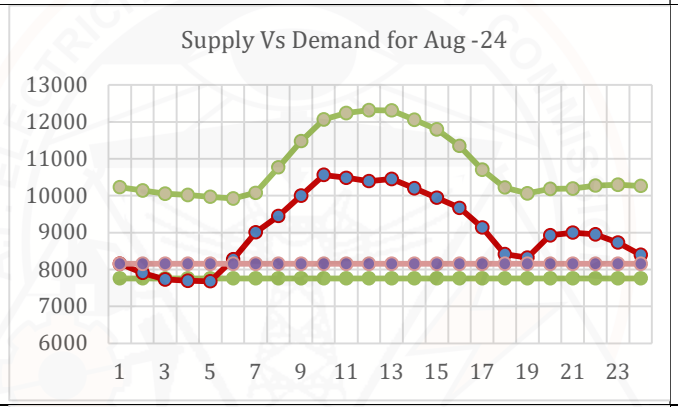
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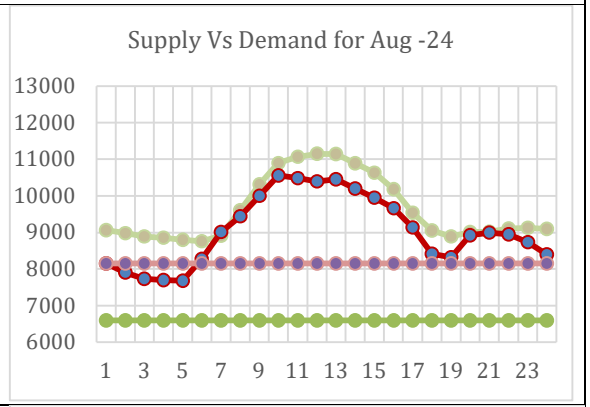
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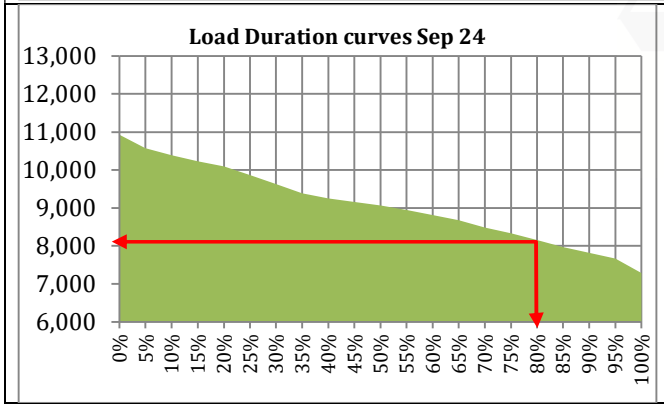
Load Duration curves Sep 24
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12,000
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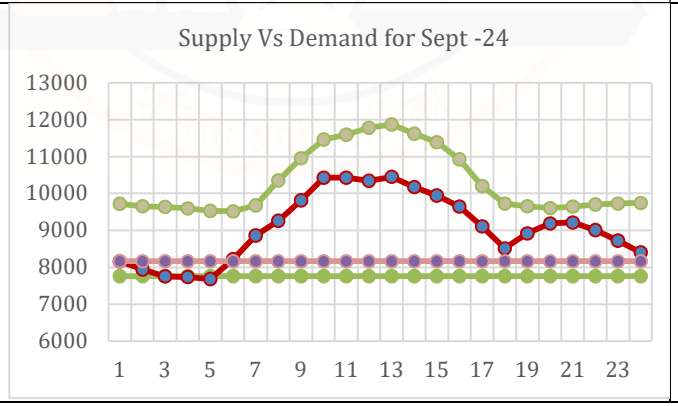
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%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8000
7000
6000
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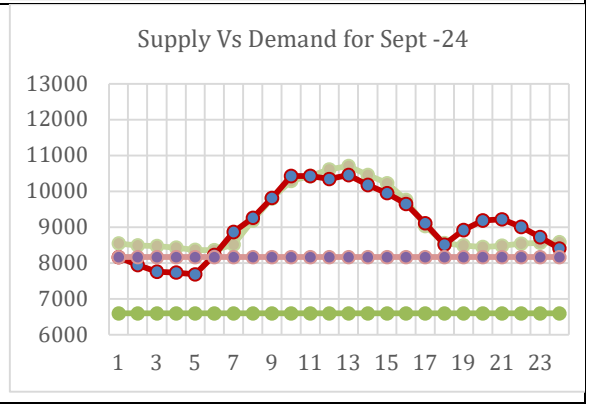
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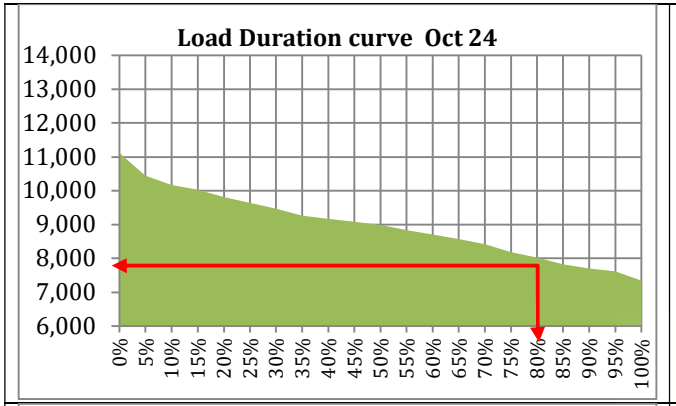
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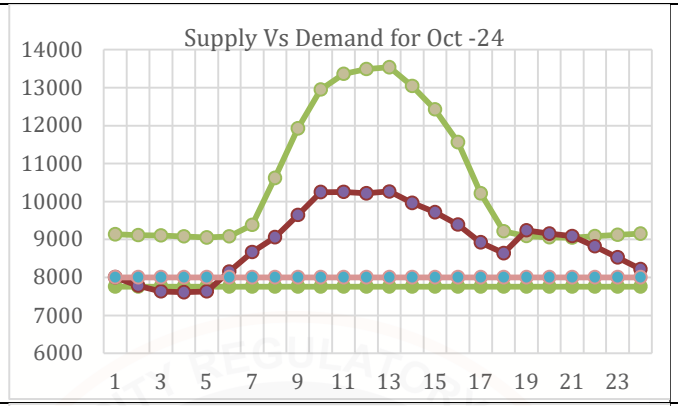
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%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7000
6000
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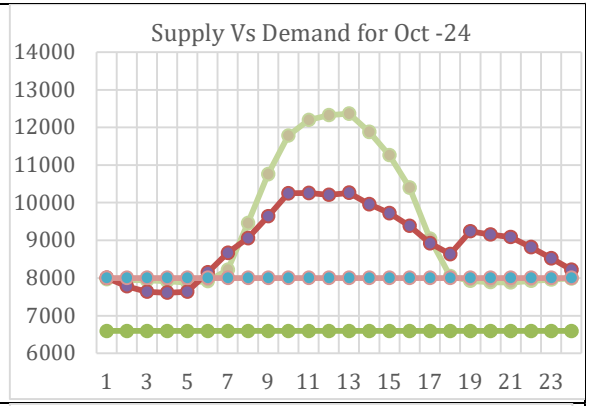
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7000
6000
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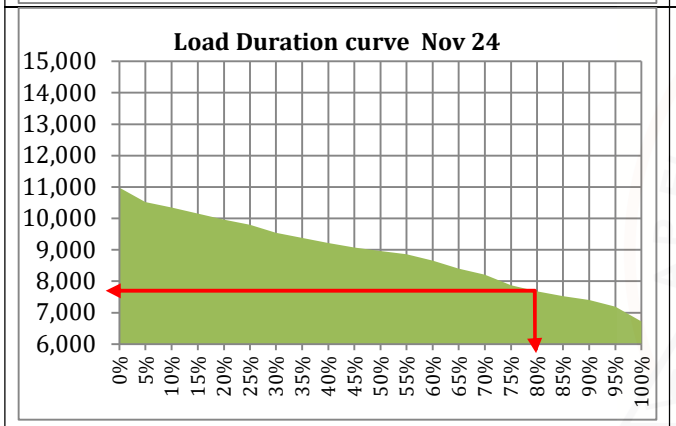
Load Duration curve Nov 24
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11,000
10,000
9,000
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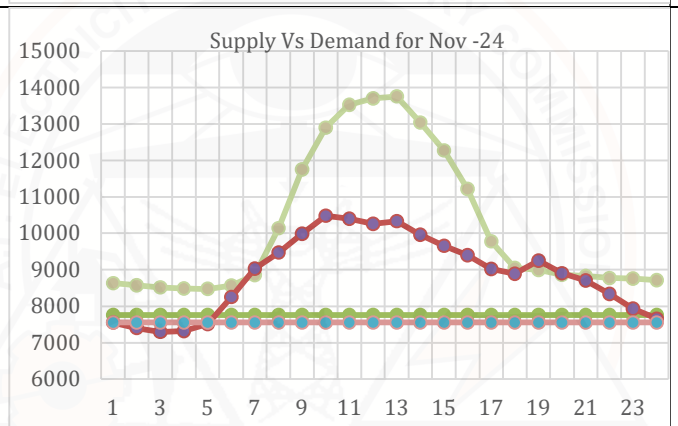
6,000
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%


Supply Vs Demand for Nov -24
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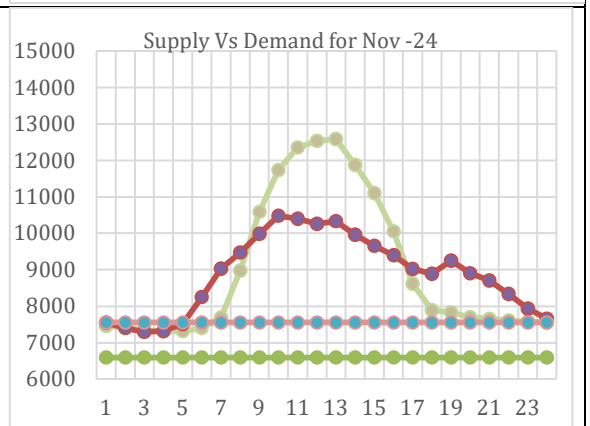
12000
11000
10000
9000
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Nov -24
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12000
11000
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9000
8000
7000
6000
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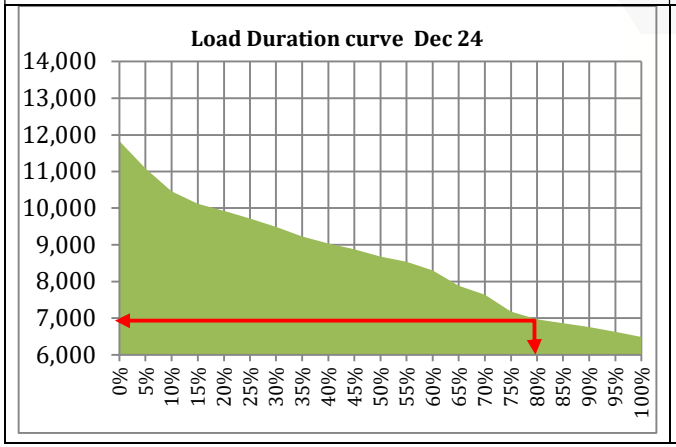
Load Duration curve Dec 24
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13,000
12,000
11,000
10,000
9,000
8,000
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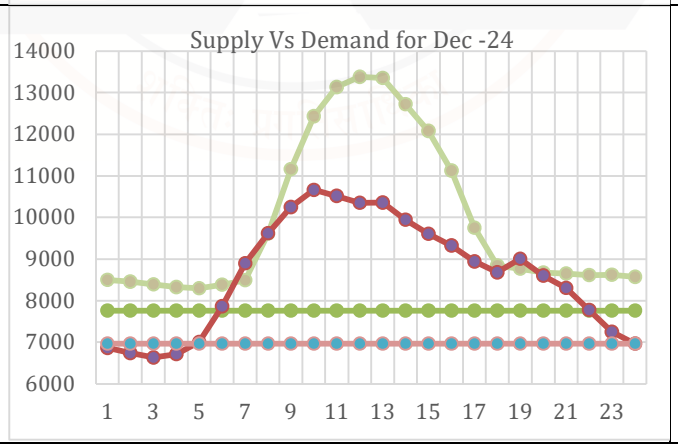
6,000
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%


Supply Vs Demand for Dec -24
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11000
10000
9000
8000
7000
6000
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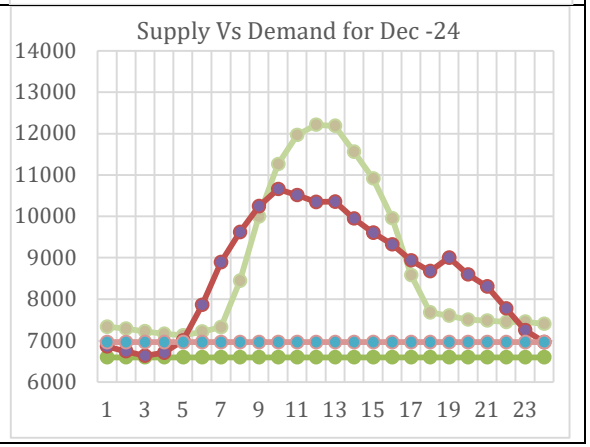
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8000
7000
6000
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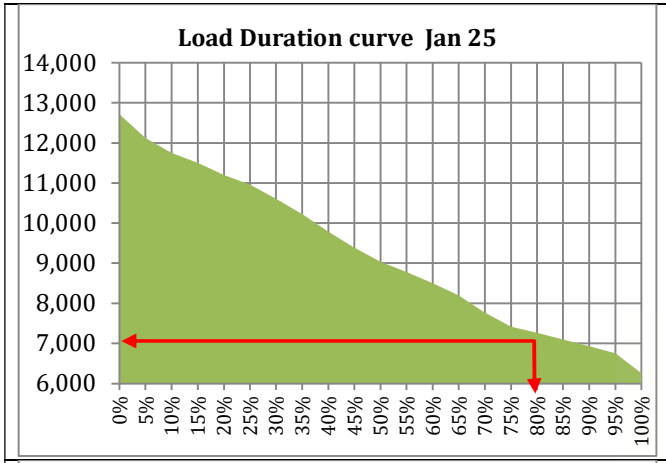
Load Duration curve Jan 25
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13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
0%
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20%
25%
30%
35%
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45%
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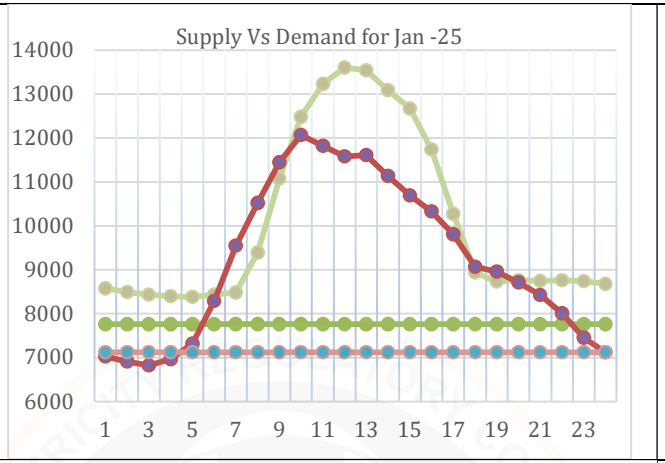
55%
60%
65%
70%
75%
80%
85%
90%
95%
100%


Supply Vs Demand for Jan -25
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12000
11000
10000
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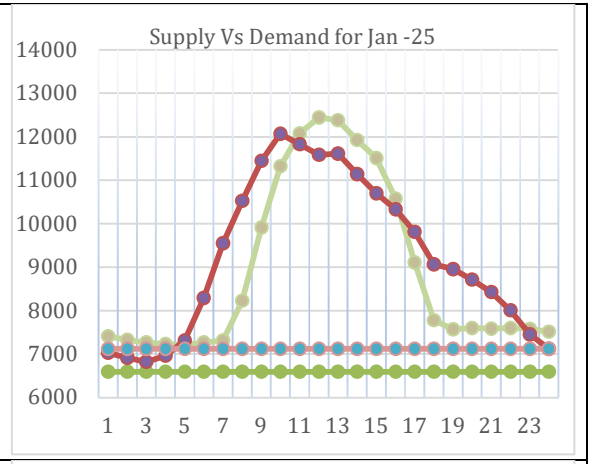
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Jan -25
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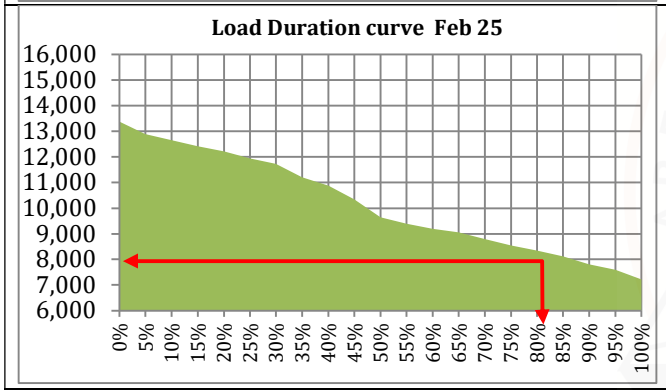
12000
11000
10000
9000
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curve Feb 25
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15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
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0%
5%
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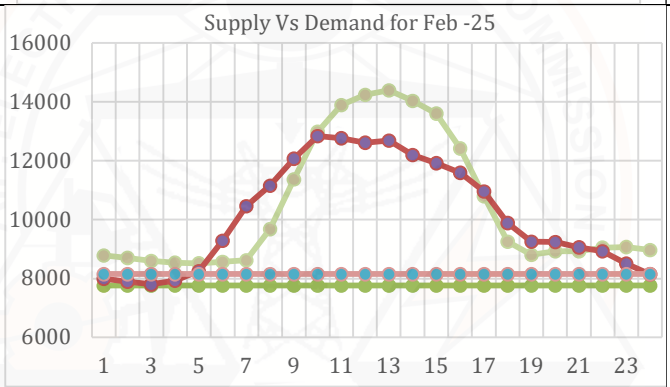
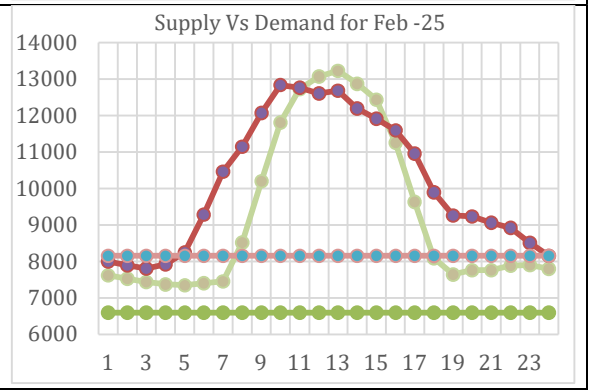
15%
20%
25%
30%
35%
40%
45%
50%
55%
60%
65%
70%
75%
80%
85%
90%
95%
100%


Supply Vs Demand for Feb -25
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Feb -25
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13000
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11000
10000
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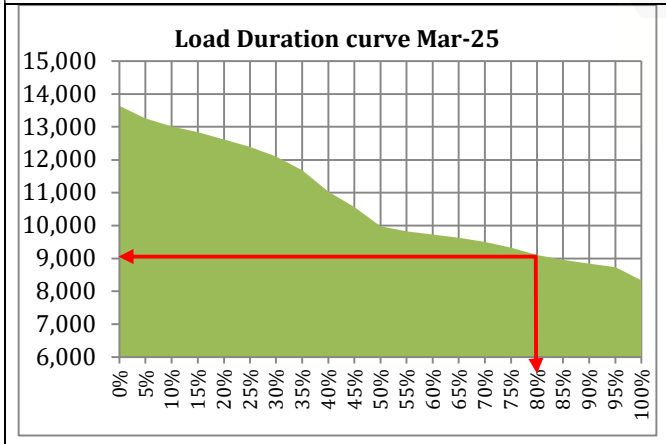
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curve Mar-25
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14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
0%
5%
10%
15%
20%
25%
30%
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50%
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60%
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75%
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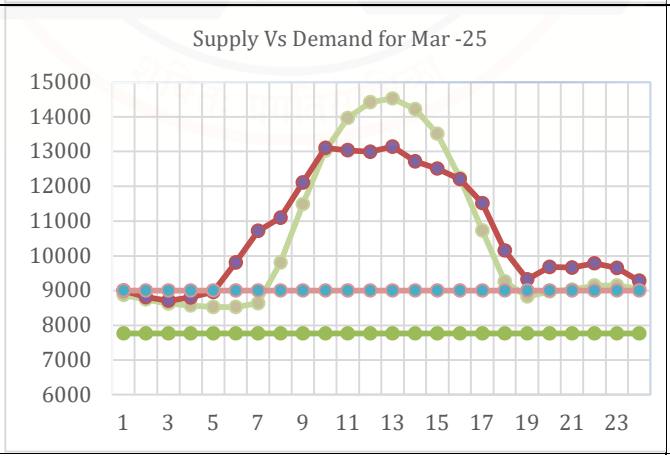
100%


Supply Vs Demand for Mar -25
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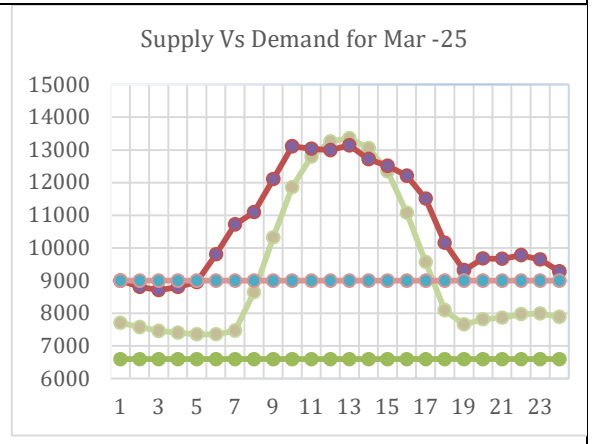
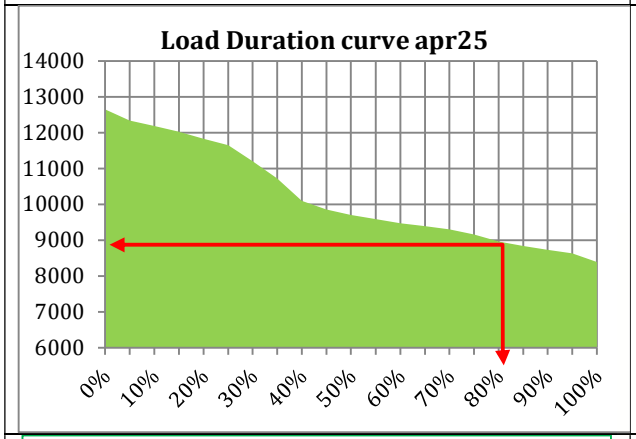
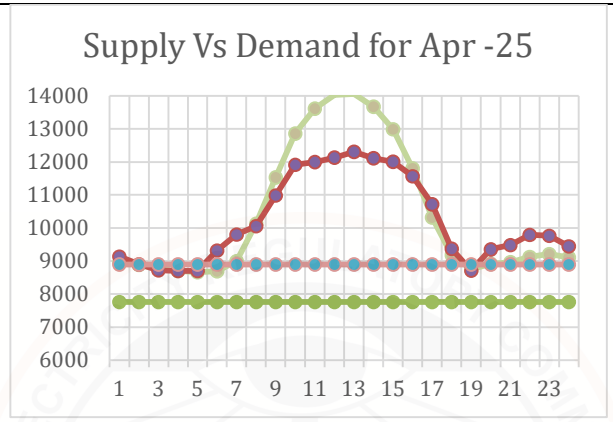
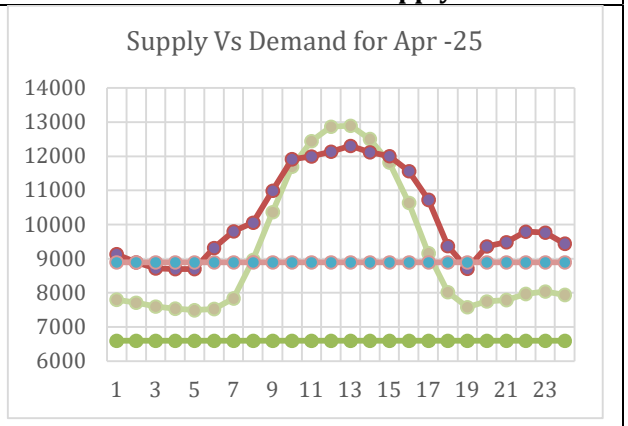
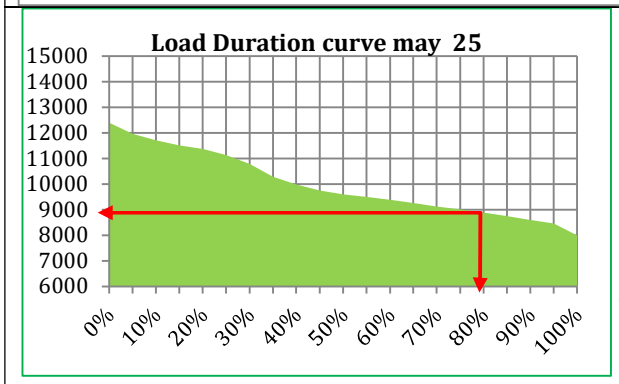
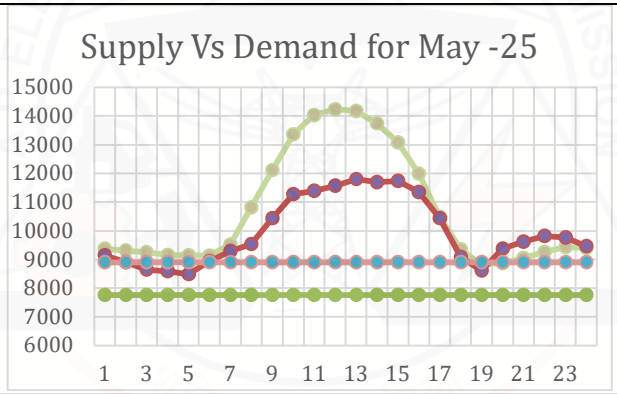
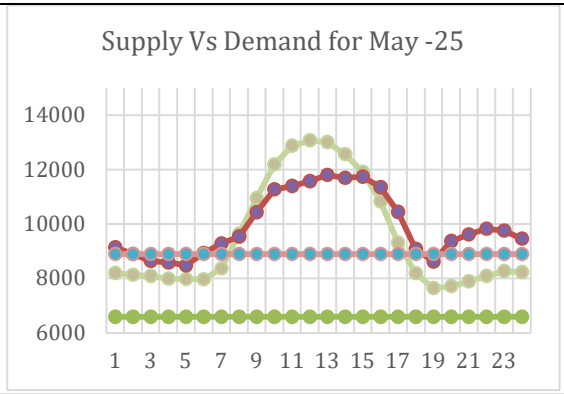
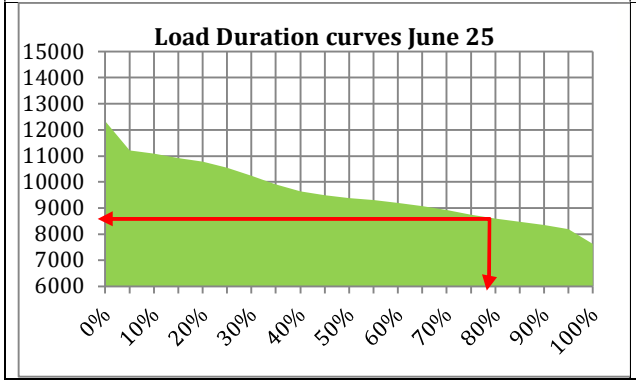
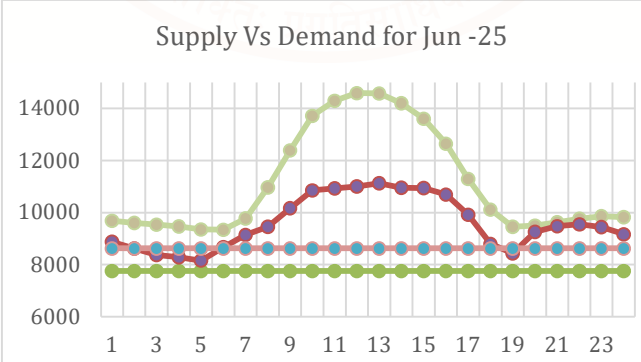
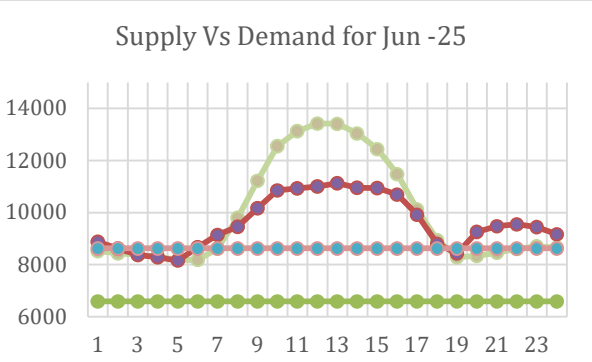
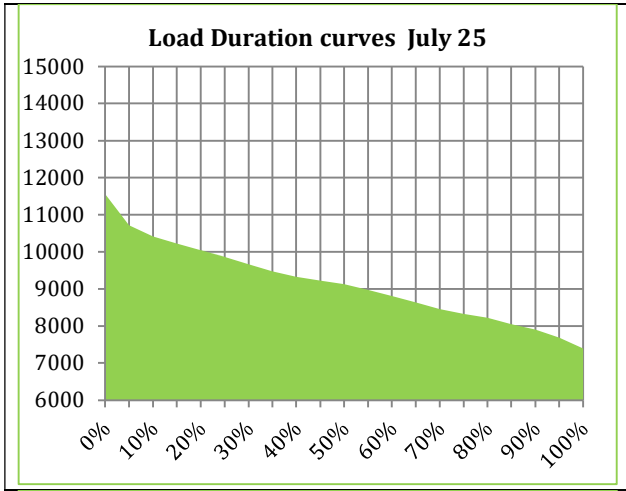
14000
13000
12000
11000
10000
9000
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Mar -25
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
1 3 5 7 9 11 13 15 17 19 21 23

BAU Scenario-FY 26		
Month-Wise Load Duration Curve	**Demand at BAU Scenario Vs Supply at Normative Performance Generation**	**Demand at BAU Scenario Vs Actual Performance of Supply**
		
		
		


Load Duration curves July 25
15000
14000
13000
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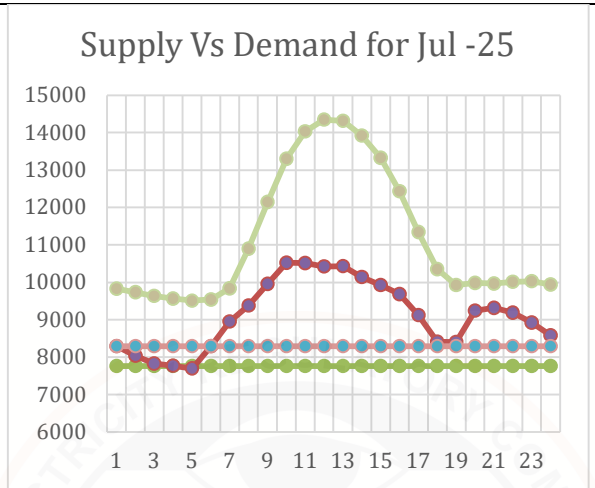
Supply Vs Demand for Jul -25
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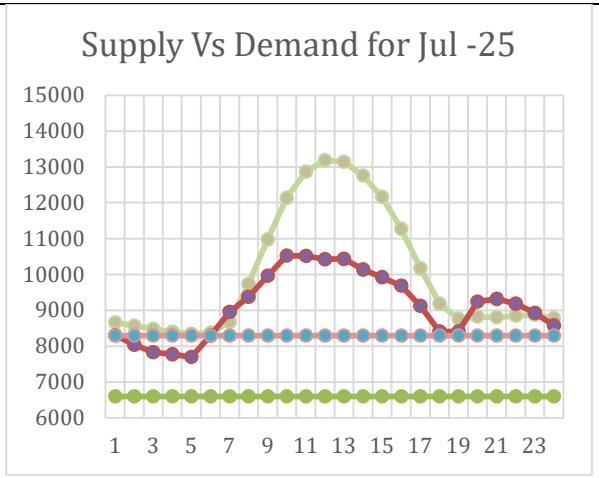
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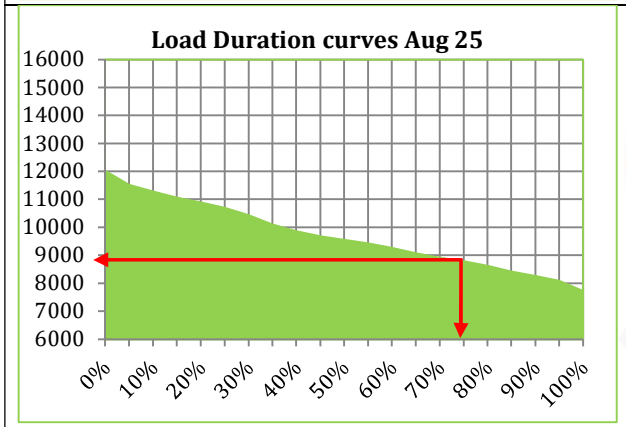
Load Duration curves Aug 25
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15000
14000
13000
12000
11000
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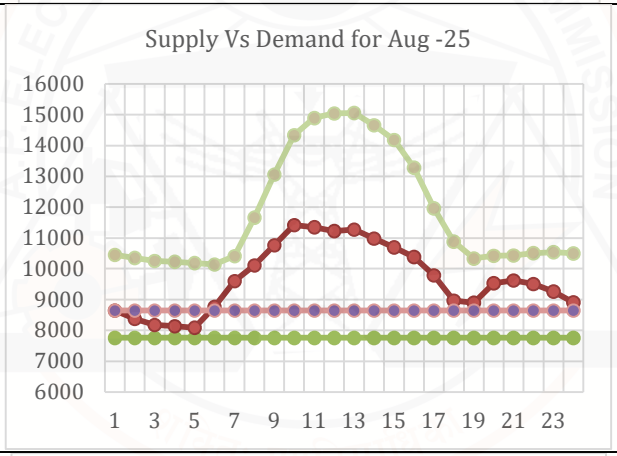
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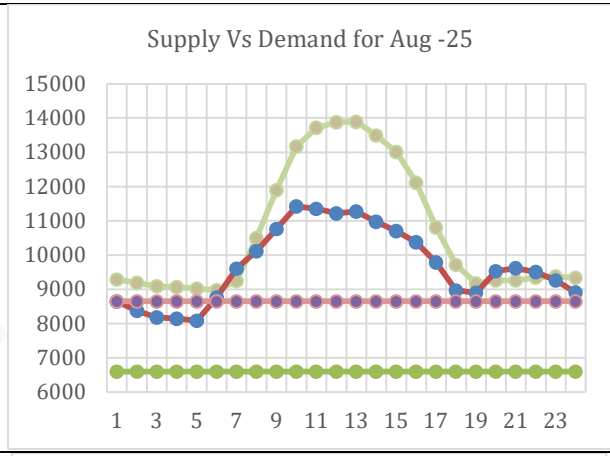
Supply Vs Demand for Aug -25
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10000
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7000
6000
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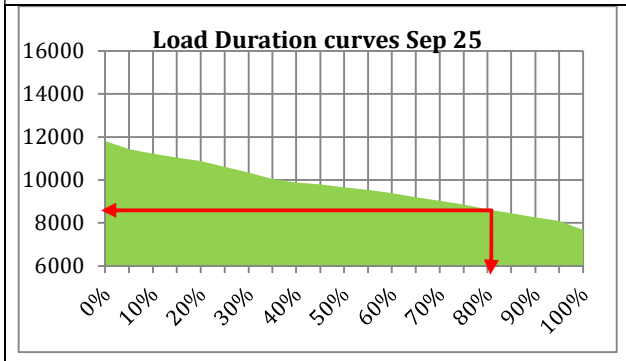
Load Duration curves Sep 25
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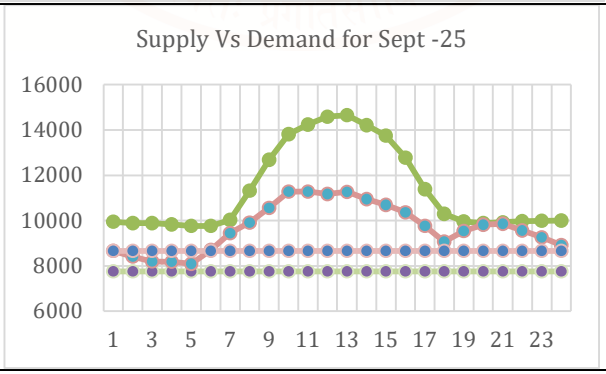
Supply Vs Demand for Sept -25
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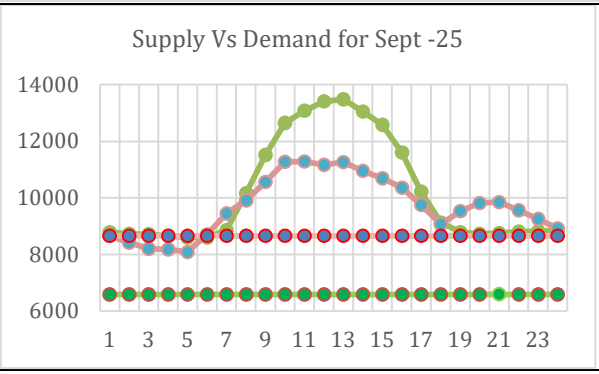
Supply Vs Demand for Sept -25
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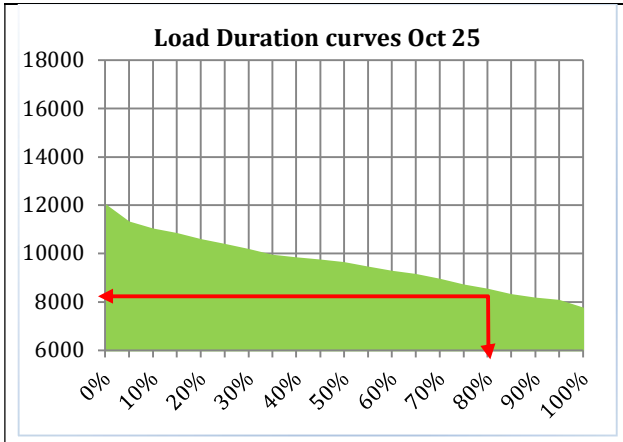
Load Duration curves Oct 25
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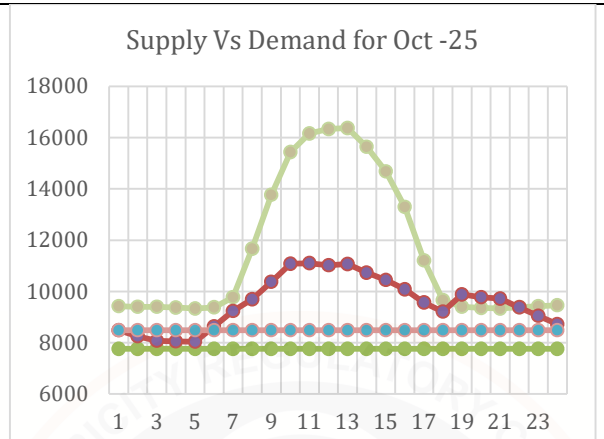
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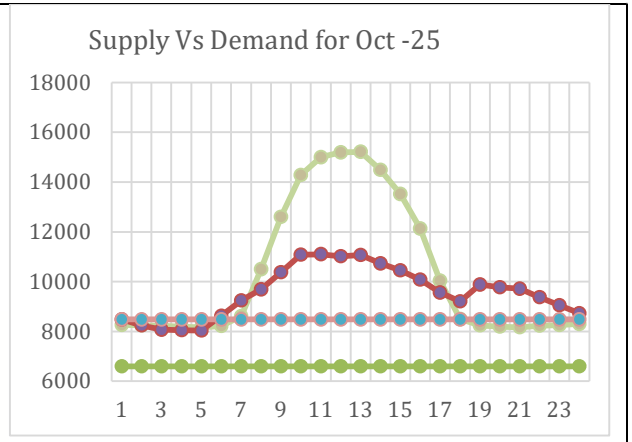
Supply Vs Demand for Oct -25
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10000
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6000
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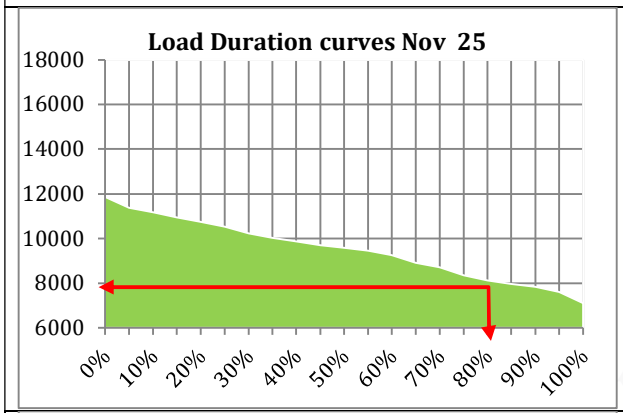
Load Duration curves Nov 25
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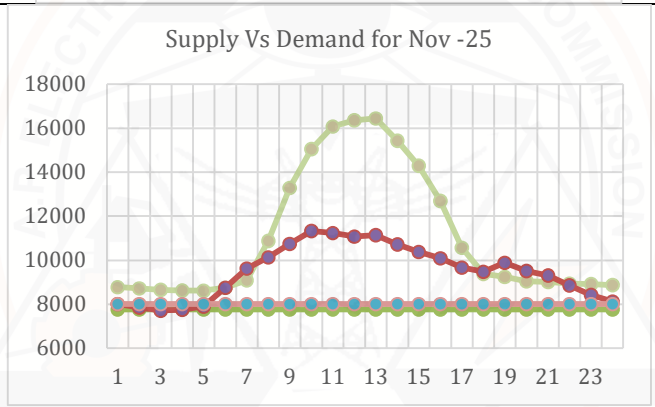
Supply Vs Demand for Nov -25
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10000
8000
6000
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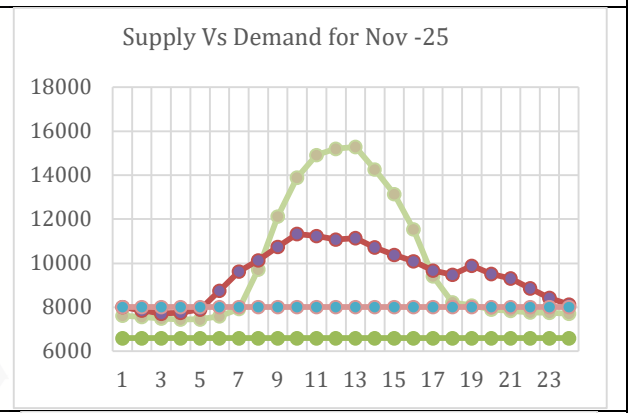
Supply Vs Demand for Nov -25
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10000
8000
6000
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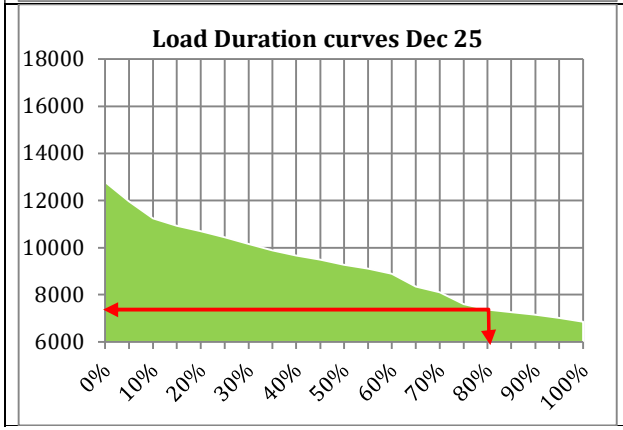
Load Duration curves Dec 25
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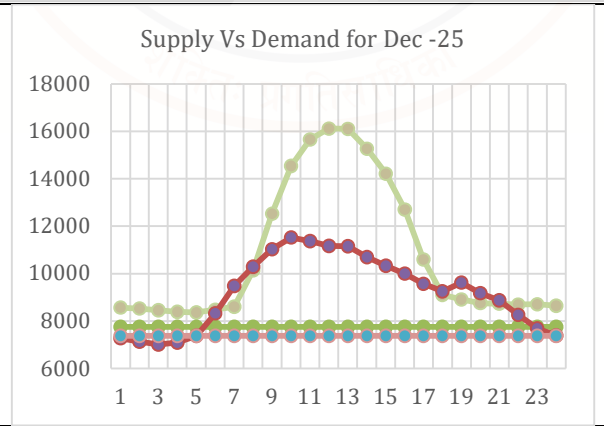
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12000
10000
8000
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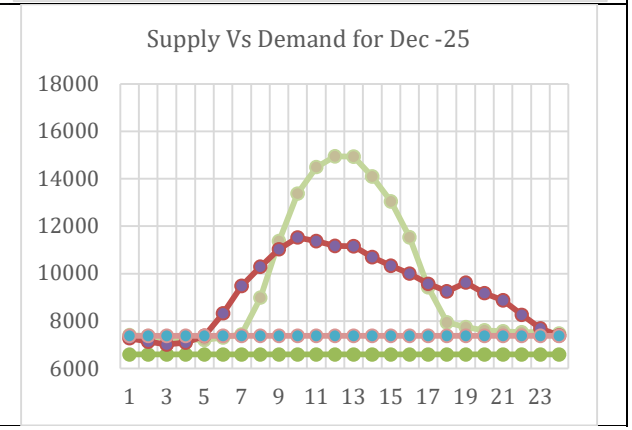
Supply Vs Demand for Dec -25
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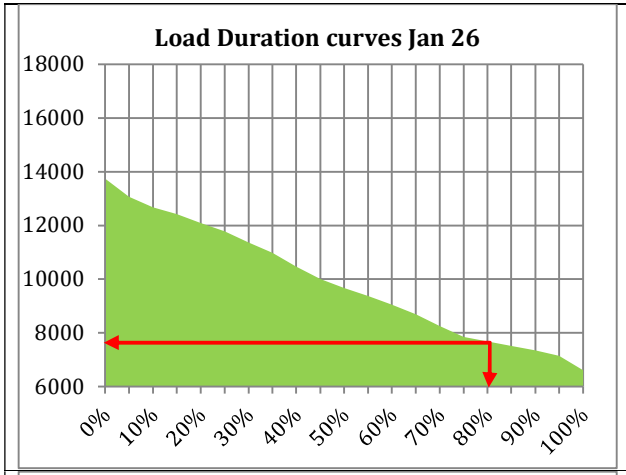
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Jan 26
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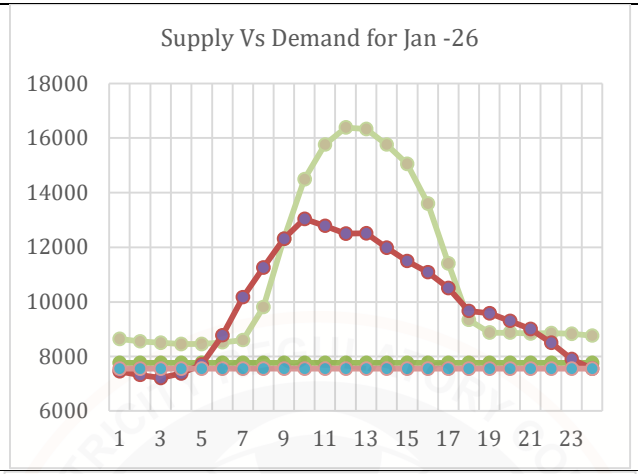
Supply Vs Demand for Jan -26
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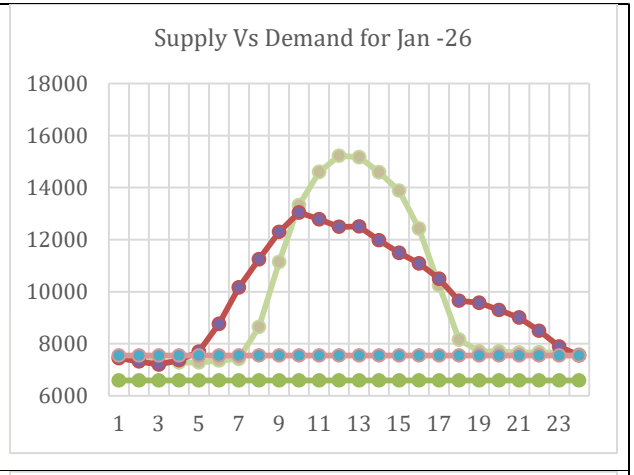
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Jan -26
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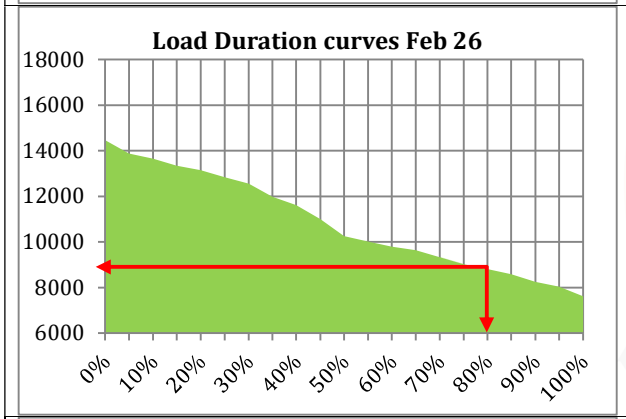
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Feb 26
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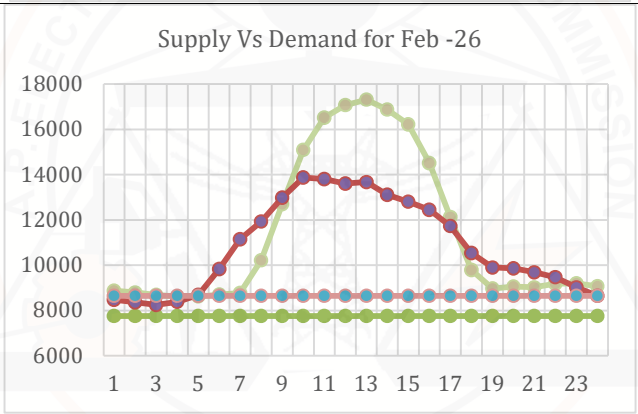
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16000
14000
12000
10000
8000
6000
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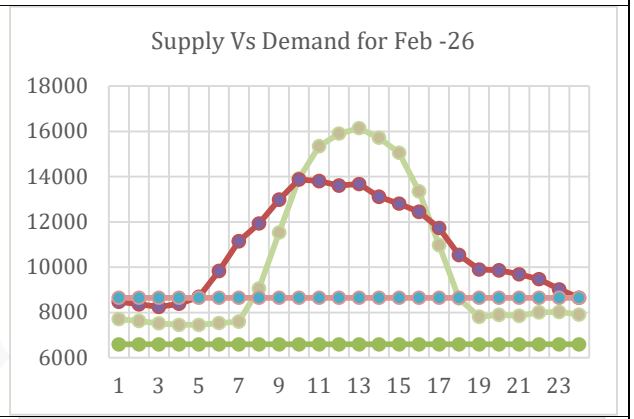
Supply Vs Demand for Feb -26
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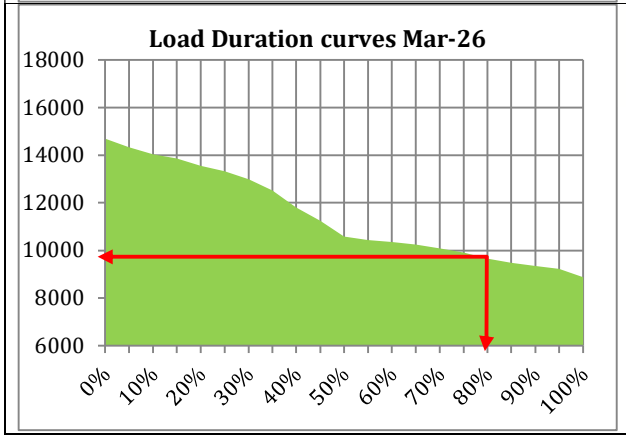
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Mar-26
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16000
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6000
0%
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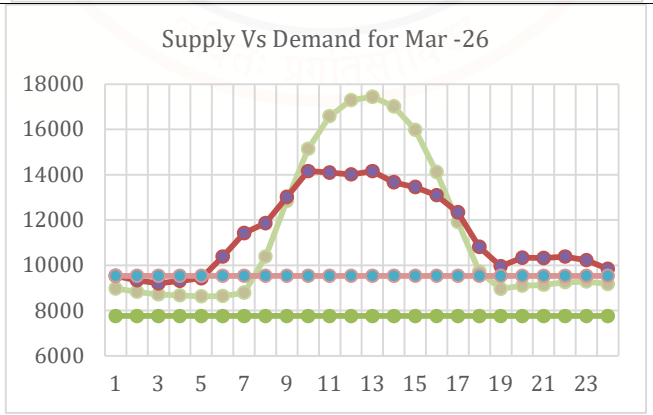
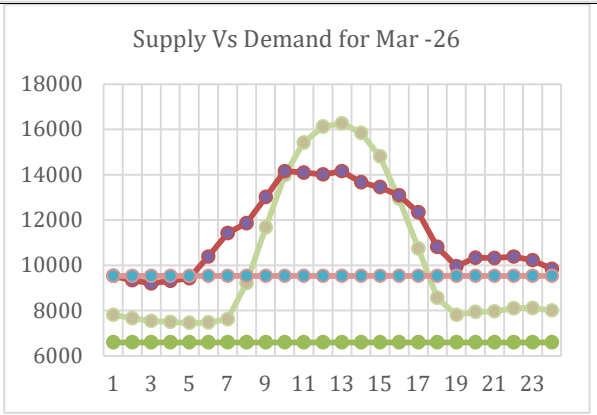
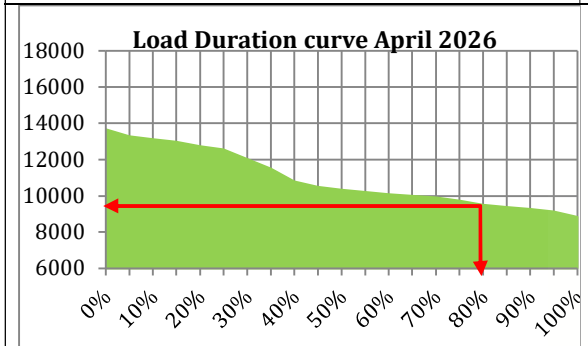
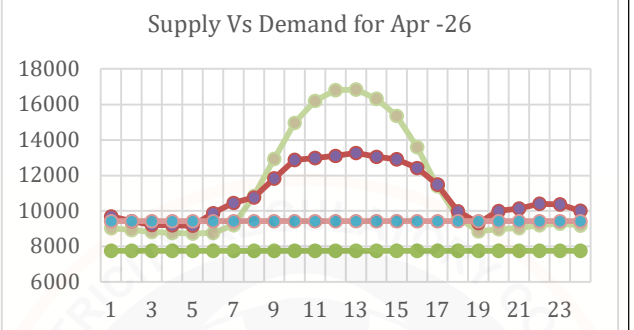
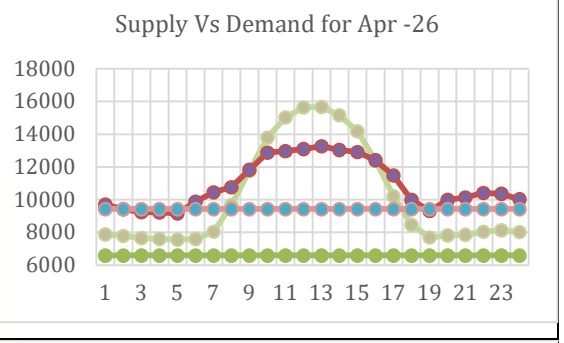
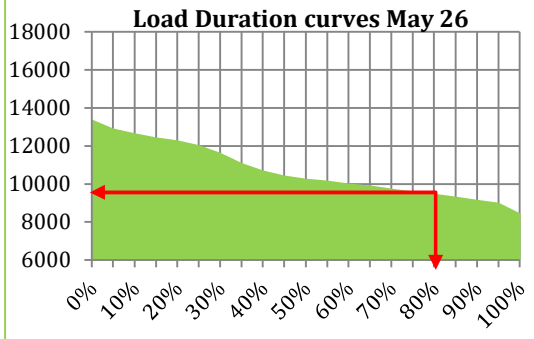
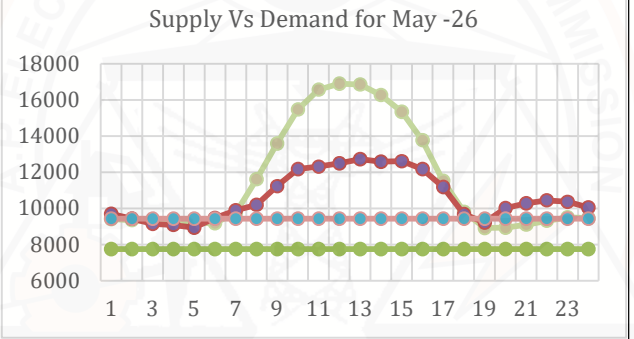
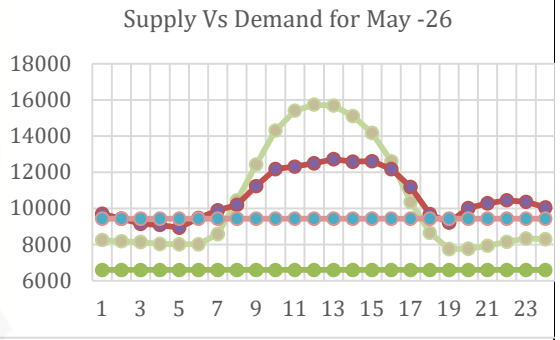
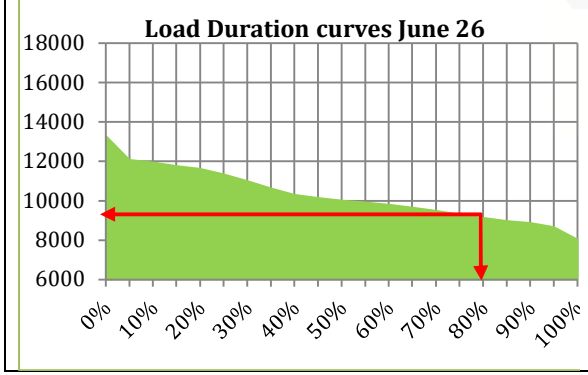
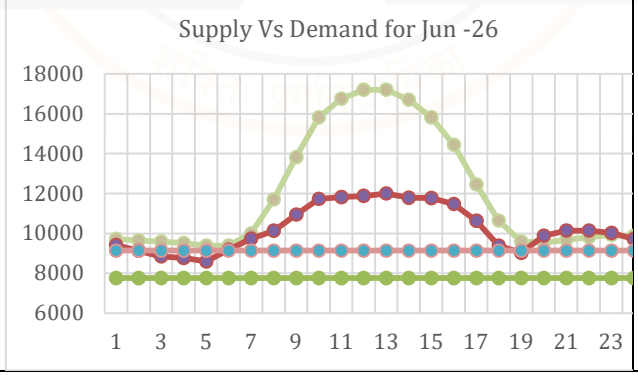
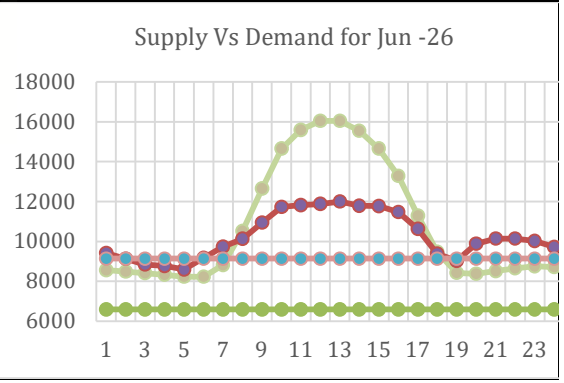
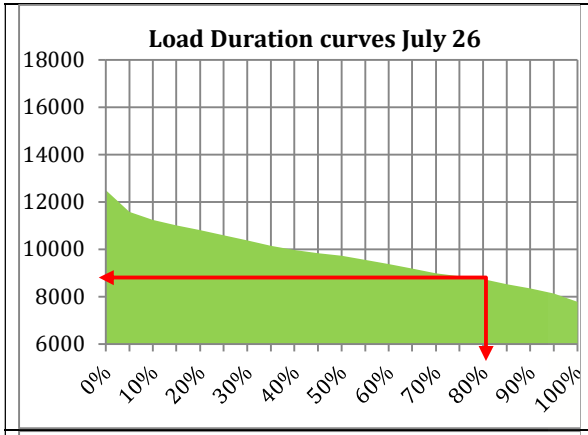
80%
90%
100%


Supply Vs Demand for Mar -26
18000
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Mar -26
18000
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23

	BAU Scenario-FY 27	
Month-Wise Load Duration Curve	**Demand at BAU Scenario Vs Supply at Normative Performance Generation**	**Demand at BAU Scenario Vs Actual Performance of Supply**
		
		
		


Load Duration curves July 26
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16000
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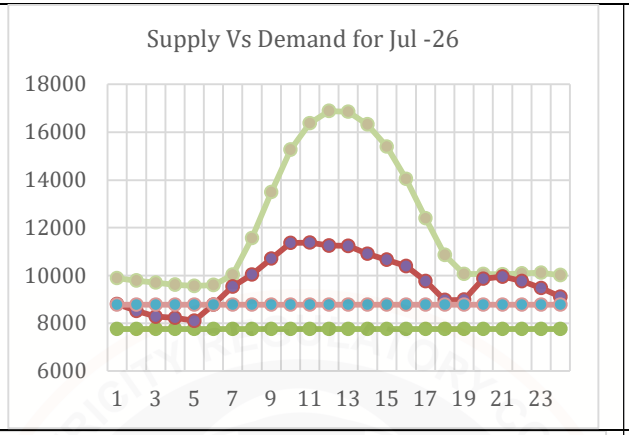
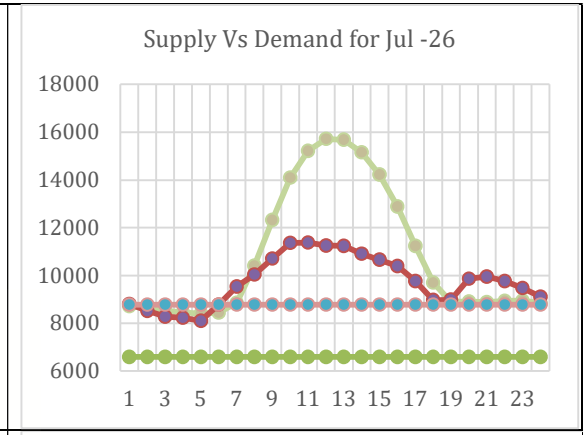
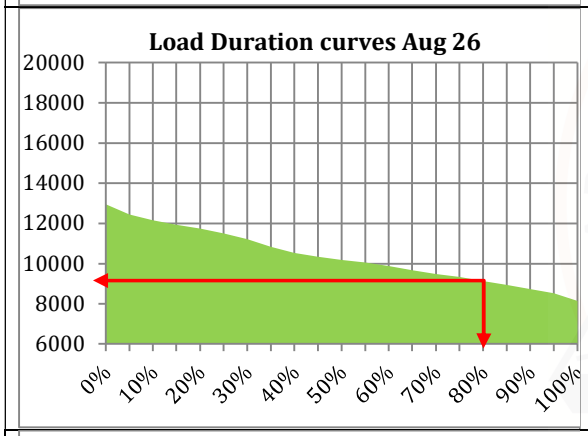

Supply Vs Demand for Jul -26
18000
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Jul -26
18000
16000
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Aug 26
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16000
14000
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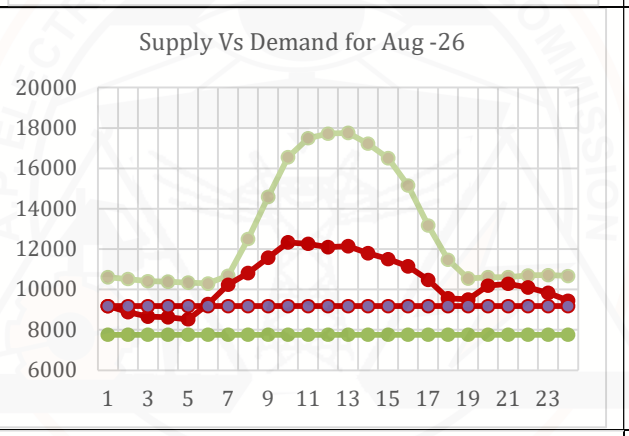
100%


Supply Vs Demand for Aug -26
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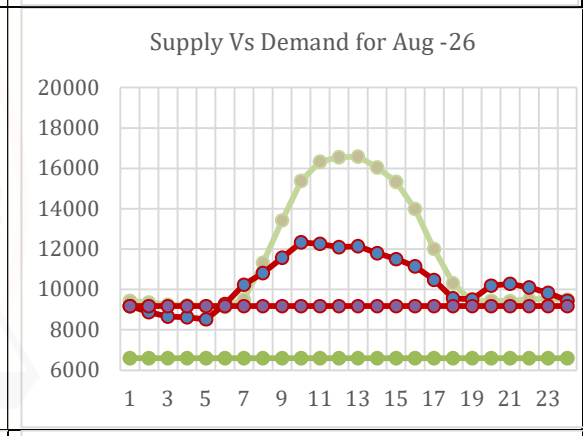
14000
12000
10000
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Aug -26
20000
18000
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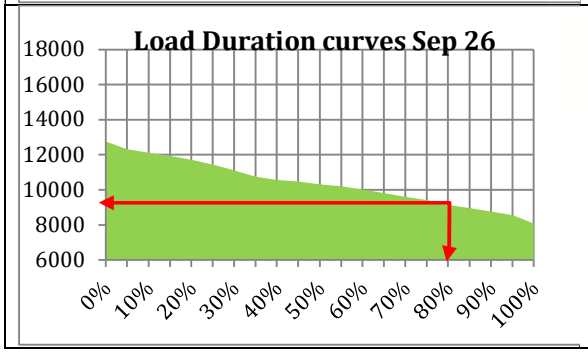
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Sep 26
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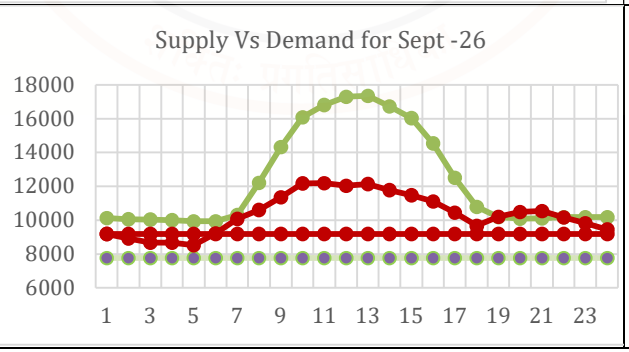
Supply Vs Demand for Sept -26
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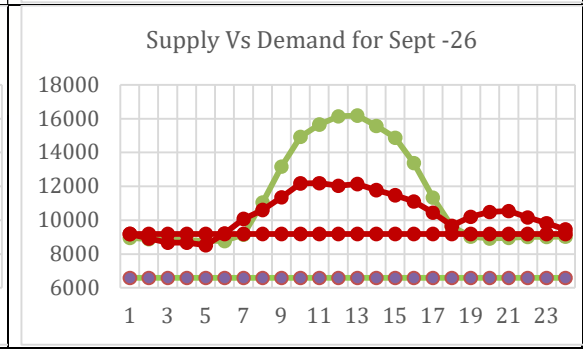
Supply Vs Demand for Sept -26
18000
16000
14000
12000
10000
8000
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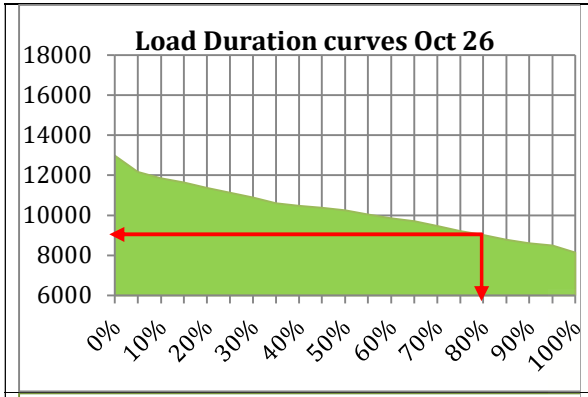
Load Duration curves Oct 26
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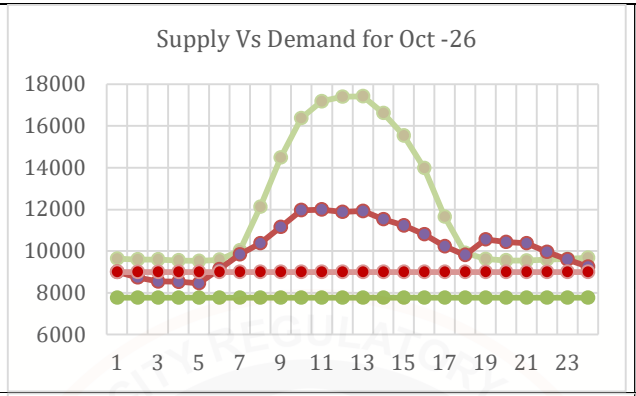
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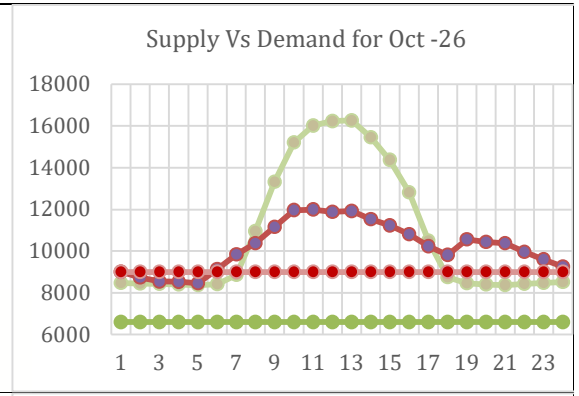
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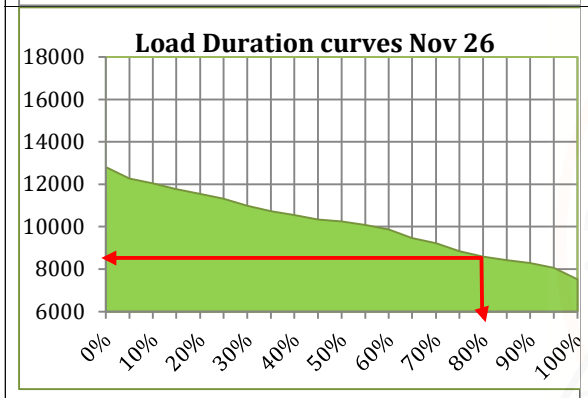
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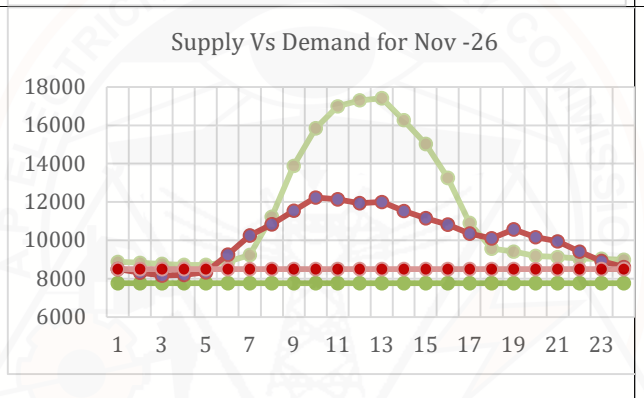
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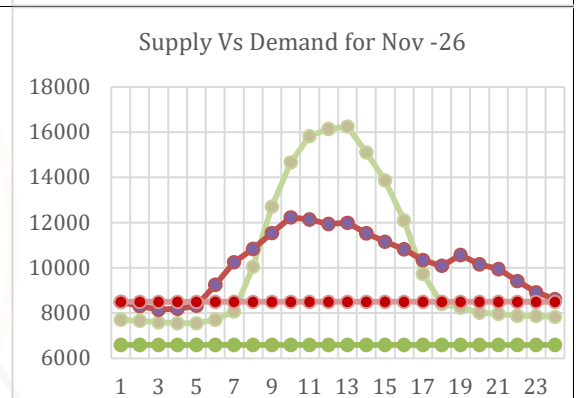
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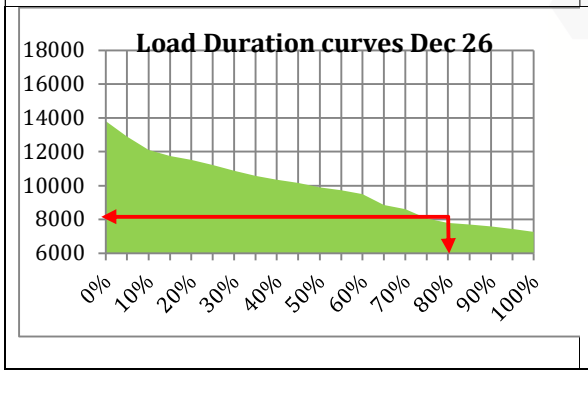
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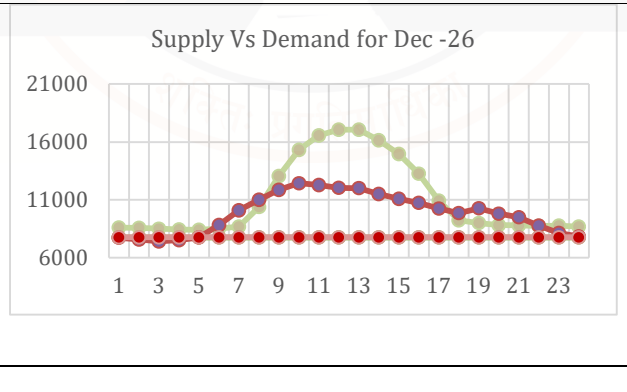
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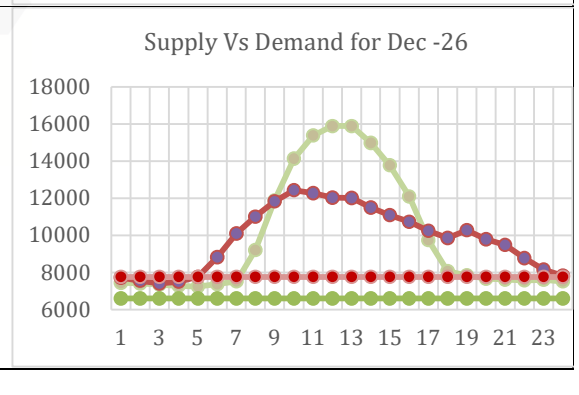
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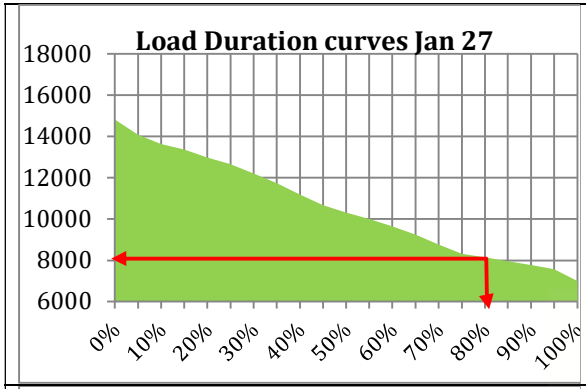
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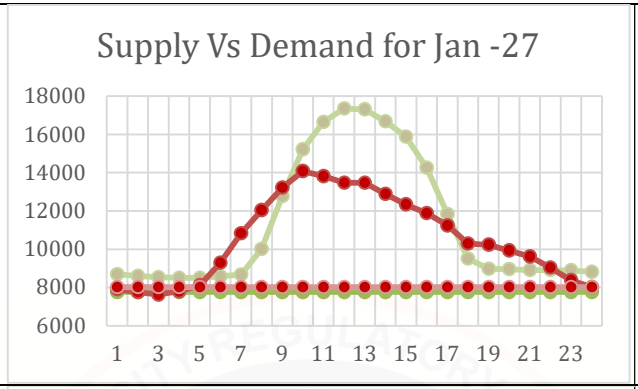
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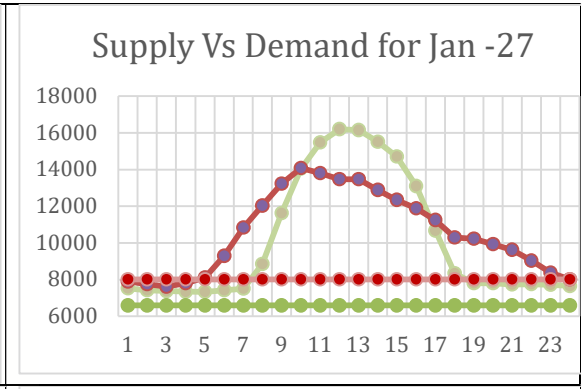
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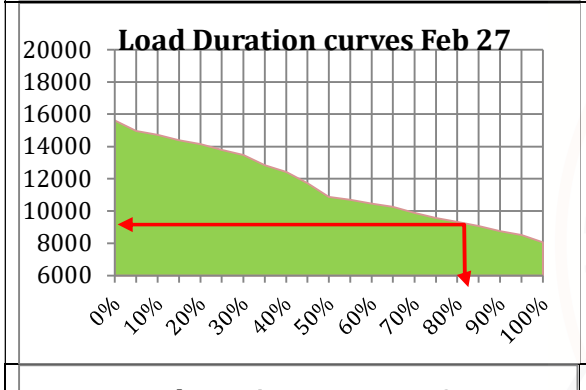
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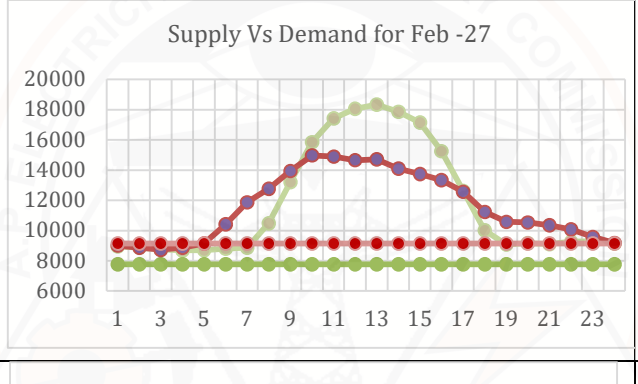
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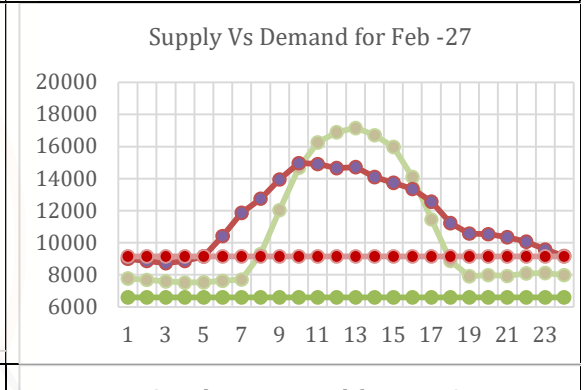
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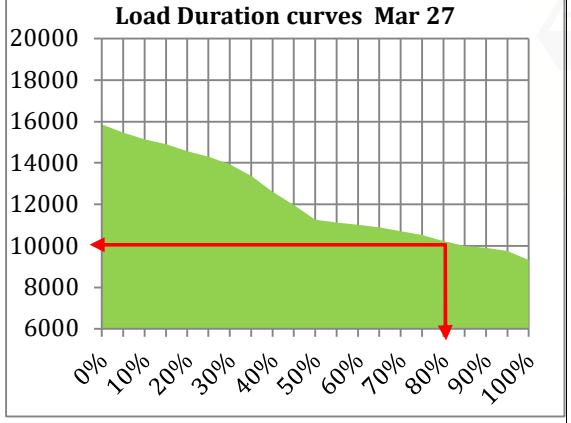
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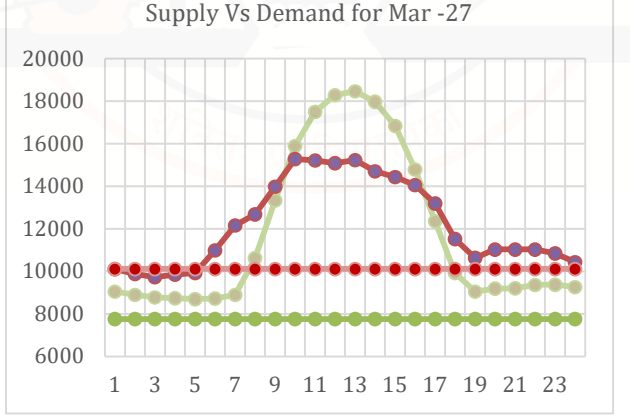
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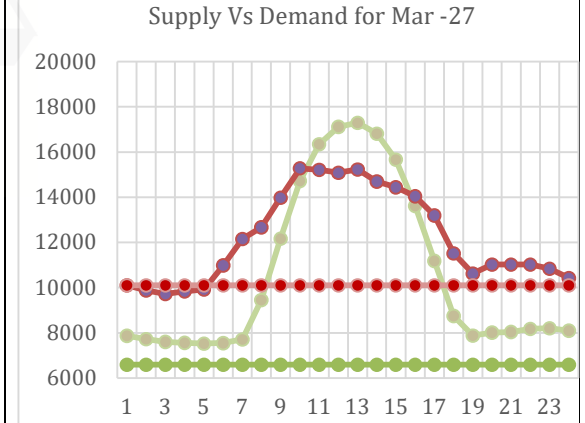
Supply Vs Demand for Mar -27
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8000
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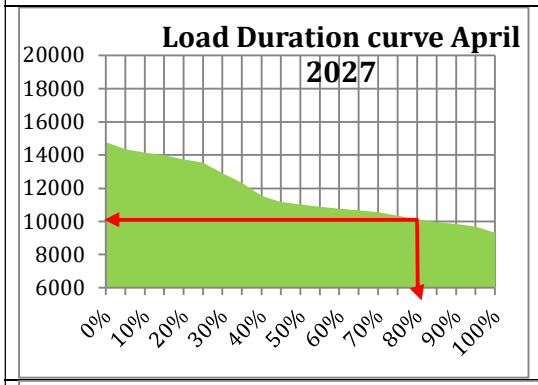
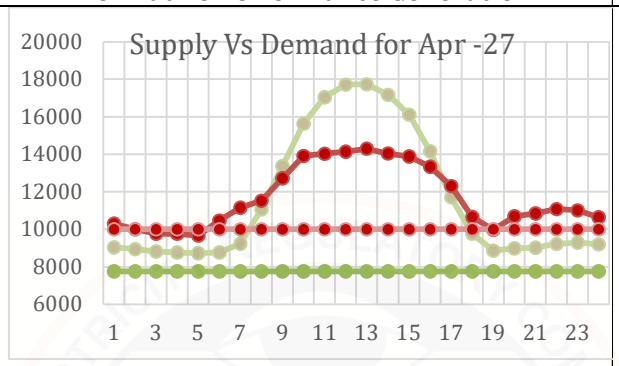
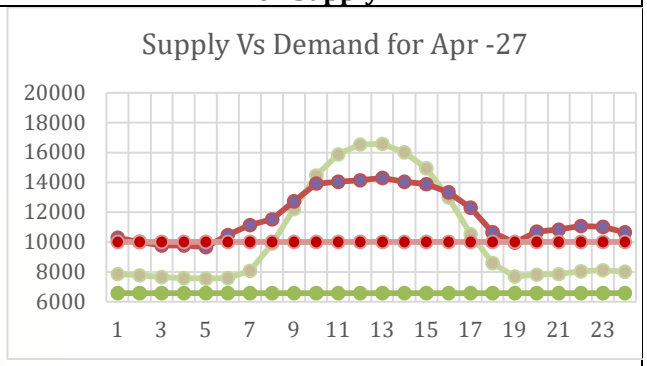
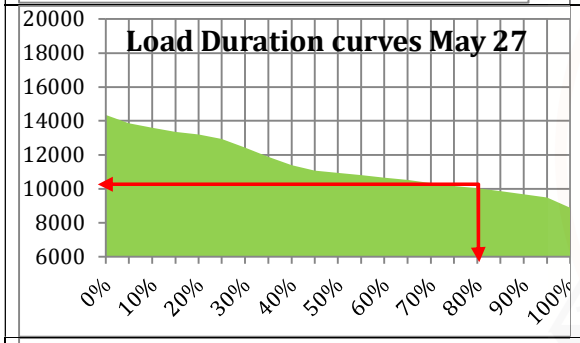
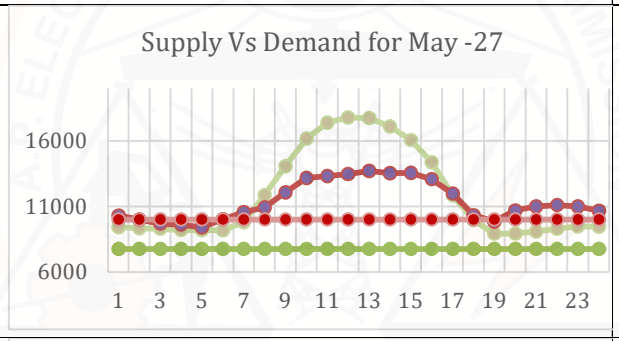
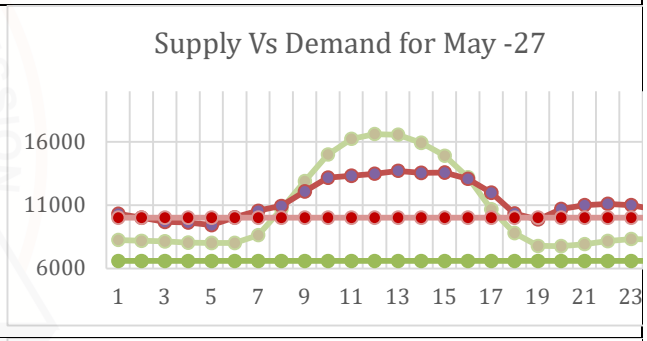
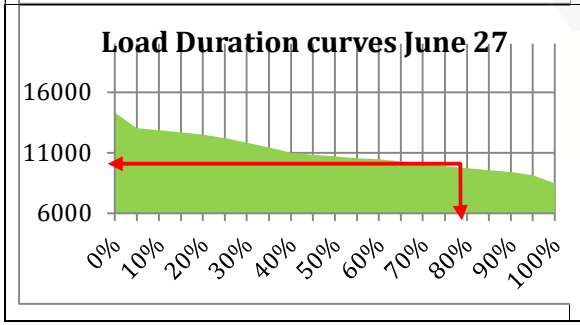
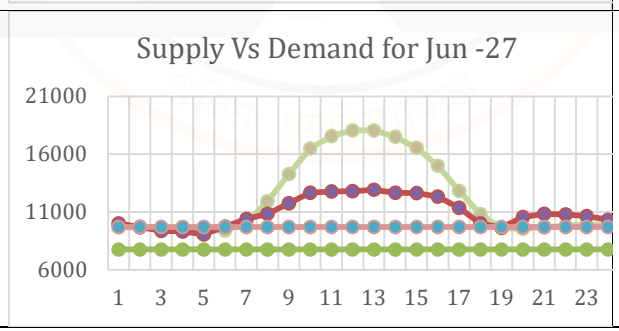
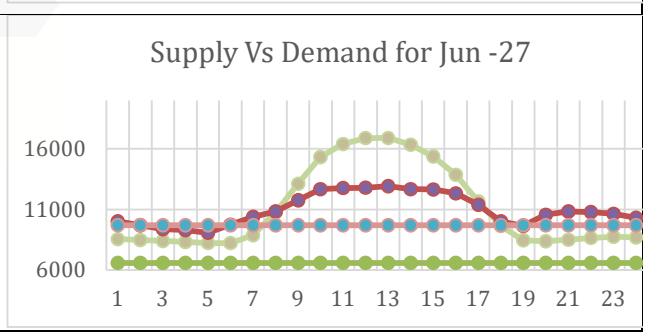
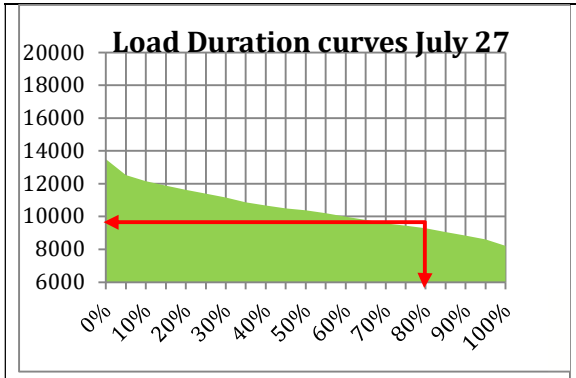
1 3 5 7 9 11 13 15 17 19 21 23

BAU Scenario-FY 28		
Month-Wise Load Duration Curve	**Demand at BAU Scenario Vs Supply at Normative Performance Generation**	**Demand at BAU Scenario Vs Actual Performance of Supply**
		
		
		


Load Duration curves July 27
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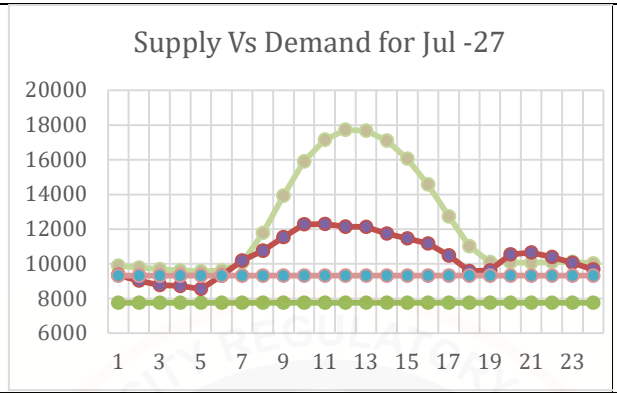
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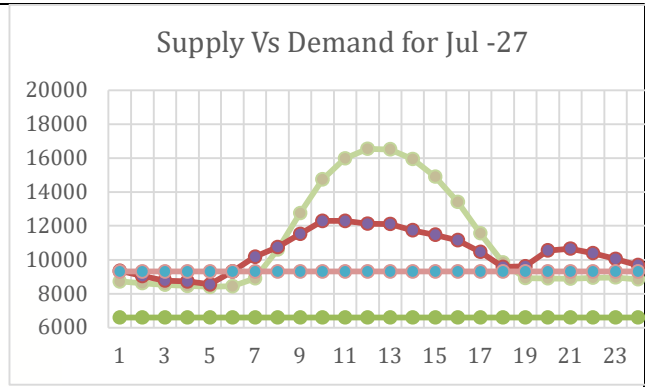
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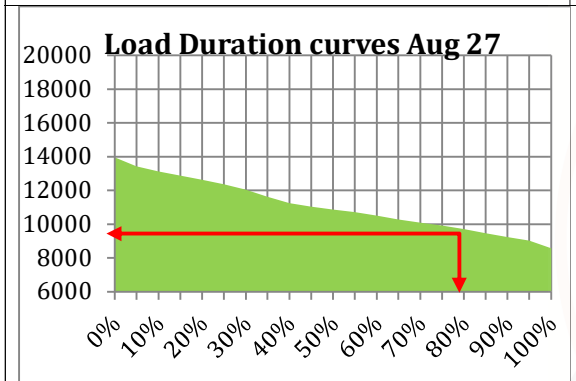
Load Duration curves Aug 27
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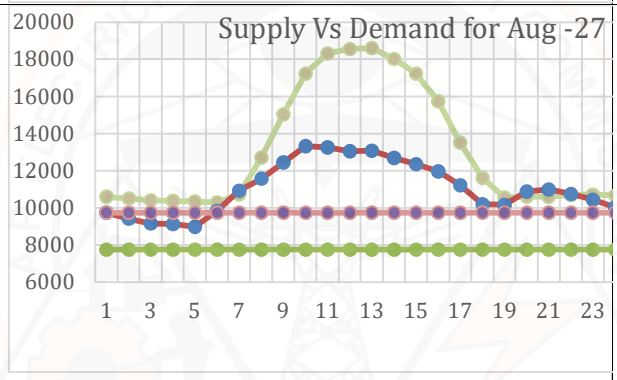
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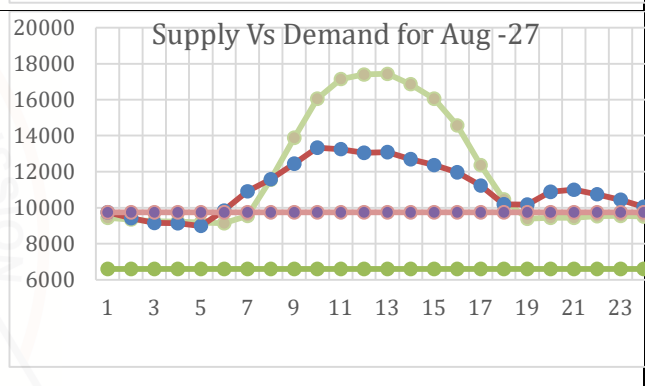
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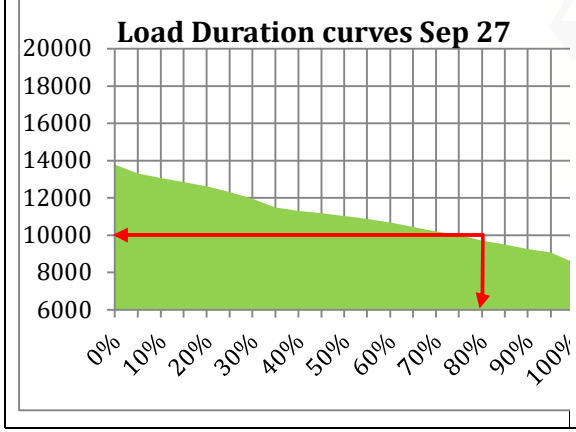
Load Duration curves Sep 27
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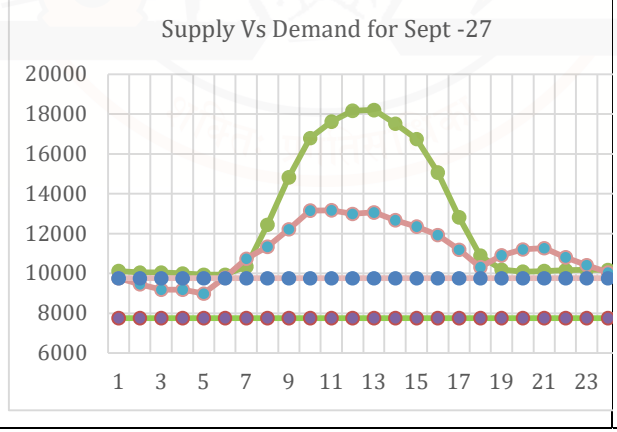
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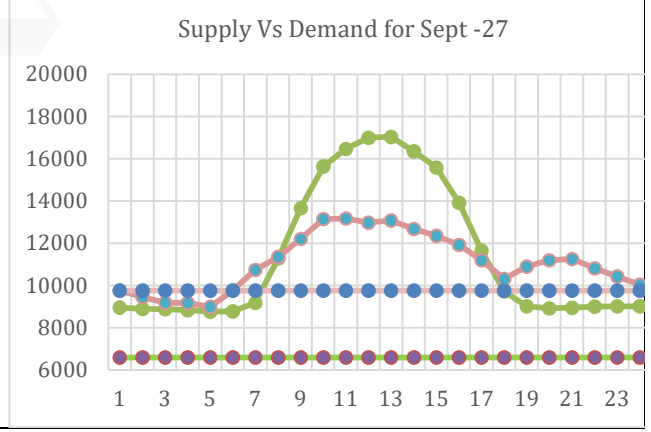
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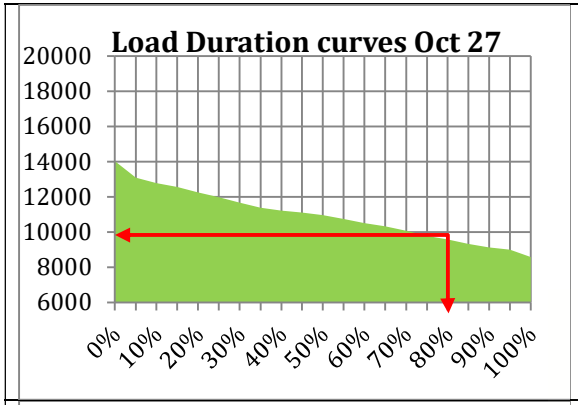
Load Duration curves Oct 27
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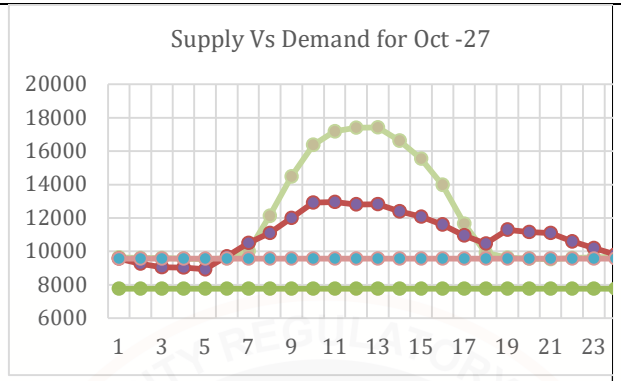
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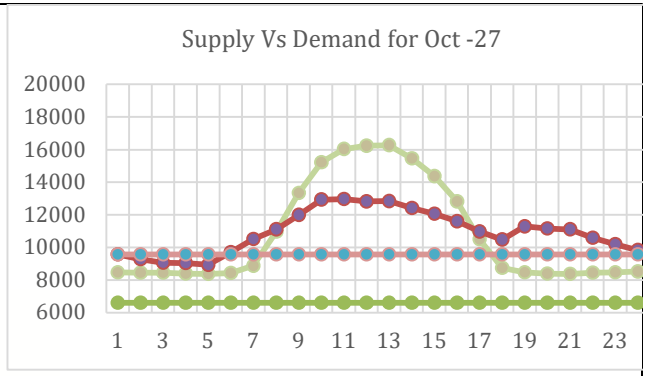
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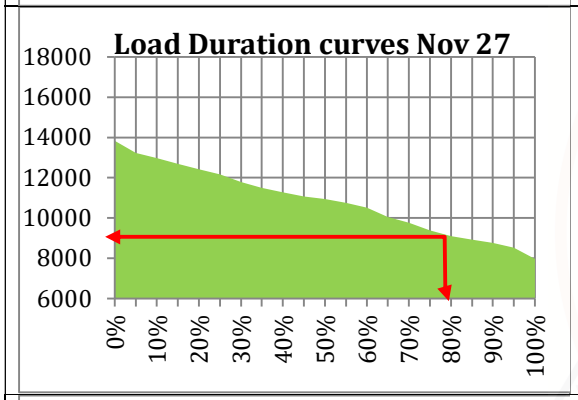
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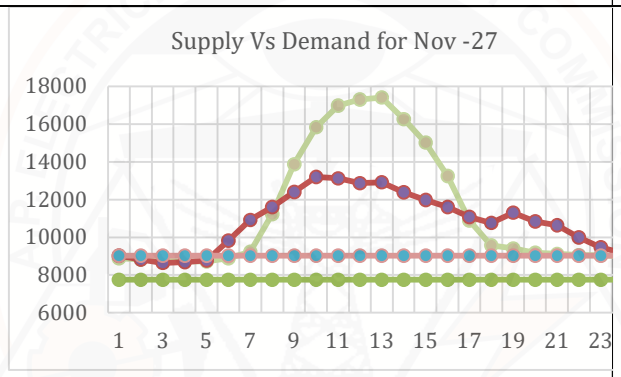
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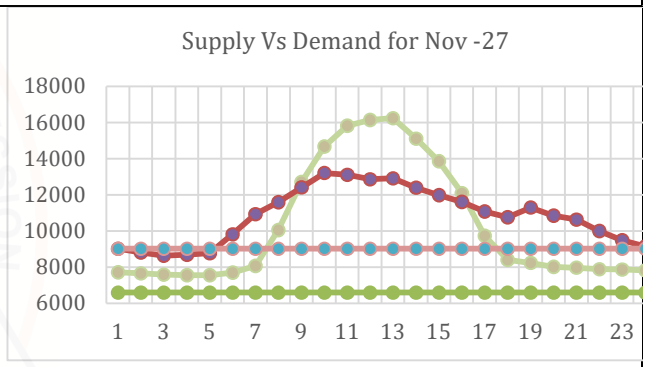
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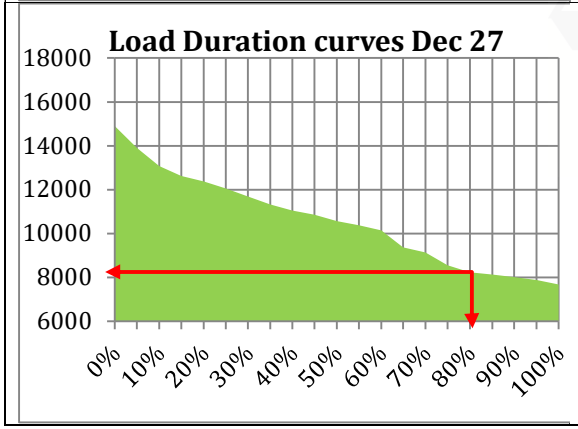
Load Duration curves Dec 27
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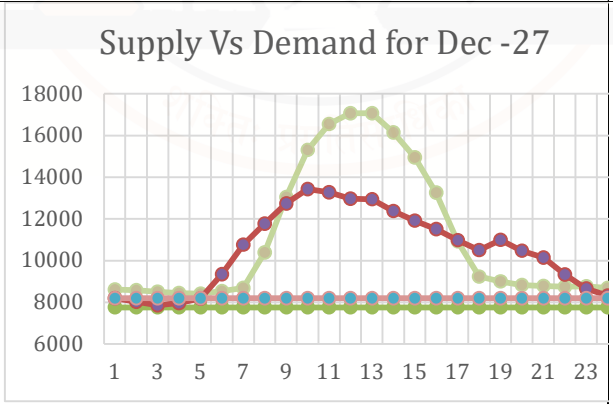
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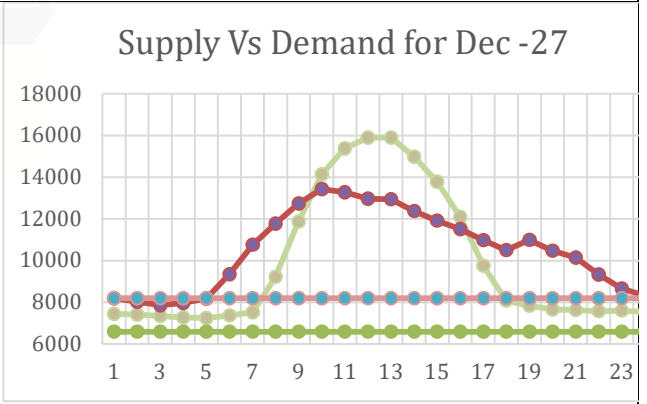
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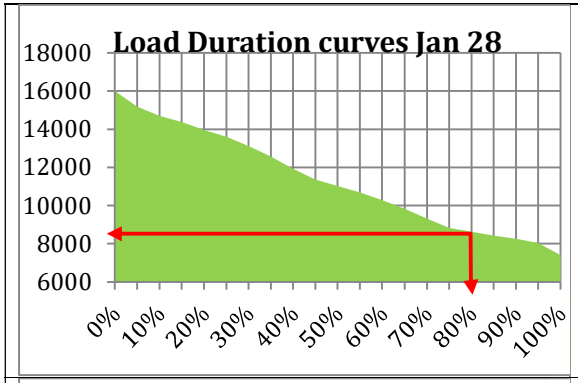
Load Duration curves Jan 28
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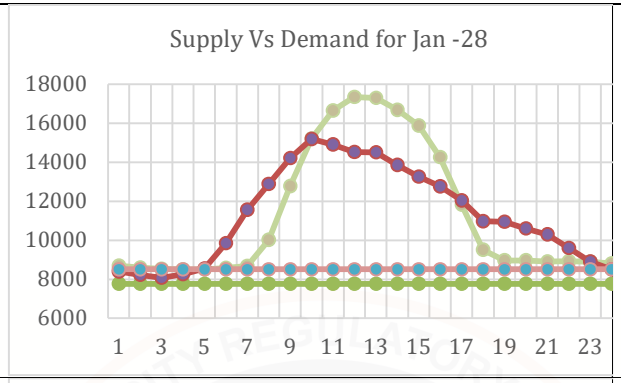
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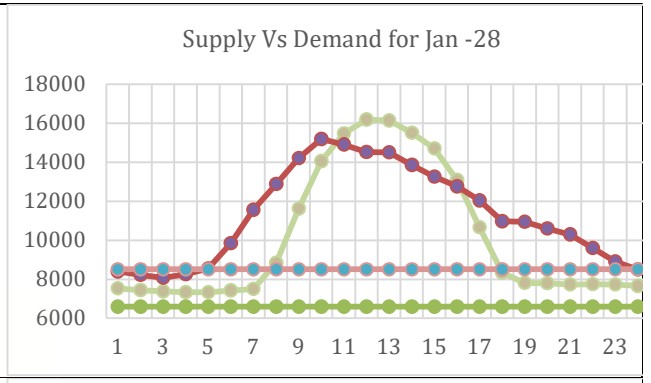
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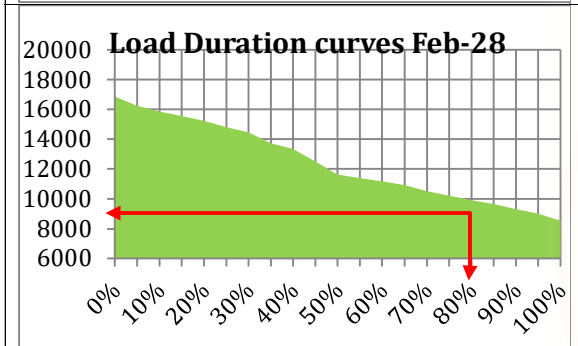
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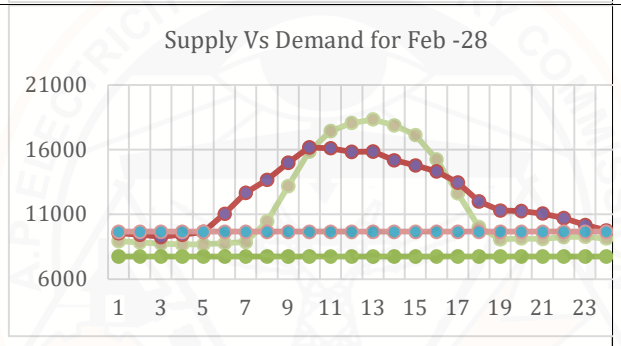
Supply Vs Demand for Feb -28
21000
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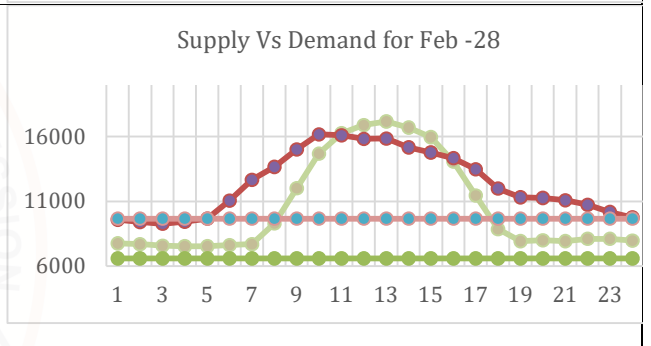
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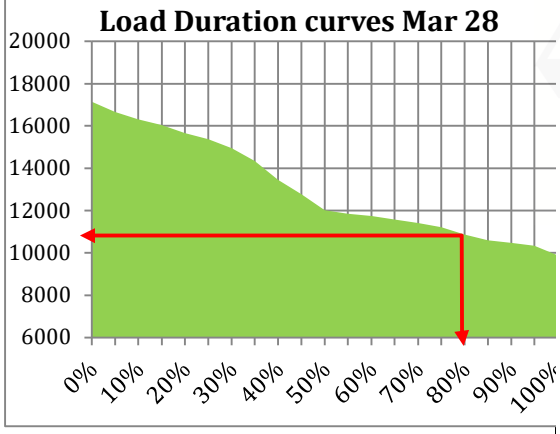
Load Duration curves Mar 28
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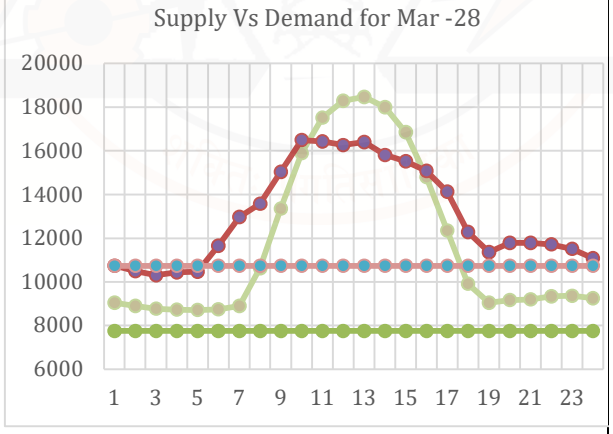
Supply Vs Demand for Mar -28
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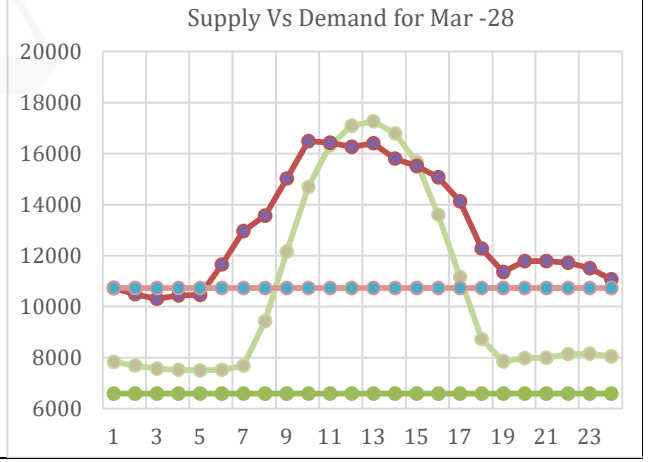
Supply Vs Demand for Mar -28
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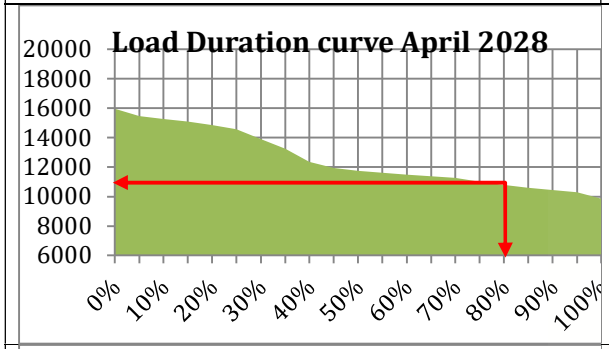
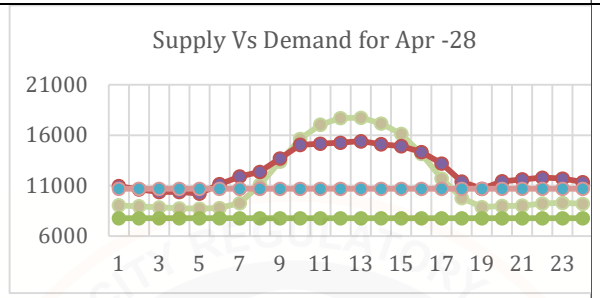
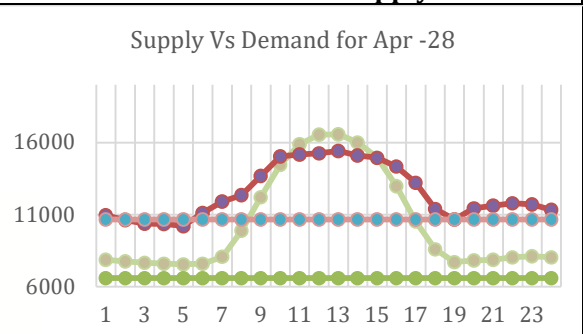
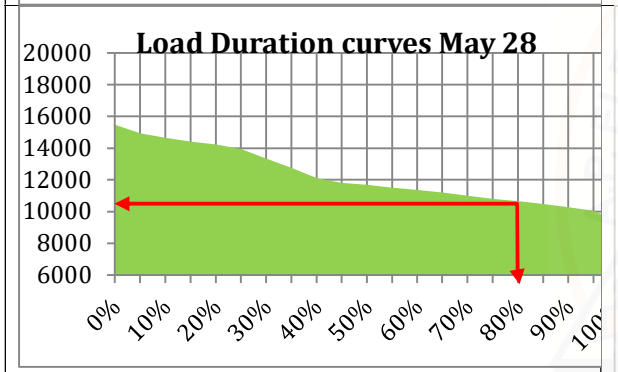
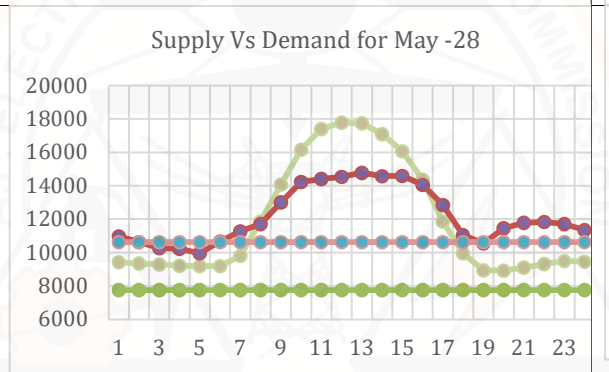
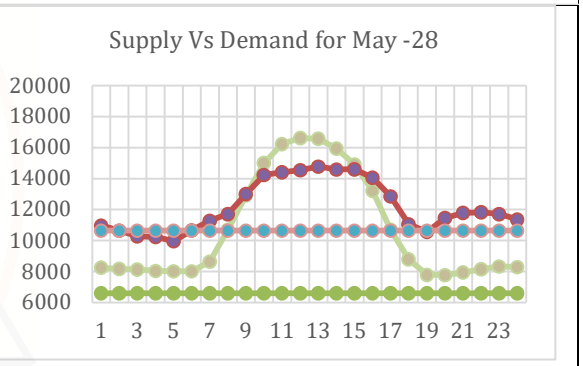
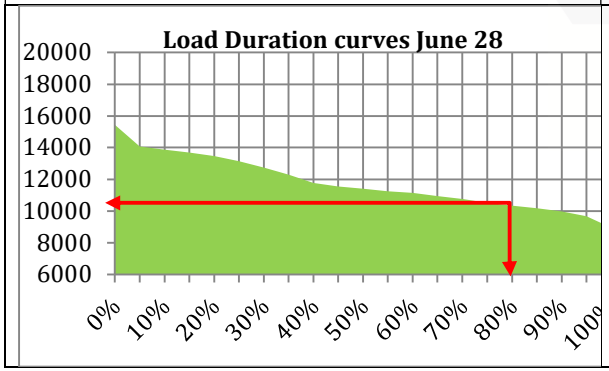
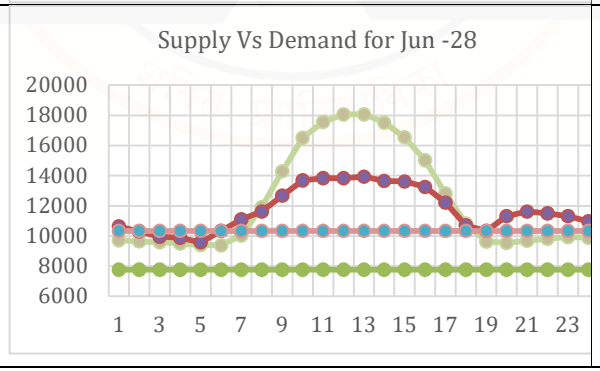
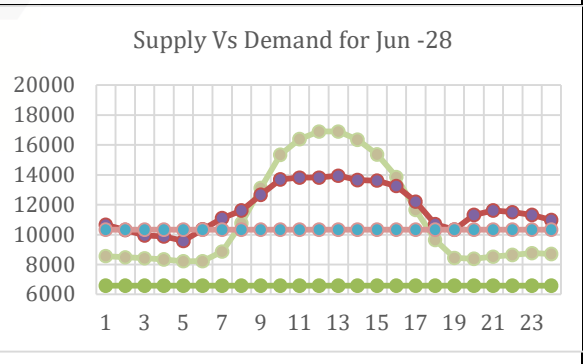
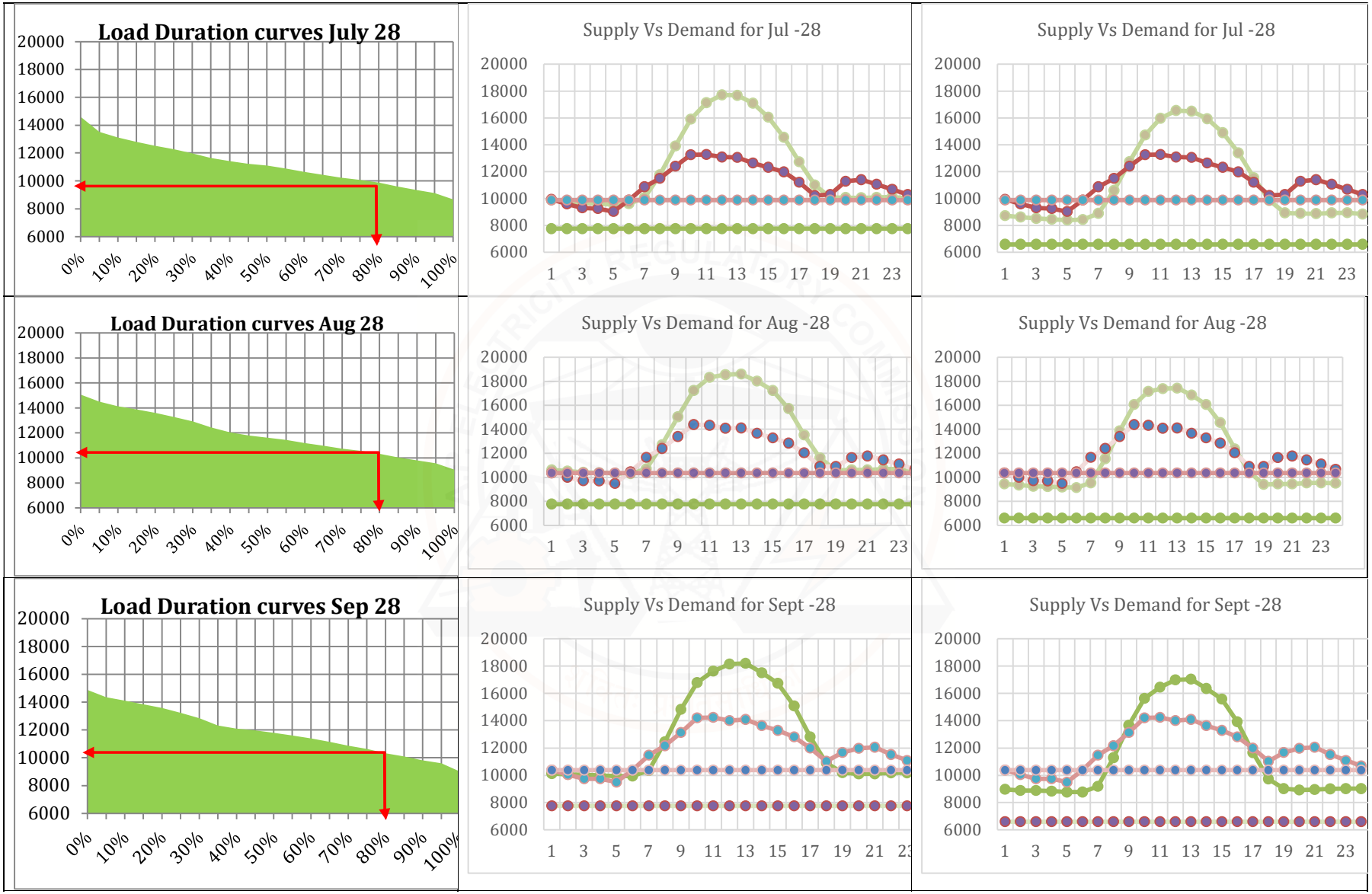
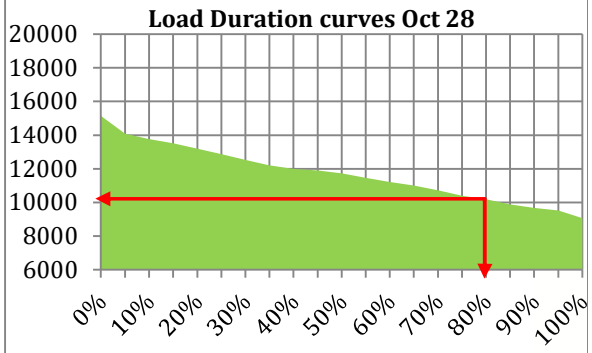
1 3 5 7 9 11 13 15 17 19 21 23

BAU Scenario-FY 29		
Month wise demand	**Demand at BAU Scenario Vs Supply at Normative Performance Generation**	**Demand at BAU Scenario Vs Actual Performance of Supply**
		
		
		


Load Duration curves July 28
Supply Vs Demand for Jul -28
Supply Vs Demand for Jul -28
Load Duration curves Aug 28
Supply Vs Demand for Aug -28
Supply Vs Demand for Aug -28
Load Duration curves Sep 28
Supply Vs Demand for Sept -28
Supply Vs Demand for Sept -28


Load Duration curves Oct 28
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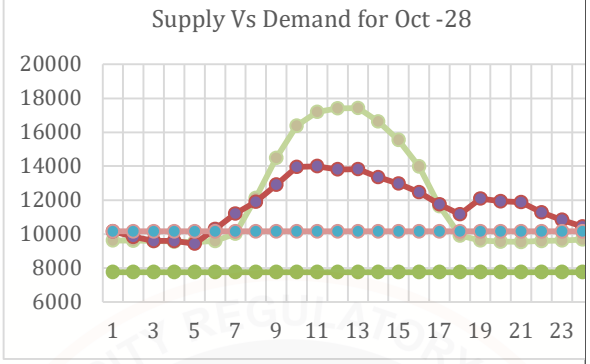
Supply Vs Demand for Oct -28
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14000
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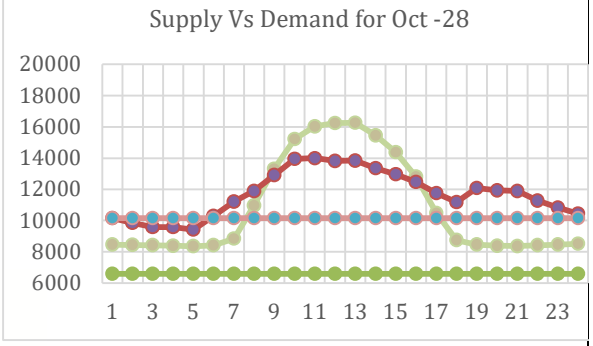
8000
6000
1 3 5 7 9 11 13 15 17 19 21 23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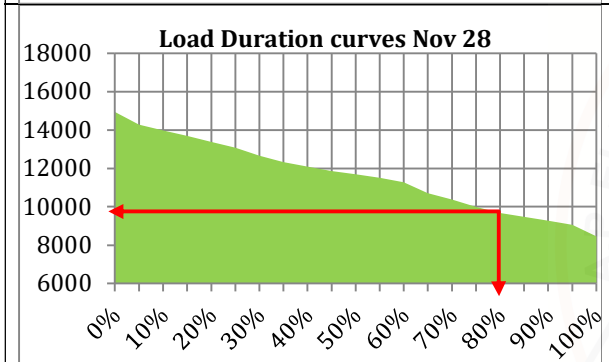
Load Duration curves Nov 28
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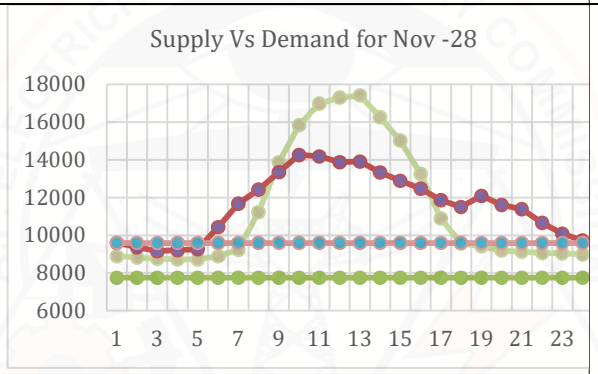
Supply Vs Demand for Nov -28
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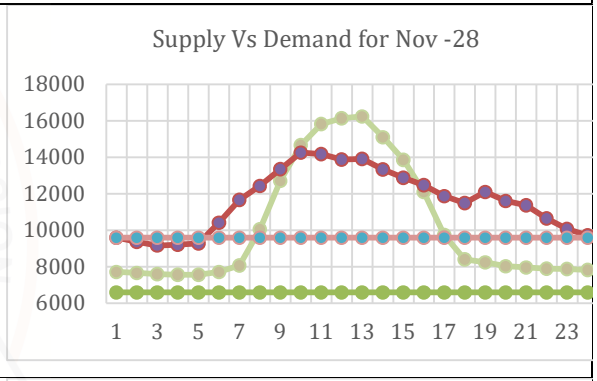
Supply Vs Demand for Nov -28
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12000
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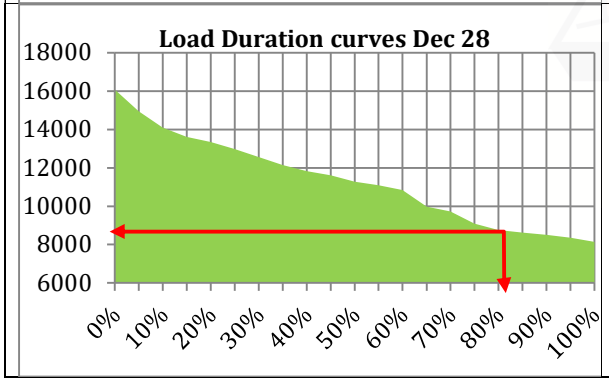
Load Duration curves Dec 28
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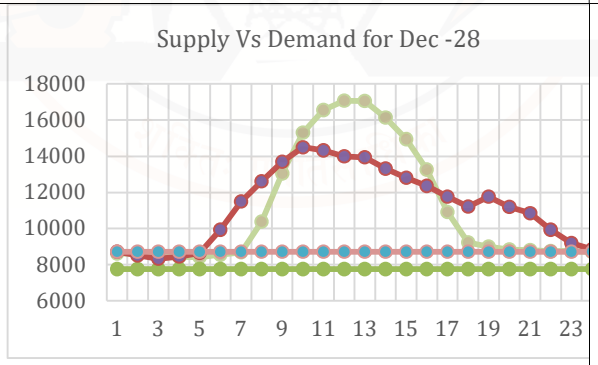
Supply Vs Demand for Dec -28
18000
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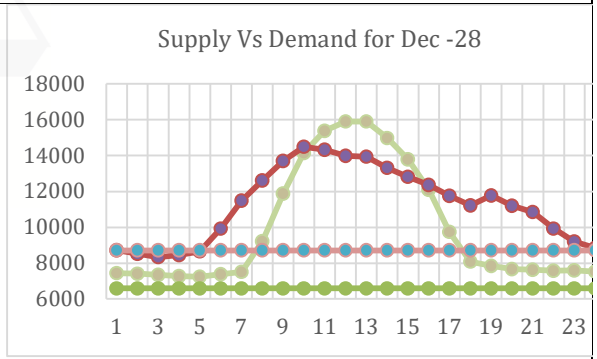
1 3 5 7 9 11 13 15 17 19 21 23


Supply Vs Demand for Dec -28
18000
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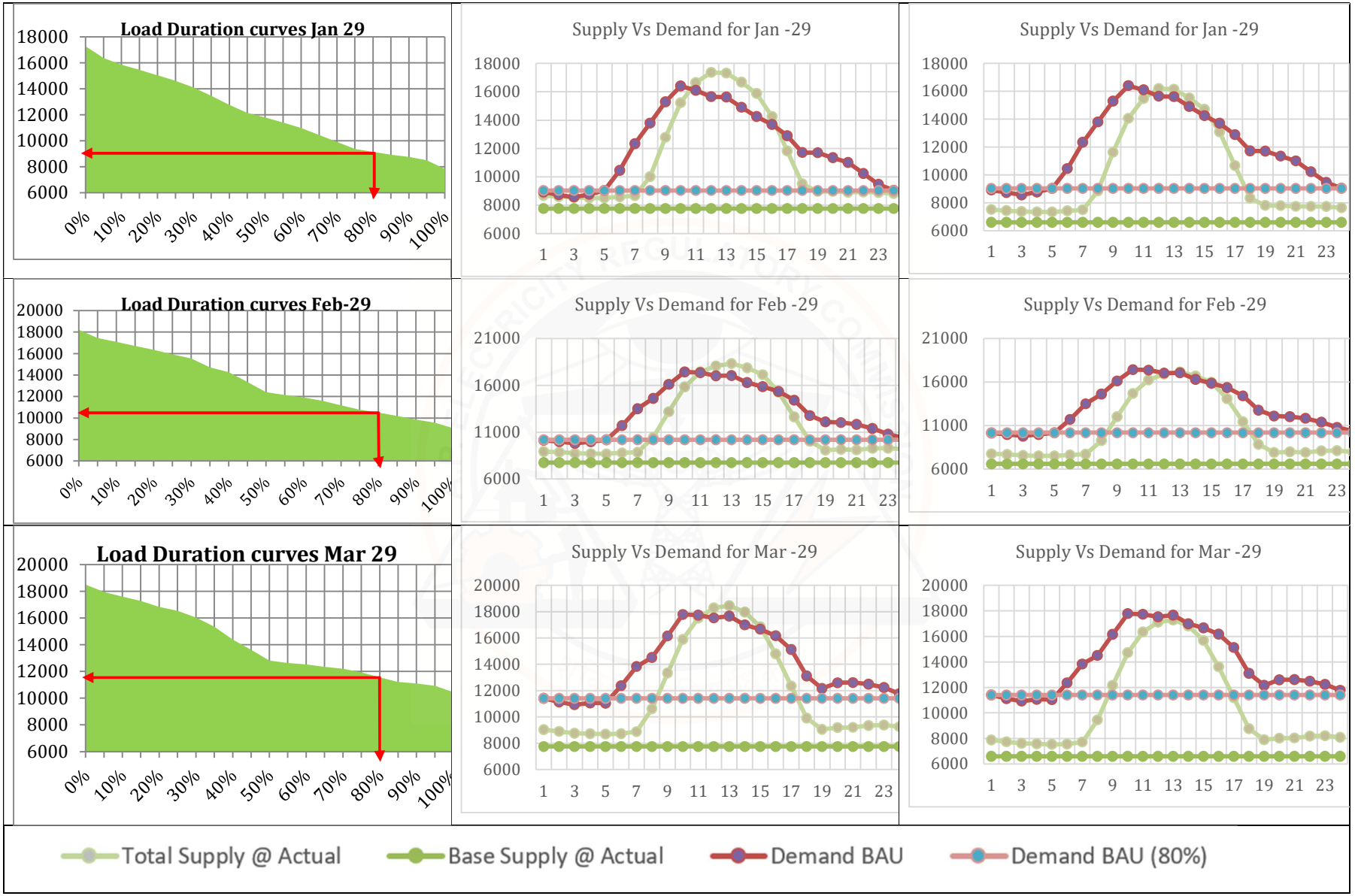
6000
1 3 5 7 9 11 13 15 17 19 21 23


Load Duration curves Jan 29
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70%
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90%
100%
Supply Vs Demand for Jan -29
1
3
5
7
9
11
13
15
17
19
21
23
Supply Vs Demand for Jan -29
Load Duration curves Feb-29
20000
18000
16000
14000
12000
10000
8000
6000
11000
21000
Supply Vs Demand for Feb -29
Supply Vs Demand for Feb -29
Load Duration curves Mar 29
Supply Vs Demand for Mar -29
Supply Vs Demand for Mar -29
Total Supply @ Actual
Base Supply @ Actual
Demand BAU
Demand BAU (80%)

Annexure-C7: Month-wise, Surplus/ (Deficit) of Base Supply to Base Demand (MW)- BAU Demand Scenario (MW) for 5th CP

(MW)	FY 25											
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Peak Load without RM	11,726	11,528	11,448	10,682	11,148	10,928	11,115	10,978	11,834	12,717	13,379	13,631
Base Load (80% of Time) without RM	8,470	8,364	8,103	7,729	8,106	8,152	8,027	7,682	6,970	7,272	8,346	9,108
Base Load (100% of Time) without RM	7,922	7,506	7,242	7,019	7,335	7,291	7,340	6,724	6,483	6,254	7,209	8,335
Peak Demand	12,312	12,104	12,021	11,216	11,705	11,474	11,671	11,527	12,425	13,353	14,048	14,313
Base Load (80% of Time)	8,894	8,782	8,508	8,115	8,511	8,559	8,428	8,066	7,319	7,635	8,763	9,563
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-1,116	-1,004	-730	-337	-733	-781	-650	-288	459	143	-985	-1,785
Base Load (80% of Time)	8,894	8,782	8,508	8,115	8,511	8,559	8,428	8,066	7,319	7,635	8,763	9,563
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-2,280	-2,168	-1,894	-1,501	-1,897	-1,945	-1,814	-1,452	-705	-1,021	-2,149	-2,949
Base Load (100% of Time)	8,318	7,881	7,604	7,370	7,702	7,655	7,707	7,060	6,807	6,567	7,570	8,752
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-540	-103	174	408	76	123	71	718	971	1,211	208	-974
Base Load (100% of Time)	8,318	7,881	7,604	7,370	7,702	7,655	7,707	7,060	6,807	6,567	7,570	8,752
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation)	-1,704	-1,267	-990	-756	-1,088	-1,041	-1,093	-446	-193	47	-956	-2,138

Note: All Loads are inclusive of 5% of the Reserve Margin

(MW)	FY 26											
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Peak Load without RM	12,653	12,401	12,337	11,562	12,020	11,814	12,023	11,868	12,788	13,741	14,462	14,700
Base Load (80% of Time) without RM	8,966	8,887	8,593	8,229	8,621	8,636	8,513	8,118	7,361	7,686	8,818	9,659
Base Load (100% of Time) without RM	8,389	7,990	7,624	7,390	7,723	7,675	7,727	7,110	6,854	6,612	7,622	8,886
Peak Demand	13,285	13,021	12,954	12,140	12,621	12,404	12,624	12,461	13,428	14,428	15,185	15,435
Base Load (80% of Time)	9,415	9,331	9,023	8,641	9,052	9,068	8,939	8,524	7,729	8,070	9,259	10,142
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-1,637	-1,553	-1,245	-863	-1,274	-1,290	-1,161	-746	49	-292	-1,481	-2,364
Base Load (80% of Time)	9,415	9,331	9,023	8,641	9,052	9,068	8,939	8,524	7,729	8,070	9,259	10,142
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-2,801	-2,717	-2,409	-2,027	-2,438	-2,454	-2,325	-1,910	-1,115	-1,456	-2,645	-3,528
Base Load (100% of Time)	8,809	8,390	8,005	7,760	8,109	8,059	8,113	7,465	7,197	6,943	8,003	9,331
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-1,031	-612	-227	18	-331	-281	-335	313	581	835	-225	-1,553
Base Load (100% of Time)	8,809	8,390	8,005	7,760	8,109	8,059	8,113	7,465	7,197	6,943	8,003	9,331
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-2,195	-1,776	-1,391	-1,146	-1,495	-1,445	-1,499	-851	-583	-329	-1,389	-2,717

Note: All Loads are inclusive of 5% of the Reserve Margin

(MW)	FY 27											
	Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Peak Load without RM	13,672	13,331	13,295	12,499	12,948	12,760	12,991	12,814	13,804	14,830	15,616	15,871
Base Load (80% of Time) without RM	9,515	9,435	9,126	8,751	9,133	9,148	9,031	8,589	7,791	8,139	9,331	9,515
Base Load (100% of Time) without RM	8,838	8,417	8,031	7,784	8,134	8,084	8,138	7,520	7,249	6,993	8,060	9,319
Peak Demand	14,355	13,997	13,960	13,124	13,596	13,398	13,640	13,455	14,494	15,572	16,396	16,664
Base Load (80% of Time)	9,991	9,906	9,582	9,189	9,589	9,605	9,482	9,018	8,181	8,546	9,797	10,751
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-2,213	-2,128	-1,804	-1,411	-1,811	-1,827	-1,704	-1,240	-403	-768	-2,019	-2,973
Base Load (80% of Time)	9,991	9,906	9,582	9,189	9,589	9,605	9,482	9,018	8,181	8,546	9,797	10,751
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-3,377	-3,292	-2,968	-2,575	-2,975	-2,991	-2,868	-2,404	-1,567	-1,932	-3,183	-4,137
Base Load (100% of Time)	9,280	8,838	8,433	8,173	8,541	8,488	8,545	7,896	7,612	7,343	8,463	9,784
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-1,502	-1,060	-655	-395	-763	-710	-767	-118	166	435	-685	-2,006
Base Load (100% of Time)	9,280	8,838	8,433	8,173	8,541	8,488	8,545	7,896	7,612	7,343	8,463	9,784
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-2,666	-2,224	-1,819	-1,559	-1,927	-1,874	-1,931	-1,282	-998	-729	-1,849	-3,170

Note: All Loads are inclusive of 5% of the Reserve Margin

(MW)	FY 28											
	Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Peak Load without RM	14,778	14,346	14,329	13,510	13,953	13,781	14,035	13,835	14,901	16,007	16,861	17,137
Base Load (80% of Time) without RM	10,131	10,037	9,719	9,295	9,713	9,708	9,591	9,111	8,248	8,624	9,917	10,872
Base Load (100% of Time) without RM	9,324	8,880	8,472	8,212	8,581	8,527	8,584	7,964	7,677	7,406	8,536	9,868
Peak Demand	15,517	15,063	15,046	14,185	14,651	14,470	14,737	14,527	15,646	16,807	17,704	17,993
Base Load (80% of Time)	10,638	10,539	10,205	9,760	10,199	10,194	10,071	9,567	8,660	9,055	10,413	11,416
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-2,860	-2,761	-2,427	-1,982	-2,421	-2,416	-2,293	-1,789	-882	-1,277	-2,635	-3,638
Base Load (80% of Time)	10,638	10,539	10,205	9,760	10,199	10,194	10,071	9,567	8,660	9,055	10,413	11,416
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-4,024	-3,925	-3,591	-3,146	-3,585	-3,580	-3,457	-2,953	-2,046	-2,441	-3,799	-4,802
Base Load (100% of Time)	9,790	9,324	8,896	8,622	9,010	8,953	9,014	8,362	8,061	7,776	8,962	10,362
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-2,012	-1,546	-1,118	-844	-1,232	-1,175	-1,236	-584	-283	2	-1,184	-2,584
Base Load (100% of Time)	9,790	9,324	8,896	8,622	9,010	8,953	9,014	8,362	8,061	7,776	8,962	10,362
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-3,176	-2,710	-2,282	-2,008	-2,396	-2,339	-2,400	-1,748	-1,447	-1,162	-2,348	-3,748

Note: All Loads are inclusive of 5% of the Reserve Margin

(MW)	FY 29											
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Peak Load without RM	15,973	15,481	15,447	14,602	15,079	14,885	15,163	14,939	16,086	17,277	18,206	18,500
Base Load (80% of Time) without RM	10,795	10,667	10,353	9,882	10,342	10,318	10,193	9,680	8,764	9,154	10,515	11,555
Base Load (100% of Time) without RM	9,850	9,381	8,950	8,674	9,064	9,007	9,067	8,444	8,140	7,852	9,050	10,462
Peak Demand	16,771	16,255	16,219	15,332	15,833	15,629	15,921	15,686	16,890	18,141	19,116	19,425
Base Load (80% of Time)	11,334	11,201	10,871	10,376	10,859	10,834	10,702	10,164	9,202	9,612	11,041	12,133
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-3,556	-3,423	-3,093	-2,598	-3,081	-3,056	-2,924	-2,386	-1,424	-1,834	-3,263	-4,355
Base Load (80% of Time)	11,334	11,201	10,871	10,376	10,859	10,834	10,702	10,164	9,202	9,612	11,041	12,133
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-4,720	-4,587	-4,257	-3,762	-4,245	-4,220	-4,088	-3,550	-2,588	-2,998	-4,427	-5,519
Base Load (100% of Time)	10,342	9,850	9,397	9,108	9,517	9,457	9,521	8,866	8,547	8,245	9,502	10,985
Base Avg Supply @ Normative	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778	7,778
(Deficit)/Surplus in Base generation	-2,564	-2,072	-1,619	-1,330	-1,739	-1,679	-1,743	-1,088	-769	-467	-1,724	-3,207
Base Load (100% of Time)	10,342	9,850	9,397	9,108	9,517	9,457	9,521	8,866	8,547	8,245	9,502	10,985
Base Avg Supply @ Actual	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614	6,614
(Deficit)/Surplus in Base generation	-3,728	-3,236	-2,783	-2,494	-2,903	-2,843	-2,907	-2,252	-1,933	-1,631	-2,888	-4,371

Note: All Loads are inclusive of 5% of the Reserve Margin

Annexure-C8 : ToD-wise, Month-wise BAU Demand for 5th CP (MW) & (MU)

	Monthly Demand for FY 2024-25											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,509	8,336	8,883	7,826	8,624	8,303	7,618	7,605	6,624	6,845	7,812	8,081
06-10	10,053	9,473	10,198	9,368	10,640	10,059	9,183	9,804	9,368	10,327	11,090	10,542
10-15	11,341	10,834	11,271	9,890	11,228	10,766	9,845	10,187	9,652	10,779	11,857	11,547
15-18	9956	9652	10126	8786	9895	9532	8772	9,164	8536	9228	10315	10,123
18-22	8,834	8,804	9,512	8,777	9,595	9,523	8,861	8,858	8,003	8,081	8,697	8,617
22-24	9147	9100	9699	8554	9341	8982	8176	7846	6756	6908	7945	8486

	Monthly Demand for FY 2024-25											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,532	1,550	1,599	1,456	1,604	1,494	1,417	1,369	1,232	1,273	1,312	1,503
06-10	1,206	1,175	1,224	1,162	1,319	1,207	1,139	1,177	1,162	1,281	1,242	1,307
10-15	1,701	1,679	1,691	1,533	1,740	1,615	1,526	1,528	1,496	1,671	1,660	1,790
15-18	896	898	911	817	920	858.04	816	825	794	858	866	941
18-22	1,060	1,092	1,141	1,088	1,190	1,143	1,099	1,063	992	1,002	974	1,068
22-24	549	564	582	530	579	539	507	471	419	428	445	526
Total	6,944	6,958	7,148	6,586	7,352	6,856	6,504	6,433	6,095	6,513	6,499	7,135

	Monthly Demand for FY 2025-26											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,912	8,783	8,500	7,987	8,366	8,377	8,254	7,994	7,371	7,638	8,664	9,535
06-10	10,691	10,134	9,905	9,704	10,476	10,300	10,098	10,457	10,578	11,694	12,480	12,616
10-15	12,113	11,639	10,995	10,289	11,103	11,071	10,871	10,911	10,944	12,255	13,398	13,878
15-18	10554	10293	9805	9073	9713	9730	9615	9,744	9608	10416	11573	12,081
18-22	9,335	9,359	9,182	9,036	9,390	9,693	9,687	9,392	8,984	9,096	9,730	10,251
22-24	9606	9614	9305	8753	9085	9087	8883	8269	7538	7729	8835	10033

	Monthly Demand for FY FY 2025-26											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,604	1,634	1,530	1,486	1,556	1,508	1,535	1,439	1,371	1,421	1,456	1,774
06-10	1,283	1,257	1,189	1,203	1,299	1,236	1,252	1,255	1,312	1,450	1,398	1,564
10-15	1,817	1,804	1,649	1,595	1,721	1,661	1,685	1,637	1,696	1,900	1,876	2,151
15-18	950	957	882	844	903	876	894	877	894	969	972	1,124
18-22	1,120	1,161	1,102	1,121	1,164	1,163	1,201	1,127	1,114	1,128	1,090	1,271
22-24	576	596	558	543	563	545	551	496	467	479	495	622
Total	7,350	7,408	6,910	6,791	7,207	6,989	7,119	6,831	6,854	7,346	7,286	8,506

	Monthly Demand for FY 2026-27											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	9,433	9,297	8,996	8,453	8,854	8,865	8,735	8,458	7,799	8,081	9,166	10,083
06-10	11,480	10,880	10,633	10,415	11,242	11,053	10,835	11,218	11,347	12,544	13,385	13,526
10-15	13,058	12,546	11,849	11,087	11,962	11,927	11,710	11,751	11,785	13,195	14,423	14,937
15-18	11300	11018	10495	9710	10394	10411	10287	10,423	10277	11141	12377	12,920
18-22	9,965	9,989	9,800	9,644	10,020	10,343	10,336	10,021	9,585	9,703	10,378	10,926
22-24	10195	10202	9874	9288	9640	9640	9424	8771	7996	8198	9371	10638

	Monthly Demand for FY 2026-27											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,698	1,729	1,619	1,572	1,647	1,596	1,625	1,522	1,451	1,503	1,540	1,875
06-10	1,378	1,349	1,276	1,291	1,394	1,326	1,344	1,346	1,407	1,555	1,499	1,677
10-15	1,959	1,945	1,777	1,719	1,854	1,789	1,815	1,763	1,827	2,045	2,019	2,315
15-18	1017	1025	945	903	967	937	957	938	956	1036	1040	1,202
18-22	1,196	1,239	1,176	1,196	1,243	1,241	1,282	1,203	1,189	1,203	1,162	1,355
22-24	612	633	592	576	598	578	584	526	496	508	525	660
Total	7,859	7,919	7,386	7,257	7,702	7,467	7,606	7,298	7,324	7,851	7,785	9,084

	Monthly Demand for FY FY 2027-28											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	9,998	9,853	9,534	8,958	9,382	9,393	9,255	8,961	8,262	8,561	9,737	10,682
06-10	12,332	11,687	11,419	11,183	12,071	11,866	11,631	12,040	12,178	13,462	14,380	14,514
10-15	14,079	13,524	12,772	11,949	12,890	12,851	12,615	12,658	12,693	14,209	15,551	16,083
15-18	12105	11803	11241	10399	11129	11146	11012	11,156	10999	11924	13266	13,827
18-22	10,645	10,671	10,467	10,300	10,702	11,046	11,037	10,701	10,235	10,360	11,095	11,664
22-24	10832	10839	10489	9866	10240	10240	10009	9316	8491	8706	9978	11296

	Monthly Demand for FY FY 2027-28											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,800	1,833	1,716	1,666	1,745	1,691	1,721	1,613	1,537	1,592	1,694	1,987
06-10	1,480	1,449	1,370	1,387	1,497	1,424	1,442	1,445	1,510	1,669	1,668	1,800
10-15	2,112	2,096	1,916	1,852	1,998	1,928	1,955	1,899	1,967	2,202	2,255	2,493
15-18	1089	1098	1012	967	1035	1003	1024	1,004	1023	1109	1154	1,286
18-22	1,277	1,323	1,256	1,277	1,327	1,325	1,369	1,284	1,269	1,285	1,287	1,446
22-24	650	672	629	612	635	614	621	559	526	540	579	700
Total	8,408	8,471	7,899	7,761	8,237	7,985	8,132	7,804	7,833	8,397	8,637	9,712

	Monthly Demand for FY FY 2028-29											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	10,609	10,454	10,116	9,504	9,954	9,965	9,818	9,506	8,764	9,080	10,299	11,327
06-10	13,253	12,558	12,269	12,014	12,966	12,744	12,491	12,929	13,076	14,454	15,419	15,575
10-15	15,181	14,581	13,768	12,881	13,893	13,849	13,593	13,638	13,674	15,306	16,726	17,318
15-18	12976	12651	12047	11143	11925	11942	11796	11,949	11780	12770	14185	14,803
18-22	11,381	11,408	11,189	11,010	11,439	11,805	11,796	11,436	10,938	11,070	11,837	12,465
22-24	11521	11527	11155	10492	10888	10888	10642	9904	9027	9255	10578	12010

	Monthly Demand for FY FY 2028-29											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,910	1,945	1,821	1,768	1,851	1,794	1,826	1,711	1,630	1,689	1,730	2,107
06-10	1,590	1,557	1,472	1,490	1,608	1,529	1,549	1,551	1,621	1,792	1,727	1,931
10-15	2,277	2,260	2,065	1,997	2,153	2,077	2,107	2,046	2,119	2,372	2,342	2,684
15-18	1168	1177	1084	1036	1109	1075	1097	1,075	1096	1188	1192	1,377
18-22	1,366	1,415	1,343	1,365	1,418	1,417	1,463	1,372	1,356	1,373	1,326	1,546
22-24	691	715	669	651	675	653	660	594	560	574	592	745
Total	9,002	9,068	8,455	8,306	8,815	8,545	8,702	8,350	8,382	8,988	8,908	10,389

Annexure-C9 : ToD-wise, Month-wise Scenario-I: Normative Performance of Supply for 5th CP (MW) & (MU)

	Scenario-I: Monthly Supply for FY 2024-25											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,707	9,186	9,466	9,575	10,074	9,627	9,113	8,558	8,409	8,470	8,634	8,659
06-10	9,773	10,306	10,612	10,506	11,116	10,631	11,240	10,931	10,441	10,376	10,680	10,755
10-15	11,034	11,315	11,781	11,619	12,159	11,669	13,191	13,275	12,950	13,248	14,049	14,147
15-18	9,335	9,513	10,186	10,311	10,774	10,301	10,350	10,033	9,922	10,335	10,841	10,758
18-22	8,848	8,934	9,523	9,866	10,191	9,672	9,089	8,882	8,691	8,769	8,945	9,010
22-24	9,061	9,352	9,791	9,900	10,295	9,756	9,156	8,753	8,615	8,728	9,033	9,121

	Scenario-I: Monthly Supply for FY 2024-25											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,567	1,709	1,704	1,781	1,874	1,733	1,695	1,540	1,564	1,575	1,451	1,611
06-10	1,173	1,278	1,273	1,303	1,378	1,276	1,394	1,312	1,295	1,287	1,196	1,334
10-15	1,655	1,754	1,767	1,801	1,885	1,750	2,045	1,991	2,007	2,053	1,967	2,193
15-18	840	885	917	959	1,002	927	963	903	923	961	911	1,001
18-22	1,062	1,108	1,143	1,223	1,264	1,161	1,127	1,066	1,078	1,087	1,002	1,117
22-24	544	580	587	614	638	585	568	525	534	541	506	565
Total	6,841	7,313	7,391	7,681	8,041	7,432	7,791	7,337	7,401	7,505	7,032	7,820

	Scenario-I: Monthly Supply for FY 2025-26											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,795	9,246	9,519	9,654	10,290	9,864	9,400	8,709	8,482	8,538	8,733	8,759
06-10	10,899	11,472	11,736	11,565	12,385	11,978	12,683	12,097	11,474	11,321	11,711	11,805
10-15	13,691	13,870	14,273	14,009	14,785	14,305	15,863	15,746	15,489	15,878	16,817	16,879
15-18	10,455	10,630	11,366	11,394	12,061	11,503	11,405	10,902	10,817	11,466	12,165	11,937
18-22	8,956	9,017	9,607	9,991	10,444	9,954	9,387	9,076	8,791	8,879	9,075	9,134
22-24	9,178	9,435	9,865	10,007	10,537	10,015	9,458	8,916	8,693	8,811	9,150	9,248

	Scenario-I: Monthly Supply for FY 2025-26											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,583	1,720	1,713	1,796	1,914	1,776	1,748	1,568	1,578	1,588	1,467	1,629
06-10	1,308	1,423	1,408	1,434	1,536	1,437	1,573	1,452	1,423	1,404	1,312	1,464
10-15	2,054	2,150	2,141	2,171	2,292	2,146	2,459	2,362	2,401	2,461	2,354	2,616
15-18	941	989	1,023	1,060	1,122	1,035	1,061	981	1,006	1,066	1,022	1,110
18-22	1,075	1,118	1,153	1,239	1,295	1,194	1,164	1,089	1,090	1,101	1,016	1,133
22-24	551	585	592	620	653	601	586	535	539	546	512	573
Total	7,511	7,984	8,031	8,320	8,811	8,189	8,591	7,986	8,036	8,167	7,684	8,525

	Scenario-I: Monthly Supply for FY 2026-27											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,859	9,290	9,559	9,711	10,446	10,035	9,605	8,816	8,534	8,587	8,500	8,831
06-10	12,001	12,623	12,845	12,603	13,594	13,257	13,274	12,563	11,872	11,689	11,695	12,203
10-15	16,320	16,405	16,751	16,381	17,354	16,873	16,855	16,620	16,373	16,792	17,171	17,834
15-18	11,551	11,728	12,531	12,454	13,287	12,633	11,868	11,262	11,156	11,881	12,217	12,375
18-22	9,036	9,082	9,675	10,088	10,629	10,158	9,599	9,213	8,862	8,957	8,850	9,221
22-24	9,262	9,495	9,919	10,084	10,712	10,202	9,675	9,034	8,749	8,870	8,915	9,340

	Scenario-I: Monthly Supply for FY 2026-27											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,595	1,728	1,721	1,806	1,943	1,806	1,786	1,587	1,587	1,597	1,479	1,642
06-10	1,440	1,565	1,541	1,563	1,686	1,591	1,646	1,508	1,472	1,449	1,357	1,513
10-15	2,448	2,543	2,513	2,539	2,690	2,531	2,613	2,493	2,538	2,603	2,490	2,764
15-18	1,040	1,091	1,128	1,158	1,236	1,137	1,104	1,014	1,037	1,105	1,063	1,151
18-22	1,084	1,126	1,161	1,251	1,318	1,219	1,190	1,106	1,099	1,111	1,027	1,143
22-24	556	589	595	625	664	612	600	542	542	550	517	579
Total	8,162	8,642	8,659	8,942	9,536	8,896	8,939	8,249	8,276	8,415	7,932	8,793

	Scenario-I: Monthly Supply for FY 2027-28											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,859	9,290	9,559	9,712	10,446	10,035	9,605	8,816	8,534	8,587	9,124	8,837
06-10	12,347	12,994	13,202	12,929	13,944	13,626	13,274	12,563	11,872	11,689	12,553	12,213
10-15	17,173	17,234	17,564	17,156	18,162	17,671	16,855	16,620	16,373	16,792	18,422	17,836
15-18	11,895	12,077	12,905	12,787	13,645	12,950	11,868	11,262	11,156	11,881	13,089	12,374
18-22	9,040	9,087	9,682	10,094	10,634	10,160	9,599	9,213	8,862	8,957	9,495	9,208
22-24	9,262	9,495	9,919	10,084	10,712	10,202	9,675	9,034	8,749	8,870	9,572	9,327

	Scenario-I: Monthly Supply for FY 2027-28											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,595	1,728	1,721	1,806	1,943	1,806	1,786	1,587	1,587	1,597	1,533	1,644
06-10	1,482	1,611	1,584	1,603	1,729	1,635	1,646	1,508	1,472	1,449	1,406	1,514
10-15	2,576	2,671	2,635	2,659	2,815	2,651	2,613	2,493	2,538	2,603	2,579	2,765
15-18	1,071	1,123	1,161	1,189	1,269	1,166	1,104	1,014	1,037	1,105	1,099	1,151
18-22	1,085	1,127	1,162	1,252	1,319	1,219	1,190	1,106	1,099	1,111	1,063	1,142
22-24	556	589	595	625	664	612	600	542	542	550	536	578
Total	8,363	8,849	8,858	9,135	9,739	9,089	8,939	8,249	8,276	8,415	8,217	8,794

	Scenario-I: Monthly Supply for FY 2028-29											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	8,859	9,290	9,559	9,712	10,446	10,035	9,605	8,816	8,534	8,587	8,804	8,831
06-10	12,347	12,994	13,202	12,929	13,944	13,626	13,274	12,563	11,872	11,689	12,113	12,203
10-15	17,173	17,234	17,564	17,156	18,162	17,671	16,855	16,620	16,373	16,792	17,784	17,834
15-18	11,895	12,077	12,905	12,787	13,645	12,950	11,868	11,262	11,156	11,881	12,653	12,375
18-22	9,040	9,087	9,682	10,094	10,634	10,160	9,599	9,213	8,862	8,957	9,166	9,221
22-24	9,262	9,495	9,919	10,084	10,712	10,202	9,675	9,034	8,749	8,870	9,234	9,340

	Scenario-I: Monthly Supply for FY 2028-29											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,595	1,728	1,721	1,806	1,943	1,806	1,786	1,587	1,587	1,597	1,479	1,642
06-10	1,482	1,611	1,584	1,603	1,729	1,635	1,646	1,508	1,472	1,449	1,357	1,513
10-15	2,576	2,671	2,635	2,659	2,815	2,651	2,613	2,493	2,538	2,603	2,490	2,764
15-18	1,071	1,123	1,161	1,189	1,269	1,166	1,104	1,014	1,037	1,105	1,063	1,151
18-22	1,085	1,127	1,162	1,252	1,319	1,219	1,190	1,106	1,099	1,111	1,027	1,143
22-24	556	589	595	625	664	612	600	542	542	550	517	579
Total	8,363	8,849	8,858	9,135	9,739	9,089	8,939	8,249	8,276	8,415	7,932	8,793

Annexure-C10 : ToD-wise, Month-wise Scenario-II: Actual Performance of Supply for 5th CP (MW) & (MU)

	Scenario-II : Monthly Supply for FY 2024-25											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	7,543	8,022	8,302	8,411	8,910	8,463	7,949	7,394	7,245	7,306	7,470	7,495
06-10	8,609	9,142	9,448	9,342	9,952	9,467	10,076	9,767	9,277	9,212	9,516	9,592
10-15	9,870	10,151	10,617	10,455	10,995	10,505	12,027	12,111	11,786	12,084	12,885	12,984
15-18	8,171	8,349	9,022	9,147	9,610	9,137	9,186	8,869	8,758	9,171	9,677	9,594
18-22	7,684	7,770	8,359	8,702	9,027	8,508	7,925	7,718	7,527	7,605	7,781	7,846
22-24	7,897	8,188	8,627	8,736	9,132	8,592	7,992	7,589	7,451	7,564	7,869	7,957

	Scenario-II : Monthly Supply for FY 2024-25											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,358	1,492	1,494	1,564	1,657	1,523	1,479	1,331	1,347	1,359	1,255	1,394
06-10	1,033	1,134	1,134	1,158	1,234	1,136	1,249	1,172	1,150	1,142	1,066	1,189
10-15	1,480	1,573	1,593	1,621	1,704	1,576	1,864	1,817	1,827	1,873	1,804	2,012
15-18	735	776	812	851	894	822	854	798	815	853	813	892
18-22	922	963	1,003	1,079	1,119	1,021	983	926	933	943	871	973
22-24	474	508	518	542	566	516	496	455	462	469	441	493
Total	6,003	6,447	6,553	6,815	7,175	6,594	6,925	6,499	6,535	6,639	6,250	6,954

	Scenario-II: Monthly Supply for FY 2025-26											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	7,631	8,082	8,355	8,490	9,126	8,700	8,236	7,545	7,318	7,374	7,569	7,595
06-10	9,735	10,308	10,572	10,401	11,222	10,814	11,519	10,933	10,310	10,157	10,547	10,641
10-15	12,527	12,706	13,110	12,845	13,621	13,141	14,699	14,582	14,325	14,714	15,653	15,715
15-18	9,291	9,466	10,202	10,230	10,897	10,339	10,241	9,738	9,654	10,302	11,001	10,773
18-22	7,792	7,853	8,443	8,827	9,280	8,790	8,223	7,912	7,627	7,715	7,911	7,970
22-24	8,014	8,271	8,701	8,843	9,373	8,852	8,295	7,752	7,529	7,647	7,986	8,084

	Scenario-II: Monthly Supply for FY 2025-26											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,374	1,503	1,504	1,579	1,697	1,566	1,532	1,358	1,361	1,372	1,272	1,413
06-10	1,168	1,278	1,269	1,290	1,391	1,298	1,428	1,312	1,278	1,259	1,181	1,320
10-15	1,879	1,969	1,966	1,991	2,111	1,971	2,278	2,187	2,220	2,281	2,191	2,436
15-18	836	880	918	951	1,013	930	952	876	898	958	924	1,002
18-22	935	974	1,013	1,095	1,151	1,055	1,020	949	946	957	886	988
22-24	481	513	522	548	581	531	514	465	467	474	447	501
Total	6,673	7,118	7,192	7,454	7,945	7,351	7,725	7,148	7,170	7,301	6,902	7,659

	Scenario-II : Monthly Supply for FY 2026-27											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	7,695	8,126	8,395	8,547	9,282	8,871	8,441	7,652	7,370	7,423	7,376	7,667
06-10	10,837	11,459	11,682	11,439	12,430	12,093	12,110	11,400	10,709	10,525	10,571	11,039
10-15	15,156	15,241	15,587	15,217	16,190	15,709	15,691	15,456	15,209	15,628	16,047	16,670
15-18	10,387	10,564	11,367	11,290	12,123	11,469	10,704	10,098	9,992	10,717	11,093	11,211
18-22	7,872	7,918	8,511	8,924	9,465	8,994	8,435	8,049	7,698	7,793	7,726	8,057
22-24	8,098	8,331	8,755	8,921	9,548	9,038	8,511	7,870	7,585	7,706	7,792	8,176

	Scenario-II : Monthly Supply for FY 2026-27											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,385	1,511	1,511	1,590	1,726	1,597	1,570	1,377	1,371	1,381	1,283	1,426
06-10	1,300	1,421	1,402	1,418	1,541	1,451	1,502	1,368	1,328	1,305	1,226	1,369
10-15	2,273	2,362	2,338	2,359	2,509	2,356	2,432	2,318	2,357	2,422	2,327	2,584
15-18	935	982	1,023	1,050	1,127	1,032	995	909	929	997	965	1,043
18-22	945	982	1,021	1,107	1,174	1,079	1,046	966	955	966	896	999
22-24	486	517	525	553	592	542	528	472	470	478	452	507
Total	7,324	7,776	7,821	8,076	8,670	8,058	8,073	7,411	7,410	7,549	7,150	7,927

	Scenario-II : Monthly Supply for FY 2027-28											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	7,695	8,126	8,395	8,548	9,282	8,871	8,441	7,652	7,370	7,423	7,919	7,629
06-10	11,183	11,830	12,038	11,765	12,780	12,462	12,110	11,400	10,709	10,525	11,347	11,017
10-15	16,009	16,070	16,400	15,992	16,998	16,507	15,691	15,456	15,209	15,628	17,217	16,645
15-18	10,731	10,913	11,741	11,623	12,481	11,786	10,704	10,098	9,992	10,717	11,884	11,185
18-22	7,876	7,923	8,519	8,930	9,470	8,996	8,435	8,049	7,698	7,793	8,289	8,013
22-24	8,098	8,331	8,755	8,921	9,548	9,038	8,511	7,870	7,585	7,706	8,367	8,122

	Scenario-II : Monthly Supply for FY 2027-28											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,385	1,511	1,511	1,590	1,726	1,597	1,570	1,377	1,371	1,381	1,330	1,419
06-10	1,342	1,467	1,445	1,459	1,585	1,495	1,502	1,368	1,328	1,305	1,271	1,366
10-15	2,401	2,491	2,460	2,479	2,635	2,476	2,432	2,318	2,357	2,422	2,410	2,580
15-18	966	1,015	1,057	1,081	1,161	1,061	995	909	929	997	998	1,040
18-22	945	982	1,022	1,107	1,174	1,079	1,046	966	955	966	928	994
22-24	486	517	525	553	592	542	528	472	470	478	469	504
Total	7,525	7,983	8,020	8,269	8,873	8,251	8,073	7,411	7,410	7,549	7,407	7,903

	Scenario-II : Monthly Supply for FY 2028-29											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	7,695	8,126	8,395	8,548	9,282	8,871	8,441	7,652	7,370	7,423	7,640	7,667
06-10	11,183	11,830	12,038	11,765	12,780	12,462	12,110	11,400	10,709	10,525	10,949	11,039
10-15	16,009	16,070	16,400	15,992	16,998	16,507	15,691	15,456	15,209	15,628	16,620	16,670
15-18	10,731	10,913	11,741	11,623	12,481	11,786	10,704	10,098	9,992	10,717	11,489	11,211
18-22	7,876	7,923	8,519	8,930	9,470	8,996	8,435	8,049	7,698	7,793	8,002	8,057
22-24	8,098	8,331	8,755	8,921	9,548	9,038	8,511	7,870	7,585	7,706	8,070	8,176

	Scenario-II : Monthly Supply for FY 2028-29											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	1,385	1,511	1,511	1,590	1,726	1,597	1,570	1,377	1,371	1,381	1,283	1,426
06-10	1,342	1,467	1,445	1,459	1,585	1,495	1,502	1,368	1,328	1,305	1,226	1,369
10-15	2,401	2,491	2,460	2,479	2,635	2,476	2,432	2,318	2,357	2,422	2,327	2,584
15-18	966	1,015	1,057	1,081	1,161	1,061	995	909	929	997	965	1,043
18-22	945	982	1,022	1,107	1,174	1,079	1,046	966	955	966	896	999
22-24	486	517	525	553	592	542	528	472	470	478	452	507
Total	7,525	7,983	8,020	8,269	8,873	8,251	8,073	7,411	7,410	7,549	7,150	7,927

Annexure-C11 : Surplus/(Deficit) for Scenario-I: Normative Performance of Supply Vs BAU Demand for 5th CP

	Scenario-I: (Surplus)/Deficiet for FY 2024-25											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	198	850	583	1,749	1,450	1,324	1,495	953	1,785	1,625	822	578
06-10	-280	833	414	1,138	476	572	2,057	1,127	1,073	49	-410	213
10-15	-307	481	510	1,729	931	903	3,346	3,088	3,298	2,469	2,192	2,600
15-18	-621	-139	60	1,525	879	769	1,578	869	1,386	1,107	526	635
18-22	14	130	11	1,089	596	149	228	24	688	688	248	393
22-24	-86	252	92	1,346	954	774	980	907	1,859	1,820	1,088	635

	Scenario-I: (Surplus)/Deficiet for FY 2024-25											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	35	159	105	325	270	239	278	171	332	302	139	108
06-10	-33	103	49	141	59	69	255	135	133	6	-46	27
10-15	-46	75	76	268	145	135	519	463	511	382	307	403
15-18	-56	-13	6	142	82	69	147	78	129	103	45	60
18-22	2	16	2	135	74	18	28	3	86	85	28	49
22-24	-5	16	5	84	59	46	61	54	115	113	61	39
Total	-103	355	243	1,095	689	576	1,287	904	1,306	992	533	685

	Scenario-I: (Surplus)/Deficiet for FY 2025-26											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-117	463	1,019	1,667	1,924	1,487	1,146	715	1,111	900	69	-776
06-10	208	1,338	1,831	1,861	1,909	1,678	2,585	1,640	896	-373	-769	-811
10-15	1,578	2,231	3,278	3,720	3,682	3,234	4,992	4,835	4,545	3,623	3,419	3,001
15-18	-99	337	1,561	2,321	2,348	1,773	1,790	1,158	1,209	1,050	592	-144
18-22	-379	-342	425	955	1,054	261	-300	-316	-193	-217	-655	-1,117
22-24	-428	-179	560	1,254	1,452	928	575	647	1,155	1,082	315	-785

	Scenario-I: (Surplus)/Deficiet for FY 2025-26											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-21	86	183	310	358	268	213	129	207	167	11	-145
06-10	25	166	219	231	237	201	321	197	111	-46	-86	-100
10-15	237	346	492	576	571	485	774	725	705	561	478	465
15-18	-9	32	141	216	219	159	167	104	112	97	50	-14
18-22	-45	-43	51	118	131	31	-37	-38	-24	-27	-74	-138
22-24	-25	-11	34	77	90	56	35	39	72	67	17	-49
Total	161	576	1,121	1,529	1,604	1,200	1,472	1,155	1,182	821	398	19

	Scenario-I: (Surplus)/Deficiet for FY 2026-27											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-574	-7	563	1,258	1,592	1,170	870	358	735	506	-666	-1,252
06-10	521	1,743	2,212	2,188	2,352	2,204	2,439	1,345	525	-855	-1,690	-1,323
10-15	3,262	3,859	4,902	5,294	5,392	4,946	5,145	4,869	4,588	3,597	2,748	2,897
15-18	251	710	2,036	2,744	2,893	2,222	1,581	839	879	740	-160	-545
18-22	-929	-907	-125	444	609	-185	-737	-808	-723	-746	-1,528	-1,705
22-24	-933	-707	45	796	1,072	562	251	263	753	672	-456	-1,298

	Scenario-I: (Surplus)/Deficiet for FY 2026-27											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-103	-1	102	234	296	210	161	65	136	94	-61	-233
06-10	62	216	265	272	292	265	302	162	65	-106	-142	-164
10-15	489	598	736	820	836	742	798	730	711	558	471	449
15-18	23	66	183	255	269	200	147	76	81	69	23	-51
18-22	-112	-113	-15	55	75	-22	-92	-97	-90	-92	-135	-212
22-24	-56	-44	3	49	66	34	16	16	46	42	-8	-81
Total	303	723	1,273	1,685	1,834	1,429	1,333	951	952	564	147	-291

	Scenario-I: (Surplus)/Deficiet for FY 2027-28											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-1,139	-563	25	754	1,064	642	350	-145	272	26	-613	-1,845
06-10	15	1,307	1,783	1,746	1,873	1,760	1,643	523	-306	-1,773	-1,827	-2,301
10-15	3,094	3,710	4,792	5,207	5,272	4,820	4,240	3,962	3,680	2,583	2,871	1,753
15-18	-210	274	1,664	2,388	2,516	1,804	856	106	157	-43	-177	-1,453
18-22	-1,605	-1,584	-785	-206	-68	-886	-1,438	-1,488	-1,373	-1,403	-1,600	-2,456
22-24	-1,570	-1,344	-570	218	472	-38	-334	-282	258	164	-406	-1,969

	Scenario-I: (Surplus)/Deficiet for FY 2027-28											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-205	-105	5	140	198	115	65	-26	50	5	-161	-343
06-10	2	162	214	216	232	211	204	63	-38	-220	-262	-286
10-15	464	575	719	807	817	723	658	594	571	401	324	272
15-18	-18	25	149	222	234	163	80	10	14	-4	-55	-135
18-22	-192	-196	-94	-25	-8	-106	-179	-178	-170	-174	-224	-304
22-24	-94	-83	-34	13	29	-2	-21	-17	16	10	-43	-122
Total	-45	378	959	1,374	1,502	1,104	807	445	443	18	-420	-918

	Scenario-I: (Surplus)/Deficiet for FY 2028-29											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-1,750	-1,164	-557	208	492	70	-213	-690	-230	-493	-1,495	-2,496
06-10	-906	436	933	915	978	882	783	-366	-1,204	-2,765	-3,306	-3,372
10-15	1,992	2,653	3,796	4,275	4,269	3,822	3,262	2,982	2,699	1,486	1,058	516
15-18	-1,081	-574	858	1,644	1,720	1,008	72	-687	-624	-889	-1,532	-2,428
18-22	-2,341	-2,321	-1,507	-916	-805	-1,645	-2,197	-2,223	-2,076	-2,113	-2,671	-3,244
22-24	-2,259	-2,032	-1,236	-408	-176	-686	-967	-870	-278	-385	-1,344	-2,670

	Scenario-I: (Surplus)/Deficiet for FY 2028-29											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-315	-217	-100	38	92	12	-40	-124	-43	-92	-251	-465
06-10	-108	54	112	113	121	106	97	-43	-149	-343	-370	-418
10-15	299	411	570	662	662	574	506	447	419	231	148	80
15-18	-97	-54	77	153	160	91	7	-61	-59	-83	-129	-226
18-22	-281	-288	-181	-113	-99	-198	-273	-266	-257	-262	-299	-403
22-24	-135	-126	-74	-26	-11	-41	-60	-52	-18	-24	-75	-166
Total	-639	-219	403	829	924	544	237	-101	-106	-573	-976	-1,596

Annexure-C12: Surplus/(Deficit) for Scenario-II: Actual Performance of Supply Vs BAU Demand for 5th CP

	Scenario-II : (Surplus)/Deficiet for FY 2024-25											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-966	-314	-581	585	286	160	331	-211	621	461	-342	-586
06-10	-1,444	-331	-750	-26	-688	-592	893	-37	-91	-1,115	-1,574	-950
10-15	-1,471	-683	-654	565	-233	-261	2,182	1,924	2,134	1,305	1,028	1,437
15-18	-1,785	-1,303	-1,104	361	-285	-395	414	-295	222	-57	-638	-529
18-22	-1,150	-1,034	-1,153	-75	-568	-1,015	-936	-1,140	-476	-476	-916	-771
22-24	-1,250	-912	-1,072	182	-209	-390	-184	-257	695	656	-76	-529

	Scenario-II : (Surplus)/Deficiet for FY 2024-25											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-174	-58	-105	108	53	29	62	-38	115	86	-57	-109
06-10	-173	-41	-90	-4	-85	-71	110	-5	-12	-139	-176	-118
10-15	-221	-106	-98	88	-36	-39	338	289	331	202	144	222
15-18	-161	-122	-99	34	-26	-36	38	-27	21	-5	-53	-49
18-22	-138	-129	-138	-9	-71	-122	-116	-137	-59	-59	-103	-95
22-24	-75	-56	-64	12	-13	-23	-11	-16	43	41	-4	-33
Total	-941	-511	-595	229	-177	-262	421	66	440	126	-249	-181

	Scenario-II : (Surplus)/Deficiet for FY 2025-26											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-1,281	-701	-145	503	760	323	-18	-449	-53	-264	-1,095	-1,940
06-10	-956	174	667	697	746	514	1,421	476	-268	-1,537	-1,933	-1,975
10-15	414	1,067	2,115	2,556	2,518	2,070	3,828	3,671	3,381	2,459	2,255	1,837
15-18	-1,263	-827	397	1,157	1,184	609	626	-6	46	-114	-572	-1,308
18-22	-1,543	-1,506	-739	-209	-110	-903	-1,464	-1,480	-1,357	-1,381	-1,819	-2,281
22-24	-1,592	-1,343	-604	90	288	-235	-588	-517	-9	-82	-849	-1,949

	Scenario-II : (Surplus)/Deficiet for FY 2025-26											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-230	-131	-26	93	141	58	-3	-81	-10	-49	-184	-361
06-10	-115	21	80	87	92	62	176	57	-34	-191	-217	-244
10-15	62	165	317	396	390	310	593	550	524	381	315	285
15-18	-114	-77	36	107	110	54	58	-1	4	-11	-48	-122
18-22	-185	-187	-89	-26	-13	-108	-181	-178	-168	-171	-204	-283
22-24	-95	-83	-36	5	18	-14	-37	-31	0	-5	-48	-121
Total	-677	-290	282	663	738	362	606	317	316	-45	-384	-847

	Scenario-II : (Surplus)/Deficiet for FY 2026-27											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-1,738	-1,171	-601	94	428	6	-294	-806	-429	-658	-1,790	-2,416
06-10	-643	579	1,049	1,024	1,188	1,040	1,275	182	-638	-2,019	-2,814	-2,487
10-15	2,098	2,695	3,738	4,130	4,228	3,782	3,981	3,705	3,424	2,433	1,624	1,733
15-18	-913	-454	872	1,580	1,729	1,058	417	-325	-285	-424	-1,284	-1,709
18-22	-2,093	-2,071	-1,289	-720	-555	-1,349	-1,901	-1,972	-1,887	-1,910	-2,652	-2,869
22-24	-2,097	-1,871	-1,119	-367	-92	-602	-913	-901	-411	-492	-1,579	-2,462

	Scenario-II : (Surplus)/Deficiet for FY 2026-27											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-313	-218	-108	18	79	1	-55	-145	-80	-122	-257	-449
06-10	-78	72	126	127	147	125	158	22	-79	-250	-273	-308
10-15	314	417	561	640	655	567	617	555	530	377	308	269
15-18	-82	-43	78	147	160	95	38	-29	-27	-39	-75	-159
18-22	-251	-257	-155	-89	-69	-162	-236	-237	-234	-237	-266	-356
22-24	-126	-116	-67	-23	-6	-36	-56	-54	-26	-30	-73	-153
Total	-535	-143	435	819	968	591	467	113	86	-302	-635	-1,157

	Scenario-II : (Surplus)/Deficiet for FY 2027-28											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-2,303	-1,727	-1,139	-410	-100	-522	-814	-1,309	-892	-1,138	-1,818	-3,053
06-10	-1,149	143	619	582	709	596	479	-640	-1,469	-2,937	-3,033	-3,497
10-15	1,930	2,546	3,628	4,043	4,108	3,656	3,076	2,798	2,516	1,419	1,666	562
15-18	-1,374	-890	500	1,224	1,352	640	-308	-1,058	-1,007	-1,207	-1,382	-2,642
18-22	-2,769	-2,748	-1,948	-1,370	-1,232	-2,050	-2,602	-2,652	-2,537	-2,567	-2,806	-3,651
22-24	-2,734	-2,508	-1,734	-945	-692	-1,202	-1,498	-1,446	-906	-1,000	-1,611	-3,174

	Scenario-II : (Surplus)/Deficiet for FY 2027-28											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-415	-322	-205	-76	-19	-94	-151	-236	-166	-211	-364	-568
06-10	-138	18	75	72	88	71	60	-77	-182	-364	-397	-434
10-15	289	395	544	627	637	548	477	419	390	220	155	87
15-18	-123	-83	45	114	126	58	-29	-95	-94	-112	-156	-246
18-22	-332	-341	-234	-170	-153	-246	-323	-318	-314	-319	-359	-452
22-24	-164	-155	-104	-59	-43	-72	-93	-87	-56	-62	-110	-196
Total	-883	-488	121	508	636	266	-59	-393	-423	-848	-1,230	-1,809

	Scenario-II : (Surplus)/Deficiet for FY 2028-29											in MW
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-2,914	-2,328	-1,721	-956	-672	-1,094	-1,377	-1,854	-1,394	-1,657	-2,659	-3,660
06-10	-2,070	-728	-231	-249	-186	-282	-381	-1,529	-2,367	-3,929	-4,470	-4,536
10-15	828	1,489	2,632	3,111	3,105	2,658	2,098	1,818	1,535	322	-106	-648
15-18	-2,245	-1,738	-306	480	556	-156	-1,092	-1,851	-1,788	-2,053	-2,696	-3,592
18-22	-3,505	-3,485	-2,670	-2,080	-1,969	-2,809	-3,361	-3,387	-3,240	-3,277	-3,835	-4,408
22-24	-3,423	-3,196	-2,400	-1,571	-1,340	-1,850	-2,131	-2,034	-1,442	-1,549	-2,508	-3,834

	Scenario-II : (Surplus)/Deficiet for FY 2028-29											in MU
Year/ToD	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
00-06	-525	-434	-310	-178	-125	-197	-256	-334	-259	-308	-447	-681
06-10	-248	-90	-27	-31	-23	-34	-47	-183	-293	-487	-501	-562
10-15	124	231	395	482	482	399	325	272	238	50	-15	-100
15-18	-202	-162	-27	45	52	-14	-102	-166	-167	-191	-227	-334
18-22	-421	-433	-321	-258	-244	-338	-417	-406	-401	-407	-430	-547
22-24	-205	-198	-144	-98	-83	-111	-132	-122	-90	-96	-140	-238
Total	-1,477	-1,085	-435	-37	58	-294	-629	-939	-972	-1,439	-1,758	-2,462

Annexure- D1: Fillings: Parameters used by APDiscoms to determine No.of PTRs , DTRs & Lines

Average Lengths as on 31st March 2023	LT	11kV	33 kV	Projections for DTR/PTR ratio	Forecasting of PTR Diversity Factor
	Km per 100 KVA DTR	Km per 100 KVA DTR	Km per 5 MVA PTR		
	SPDCL				
Nellore	0.22	0.22	5.14	1.27	3.69
Tirupati	0.21	0.21	5.01	1.16	2.56
Kadapa	0.19	0.18	4.06	1.25	3.92
Anantapur	0.21	0.21	6.09	1.66	2.57
Kurnool	0.27	0.27	6.3	1.41	3.31
	CPDCL				
Vijayawada	0.29	0.29	4.86	1.37	2.79
Guntur	0.29	0.29	5.05	1.21	2.86
Ongole	0.19	0.29	8.35	1.53	3.2
	EPDCL				
Srikakulam	0.46	0.46	13.26	1.31	2.64
Vizianagaram	0.4	0.4	7.59	1.39	3.06
Visakhapatnam	0.31	0.31	7.9	1.54	2.44
Rajahmundry	0.2	0.2	7.13	1.42	2.36
Eluru	0.2	0.2	6.78	1.3	2.52

Parameters considered by the Commission - No.of PTRs , DTRs & Lines

Average Lengths as on 31st March 2023	LT	11kV	33 kV	Projections for DTR/PTR ratio	Forecasting of PTR Diversity Factor
	Km per 100 KVA DTR	Km per 100 KVA DTR	Km per 5 MVA PTR		
	SPDCL				
Nellore	0.2	0.2	5	1.25	2
Tirupati	0.2	0.2	5	1.25	2
Kadapa	0.2	0.2	5	1.25	2
Anantapur	0.2	0.2	5	1.25	2
Kurnool	0.2	0.2	5	1.25	2
	CPDCL				
Vijayawada	0.25	0.29	5	1.21	2
Guntur	0.25	0.29	5	1.21	2
Ongole	0.25	0.29	5	1.21	2
	EPDCL				
Srikakulam	0.25	0.25	5	1.15	2
Vizianagaram	0.25	0.25	5	1.15	2
Visakhapatnam	0.25	0.25	5	1.15	2
Rajahmundry	0.25	0.25	5	1.15	2
Eluru	0.25	0.25	5	1.15	2

Annexure- D2: No. of PTRs , DTRs & Lines -APSPDCL

Particulars	Fillings						Approved					
	FY25	FY26	FY27	FY28	FY29	5 th CP	FY25	FY26	FY27	FY28	FY29	5 th CP
	Nellore						Nellore					
33/11 kV SS	28	30	32	34	36	**160**	15	16	17	18	19	**85**
DTRs	1,760	1,860	1,970	2,090	2,220	**9,900**	940	990	1,050	1,110	1,180	**5,270**
33 kV	144	149	159	170	180	**801**	38	40	43	45	48	**213**
11kV	390	412	436	463	492	**2,192**	188	198	210	222	236	**1,054**
LT	390	412	436	463	492	**2,192**	188	198	210	222	236	**1,054**
	Tirupati						Tirupati					
33/11 kV SS	44	46	50	52	56	**248**	34	36	39	41	44	**194**
DTRs	2,530	2,690	2,160	3,000	3,200	**13,580**	2,140	2,270	1,820	2,530	2,700	**11,460**
33 kV	220	230	245	261	281	**1,237**	85	90	98	103	110	**485**
11kV	523	556	447	620	662	**2,808**	428	454	364	506	540	**2,292**
LT	523	556	447	620	662	**2,808**	428	454	364	506	540	**2,292**
	Kadapa						Kadapa					
33/11 kV SS	48	40	42	44	48	**222**	25	20	21	23	24	**113**
DTRs	2,140	2,370	2,530	2,710	2,920	**12,670**	1,090	1,210	1,290	1,390	1,490	**6,470**
33 kV	195	158	166	178	195	**892**	63	50	53	58	60	**283**
11kV	380	421	449	481	518	**2,249**	218	242	258	278	298	**1,294**
LT	407	450	481	515	555	**2,407**	218	242	258	278	298	**1,294**
	Anantapur						Anantapur					
33/11 kV SS	40	34	38	36	40	**188**	31	26	29	28	30	**144**
DTRs	2,100	2,690	2,990	2,970	3,140	**13,890**	1,230	1,570	1,750	1,740	1,840	**8,130**
33 kV	244	201	225	219	237	**1,126**	78	65	73	70	75	**360**
11kV	434	556	619	614	650	**2,874**	246	314	350	348	368	**1,626**
LT	434	556	619	614	650	**2,874**	246	314	350	348	368	**1,626**
	Kurnool						Kurnool					
33/11 kV SS	36	28	28	30	32	**154**	22	16	17	18	20	**93**
DTRs	1,730	1,820	1,930	2,050	2,690	**10,220**	930	980	1,040	1,100	1,440	**5,490**
33 kV	227	170	176	189	202	**963**	55	40	43	45	50	**233**
11kV	460	484	514	546	716	**2,720**	186	196	208	220	288	**1,098**
LT	460	484	514	546	716	**2,720**	186	196	208	220	288	**1,098**

Annexure- D3: No.of PTRs , DTRs & Lines - APCPDCL

Particulars	Fillings						Approved					
	FY25	FY26	FY27	FY28	FY29	5 th CP	FY25	FY26	FY27	FY28	FY29	5 th CP
	Vijayawada						Vijayawada					
33/11 kV SS	30	32	34	36	38	**170**	21	23	24	25	27	**120**
DTRs	2,170	2,280	2,410	2,540	2,700	**12,100**	1,370	1,440	1,520	1,610	1,710	**7,650**
33 kV	146	156	160	170	185	**817**	53	58	60	63	68	**300**
11kV	632	664	702	740	787	**3,526**	397	418	441	467	496	**2,219**
LT	632	664	702	740	787	**3,526**	343	360	380	403	428	**1,913**
	Guntur						Guntur					
33/11 kV SS	28	30	30	34	34	**156**	19	20	21	23	24	**107**
DTRs	1,460	1,530	1,620	1,770	1,820	**8,200**	1,030	1,080	1,140	1,240	1,280	**5,770**
33 kV	136	146	151	167	172	**772**	48	50	53	58	60	**268**
11kV	420	440	466	509	523	**2,356**	299	313	331	360	371	**1,673**
LT	420	440	466	509	523	**2,356**	258	270	285	310	320	**1,443**
	Ongole						Ongole					
33/11 kV SS	26	30	30	32	34	**152**	16	19	18	20	20	**93**
DTRs	1,860	2,230	2,100	2,220	2,370	**10,780**	920	1,100	1,040	1,090	1,170	**5,320**
33 kV	209	250	242	267	275	**1,244**	40	48	45	50	50	**233**
11kV	548	658	619	655	699	**3,179**	267	319	302	316	339	**1,543**
LT	353	424	399	422	450	**2,048**	230	275	260	273	293	**1,330**

Annexure- D4 : No. of PTRs , DTRs & Lines - APEPDCL

Particulars	Fillings						Approved					
	FY25	FY26	FY27	FY28	FY29	5 th CP	FY25	FY26	FY27	FY28	FY29	5 th CP
	Srikakulam						Srikakulam					
33/11 kV SS	15	16	17	18	19	**85**	9	9	10	10	10	**50**
DTRs	750	750	720	810	880	**3,910**	500	500	480	540	580	**2,600**
33 kV	146	146	159	159	172	**782**	38	38	42	42	42	**200**
11kV	343	343	329	370	402	**1,787**	125	125	120	135	145	**650**
LT	343	343	329	370	402	**1,787**	125	125	120	135	145	**650**
	Vizianagaram						Vizianagaram					
33/11 kV SS	14	17	16	16	16	**79**	7	8	7	8	8	**40**
DTRs	850	810	910	820	860	**4,250**	460	440	490	440	470	**2,300**
33 kV	68	83	76	83	83	**394**	29	33	29	33	33	**158**
11kV	343	327	368	331	347	**1,717**	115	110	123	110	118	**575**
LT	343	327	368	331	347	**1,717**	115	110	123	110	118	**575**
	Visakhapatnam						Visakhapatnam					
33/11 kV SS	32	35	36	37	39	**179**	21	22	24	24	26	**117**
DTRs	1,850	2,400	2,170	2,130	2,320	**10,870**	1,130	1,470	1,330	1,310	1,430	**6,670**
33 kV	166	174	197	197	213	**948**	83	88	96	96	104	**467**
11kV	571	740	669	657	716	**3,353**	283	368	333	328	358	**1,668**
LT	571	740	669	657	716	**3,353**	283	368	333	328	358	**1,668**
	Rajamahendravaram						Rajamahendravaram					
33/11 kV SS	36	37	37	38	39	**187**	27	29	29	29	31	**146**
DTRs	2,560	2,780	2,340	2,900	2,600	**13,180**	1,760	1,910	1,610	1,990	1,790	**9,060**
33 kV	200	214	214	214	235	**1,077**	108	117	117	117	125	**583**
11kV	522	567	477	591	530	**2,688**	440	478	403	498	448	**2,265**
LT	522	567	477	591	530	**2,688**	440	478	403	498	448	**2,265**
	Eluru						Eluru					
33/11 kV SS	61	68	71	69	73	**342**	40	44	45	47	50	**225**
DTRs	3,100	3,460	3,530	4,360	4,040	**18,490**	2,190	2,440	2,490	3,070	2,840	**13,030**
33 kV	305	346	353	366	400	**1,770**	158	175	179	188	200	**900**
11kV	631	704	718	887	822	**3,761**	548	610	623	768	710	**3,258**
LT	631	704	718	887	822	**3,761**	548	610	623	768	710	**3,258**

Annexure- D5 : APERC Letter dated 11.10.2023 to Utilities

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION
#11-4-660, 4th Floor, Singareni Bhavan, Red Hills, Khairatabad
Hyderabad 500 004 Phones: 23397 - 381, 399, 556, 656 Fax: 2339 7378

Lr. No. APERC/F.No. E-3005/DD(P&PP)/D.No.1525/23 Date:11 -10-2023

Sir,

Sub:	APERC - The load forecasts and resource plans for the 5th and 6th control periods - Abnormal rise in cost of materials/works- Reasons - Requested- Reg

* * * * *

The commission has examined the rates filed by the DISCOMs' in the load forecasts and resource plans for the 5th and 6th control periods for the items indicated in the following table and observed an abnormal increase in rates as compared to the rates approved by the Commission for the 4th Control period.

(Figures in Rs.in Lakhs)

Description	Unit	4th Control Period (Approved)	5th Control Period Fillings					
			EPDCL	%	SPDCL	%	CPDCL	%
LT Line	Per Km	2.85	8.34	192.63	7.86	175.79	6.99	145.26
DTR (100 kVA)	Each	2.5	5.58	123.20	5.59	123.60	5.08	103.20
11 kV Line	Per Km	3.08	12.34	300.65	6.82	121.43	8.03	160.71
33/11kV SS (5 MVA) (outdoor)	Each	130.91	221.92	69.52	244.55	86.81	251.00	91.73
33 kV Line	Per Km	4.62	14.25	208.44	10.55	128.35	13.81	198.92
5.0 MVA PTR	Each	.....	96.62		103.88		102.00	

In this regard, I am directed to inform you to submit the detailed reasons and the justification for the abnormal increase in rates, item-wise which shall include the share of material and labour cost for each item, the percentage increase in material and labour costs each year over the years since FY 2019-20 vis-a-vis the rates approved in the Resource Plans for the 4th control period and the actuals. The DISCOMs are also directed to submit a comparative statement of the above rates vis-a-vis the rates of the DISCOMs in neighbouring states such as Tamilnadu, Karnataka and Telangana with supporting material.

Further, DISCOMS shall also submit the Capital Investments made for 4th Control period and projected investments for 5th & 6th control period as per the formats enclosed to this letter.

The reply shall be submitted to the Commission within one week from the date of receipt of this letter.

Enclosure: Formats.

(By Order of the Commission)

Yours faithfully,

Commission Secretary$_{(i/c)}$

To

The Chairman & Managing Director/APCPDCL/Vijayawada.
The Chairman & Managing Director/APEPDCL/Visakhapatnam.
The Chairman & Managing Director/APSPDCL/Tirupati.
The Chairman & Managing Director/ APTRANSCO/Vijayawada.

Annexure- D6 : Reply furnished by the SPDCL-Cost Data Variations

SOUTHERN POWER DISTRIBUTION COMPANY OF A.P. LIMITED

19-13-65/A, Vidyut Nilayam, Srinivasapuram, Tirupati (www.apspdcl.in)

From
The Chief General Manager,
RAC & IPC, APSPDCL, 19-13-65/A,
Vidyut Nilayam, Srinivasapuram,
Tirupati – 517501.

To
The Secretary,
APERC, 11-4-660,
4th Floor, Singareni Bhavan,
Red Hills, Hyderabad-04.

Lr..No. CGM/RAC&IPC/GM/RAC/SPDCL/F.No.APERC/D.No.377 /23, dt.06-11-2023

Sir,

Sub:- RAC – The Load Forecast and resource plans for the 5th and 6th control periods – Abnormal rise in the cost of materials / works – Reasons - Submitted – Regarding

Ref:- Lr.No.APERC/F.No. E-3005/DD(P&PP/D.No.1562/23,dt.01-11-2023

***

In response to the reference cited, the reasons for abnormal increase in cost of material / works each year from FY 2019-20 vis a vis latest rates approved in resource plan for 4th control period and actuals and also comparative statement with rates in DISCOMs in neighboring States such as Tamilnadu, Karnataka & Telangana with supporting material is enclosed. The actuals in respect of lines, DTRs, PTRs, Substations etc., erected and their cost in each year of the control period under various schemes is enclosed.

Yours faithfully,

Chief General Manager
RAC & IPC

Encl:- As above

DESPATCHED
DATE 6/11

Si.No	Description of the Work	Cost during the 4th CP	Cost proposed in the 5th CP filings	Comparison of the materials approved in 4th control period and the materials proposed in 5th control period.		Remarks
1	Erection of LT line 3Ph 5W /KM	2.85	7.86	In the 4th control period the LT Line was proposed over 8.0Mts PSCC Poles (200Kgs) of poles cost Rs.1995.00 (each).	In the proposals of 5th control period the LT Line was proposed over 9.1Mts PSCC Poles (280 Kgs) of pole cost Rs. 4910.00	On proposing 9.1Mts PSCC Pole in place of 8.0Mts PSCC Poles there is an increase in cost by 146% with respect to 4th control period. 9.1Mts PSCC Poles were provided in place of 8.0Mts PSCC Poles to provide proper ground clearance in Towns and Municipal arrears as road level are raised.
				In the 4th control period the LT 3Ph 5W line was proposed with 55Sq.mm conductor for 3W and 34Sq.mm conductor for 2W	In the proposals of 5th control period the LT 3Ph 5W line was proposed with 55Sq.mm conductor for total 5 Wires as revised instructions.	As 55Sq.mm conductor was proposed totally for 5 Wires there is in increase in rate of 228% with respect to 4th control period
				55Sq.mm AAA Conductor Cost Rs.29490.00/KM	55Sq.mm AAA conductor Cost Rs.58117.95/KM	97% Increase in cost of conductor with respect to 4th control period. Due to increase in the rates of Aluminium and labour charges, the Cost of 55Sq.mm conductor increased.
				34Sq.mm AAA Conductor Cost Rs.17685.00/KM	Memo.No.CGM/O/DE/Comml/F.Circulars/D.No.919/13, Dt:10.09.2013 With respect to the reference cited above, the LT lines are proposed with 55Sq.mm conductor in place of 34 Sq.mm conductor in all Towns, Municipalities & Corporations	**LT 3Ph 5 Wire line is proposed mostly in Municipal Corporations and Towns in thickly populated areas where conductor carrying capacity required is to be more. Hence, 55Sq.mm AAA conductor is proposed to avoid accidents due to snapping of conductor and reduce no load losses.**
				LT 3Ph 5W Cross Arm Cost Rs.381.00/Each	LT 3Ph 5W Cross Arm Cost Rs.758.00/Each (As per rates	98% Increase in the cost of LT 3Ph 5W Cross arm with respect to 4th control period.

Si.No	Description of the Work	Cost during the 4th CP	Cost proposed in the 5th CP filings	Comparison of the materials approved in 4th control period and the materials proposed in 5th control period.		Remarks
					received from Purchase wing dated 13.10.2022)	
				Labour & Transport Charges Rs. 42613.00/KM	Labour & Transport Charges RS.131781.00/KM	209% Increase in Labour & Transport Charges.Due to Covid, the labour charges of Skilled, Semi Skilled and Unkilled was increased drastically and due to raise in petrol and diesel rates, the transportation charges also increased drastically.
2	Erection of 100KVA DTR	2.5	5.59	In the 4th control period 100KVA Amorphous DTR without any star rating of Cost. Rs.144150.00/ Each was proposed	In the 5th control period the 5 Star Rating DTR of Cost Rs.321799.14/Each was proposed (As per rates received from Purchase wing dated 24.08.2022)	123% Increase in the cost of the 100KVA DTR due to star rating and GST with respect to the 4th control period. 5 Star rating DTR's are proposed to reduce core losses and no load losses.
				In the 4th control period the cost of Plinth/Pillar mount erection was RS.11000.00	In the 5th control period the cost of Plinth/Pillar mount erection was proposed for Rs.30400.00 (As per rates received from Civil Wing)	176% Increase in the cost of the plinth due to increase in cost of cement and iron with respect to the 4th control period
				Labour & Transport Charges Rs.25292.00/DTR	Labour & Transport Charges Rs.45784.00/DTR	81% Increase in the labour and Transport Charges. In 4th control period only 2 Earth pipes were provided to the DTR. In the 5th & 6th control periods, 3 no earth pipes with 4mm GI flat is proposed to the 100KVA DTR to provide proper earthing and to safe guard the equipment.

Si.No	Description of the Work	Cost during the 4th CP	Cost proposed in the 5th CP filings	Comparison of the materials approved in 4th control period and the materials proposed in 5th control period.		Remarks
3	33KV line/KM	4.62	10.55	In the 4th control period the cost approved 4.62 Lakhs is for erection of 33KV line with 100Sq.mm AAA conductor over 9.1Mts PSCC Poles with a span length of 60Mts	In the 5th control period the 33KV line was proposed over 11.0Mts PSCC Poles with 100Sq.mm AAA conductor with a span length of 60Mts	**33KV Lines are proposed over 11.0Mts PSCC Poles to provide ground clearance and it is feasible to run double and triple ciruit over 11.0Mts PSCC Pole, which in turn reduces the additional burden on the department**
				9.1Mts PSCC Pole Cost Rs.3640.00 (each)	11.0Mts PSCC Pole Cost Rs.8500.00 (each)	133% Increase in the cost of pole (i.e., 9.1Mts PSCC Pole in 4th control peroid and 11.0Mts PSCC Pole proposed in 5th control period) with respect to the cost proposed in the 4th control period
				100Sq.mm AAA conductor cost Rs.50953.00/Km	100Sq.mm AAA conductor Cost Rs.77800.00/Km	52% Increase in the cost of 100 Sq.mm conductor with respect to the 4th control period
				33KV V-Xarm and 33KV Top Fitting Cost Rs. 1716.00 (each)	33KV V-Xarm and 33KV Top Fitting Cost Rs. 3127.00 (each)	82% Increase in the cost of the V-Xarms and Top Fittings with respect to the proposed cost in 4th control period
				Labour & Transport Charges Rs.63891.00/KM	Labour & Transport Charges Rs.194150.00/KM	203% Increase in labour and Transport Charges. Due to Covid, the labour charges of Skilled, Semi Skilled and Unkilled was increased drastically and due to raise in petrol and diesel rates, the transportation charges also increased drastically.
4	11KV line/KM	3.08	6.82	In the 4th control period the cost approved 3.08 Lakhs was for erection of 11KV line with 55 Sq.m conductor over 9.1Mts PSCC Poles with a span length of 60Mts, provided with 8No Stay Sets	In the 5th control period the 11KV line was proposed over 9.1Mts PSCC Poles with 55 Sq.mm conductor with a span length of 60Mts, provided 8.0Mts Strut poles in place of Stays.	**Due to rusting, the stays get damaged, resulting in loose spans which causes accidents. To avoid this 8.0Mts PSCC Poles are provided as strut poles in place of MS Stay Sets, which provide life to the line.**

Si.No	Description of the Work	Cost during the 4th CP	Cost proposed in the 5th CP filings	Comparison of the materials approved in 4th control period and the materials proposed in 5th control period.		Remarks
				9.1Mts PSCC Pole Cost Rs.3640.00 (each)	9.1Mts PSCC Pole Cost Rs.4910.00 (each)	34% Increase in the cost of the pole with respect to the 4th control period. Due to increase in rates of sand, cement and steel the poles cost increased.
				55Sq.mm conductor Cost Rs.29490.00/KM	55Sq.mm conductor cost Rs.58117.95/Km	97% increase in the cost of the 55 Sq.mm conductor with respect to the 4th control period.Due to increase in the rates of Aluminium and labour charges, the Cost of 55Sq.mm conductor increased.
				11KV V-X arm and 11KV Top Fitting Cost Rs. 814.00 (each)	11KV V-Xarm and 11KV Top Fitting Cost Rs.1563.00	92% Increase in the cost of V-Xarm and Top Fitting with respect to the 4th control period
				Labour & Transport Charges Rs.51538.00/KM	Labour & Transport Charges Rs.117550.00/KM	128% Increase in Labour & Transport Charges.Due to Covid, the labour charges of Skilled, Semi Skilled and Unkilled was increased drastically and due to raise in petrol and diesel rates, the transportation charges also increased drastically.
5	33/11KV Outdoor SS (5.0MVA)	130.91	244.55	Cost of 5.0MVA PTR 33.454 Lakhs (each)	Cost of 5.0MVA PTR 71.85 Lakhs (each)	114% Increase in the cost of PTR with respect to the 4th control period
				11KV Feeder VCB Rs.2.44 Lakhs (each)	11KV Feeder VCB Rs.3.381 Lakhs (each)	38% Increase in the cost of Feeder VCB with respect to the 4th control period
				LV VCB Rs.2.785 Lakhs (each)	LV VCB Rs.3.578 Lakhs (each)	28% Increase in the cost of LV VCB with respect to the 4th control period
				Structural Steel cost Rs.0.553 Lakhs/Ton	Structural Steel Cost Rs.0.75 Lakhs/Ton	35% Increase in the cost of Structural Steel with respect to the 4th control period. Providing of Structural Steel in place of 9.1Mts PSCC Poles increases the life of the Sub-Station and provide proper earthing to the Substation.
				2MVar Capacitor Bank Cost Rs.10.132 Lakhs (each)	2MVar Capacitor Bank Cost Rs.12.160 Lakhs (each)	20% Increase in the cost of capacitor bank with respec to the 4th control period

Si.No	Description of the Work	Cost during the 4th CP	Cost proposed in the 5th CP filings	Comparison of the materials approved in 4th control period and the materials proposed in 5th control period.		Remarks
				Labour and Transport Charges Rs.9.99 Lakhs	Labour and Transport Charges Rs.40.271 Lakhs	300% Increase in the labour and Transport Charges.Due to Covid, the labour charges of Skilled, Semi Skilled and Unkilled was increased drastically and due to raise in petrol and diesel rates, the transportation charges also increased drastically.
6	5.0MVA PTR Erection	40.07	103.88	Cost of 5.0MVA PTR 33.454 Lakhs (each)	Cost of 5.0MVA PTR 71.85 Lakhs (each)	114% Increase in the cost of PTR with respect to the 4th control period.
				In the 4th control period only 33KV HG Fuse Set was proposed as means of protection to the Power Transformer	In the proposals of 5th and 6th control period both 33KV HV VCB and LV VCB was proposed for protection of the power transformer	The Proposal of both 33KV HV VCB and 11KV LV VCB in the erection of additional 5.0MVA PTR led to increase in the cost of estimate by 10.10 Lakhs with respect to 4th control period.
				Cost of Steel Structure Rs.92880.00	cost of Steel Structure Rs.135316.00	45% Increase in the cost of Steel structure with respect to the 4th control period.
				Cost of 200Sq.mm ACSR Condutor Rs.132334.00	Cost of 200Sq.mm ACSR Conductor Rs.250000.00	89% Increase in the cost of 200Sq.mm ACSR Conductor with respect to the 4th control period.
				Plinth for PTR Rs.80000.00	Plinth for PTR & VCB Rs.177667.00	Due to increase in the rates of sand, steel and cement and also due to erection of 33KV HV VCB & 11KV LV VCB, the plinth cost increased by 122%
				Labour and Transport Charges Rs.48400.00	Labour and Transport Charges Rs.220000.00	354% Increase in the labour and Transport Charges.Due to Covid, the labour charges of Skilled, Semi Skilled and Unkilled was increased drastically, due to raise in petrol and diesel rates, the transportation charges also increased drastically and also due to proposal of 33KV HV VCB & 11KV LV VCB, the labour charges increased.

SPDCL COMPARISON OF COST DATA WITH NEIGHBOURING UTILITIES

Si. No	Description	Unit	APSPDCL (2022-23)	Telangana (2022-23)	Karnataka (2021-22)	Tamil Nadu (2021-22)	Remarks
1	LT Line	Per Km	7.86	5.04	5.31	5.56	1) In APSPDCL LT 3Ph 5W line is proposed over 9.1Mts PSCC Poles with 5x55Sq.mm AAA Conductor with a span length of 50Mts 2) In Telengana LT 3Ph 5W line is proposed over 8.0Mts PSCC Poles with (3x55+2x34) Sq.mm AAA Condutor. 3) In Karnataka LT 3Ph 5W line is proposed over 9.0Mts PSC Pole with 5x32.2Sq.mm ACSR Conductor 4) in Tamilnadu only LT 3Ph 4W is proposed over 8.0Mts PSCC Poles with 7/3.35 Sq.mm ACSR Conductor
2	DTR (100KVA)	Each	5.59	3.2	3.29	4.36	1) In APSPDCL DTR with 5 Star rating is proposed. The utilization of Star Rating DTR reduces the no load losses and also in APSPDCL, earthing is provided with 3No' CI pipes with 4mm GI Flat. 2) In Telangana & Karnataka Star rating is not mentioned. 3) In Tamilnadu 3 Star rating DTR is proposed
3	11KV Line	Per Km	6.82	5.29	4.31	7.57	1) In APSPDCL 11KV line is proposed over 9.1Mts PSCC Pole with 55Sq.mm AAA Conductor with a span length of 60Mts with 8.0Mts PSCC Poles as Strut Poles 2) In Karnataka 11KV line is proposed over 9.0Mts PCC Pole with Rabbit ACSR Conductor with a span length of 40Mts 3) In Tamilnadu 11KV line is proposed over 9.0Mt PSC Pole with 7/4.09mm Raccoon Conductor. 4) In Telangana 11KV line is proposed over 9.1Mts PSCC Pole with 55Sq.mm AAA Conductor with a span length of 60Mts with 8 No Stay Sets.
4	33/11KV SS (5MVA) (Outdoor)	Each	244.47	151.04			1) In APSPDCL, the 33KV & 11KV Bays are proposed with structural steel only. The utilization of Steel structures increases the life of the Sub-Station and provides proper earthing, which safeguards the equipment. 2) In Telengana the 33KV & 11KV Bay's are proposed with 9.1Mts & 8.0Mts PSCC Poles. 3) As per SSR 2022-23 of APSPDCL, the erection, transport and commissioning charges is 5 times greater than the charges in Telengana (i.e., 8.24 Lakhs in Telengana, whereas it is 40.271 Lakhs in APSPDCL).
5	33KV line	Per Km	10.55	8.76		10.45	1) In APSPDCL 33KV line is proposed over 11.0Mts PSCC poles with 100 Sq.mm AAA conductor. 2) In Telengana 33KV line is proposed over 9.1Mts PSCC Poles with 100Sq.mm conductor 3) In Tamilnadu 33KV line is proposed over 9.0Mts PSC Pole with Dog Conductor
6	5.0MVA PTR	Each	103.88	62.72			1) In APSPDCL the erection of 5.0MVA PTR is proposed duly proposing 1No 33KV HV VCB and 1No 11KV LV VCB 2) In Telangana 33KV HV VCB & 11KV LV VCB is not proposed in erection of 5.0MVA PTR

Annexure- D7: Reply furnished by the CPDCL-Cost Data Variations

ANDHRA PRADESH CENTRAL POWER DISTRIBUTION CORPORATION LIMITED
Dr. Y.S.R Vidyut Soudha, Corporate office, ITI Road, Vijayawada-520008

సదా మీసేవలో...

From:

Chief General Manager/RAC,
APCPDCL,
Corporate office,
Vijayawada – 520 008

To:

The Secretary,
APERC,
#11-4-660, 4th floor,
Singareni Bhavan, Red hills,
Hyderabad – 500 004

Lr.No.CGM/RAC/GM/PP&RAC/CP/RAC/VJA/F: 51/D.No.883/23, Dt:04-11-2023.

Sir,

Sub: APCPDCL - RAC – Load Forecast and Resource Plan for the 5th and 6th control period - Abnormal rise in cost of materials/works- Reasons for variations - Submitted– Regarding.

Ref: 1.Lr. No. APERC/F.No.E-3005/DD(P&PP)/D.No.1525/23 Dt.11-10-2023.
2. Lr. No. APERC/F.No.E-3005/DD(P&PP)/D.No.1562/23 Dt.01-11-2023.

***

With references to the above, APCPDCL is herewith submitting the reasons for variations for abnormal rise in cost of materials/works filed in Load Forecast and Resource Plan for the 5th and 6th control period.

Encl: As above

Yours faithfully,

4/11

Chief General Manager/RAC
APCPDCL, Vijayawada

Annexure-1

Description	Unit	4th Control Period(Approved)			5th Control Period(Filing)			Remarks
		Material	Labour	Total	Material	Labour	Total	
LT Line	**Per KM**	2,34,538	50,231	2,84,769	6,06,475	92,913	6,99,388	a)In the 4th control period,8 mt poles and 34sq.mm conductor was utilised whereas at present, 9.1 mts poles with 55sq.mm conductor are being utilised. b)Moreover, all the materials' costs in particular major materials such as conductor and poles' cost have increased.
DTR (100KVA)	**Each**	2,19,089	30,457	2,49,546	4,62,728	45,600	5,08,328	Five star rating transformers are being utilised for reducing no load losses .
11KV Line	**Per KM**	2,47,902	60,456	3,08,358	6,62,931	1,40,400	8,03,331	a)In the 4th control period,8 mt poles and 55 sq.mm conductor was utilised whereas at present, 9.1 mts poles with 100 sq.mm conductor are being utilised. b)Moreover, all the materials' costs have increased in particular major materials such as conductor and poles' cost have increased.
33KV Line	**Per KM**	3,87,218	75,600	4,62,818	11,42,095	2,38,800	13,80,895	a)In the 4th control period,9.1 mt poles and 100 sq.mm conductor was utilised whereas at present, minimum 11 mts spun poles or 12.5 mts poles are being used to maintain proper clearance where ever multiple networks are to be laid . b)150 sq.mm conductor is being utilised to reduce the line losses and to cater the ever increasing and upcoming demand on the network.
5MVA PTR	**Each**				**1,02,42,353**		**1,02,42,353**	This is inclusive of charges applicable @20% on PTR cost of Rs.85,35,294

Annexure 1(a)

DETAILS OF COST FOR ERECTION OF LT LINE /KM

4th Control Period(Approved)				5th Control Period(Filing)				
	Qty	Rate	Amount		Qty	Rate	Amount	
8 MTS 200KGS PSCC POLES	21	1,995	41895	9.1 MTS 280KGS PSCC POLES	22	4,910	108020	
8 MTS 200KGS PSCC POLES	0	1,995	0	8 MTS 200KGS PSCC POLES	2	3,450	6900	
LT 3 Ph. 5 Wire Cross Arms	21	381	8001	LT 3 Ph. 5 Wire Cross Arms	25	876	21889.5	
M.S.backClamps for 8 MPSCC Poles	21	72	1512	M.S.backClamps for 8 MPSCC Poles	25	100	2500	
M.S.Stay Clamps for 8 MPSCC Poles (SET)	4	319	1276	M.S.Stay Clamps for 8 MPSCC Poles (SET)	4	136.6	546.4	
AAA CONDUCTOR 55 SQ. MM(mts)	3060	29.49	90239.4	AAA CONDUCTOR 55 SQ. MM(mts)	3060	67.55	206703	
AAA CONDUCTOR 34 SQ. MM(mts)	2040	17.69	36087.6	AAA CONDUCTOR 55 SQ. MM(mts)	2040	67.55	137802	
LT SHACKLES	20	12	240	LT SHACKLES	48	40.5	1944	
LT METAL PARTS	20	32	640	LT METAL PARTS	48	59.6	2860.8	
LT PIN INSULATORS	76	14	1064	LT PIN INSULATORS	52	40.5	2106	
LT GI PINS	76	29	2204	LT GI PINS	52	37	1924	
MS BOLTS & NUTS,COIL EARTHING etc.			19536	MS BOLTS & NUTS,EARTHING etc.			12200	**% variation**
Total Material Cost			**202695**	**Total Material Cost**			**505395.7**	**149.34**
Labour			42613	**Labour**			77427.4	**81.70**
Charges applicable on materials			31843	Charges applicable on materials			101079.1	217.43
Charges applicable on labour			7618	Charges applicable on labour			15485.48	103.27
Total Cost			**284769**	**Total Cost**			**699387.7**	**145.60**

Annexure-1(b)

DETAILS OF COST FOR ERECTION OF 100KVA DTR

4th Control Period(Approved)				5th Control Period(Filing)				
Description of the material	**Qty**	**Rate**	**Amount**	**Description of the material**	**Qty**	**Rate**	**Amount**	
100KVA Amorphous DTR	1	1,44,150	144150	100KVA Amorphous DTR*****RATE	1	358000	358000	
11KV 200A TT AB Switch with insulators	1	8,322	8322	11KV 200A TT AB Switch with insulators	1	10450	10450	
11KV HG FUSE SET	1	2493	2493	11KV HG FUSE SET	1	2597	2597	
LT 3-PH HG FUSE SET	1	3460	3460	LT 3-PH HG FUSE SET	2	1977	3954	
11KV LIGHTNING ARRESTORS	1	4419	4419	LT XLPE CABLE 120SQ.MM	30	181	5430	
SP STRUCTURE	1	25546	25546	MOUNTING ARRANGEMENT	1	2176	2176	
MISC.ITEMS	1	480	480	MISC ITEMS		3000	3000	**%Variation**
Total Material Cost			**188870**	**Total Material Cost**			**385607**	**104.17**
Labour			**25292**	**Labour**			**38000**	**50.25**
Charges applicable on materials			30219	Charges applicable on materials			77121.4	
Charges applicable on labour			5165	Charges applicable on labour			7600	
TOTAL COST			**249546**	**TOTAL COST**			**508328.4**	**103.70**

Annexure-1(C)

DETAILS OF COST FOR ERECTION OF 11KV LINE /KM

4th Control Period(Approved)			
Description of material	**Qty**	**Rate**	**Amount**
9.1 MTS 280KGS PSCC POLES	18	3,640	65520
8 MTS 200KGS PSCC POLES			0
11KV V 'X' ARM WITH CLAMP FOR 9.1	15	533	7995
11KV TOP CLEAT WITH CLAMPS FOR 9.1	15	281	4215
11KV M.S Channel Cross Arm (Tapping) 75X40	4	545	2180
M.S.Back Clamps for 9.1 M PSCC Pole	4	100	400
M.S.Stay Clamps for 8 MPSCC Poles (SET)	8	448	3584
AAA CONDUCTOR 55 SQ. MM(km)	3.06	29490	90239.4
11KV Pin Insulators	48	54	2592
11KV GI pins	48	59	2832
11KV POLYMER DISC INSULATORS(C&T)	12	196	2352
11KV METAL PARTS(C&T)	12	82	984
MS Channel(kgs)	120	54	6480
MS Angle(kgs)	60	54	3240
GI Wire(kgs)	20	63	1260
MS BOLTS & NUTS ,Coil Earthing etc.			20362
Total Material Cost			**214235.4**
Labour			**51538**
Charges applicable on materials			33667
Charges applicable on labour			8918
Total Cost			**308358.4**

5th Control Period(Filing)				
Description of material	**Qty**	**Rate**	**Amount**	
9.1 MTS 280KGS PSCC POLES	22	4,910	108020	
9.1 MTS 280KGS PSCC POLES	4	4,910	19640	
11KV V 'X' ARM(75X40) WITH CLAMP FOR 9.1	22	1,094	24078.34	
11KV TOP CLEAT WITH CLAMPS FOR 9.1	22	467	10274.88	
11KV M.S Channel Cross Arm(Tapping)75X40	4	1,098	4392	
			0	
M.S.Stay Clamps for 8 MPSCC Poles (SET)	8	136.6	1092.8	
AAA CONDUCTOR 100 SQ. MM(mts)	3060	103	315180	
11KV Polymer Pin Insulators with GI pins	66	380	25080	
			0	
11KV POLYMER DISC INSULATORS(C&T)	12	280.2	3362.4	
11KV METAL PARTS(C&T)	12	180	2160	
MS Channel 100x50(kgs)	120	53.89	6466.8	
MS Angle 50x50x6(kgs)	80	53.89	4311.2	
MS Stay Sets	8	448	3584	
MS BOLTS & NUTS & Misc			24800	**% variation**
Total Material Cost			**552442.4**	**157.87**
Labour			**117000**	**127.02**
Charges applicable on materials			110488.5	
Charges applicable on labour			23400	
Total Cost			**803330.9**	**160.52**

Annexure-1(D)

DETAILS OF COST FOR ERECTION OF 33KV LINE /KM

4th Control Period(Approved)			
	Qty	**Rate**	**Amount**
9.1 MTS 280KGS PSCC POLES	19	3,640	69160
8 MTS 200KGS PSCC POLES			0
33KV VCross Arms without Clamps	16	1197	19152
33KV Top Cleat with Clamps	16	519	8304
33KV TAPING CHANNEL X ARMS	4	1112	4448
33KV M.S.Back Clamps	4	139	556
33KV MS STAY SET without clamps	8	525	4200
M.S.Stay Clamps for 8 MPSCC Poles (SET)	8	218	1744
AAA CONDUCTOR 100 SQ. MM(mts)	3060	50.953	155916
33KV PIN INSULATOR	51	387	19737
33KV GI PIN	51	163	8313
33KV POLYMER DISCINSULATOR	12	649	7788
33KV METAL PARTS(B&S)	12	180	2160
MS Channel for DP structure 100x50(kgs)	150	54	8100
MS Angle 50x50x6 for DP structure(kgs)	80	54	4320
GI wire(kgs)	20	63	1260
Misc. items ,coil earthing, pipe earthing etc.			19146
Total Material Cost			334304
Labour			63891
Charges applicable on materials			52914
Charges applicable on labour			11709
TOTAL COST			**462818**

5th Control Period(Filing)				
	Qty	**Rate**	**Amount**	
9.1 MTS 280KGS PSCC POLES	4	4910	19640	
12 MTS SPUN POLES	20	18450	369000	
33KV VCross Arms without Clamps	16	1026	16416	
33KV Top Cleat with Clamps	16	931	14896	
33KV TAPING CHANNEL X ARMS	4	2000	8000	
33KV M.S.Back Clamps	20	249	4980	
33KV MS STAY SET	4	800	3200	
33KV M.S.Stay Clamps	8	259	2072	
AAA CONDUCTOR 150 SQ. MM(mts)	3060	138.27	423106.2	
33KV POLYMER PIN INSULATOR WITH GI PIN	48	841.6	40396.8	
33KV POLYMER DISCINSULATOR	12	650	7800	
33KV METAL PARTS(B&S)	12	350	4200	
MS Channel for DP structure 100x50(kgs)	150	79.3	11895	
MS Angle 50x50x6 for DP structure(kgs)	80	79.3	6344	
Misc. items ,coil earthing, pipe earthing etc.			19800	**%Variation**
Total Material Cost			951746	**184.69**
Labour			199000	**211.47**
Charges applicable on materials			190349.2	
Charges applicable on labour			39800	
TOTAL COST			**1380895**	**198.37**

Annexure-1(E)

5th Control Period(Filing)

COST OF 5 MVA PTR

Description of the material	**Qty**	**Rate**	**Amount**
33/11 KV 5 MVA PTR	1	85,35,294	85,35,294
Charges applicable to material@20%			17,07,059
Total Material Cost			**1,02,42,353**

Annexure

Sl.No.	Description of the work	Cost during the 4 th control period (in Lakhs)	Cost during the 5 th control period filings (in Lakhs)	Comparision of the materials approved in the 4 th control period and the materials proposed in the 5 th control period		Remarks
				4 th Control Period	5 th Control Period	
1	33/11 KV Outdoor SS (5 MVA)	130.91	251	Cost of 5.0 MVA PTR 33.454 Lakhs (each)	Cost of 5.0 MVA PTR 89.15 Lakhs (each)	166 % Increase in the cost of PTR with respect to the 4 th control period due to abnormal increase of raw material cost and labour because of Covid pandemic.
				11 kV Feeder VCB Rs. 2.44 Lakhs (each)	11 kV Feeder VCB Rs. 3.505 Lakhs (each)	43 % Increase in the cost of Feeder VCB with respect to the 4 th control period due to increase of raw material cost and labour because of Covid pandemic.
				LV VCB Rs.2.785 Lakhs (each)	LV VCB Rs.3.578 Lakhs (each)	28 % Increase in the cost of LV VCB with respect to the 4 th control period due to increase of raw material cost and labour because of Covid pandemic.
				Structural Steel Cost Rs.0.553 lakhs/Ton	Structural Steel Cost Rs.0.747 lakhs/Ton	35 % Increase in the cost of Steel Structures with respect to the 4 th control period due to increase of raw material cost and labour because of Covid pandemic.
				2 MVAR Capacitor Bank Cost Rs. 10.132 Lakhs (each)	2 MVAR Capacitor Bank Cost Rs. 15.75 Lakhs (each)	55 % Increase in the cost of Capacitor Bank with respect to the 4 th control period due to increase of raw material cost and labour because of Covid pandemic.
				Labour and Transport Charges Rs. 9.99 Lakhs	Labour and Transport Charges Rs. 29.4 Lakhs	200% increase in the labour and transportation charges. The labour charges of Manpower is abnormally increased due to covid pandemic.The transportation charges are also increased drastically due to raise of petrol and Diesel rates.

COMPARISON OF COST DATA WITH NEIGHBOURING UTILITIES

Sl. No.	Description	Unit	APCPDCL (2022-23)	Telangana (2022-23)	Karnataka (2021-22)	Tamilnadu (2021-22)	Remarks
1	LT Line	Per Km/in Lakhs	6.99	5.04	5.31	5.56	1) In APCPDCL LT 3Ph 5W line is proposed over 9.1Mts PSCC Poles with 5x55Sq.mm AAA Conductor with a span length of 50Mts 2) In Telengana LT 3Ph 5W line is proposed over 8.0Mts PSCC Poles with (3x55+2x34) Sq.mm AAA Condutor. 3) In Karnataka LT 3Ph 5W line is proposed over 9.0Mts PSC Pole with 5x32.2Sq.mm ACSR Conductor 4) in Tamilnadu only LT 3Ph 4W is proposed over 8.0Mts PSCC Poles with 7/3.35 Sq.mm ACSR Conductor
2	DTR (100KVA)	Each/in Rs.Lakhs	5.08	3.2	3.29	4.36	1) In APCPDCL DTR with 5 Star rating is proposed. The utilization of Star Rating DTR reduces the no load losses and also in APCPDCL, earthing is provided with 3No' CI pipes with 4mm GI Flat. 2) In Telangana & Karnataka Star rating is not mentioned. 3) In Tamilnadu 3 Star rating DTR is proposed
3	11KV Line	Per Km/in Lakhs	8.03	5.29	4.31	7.57	1) In APCPDCL 11KV line is proposed over 9.1Mts PSCC Pole with 100Sq.mm AAA Conductor with 8.0Mts PSCC Poles as Strut Poles 2) In Karnataka 11KV line is proposed over 9.0Mts PCC Pole with Rabbit ACSR Conductor with a span length of 40Mts 3) In Tamilnadu 11KV line is proposed over 9.0Mt PSC Pole with 7/4.09mm Raccoon Conductor. 4) In Telangana 11KV line is proposed over 9.1Mts PSCC Pole with 55Sq.mm AAA Conductor with a span length of 60Mts with 8 No Stay Sets.
5	33KV line	Per Km/in Lakhs	13.81	8.76	Not available	10.45	1) In APCPDCL 33KV line is proposed over 11.0Mts/12.5mts Spun poles with 150 Sq.mm AAA conductor. 2) In Telengana 33KV line is proposed over 9.1Mts PSCC Poles with 100Sq.mm conductor 3) In Tamilnadu 33KV line is proposed over 9.0Mts PSC Pole with Dog Conductor
6	5.0MVA PTR	Each/in Rs.Lakhs	102	62.72	Not available	Not available	1) In APCPDCL, this cost is inclusive of charges applicable @20% on PTR cost of Rs.85,35,294

Annexure-D8: Reply furnished by the EPDCL-Cost Data Variations

File No.EPCOR-04001(02)/2/2022-RA PP-RAC-COR

ఆంధ్ర ప్రదేశ్ తూర్పు ప్రాంత విద్యుత్ పంపిణీ సంస్థ
Eastern Power Distribution Company Of Andhra Pradesh Limited
(A Govt. Of A.P.Enterprise & An ISO 9001:2015 & ISO 27001:2013 Certified Company) CIN:U40109AP2000SGC034117

From:

The Chief General Manager,
RA & PP/APEPDCL
3rd Floor, Corporate Office,
P&T Colony, Seethammadhara,
Visakhapatnam-530 013.

To:

The Commission Secretary,
#11-4-660, 4th Floor,
APERC, Singareni Bhavan,
Red Hills,
Hyderabad – 500 004.

Lr.No.CGM/ RA&PP/ EPDCL/VSP/RAC/DNo. I/506234/23, dt.04.11.2023 .11.2023.

Sir,

Sub:- APEPDCL – RAC- The load forecasts and resource plans for the 5th and 6th control periods – Abnormal rise in cost of materials/works – Reasons submitted- Reg.,

Ref:- 1. Lr No.APERC/F.No.E-3005/DD(P&PP)/D.No.1525/23, Dt:11.10.2023.
2. Lr No.APERC/F.No.E-3005/DD(P&PP)/D.No.1562/23, Dt:01.11.2023

*** *** ***

1. It is to submit that with reference to the above, the reasons for increase in rates of material/works are submitted below

   i. The rates proposed for 4th control period are based on cost data for FY 2014-15. During the 7 year period the cost of materials and equipment has increased drastically mainly due to Covid-19 Pandemic resulted supply chain disruptions and labour costs are also increased substantially during FY 2022-23.

   ii. Since entire APEPDCL jurisdiction is adjacent to sea coast and the existing OH network is severely damaged by frequent cyclones during last 10 years, the configuration of proposed OH lines now changed from PSCC poles to SPUN poles.

   iii. And also Government of India has introduced new GST regime from the year 2017 in place of Old taxes like VAT & Service Tax.

   iv. The Economic environment, including fluctuations in exchange rates and interest rates can impact the overall cost of Cost data.

Further, raw material rates of copper, aluminium and other material rates are increased (based on IEEMA Circulars) nearly from 15 to 287% as per the details submitted below:

Table-2

S. No.	Item	Unit	Rate as per IEEMA circulars as on April of					% Increase from 2014 to 2022
			2014	2019	2020	2021	2022	
1	LME Aluminum (Al)	Per MT	1,37,989	1,47,570	1,28,465	2,00,529	2,83,826	106%
2	Copper wire bars	Per MT	4,26,404	4,73,549	4,02,571	6,85,347	8,39,052	97%
3	CRGO Electrical steel sheets	Per MT	1,56,613	2,55,880	2,35,130	2,95,172	6,05,727	287%
4	Steel (IS)	Per MT	55000*	46,035	41,588	65,013	78,715	43%
4	Insulating Material	Per KG	517.46	496.65	541.57	553.67	594.49	15%
5	EPOXY Resin	Per KG	310	500	550	828	912	194%
6.	Transformer oil	Per KL	1,00,694	88,024	87,381	1,06,826	1,30,461	30%

* steel rate for 2014 Year is taken from 2014 Cost Data

2. In addition to the aforementioned, the rate modifications for each item are provided below due to the change of specifications of specific datas of materials for reducing technical losses & strengthening the network in light of cyclones in APEPDCL over the last years.

Table-3

Description	Unit	4th Control Period (Approved)		5th Control Period Fillings	
		Rate	Work Description	Rate	Work Description
LT Line	Per Km	2.85	LT 3-Ph 5 Wire Line , with **5x34Sq.mm** AAAC over **8Mts./ 200Kgs** PSCC Poles	8.34	LT 3-Ph 5 Wire Line with **5x55Sq.mm** AAAC over **9.1Mts/ 280Kg.** PSCC Poles
DTR (100 kVA)	Each	2.50	100KVA BEE 5 STAR	5.58	100KVA BEE 5 STAR
11 kV Line	Per Km	3.08	11 KV Line with **55 Sq.mm** AAA Conductor over **8 Mts./ 200Kg** PSCC Poles	12.34	11 KV Line with **100 Sq.mm** AAA Conductor over **9.5Mts/350Kg** Spun Poles.
33/11kV SS (5 MVA) (outdoor)	Each	130.91	33/11KV Substation with 5 MVA PTR with **16KVA DTR** and 3Nos. 11KV Feeders	221.92	33/11KV Substation with 5 MVA PTR with **25KVA DTR** and 3Nos. 11KV Feeders
33 kV Line	Per Km	4.62	33 KV Line with 100 Sq.mm AAA Conductor over **9.1 Mts./280Kgs** PSCC Poles	14.25	33 KV Line with 100 Sq.mm AAA Conductor over **12.5Mts. Spun Poles .**
5.0 MVA PTR	Each	.....	----	96.62	Enhancement of PTR 5MVA to 8MVA

3.The following provides reasons for the variations in the costs of the 33 KV Line, 11 KV Line, and LT 3-Ph 5 W/L with AAA Conductor between 2014 and 2022. The justification cites

changes in aluminum pricing and weight variations in aluminum resulting from material changes .

Table-4

1	Weight of 34sqmm conductor in Kg/Km	94
2	Weight of 55sqmm conductor in Kg/Km	149.2
3	Weight of 100sqmm conductor in Kg/Km	272.86
4	Weight of Aluminum in LT 5 W/L with 34 Sqmm AAAC in Kgs (5 X SI No1)	470
5	Weight of Aluminum in LT 5 W/L 55 with Sqmm AAAC in Kgs (5 X SI No2)	746
6	Weight of Aluminum in 11 KV Line with 55 Sqmm AAAC in Kgs (3 X SI No2)	448
7	Weight of Aluminum in 33 & 11 KV Line with 100 Sqmm AAAC in Kgs (3 X SI No3)	819
8	Cost of aluminum Per MT in April 2014 in Rs.	137989
9	Cost of aluminum Per MT in April 2022 in Rs.	283826

Table-5

SI NO	Cost Data Year	Description	Unit	Weight in Kgs per KM	Unit rate in Rs.	Amount in Rs.
LT 3 Ph 5 W/L						
1	2014	Aluminum cost in LT 5 W/L (34 Sqmm) (From SI No 4 & 8 of Table 4)	Kgs	470	137.989	64855
2	2022	Aluminum cost in LT 5 W/L (55 Sqmm) (From SI No 5 & 9 of Table 4)	Kgs	746	283.826	211734
% Variation						**226%**
11 KV Line						
1	2014	Aluminum cost in 11KV Line(55 Sqmm) (From SI No 6 & 8 of Table 4)	Kgs	448	137.989	61764
2	2022	Aluminum cost in 11KV Line (100 Sqmm) (From SI No 7 & 9 of Table 4)	Kgs	819	283.826	232334
% Variation						**276%**
33 KV Line						
1	2014	Aluminum cost in 33KV Line (100 Sqmm) (From SI No 7 & 8 of Table 4)	Kgs	819	137.989	113013
2	2022	Aluminum cost in 33KV Line (100 Sqmm) (From SI No 7 & 9 of Table 4)	Kgs	819	283.826	232334
% Variation						**106%**

4.Variation in cost of 33 KV,11 KV and LT Lines due to change in cost and upgraded specifications of poles.

Table-6

Sl. No	Cost Data Year	Description	Unit	Qty	Unit rate in Rs.	Amount in Rs.
LT Line						
1	2014	8 M PSCC Pole (200Kgs)	Nos.	18	1844	33192
2	2022	9.1M PSCC Pole (280Kgs)	Nos.	25	4959	123975
% Variation						**274%**
11 KV Line						
1	2014	8 M PSCC Pole (200Kgs)	Nos.	18	1844	33192
2	2022	9.5M Spun Pole	Nos.	22	12524	275528
% Variation						**730%**
33 KV Line						
1	2014	9.1 M PSCC Pole	Nos.	18	3105	55890
2	2022	12.5M Spun Pole	Nos.	18	18584	334512
% Variation						**499%**

5.Further the following are the minimum wages for labour approved for each year by the GoAP which will have overall impact on each product and service at each stage.

Table-7

Year	Minimum wages for			% variation from 2014 (Average)
	Skilled	Semi-skilled	Un-skilled	
2014	400	320	280	-
2015	440	345	295	8%
2016	480	375	320	18%
2017	515	400	350	27%
2018	540	420	370	33%
2019	555	440	400	40%
2020	575	460	420	46%
2021	610	500	460	57%
2022	650	525	490	67%
2023	700	565	525	79%

The above information is submitted with the approval of Hon'ble Chairman and Managing Director/APEPDCL.

Yours faithfully,

Signed by Suman Kalyani Devara
Date: 04-11-2023 07:58:45
Reason: Approved

Chief General Manager
PP, RA & QC:: APEPDCL
VISAKHAPATNAM

Annexure- E1 : Investment details for 5th CP

400 kV, 220 kV and 132 kV Sub-stations, lines and augmentation of PTR capacities proposed during FY 2024-25 to FY 2028-29

FY →	FY25	FY26	FY27	FY28	FY29	Total
No. of 400 kV Substations	1	3	1	0	2	**7**
400 kV Lines in CkM	320.96	182	392	320	24	**1238.96**
Cost (Rs. in Crs.)	**1575.56**	**2221.37**	**1440**	**600**	**800**	**6636.93**
No of 220 kV Substations	3	6	5	3	6	**23**
220 kV Lines in CkM	329.9	374.39	290.61	86	634	**1714.91**
No of 132 kV Substations	6	9	6	6	14	**41**
132 kV Lines in CkM	302.09	620.15	212.18	100.3	507.73	**1742.45**
Cost (Rs. in Crs.)	**1093.02**	**1062.9**	**897.52**	**1038.4**	**1024.59**	**5116.43**
Total SS & Line Cost	**2668.58**	**3284.27**	**2337.52**	**1638.4**	**1824.59**	**11753.36**
Augmentation Cost (Rs. in Crs.)	**1002.71**	**555.51**	**559.12**	**517.27**	**441.43**	**3076.04**
RMI Works Cost (Rs. in Crs.)	**160**	**170**	**180**	**190**	**200**	**900**
Grand Total	**3831.29**	**4009.78**	**3076.64**	**2345.67**	**2466.02**	**15729.4**

Annexure- E2 : Indicative Investment details for 6th CP

765 kV, 400 kV, 220 kV and 132 kV Sub-stations, lines and augmentation of PTR capacities proposed during FY 2029-30 to FY 2033-34

FY →	2029-30	2030-31	2031-32	2032-33	2033-34	Total
No. of 765 SS	1	1	0	0	0	**2**
Cost (Rs. in Crs.)	**400**	**400**	**0**	**0**	**0**	**800**
765 KV Lines CkM	0	600	0	0	0	**600**
Cost (Rs. in Cr.)	**0**	**3000**	**0**	**0**	**0**	**3000**
No. of 400 kV Substations	1	2	1	1	1	**6**
Cost (Rs. in Crs.)	**200**	**400**	**200**	**200**	**200**	**1200**
400 kV Lines in CkM	40	32	102	40	40	**254**
Cost (Rs. in Crs.)	**192**	**153.6**	**489.6**	**192**	**192**	**1219.2**
No of 220 kV Substations	8	7	6	6	10	**37**
Cost (Rs. in Crs.)	**360**	**315**	**270**	**270**	**450**	**1665**
220 kV Lines in CkM	254	632	345	522	500	**2253**
Cost (Rs. in Crs.)	**254**	**632**	**345**	**522**	**500**	**2253**
No of 132 kV Substations	11	11	10	5	6	**43**
Cost (Rs. in Crs.)	**275**	**275**	**250**	**125**	**150**	**1075**
132 kV Lines in CkM	650	554	550	214	310	**2278**
Cost (Rs. in Crs.)	**487.5**	**415.5**	**412.5**	**160.5**	**232.5**	**1708.5**
Total SS & Line Cost (in Rs. Crs)	**2168.5**	**5591.1**	**1967.1**	**1469.5**	**1724.5**	**12920.7**