SOUTHERN POWER DISTRIBUTION COMPANY OF A.P LIMITED

19-13-65/A, Vidyut Nilayam, Srinivasapuram, Tirupati (www.apspdcl.in)

Business Plan for 5th and 6th Control Periods (FY2024-25 to FY2033-34)

06th November 2023

Contents

APSPDCL was formed in April 1, 2000 to serve Krishna, Guntur, Prakasam, Nellore, Chittoor and Kadapa districts with a vision to become an efficient utility supplying reliable and quality power, promoting economic development and being self-reliant commercially. After the bifurcation of the erstwhile Andhra Pradesh into the two new states of Andhra Pradesh and Telangana on 2nd June-2014, two more districts Anantapur and Kurnool were added to the Southern Power Distribution Company of AP Ltd. As per GO Ms No 41, Dt:-5-12-2019 APCPDCL was formed with 3 districts (1) Krishna, (2) Guntur and (3) Prakasam. After bifurcation , the APSPDCL has the following Districts in the license area i.e., Tirupati, YSR Kadapa, Nellore, Kurnool, Ananthapur, Chittoor, Annamaiah, Sri Satyasai & Nandyal (Circles - Tirupati, Kadapa, Nellore, Kurnool & Ananthapur)

1 Preamble

The Andhra Pradesh Electricity Regulatory Commission (APERC), Regulation 10 of 2013 directs the licensees to submit a Business Plan for Hon'ble Commission's approval. The Business Plan shall contain the following

- Year Wise Load Growth
- Year Wise Distribution Loss Reduction with Specific Action Plan
- Metering Plan for Metering Interface Points
- Treatment of Previous Losses
- Cost Reduction Plan
- Other important Financial analysis or parameters

The Guidelines as per Regulation 39 of Regulation 10 of 2013 state that the distribution licensee shall submit a Business Plan for such period as the Commission may direct and shall update plan annually.

The licensee herewith submits the Business Plan for FY 2023-24 to FY 2033-34 for the review and approval of the Hon'ble Commission.

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

- Year Wise Load Growth
- Year Wise Distribution Loss Reduction with Specific Action Plan
- Metering Plan for Metering Interface Points
- Other important Financial analysis or parameters

2 Context of the Business Plan :

The business plan for the distribution licensee is based on the resource plan filed by the licensee on 30th April 2023 for 5th and 6th Control period and Multi-year tariff petition to be filed by the licensee for 5th Control Period. The summary of the Load Forecast Plan and Power Procurement Plan is given below.

2.1 Load Forecast Plan Summary :

2.1.1 Historical Sales Summary

The below table captures the 5-year historical sales as presented in Discom Resource Plan.

Historical Sales (MUs)

Category	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	CAGR
LT Category									
Domestic	3476.32	3813.44	4113.51	4384.03	4840.09	5011.64	5280.14	5196.51	5.91%
Commercial & Others	780.15	830.89	883.34	964.60	973.69	806.86	959.36	1103.67	5.08%
Industry	492.78	506.55	506.29	551.15	517.44	505.93	569.40	601.21	2.88%
Institutional	396.78	507.30	566.65	602.36	614.79	653.77	708.47	823.84	11.00%
Agriculture & Related	6763.09	7559.35	7054.77	8260.42	7664.00	7277.71	7166.59	6870.98	0.23%
LT Total	**11909.11**	**13217.54**	**13124.57**	**14762.57**	**14610.02**	**14255.91**	**14683.96**	**14596.21**	**2.95%**
HT Category									
Domestic	30.91	24.52	14.62	15.94	18.79	15.69	17.75	15.91	-9.05%
Commercial & Others	370.06	365.34	393.92	420.44	492.83	293.46	385.75	468.13	3.42%
Industry	4275.17	3993.61	3861.36	4606.38	4359.41	4266.81	5805.83	6950.12	7.19%
Institutional	488.00	419.55	495.53	565.83	641.67	541.49	808.62	1090.31	12.17%
Agriculture & Related	221.37	945.91	998.00	1335.22	1602.53	1658.48	1003.12	769.49	19.48%
RESCO's	298.45	413.14	368.72	462.59	452.96	428.43	468.04	434.60	5.52%
HT Total	**5683.96**	**6162.06**	**6132.13**	**7406.40**	**7568.19**	**7204.34**	**8489.10**	**9728.57**	**7.98%**
LT + HT	**17593.07**	**19379.60**	**19256.70**	**22168.97**	**22178.21**	**21460.25**	**23173.06**	**24324.78**	**4.74%**

2.1.2 Sales Forecast :

2.1.2.1 Category wise sales projection :

Below table summarizes the category-wise sales projection for the period FY 2023-24 to FY 2028-29.

Sales projections for 5th Control Period (MUs)

Category	2022-23 (Actuals)	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	CAGR
LT Category								
Domestic	5196.51	5472.02	5762.27	6068.07	6390.25	6729.69	7087.35	5.31%
Commercial & Others	1103.67	1157.22	1213.39	1272.31	1334.12	1398.95	1466.97	4.86%
Industry	601.21	620.93	641.43	662.75	684.92	707.99	731.99	3.33%
Institutional	823.84	894.14	970.72	1054.19	1145.19	1244.43	1352.68	8.62%
Agriculture & Related	6870.98	7214.52	7575.25	7954.01	8351.71	8769.30	9207.76	5.00%
LT Total	**14596.21**	**15358.83**	**16163.07**	**17011.33**	**17906.19**	**18850.36**	**19846.75**	**5.25%**
HT Category								
Domestic	15.91	16.71	17.55	18.42	19.34	20.31	21.33	5.00%
Commercial & Others	468.13	492.00	517.16	543.71	571.73	601.32	632.58	5.15%
Industry	6950.12	7354.56	7783.77	8239.33	8722.96	9236.47	9781.80	5.86%
Institutional	1090.31	1151.70	1217.05	1286.68	1360.91	1440.14	1903.91	9.74%
Agriculture & Related	769.49	1533.22	2043.84	2544.79	2564.66	2566.35	2568.13	22.25%
RESCO's	434.60	458.57	483.86	510.55	538.71	568.43	599.78	5.52%
HT Total	**9728.57**	**11006.76**	**12063.23**	**13143.48**	**13778.32**	**14433.00**	**15507.53**	**8.08%**
LT + HT	**24324.78**	**26365.59**	**28226.30**	**30154.81**	**31684.51**	**33283.37**	**35354.27**	**6.43%**

**Sales for FY23 were based on actuals, and for FY 24 were based on revised estimates and for Remaining years, sales estimates are based on resource plan sales projection for the 5th and 6th control periods.*

Sales projections for 6th Control Period (MUs)

Category	2029-30	2030-31	2031-32	2032-33	2033-34	CAGR
LT Category						
Domestic	7464.19	7861.27	8279.67	8720.56	9185.15	5.32%
Commercial & Others	1538.32	1613.17	1691.69	1774.07	1860.50	4.87%
Industry	756.96	782.96	810.03	838.22	867.58	3.47%
Institutional	1470.80	1599.73	1740.50	1894.23	2062.17	8.82%
Agriculture & Related	9668.15	10151.56	10659.14	11192.10	11751.70	5.00%
LT Total	**20898.43**	**22008.68**	**23181.02**	**24419.17**	**25727.10**	**5.33%**
HT Category						
Domestic	22.39	23.51	24.69	25.92	27.22	5.00%
Commercial & Others	665.63	700.60	737.64	776.88	818.51	5.30%
Industry	10361.03	10976.38	11630.21	12325.06	13063.63	5.97%
Institutional	1940.30	1980.33	2185.55	2234.18	2287.88	4.21%
Agriculture & Related	2570.02	2572.03	2574.16	2576.42	2578.82	0.09%
RESCO's	632.86	667.77	704.60	743.46	784.47	5.52%
HT Total	**16192.24**	**16920.62**	**17856.83**	**18681.92**	**19560.52**	**4.84%**
LT + HT	**37090.66**	**38929.31**	**41037.86**	**43101.09**	**45287.61**	**5.12%**

2.2 Loss Trajectory Summary :

The licensee has taken various steps to reduce the losses like strengthening of the network infrastructure, addition of network elements, and vigorously undertaking the Energy Audit visit to keep a close tab on the losses.

Based the loss reduction measures carried out in the state, the licensee projects the loss for the period FY 2023-24 to FY 2033-34 is as follows:

Loss Trajectory for APSPDCL

Voltage Level	2023-24*	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
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%

****Distribution loss in % as approved by the commission in Retail Tariff Order of FY 2023-24***

2.2.1 Energy Requirement (MU) :

The methodology followed upon for determination of Energy Input at Discom/State level is described below:

a) Based on sales forecast and open access sales projected by the Licensee, the energy input at the Discom periphery has been determined by undertaking following steps:

- Energy Input at LT level = LT sales + LT losses
- Energy Input at 11 kV level = Energy Input at LT level + 11KV sales+11 kV losses
- Energy Input at 33 kV level = Energy Input at 11 kV level +33kv Sales+ 33 kV losses
- The total energy input from various schemes mentioned in section 3.2 at 33 kV level and Energy input from Open access sales at 33 kV level has been separately calculated and added to the discom level Energy input at 33 kV level.

b) Total Energy Input at Discom periphery = Energy Input at 33 kV level + 132 kV Sales +132 kV Open Access sales.

c) The Energy Input at State level has been determined by combining the Energy Input of all the three Discoms (APSPDCL, APCPDCL, APEPDCL) and grossing up that energy with Transmission losses and PGCIL losses.

Based on the category wise sales forecast and loss trajectory, below is the energy requirement

Parameters	FY23 (Actual)	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Annual LT Loss %	5.09%	5.08%	5.07%	5.06%	5.04%	5.03%	5.02%
Energy Input at LT level (MU)	15378.47	16180.96	17025.97	17917.13	18857.13	19848.80	20895.20
Annual 11 kV Loss %	3.33%	3.31%	3.30%	3.29%	3.29%	3.28%	3.27%
Energy Input at 11KV level (MU)	17882.61	18912.65	20128.06	21189.77	22327.07	23508.53	24756.93
Annual 33 kV Loss %	3.22%	3.20%	3.19%	3.18%	3.18%	3.17%	3.16%
Energy Input at 33 kV level (MU)	21080.10	22655.08	24078.13	25355.24	26726.07	28162.33	29693.94
Total Energy Input at 33 KV + 132 KV Sales (MU)	26231.76	29312.27	31333.42	33418.88	35119.51	36904.91	39185.36

Energy input at APSPDCL for 6th Control Period :

Parameters	2029-30	2030-31	2031-32	2032-33	2033-34
Annual LT Loss %	5.01%	4.99%	4.98%	4.97%	4.96%
Energy Input at LT level (MU)	21999.53	23165.23	24395.97	25695.64	27068.41
Annual 11 kV Loss %	3.26%	3.25%	3.24%	3.24%	3.23%
Energy Input at 11KV level (MU)	26076.38	27471.29	28946.37	30506.68	32157.62
Annual 33 kV Loss %	3.15%	3.14%	3.14%	3.13%	3.12%
Energy Input at 33 kV level (MU)	31335.24	33022.43	34808.20	36698.96	38701.59
Total Energy Input at 33 KV + 132 KV Sales (MU)	41164.08	43209.17	45535.75	47829.41	50259.66

2.2.2 Load Forecast (MW) :

Licensee determined the load factors based on following method (Reference to Section 4.3 in Resource Plan):

- State/Discom/Circle level demands have been undertaken for each hour during FY 2022-23. On the basis of this hourly demand monthly average for each hour and yearly average demand have been determined.
- State/Discom/Circle level peak demands for each month and year have also been undertaken for FY 2022-23.
- The Load factor is determined using below formula:

  Load Factor = Yearly average demand / Yearly peak demand

On the basis of Energy Input at 33 kV level for discom and circle and assumed load factors for FY2022-23, licensee projected demand in MW for 5th & 6th control period as per formula mentioned below:

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

The peak load forecasted at state level has been shown below:

Parameters	FY23	FY24	FY25	FY26	FY27	FY28	FY29	CAGR
Energy Req. at state level (MUs)	72400	79472	85365	90924	99731	105179	111378	7.44%
State Peak Demand (MW)	12293	13746	15226	16256	17831	18805	19913	8.37%

Parameters	FY23	FY30	FY31	FY32	FY33	FY34	CAGR
Energy Req at state level (MUs)	72400	117510	124067	131269	138753	146877	6.64%
State Demand (MW)	12293	21042	22251	23561	24944	26870	7.37%

On the basis of non-coincident load factors and energy input at 33 kV level at Discom & circle level, mentioned above, non-coincident peak demands at SPDCL level & at circle level have also been estimated. Summary of the peak demands at APSPDCL is shown below:

(MW)

Circle/Peaks at 33 kV level	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Nellore	728	765	805	847	891	938	989	1,040	1,095	1,153	1,213
Tirupati	1,513	1,598	1,689	1,785	1,888	1,997	2,114	2,235	2,364	2,500	2,644
Kadapa	772	833	882	935	992	1,053	1,119	1,187	1,261	1,339	1,424
Anantapur	1,250	1,327	1,392	1,463	1,534	1,609	1,689	1,771	1,857	1,947	2,041
Kurnool	750	805	846	889	934	983	1,035	1,089	1,146	1,206	1,269
SPDCL	**6,294**	**6,728**	**7,183**	**7,549**	**7,932**	**8,422**	**8,843**	**9,283**	**9,782**	**10,270**	**10,792**

2.3 Power Procurement Plan Summary :

a) In pursuant to the provisions of 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 by the name of Central Power Distribution Corporation Ltd (APCPDCL) has been carved out of APSPDCL to serve three erstwhile Districts of Krishna, Guntur and Prakasam. Consequent to formation of APCPDCL the State Govt vide GO Ms No 13, dt 6th April 2020 have specified sharing Ratios to the three DISCOMs for the purpose of procurement of power through PPAs. These ratios are applicable for all the existing Power Purchase Agreements (PPAs) of combined purchases in respect of all on going and under construction Generation Stations for which PPAs have been signed except for the projects exclusively allocated on the basis of geographical location by the Government of Andhra Pradesh and other PPAs entered into by individual DISCOMs.

c) APDISCOMs are sharing the capacities in the specified ratios issued by GoAP in respect of all sources of power. Further vide GO Rt No. 146, dated 02.12.2022 the geographical allocation of NCE PPAs prevailing thereto was changed to proportionate allocation. Presently the ratios

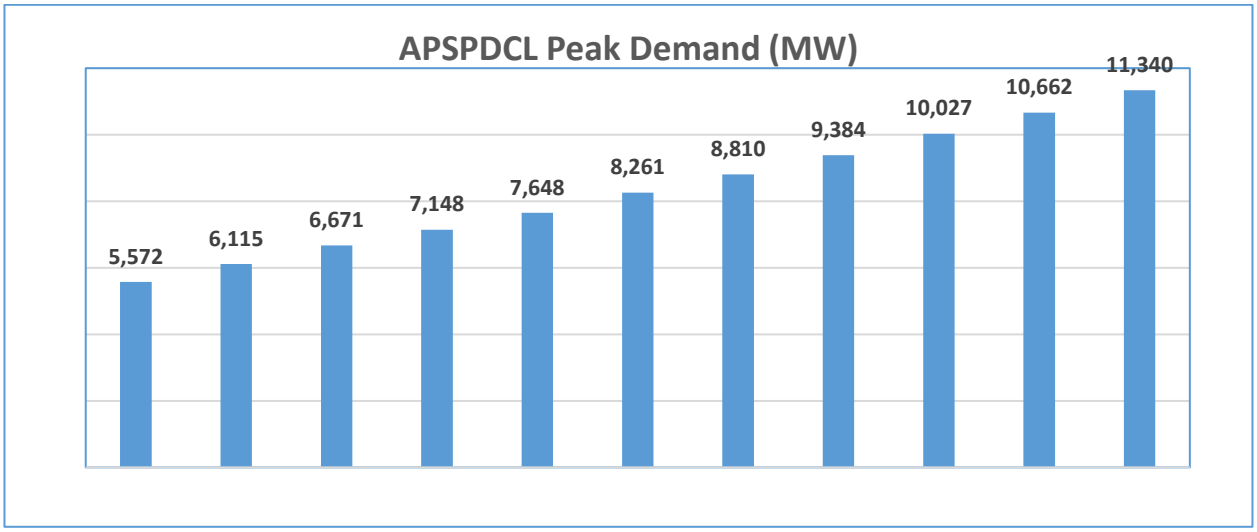
of APEPDCL, APSPDCL and APCPDCL (Distribution Licensees in AP) in the Power Purchase Agreements (PPAs) in pursuant to the above, are indicated as below:

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

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

2.3.1 Projected peak demand of AP Grid System :

Peak Demand forecast as carried out by APSPDCL is aggregated upto the horizon year FY 2033-34 (6th Control Period) is presented below.



- The AP State Grid Demand is expected to increase from the existing level of around 12,500 MW to 26985 MW by 2033-34 at a compounded annual growth rate (CAGR) of 7.25%.
- As per 20th Electric Power Survey (EPC) conducted by the Central Electricity Authority (CEA) the expected peak demand to be met in AP is 24,525 MW by the horizon year at a CAGR of 6.45%.
- 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%.

2.3.2 Existing Installed/Contracted Capacity from various sources

The abstract of existing contracted capacities from various sources of generation held by APDISCOMs is presented as below:

SOURCE	INSTALLED CAPACITY(MW)	APDISCOMs SHARE(%)	APDISCOMs CONTRACTED CAPACITY(MW)	APSPDCL SHARE(%)	APSPDCL CONTRACTED CAPACITY(MW)
APGENCO-THERMAL	3410.00	100.00%	3410.00	40.44%	1379.00
APGENCO-HYDEL	1773.60	100.00%	1773.60	40.44%	717.24
JOINT SECTOR	2616.82	93.91%	2456.82	40.44%	993.54
CGS	15290.00	12.94%	1978.63	40.44%	800.16
IPPs (Thermal)	3680.00	51.50%	1895.55	40.44%	766.56
IPPs (Gas)	1498.08	46.11%	690.80	40.44%	279.36
NCE	7626.94	100.00%	7626.94	40.44%	3084.33
Total	**35895**	**55.30%**	**19832.330**	40.44%	**8020.18**

The following are the expected / committed capacity additions in the state of Andhra Pradesh

i. APGENCO Thermal-VTPS-Stage V-1X800 MW:

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 a period of 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 generate power for 5th and 6th control periods.

ii. APGENCO Hydro- Additional two Units at Lower Sileru 2X115 MW:

There is a proposal from AP Genco for installing additional two 115 MW Units at Sileru hydel station during FY 2024-25. These two units are helpful in meeting the peak demand within existing water discharge capability. These Units are considered in resource planning for 5th and 6th control periods.

iii. APGENCO Hydro- Polavaram Hydro Project 12X80 MW:

AP Genco is developing 960 MW Hydro power project at Polavaram Irrigation project. The configuration of the project is 12X80 MW. Polavaram hydel power (7*80MW) duirng FY2024-25 and (5*80MW) during FY2025-26.

iv. APGENCO Hydro- Upper Sileru Pumped Storage Hydro Project 9X150 MW

There is a proposal by AP Genco to develop Upper Sileru Pumped Storage Power Plant with the aggregate installed capacity of 1350 MW to be set up during FY2027-28 (8x150 MW) and during FY2028-29 1x150 MW. Hence, the power from this plant is considered from FY2027-28, FY2028-29 and entire 6th control period.

v. CGS-Nuclear-Bhavini-100 MW :

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.

vi. CGS-Talcher-Stage-III -264 MW. :

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.

vii. SECI-Solar 7000 MW:

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

b) M/S 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.

c) APDISCOMs submitted 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 SECI manufacturing linked scheme. Hon'ble APERC vide orders dt.11.11.2021 issued consent for procurement of 7000 MW Solar Power from SECI.

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

e) Upon fully establishment of APRAPSCom, the aforesaid Power Sale Agreement will be transferred from APDISCOMs to APRAPSCom for supply of power to the Agricultural consumers.

2.3.3 Gist of expected net capacity additions:

The following Table summarizes the expected / committed capacity additions year wise, after considering expiry of existing PPAs.

Source	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	Total	APSPDCL share
APGENCO								
Hydro Plants								
Polavaram (12x80MW)		560	400				**960**	388.22
Lower Sileru (2X115MW)		230					**230**	93.01
Upper sileru Pumped storage (9X150)					1200	150	**1350**	545.94
Thermal Plants								0.00
Vijayawada TPS Stage V (1x800 MW)	800						**800**	323.52
APGENCO Total	**800**	**790**	**400**		**1200**	**150**	**3340**	1350.70
CGS								0.00
Telangana Super Thermal Power Station Phase I (Unit-1&2)	16						**16**	6.47

Source	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	Total	APSPDCL share
Bhavani		100					**100**	40.44
Talcher stg=III					264		**264**	106.76
Private Projects								0.00
Wind	-2.5	0	1164.5	-4.5			**1157.5**	468.09
Solar (SECI from Rajasthan)		3000	3000	999			**6999**	2830.40
Gas (GVK extn. Gouthami, Konaseema, Vemagiri)		-315.4		-204.8		-170.9	**-691.1**	-279.48
Other NCE	-77.3	-4.7	-27	-10	-2	-14.66	**-135.66**	-54.86
Total Capacity addition	**736.2**	**3569.9**	**4537.5**	**779.7**	**1462**	**-35.56**	**11049.74**	4468.51

2.3.4 Contracted Capacities for 5th& 6th Control Periods:

The summary of year-wise available plant capacities in the state in MW for 5th and 6th Control period is shown below.

State	FY23 (Actual)	FY24	FY25	FY26	FY27	FY28	FY29
Source	**MW**	**MW**	**MW**	**MW**	**MW**	**MW**	**MW**
APGENCO & APPDCL THERMAL	5650	6,450	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	1,773.6	1,773.6	2563.6	2,963.6	2,963.6	4163.6	4,313.6
AP Discom Gas	0	0	0	0	0	0	0
CGS	1978.628	1994.628	2094.628	2094.628	2094.628	2358.628	2358.628
IPPs(Gas)	0	0	0	0	0	0	0
IPPs - Others	1895.55	1895.55	1895.55	1895.55	1895.55	1895.55	1895.55
NCE Sources	7626.94	7547.14	10,542.4	14679.5	15,664	15,662	15,647.3
MW Availability	**18924.72**	**19660.92**	**23546.18**	**28083.28**	**29067.78**	**30529.78**	**30665.08**

State	FY30	FY31	FY32	FY33	FY34
Source	MW	MW	MW	MW	MW
APGENCO Coal	6,450	6,450	6,450	6,450	6,450
APGENCO Hydel	4,313.6	4,313.6	4,313.6	4,313.6	4,313.6
AP Discom Gas	0	0	0	0	0
CGS	2358.628	2358.628	2358.628	2358.628	2358.628
IPPs(Gas)	0	0	0	0	0
IPPs - Others	1895.55	1895.55	1895.55	1895.55	1895.55
NCE Sources	15,627.3	15,538.8	15,503.3	15,474.4	15,474.4
MW Availability	**30,645.08**	**30,556.58**	**30,521.08**	**30,492.18**	**30,492.18**

Summary of contracted capacities of APSPDCL:

APSPDCL	FY23 (Actual)	FY24	FY25	FY26	FY27	FY28	FY29
Source	**MW**	**MW**	**MW**	**MW**	**MW**	**MW**	**MW**
APGENCO & APPDCL THERMAL	2284.86	2608.38	2608.38	2608.38	2608.38	2608.38	2608.38
APGENCO Hydel	717.24384	717.24384	1036.7198	1198.4798	1198.4798	1683.7598	1744.4198
AP Discom Gas	0	0	0	0	0	0	0
CGS	800.15716	806.62756	847.06756	847.06756	847.06756	953.82916	953.82916
IPPs(Gas)	0	0	0	0	0	0	0
IPPs - Others	766.56042	766.56042	766.56042	766.56042	766.56042	766.56042	766.56042
NCE Sources	3084.3345	3052.0634	4263.3466	5936.3898	6334.5216	6333.7128	6327.7681
MW Availability	**7653.1568**	**7950.876**	**9522.0752**	**11356.878**	**11755.01**	**12346.243**	**12400.958**

APSPDCL	2029-30	2030-31	2031-32	2032-33	2033-34
Source	**MW**	**MW**	**MW**	**MW**	**MW**
APGENCO Coal	2,608	2,608	2,608	2,608	2,608
APGENCO Hydel	1,744	1,744	1,744	1,744	1,744
AP Discom Gas	0	0	0	0	0
CGS	954	954	954	954	954
IPPs(Gas)	0	0	0	0	0
IPPs - Others	767	767	767	767	767
NCE Sources	6,320	6,284	6,270	6,258	6,258
MW Availability	12,393	12,357	12,343	12,331	12,331

- Based on existing and future planned installed capacities, energy availability in MUs has been determined for each power station, based on formula shown below:

  *Energy generation in MUs = Plant capacity (MW) * AP Share (%) * (1- Auxiliary power consumption in %) * Plant load factor (%) *24*365/1000*

The table below summarizes projected energy Availability for APSPDCL:

Sources (all figures in MUs)	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
AP Genco-Thermal	10142	11008	11008	11008	11038	11008
AP Genco-Hydel	1201	1841	2300	2300	2306	2300
CGS	5974	5958	5958	5958	5974	5958

JS	6757	6739	6739	6739	6757	6739
IPPs-Thermal	5619	5604	5604	5604	5619	5604
Wind	2403	2398	3166	3163	3169	3163
Solar	3053	6266	9488	10562	10593	10562
NCE-Others	124	142	142	142	142	142
Total	**35274**	**39955**	**44404**	**45475**	**45598**	**45475**

Sources (all figures in MUs)	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**
AP Genco-Thermal	11008	11008	11038	11008	11008
AP Genco-Hydel	2300	2300	2306	2300	2300
CGS	5958	5958	5974	5958	5958
JS	6739	6739	6757	6739	6739
IPPs-Thermal	5604	5604	5619	5604	5604
Wind	3163	3108	3091	3066	3066
Solar	10562	10562	10593	10562	10562
NCE-Others	142	142	142	142	142
Total	**45475**	**45420**	**45520**	**45378**	**45378**

Based on the energy generation and energy input for power procurement the table below summarises Energy (MUs) balance at DISCOM/APSPDCL level:

Energy Requirement Projections for 5th Control Period (MUs)

	FY 24	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Energy-Demand	30352.86	32445.75	34638.66	36401.37	38251.94	40615.63
Energy Supply	35273.66	39955.20	44403.89	45475.01	45597.81	45475.00
Surplus/(Deficit)	4,921	7,509	9,765	9,074	7,346	4,859

Energy Requirement Projections for 6th Control Period (MUs)

	FY 30	**FY 31**	**FY 32**	**FY 33**	**FY 34**
Energy-Demand	42645.99	44764.70	47175.04	49527.36	52043.87
Energy Supply	45475.00	45419.90	45519.97	45378.25	45378.25
Surplus/(Deficit)	2,829	655	(1,655)	(4,149)	(6,666)

Power Procurement Plan for meeting the deficit :

- On the basis of expected future capacity additions already identified/committed so far, yearly deficit/surplus scenario has been evaluated and presented in the above.
- 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%.
- Remaining procurement may be undertaken with intermediate sources. Further 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.

- It is further to submit that the DISCOM is 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.

2.4 Investment Plan Summary :

Historical Capital Expenditure – DISCOM Spend :

Below table shows the historical capital expenditure which has been undertaken by the Licensee in last 4 years i.e. FY 2019-20 to FY 2022-23 which has been met by the Licensee through its own funds/loans.

Historical CPAEX for Infrastructure addition (Rs. Cr.)

Scheme	19-20	20-21	21-22	22-23	Total
Substations & Augmentations	3.12	1.71	7.17	55.30	**67.30**
Lines	127.38	112.74	117.35	201.74	**559.21**
DTRs	225.84	194.67	155.58	404.70	**980.79**
Meters	65.53	73.11	58.08	83.03	**279.76**
Civil infrastructure & Others	8.31	6.43	14.48	26.21	**55.44**
Total	**430.19**	**388.66**	**352.67**	**770.98**	**1942.50**

Capital Expenditure for ongoing schemes :

In addition to the capital investment shown above, the Licensee has also undertaken investments under various ongoing schemes such as IPDS, DDUGJY, APDRP, HVDS project, World Bank and other grants, as shown below:

Ongoing Schemes (Rs. Crs.)																
		19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
Scheme		Actuals					5th Control Period					6th Control Period				
HVDS	226.3712	214.91	248.13	838.97	423.25	101.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
WB - HVDS	304.4107	440.34	445.96	187.03	51.25	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
9Hrs. Agl	0	11.61	268.96	245.77	119.33	110.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
DDUGY	132.6604	50.60	3.68	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Smart City	0	51.54	16.88	6.28	21.07	12.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
WB Smart City	0	0.00	41.78	23.34	35.79	19.26	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
SCADA	1.468655	1.55	1.96	11.69	94.14	30.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
IPDS	53.07587	3.54	0.90	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Agl DBT	0	0.00	0.00	0.00	397.60	1457.81	305.00	305.00	305.00	305.00	305.00	305	305	70	0	0
Jagananna Housing Colonies	0	0.00	0.00	0.00	255.87	912.00	300.00	0.00	0.00	0.00	0.00	0	0	0	0	0
RDSS Ph-I (Loss Reduction)	0	0	0	0	0	1000.00	2000.00	2160.00	0.00	0.00	0.00	0	0	0	0	0
RDSS Ph-I (Smart Meters)	0	0	0	0	0	90.00	28.00					96	94	20	0	0
RDSS Ph-II (Smart Meters)	0	0	0	0	0	0.00	5.00	27.00				29	29	29	0	0
RDSS Ph-II (Modernisation) (To be sanctioned)	0	0	0	0	0	0.00	0.00	1200.00	1557.00	0.00	0.00	0	0	0	0	0
	717.99	**774.09**	**1028.25**	**1314.64**	**1398.29**	**3732.07**	**2638.00**	**3692.00**	**1862.00**	**305.00**	**305.00**	**430.00**	**428.00**	**119.00**	**0.00**	**0.00**

CAPEX under ongoing Schemes (Rs. Cr.)

Some of the works related to base capex such as substations, release of agricultural services are covered under schemes expenditure.

Total Historical Capital Investment :

Keeping view of the above historical capital investments, the growth in total investments made by the Licensee in last 4 years of the control period is shown below:

Total Historical Capital Investment (Rs. Cr.)

Sr. No.	Item	FY20	FY21	FY22	FY23
1	Discom spend	430	389	353	771
2	Funded under Schemes	774	1028	1315	1398
	Total	**1204**	**1417**	**1667**	**2169**

The Licensee has been able to improve quality and reliability of power supply in past years on sustainable basis leveraging through above mentioned capital investments.

Grants :

The grants receivable for the proposed schemes are given in the table below.

Scheme	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
	Actuals					5th Control Period					6th Control Period				
Smart City	43	26	5	12	12	0	0	0	0	0	0	0	0	0	0
Agl DBT	0	0	0	0	1855	305	305	305	305	305	305	305	70	0	0
Jagananna Housing Colonies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RDSS Ph-I (Loss Reduction)	0	0	0	0	600	1200	1296	0	0	0	0	0	0	0	0
RDSS Ph-I (Smart Meters)	0	0	0	0	90	28	0	0	0	0	0	0	0	0	0
RDSS Ph-II (Smart Meters)	0	0	0	0	0	5	27	0	0	0	0	0	0	0	0
RDSS Ph-II (Modernisation) (To be sanctioned)	0	0	0	0	0	0	720	934	0	0	0	0	0	0	0
Total	**43.17**	**26.05**	**4.93**	**12.18**	**2557.67**	**1538.00**	**2348.00**	**1239.20**	**305.00**	**305.00**	**305.00**	**305.00**	**70.00**	**0.00**	**0.00**

Total Forecasted CAPEX under DISCOM spend for 5th and 6th Control period

Item	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Substations	267	268	251	284	314	357	405	439	494	554	619
Augmentation of PTRs	114	114	107	120	133	152	172	187	210	235	263
Distribution Transformer Additions	810	644	747	832	938	1,056	1,195	1,296	1,447	1,617	1,806
Lines, Cables & Network	583	484	533	596	669	755	854	926	1036	1157	1292
Total (Rs. Cr.)	**1774**	**1510**	**1638**	**1832**	**2054**	**2320**	**2626**	**2848**	**3187**	**3563**	**3980**

Note: The capital expenditure of lines filed in resource plan is revised, as the same was computed due to an error.

The amounts proposed under base capex against substations and augmentation of PTRs can be reduced to the extent of approval (yet to be approved) by MoP, Govt. of India under RDSS Phase-II – Modernization in future.

It is proposed to install Smart Meters for new consumers also. Hence the expenditure is projected based on per unit meter cost of Rs.6000/- per unit and the same is escalated by 5.67% in order to account for the effect of inflation.

It is proposed to incur expenditure for replacement of aged conductor, DTRs etc., in order to improve safety profile under the head of Renovation & Modernization.

It is proposed to incur expenditure towards civil infrastructure to an extent of Rs.25 Crs. per annum from FY 25 and also Rs.20 Crs. towards calamities and others.

The above expenditure is proposed to be incurred as given in the following table :

(Rs. In Crs)

Investment Particulars	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**
Metering & Associated Equipment	105	113	114	116	118	120	122	125	127	129	132
Renovation & Modernisation.	190	201	212	224	237	250	265	280	295	312	330
Civil Infrastructure Development & Others	33	45	45	45	45	45	45	45	45	45	45
Total Capex	**328**	**358**	**372**	**386**	**400**	**416**	**432**	**449**	**467**	**486**	**507**

Final Abstract (Rs. Crs.)

Investment Particulars	**FY24**	**5th Control Period**						**6th Control Period**					
		FY25	**FY26**	**FY27**	**FY28**	**FY29**	**Total**	**FY30**	**FY31**	**FY32**	**FY33**	**FY34**	**Total**
Ongoing schemes	3776	2638	3692	1862	305	305	**8,802**	430	428	119	0	0	**977**
Capex towards Substations	267	268	251	284	314	357	**1,474**	405	439	494	554	619	**2,511**
Capex towards augmentation of PTRs	114	114	107	120	133	152	**626**	172	187	210	235	263	**1,067**
Capex towards DTRs	810	644	747	832	938	1,056	**4,217**	1,195	1,296	1,447	1,617	1,806	**7,361**
Capex towards Lines	583	484	534	596	669	755	**3,038**	854	926	1,036	1,157	1,292	**5,266**
Metering & Associated Equipment	105	113	114	116	118	120	**582**	122	125	127	129	132	**635**
Renovation & Modernisation	190	201	212	224	237	250	**1,124**	265	280	295	312	330	**1,481**
Civil Inftrastructure Development & O	33	45	45	45	45	45	**225**	45	45	45	45	45	**225**
Total Capex	**5877**	**4506**	**5701**	**4079**	**2760**	**3041**	**20,088**	**3488**	**3724**	**3773**	**4050**	**4487**	**19522**

Note: The capital expenditure of lines filed in resource plan is revised, as the same was computed due to an error.

Abstract of RDSS program for 5th and 6th control periods:

- It is to submit that the RDSS Scheme was launched by MoP, Govt. of India in July, 2021 with a total outlay of Rs.3,03,758 Crores across India with an estimated GBS (Govt. Budgetary Support) of Rs.97,631 Crores with an aim to improve the operational efficiency and financial sustainability of power utilities through deployment of smart prepaid metering and strengthening of distribution infrastructure.

- The scheme implementation period is 5 years and sunset date for the scheme will be 31.03.2026.

- The Monitoring committee in its 5th meeting held on 10.02.2022 has approved the Action plan and DPR of APSPDCL for an amount of Rs.6742.03 Crs. (Rs. 1657.66Crs towards Smart metering works and Rs.5084.37Crs towards Loss reduction works) under Phase-I of RDSS and sanction communicated by M/s. PFC Ltd., New Delhi on 17.03.2022.

The RDSS sanctioned amount details of APSPDCL are submitted below:

Amount in Rs. Crores

S. No.	Name of the Project	Sanctioned Cost	GoI grant Sanctioned	Additional Incentive (GoI Grant)
1	Smart Metering Works	1657.66	248.65	88.7
2	PMA for Metering Works	6.22	3.73	NA
	Total	1663.88	252.38	88.7
3	Loss Reduction Works	5084.37	3050.622	NA
4	PMA for Loss Reduction Works	76.27	45.762	NA
	Total	5160.64	3096.384	0
	Grand Total	6824.52	3348.764	88.7

- As per the sanction issued, the tenders were finalised for Prepaid Smart Metering works in single package (other than Agl) and Loss Reduction works (Segregation of Agricultural Feeders and Bifurcation of overloaded Feeders) in four packages on Partial Turnkey Basis. Accordingly works are awarded with the successful bidders to take up the works.

- As per Guidelines issued under RDSS, for implementation of Modernisation Distribution Infra works MoP/GoI has issued guidelines for preparation of DPRs for System Strengthening/ Modernization works under RDSS.

- Initially, the Draft Detailed Project Report (DPR) was prepared and submitted under RDSS phase-2 with an amount of Rs.2757 Cr for System Strengthening & Modernisation (SCADA,New33/11kv Substations, Augmentation of PTRs, Replacement of old aged VCBs, DTRs & PTRs etc.). Later, a revised proposal under RDSS phase-II for system

strengthening and modernization and loss reduction is submitted to the GoAP. After sanction the same will be submitted to the Hon'ble APERC.

3 Metering plan for Metering Interface Points :

a. Metering at Interface points: APSPDCL has provided 100% metering to metering interface points

b. Consumer Metering: APSPDCL has provided 100% metering at consumer end except agricultural free category. APSPDCL planned to complete metering to agricultural consumers by the end of FY 2023-24 under RDSS scheme

c. DTR Metering: APSPDCL is planned to fixup meters to all the DTRs under RDSS by the end of FY 2023-24.

d. **Agricultural Metering:**

APSPDCL has taken initiatives as per the GoAP directives to provide meters to unmetered agriculture consumers to implement DBT in the state. Govt. of AP has ordered for implementation of "YSR Uchita Vyavasaaya Vidyut Pathakam" and instructed for installation of Smart Energy Meters to all the Agriculture Services in APSPDCL vide GO.Ms.No.22 Dt. 01.09.2020 and GO.Ms.No.67, Dt. 21.06.2023 . Based on the consumption, agriculture subsidy amount will be credited to the farmer's bank account and after that, the same amount will be transferred to APSPDCL. The cost of providing meters to agriculture services shall be borne by the Govt. of Andhra Pradesh as subsidy.

4 Treatment of previous losses :

The licensee incurred significant loss due to dis-allowance of power purchase cost variations and revenue true-up in the true-up of retail supply business for the third control period by the Hon'ble APERC, causing significant working capital loan requirement to meet the above said variations. The licensee incurred accumulated loss of Rs.12,581 Cr as on 31.03.2023 after adjusting loss taken over by the GoAP under various schemes. In order to address the above dis-allowance of the said items, the licensee filed appeals before Hon'ble APTEL, for which the judgement is yet to be delivered. The power purchase cost true-up and revenue true-up amounts filed in the appeal before the Hon'ble APTEL are Rs. 8459 Cr for both EPDCL and SPDCL without carrying cost. The approximate true-up amount for APSPDCL is Rs.6741 Cr without carrying cost. Further, the licensee addressed a detailed letter to the Hon'ble APERC for amending the certain items of Regulation 4 of 2005 that are causing significant damages to the licensees, for which the Hon'ble APERC has issued a draft regulation. Recovery of past losses is contingent based on outcome of the appeals filed before the Hon'ble APETEL.

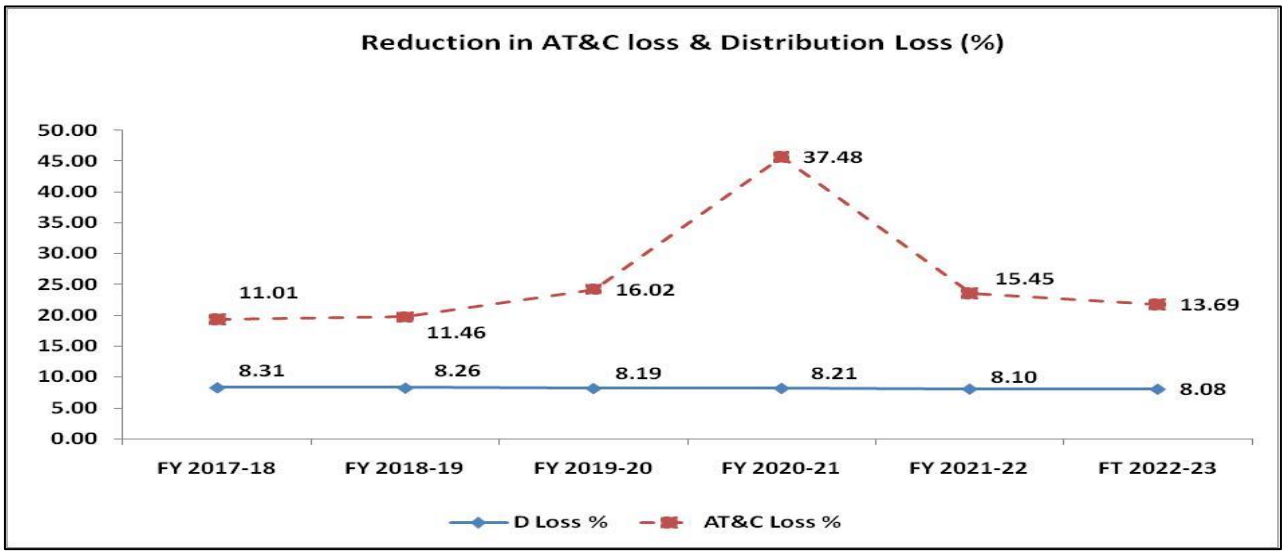
5 Performance of APSPDCL as Distribution Licensee :

5.1 Reduction in Distribution Loss :

The distribution loss has been decreasing steadily over the years. The reduction in AT&C losses and the Distribution loss have been shown in the following table:

APSPDCL	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
D Loss %	8.31%	8.26%	8.19%	8.21%	8.10%	8.08%
AT&C Loss %	11.01%	11.46%	16.02%	37.48%	15.45%	13.69%

- The above table indicates considerable reduction in distribution loss, whereas the variations in AT&C only because of declined collection efficiency. The major contribution for decrease in collection efficiency is large accumulation of arrears from Govt. services particularly from Panchayat Raj and Lift Irrigation schemes.



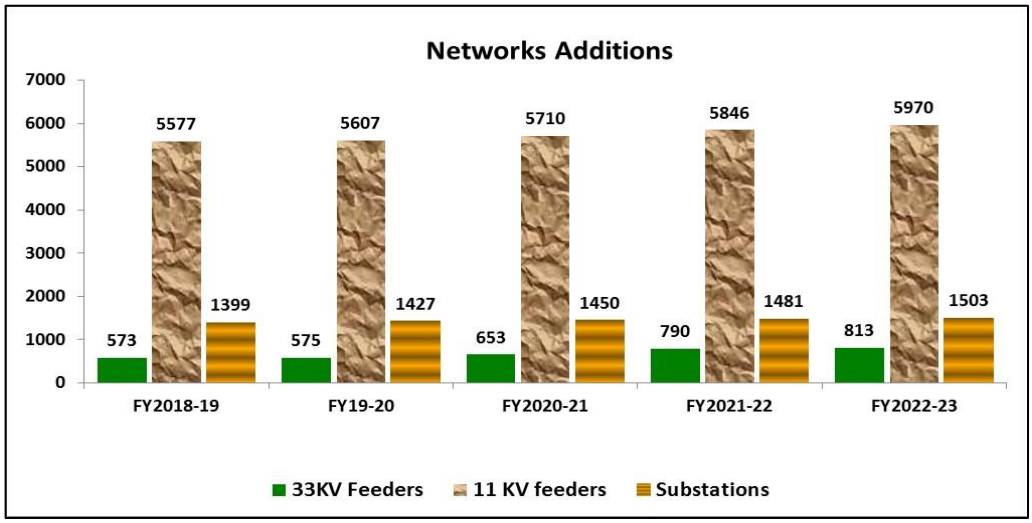
The APSPDCL Distribution Loss Trajectory for 5th & 6th Control Period is as follows:

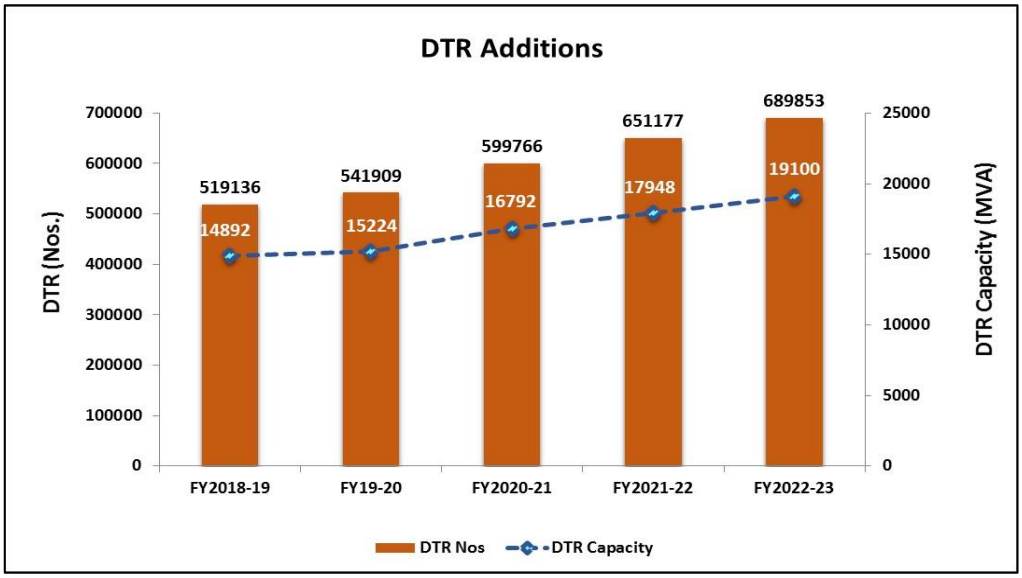
APSPDCL	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
LT Loss %	5.08	5.07	5.06	5.04	5.03	5.02	5.01	4.99	4.98	4.97	4.96
11KV Loss %	3.31	3.30	3.29	3.29	3.28	3.27	3.26	3.25	3.24	3.24	3.23
33KV Loss %	3.20	3.19	3.18	3.18	3.17	3.16	3.15	3.14	3.14	3.13	3.12

- The above graphs indicates considerable reduction in distribution loss, whereas the AT&C losses have reduced marginally only because of declined collection efficiency. The major contribution for decrease in collection efficiency is large accumulation of arrears from Govt. services particularly from Panchayat Raj and Lift Irrigation schemes.

5.2 Network Additions to sustain Load growth

The licensee have significantly added Substations, DTR's and Lines (33kV, 11kV and LT) to meet the growing demand.





5.3 Focus to improve reliability of power supply :

The licensee have taken many measures to improve the reliability of power supply. There has been significant reduction in the SAIDI / SAIFI indices over the past 12 months. The SAIDI / SAIFI trajectory have been highlighted in the table below.

	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
SAIDI (in Hrs.)	6:29	10:03	4:13	7:01	6:53	5:50	5:44	4:58	4:57	4:02	3:39	5:22
SAIFI (Nos. per customer)	9	14	7	12	12	10	10	9	9	7	7	9

5.4 Taken measures to increase the safety and reduce the accidents :

1. Proper Earthing of DTRs
2. Providing of proper size fuse wire for DTRs (both LV and HV side)
3. Proposing of Addl DTRs to relief over load on existing DTRs
4. Rectification of Loose spans both HT & LT Lines to avoid fault currents, accidents.
5. Conducting Regular inspections and maintenance like loose spans Road crossings & damaged conductor replacements.
6. Conducting safety week program in sub stations by field engineers brought awareness in general public to be more careful during natural calamities and advised field staff to follow safety measures.

SI.No	Year	No of accidents occurred	No of accidents Compensation Paid (in Lakhs)
1	2018-19	238	403.45
2	2019-20	247	475.85
3	2020-21	249	397.6
4	2021-22	237	327.82
5	2022-23	191	418.90

- Identified and rectified loose lines by erecting intermittent / strut poles

- Brought awareness among the public to maintain standard clearances whenever they construct buildings
- Brought awareness to the public to be more careful during natural calamities
- Awareness to the department staff to strictly follow the safety rules and safety procedures
- Regular maintenance of lines and equipment including pre-monsoon inspection

5.5 Initiatives in Revenue billing and Revenue Collections :

- Bi monthly billing in rural areas was dispensed and monthly billing system has been implemented for all the services
- Close monitoring of billing schedules
- Delivery of bills on time : Spot billing of all the LT services are being carried out and bills are being issued on the spot
- SMS alert on billing and collection data to consumers mobile
- Introduction of mobile payment and valet payment channels

5.6 IT Initiatives :

1] Registration of New connections through Grama Sachivalayam & Ward Sachivalayam, Meeseva, APSPDCL Consumer App and APSPDCL Website:

Registration of new connection/Service requests applications are completely moved to Meeseva, Grama Sachivalayam & Ward Sachivalayam, APSPDCL Consumer App and same has been integrated to CSC application through online. Consumer can also register applications for new connections in APSPDCL website and make payment online. The Estimated demand is generated instantly through integration with SAP and consumer can pay the estimated demand immediately. It is made available at Meeseva for Registration for solar rooftop project, HVDS conversion of Agriculture services, Grouping of Agriculture Services. Registration of LT III and HT New connections are available only at DIC Portal.

2] APSPDCL Customer Mobile APP for Digital Payments:

APSPDCL Mobile APP was launched for APSPDCL Consumers to avail various citizen centric services like (1) electricity bill payments, (2) view monthly consumption / payment history for past 12 months, (3) Various customer care services like complaint registration / tracking, (4) New Connection Registration (5) New connection application status. (6) New Connection Payment and (7) Online Service Request Registration .

3] Payment Gateways :

APSPDCL has enabled multiple Payment Gateway channels in addition to the existing Payment Gateways in the name of BILLDESK, PAYTM, APONLINE and TAWallet Payment Gateway using which the consumers can make payment of Electricity Bills(CC charges) and new registration charges.

4] E-Office :

E-Office was implemented in APSPDCL up to section office level in order make paperless office correspondence and to establish transparency and accountability by reducing turnaround time and to meet the demands of the citizens charter. Total **6679** Nos. files were initiated and circulated by various offices of APSPDCL during FY 2023-24 up to 04.10.2023

5] Customer Care Center (1912) :

Customer Care Centre has been established at Corporate Office, APSPDCL with 1912 (toll –free number) to receive and process various types of consumer complaints like fuse off calls, billing, metering, transformer failures etc. The pending complaints are continuously being monitored till resolved. Registration of any electricity related complaint is enabled in all GSWS (Grama Sachivalayam & Ward Sachivalayam) centres from 01-April-2023. An automatic Robo call functionality is available for receiving feedback from consumers soon after APSPDCL field staff closes the complaint.

6] Local FOC Application:

Local Fuse Off Call Application is developed to facilitate complaint registration by all O&M staff and Section officers to maintain online track of issues received by field staff and continuous monitor through Dashboard FOC reports.

7] SMS Gateway :

SMS Gateway services are being utilized for sending SMSs to consumers regarding new connection registration, Payment of estimate charges, service released intimation, Electricity Demand, Reminder for Payments, Receipt of online Payment. Periodical SMS alerts are being sending to AEs up to SE cadre regarding new connection registration, Notification after payment of Estimate charges, pending services to be released, Additional Load Complaints for better service.

8] APSPDCL Department APP :

APSPDCL has developed a unique mobile App for utilization by Lineman and Section officer comprising with Operational activities like DC-List, CCC-Complaints status updating, Meter Changes, Agriculture Services Geo-tagging, Check Readings, Tong tester readings, New Services Release details, Feeder Readings, Consumer Service details, Reports of operational activities, Feeder outages

9] Online Feeder Monitoring System and outage Management (OMS) :

OMS is established to provide quality of power to the utmost satisfaction of the consumers by monitoring the SAIDI and SAIFI parameters at section level and feeder level. OMS application is developed purely for serving the public to know their power supply position through internet or through their mobile app at 11 KV level.

10] UrjaMitra APP :

UrjaMitra APP is implemented in APSPDCL for informing the consumers about the status of scheduled/unscheduled outages to the effected consumers.

11] Energy Audit through online system :

Feeder wise energy Losses are monitored and steps are taken to reduce the losses at each feeder level for all the 11KV feeders existing in APSPDCL using online Energy Audit application. Weekly reviews are conducted with Field officers up to AE level and the losses are reviewed by the Honorable Chairman and Managing Director.

Online entry of Input energy readings of EHT LVs, 33KV feeders and EHT Feeders by the LMC wings at Division and Circle offices to capture division wise Input energy.

12] DTR Tracking System :

Transformers failures and replacement is monitored effectively through the DTR tracking system duly integrating with Customer Care Center and SAP.

13] APSPDCL Dashboard :

Online Reports related to Revenue and Operation wings are made available in the newly Developed APSPDCL Dashboard. Dashboard Reports related to revenue, OMS, CSC, Consumer Service History and Bill details, MATS, Energy Audit, Customer Care Center (CCC), SAP, Tab reports, HT Billing, Inspection Application for HT/LT Meters, Relay, PTRs, 33/11KV Sub-Stations etc.,

14] Direct Benefit Transfer (DBT):

The essence of this Application is to ensure every Agricultural service possess valid bank accounts to enable direct benefit transfer to the consumer. An application is developed to map the Agricultural Services available in master and field and to update the service details of Agricultural consumers. Consumer Bank Accounts are mapped to eligible DBT Agricultural services and at present Banks validation is under-process.

15] Desktop Systems and Electronic tabs :

1889 Nos. Desktops systems are provided up to Section office level in order to implement e-Office and IT applications. Also 11277 Nos. Electronic Tabs are provided up to Lineman level to digitalize the operational activities through mobile Apps

16) Bio-Metric Attendance system :

APSPDCL has established the Bio-Metric attendance system to deliver transparent, Efficient and time bounded services to the public by monitoring the attendance of its employees at all levels.

An android mobile Application is under development where employee location is geo tagged along with facial recognition. Every day attendance is being taken in reference to sample data and is under testing.

17) Teleconferencing and Video conferencing with all the field officers up to AE Level :

Continuous pursuance has been done with all field officers from Chief Engineers to Section officers through the Teleconference and Video conferencing Facilities provided in order to speed up the operation activities and reviewing the individual officer activities directly.

18] HT/LT Meter periodical inspection :

An online application for monitoring the HT/LT meters inspection made by the EE/M&P, DEEs and AEEs of HT meters and CT meters is developed and deployed.

19) Solar Pump Sets Cycle :

Customization of the complete cycle of Solar Pump Set project is done in SAP. The pricing, material handling and billing process is mapped in SAP so that the complex business process of providing Solar Pump sets to consumers has been made very simple

20) E-Stores Process :

The process of e-Stores have been implemented in AP SPDCL on SAP. This is a process in SAP by which the complete cycle of material requisition, allotment and delivery along with acknowledgement is covered. In this e-Stores system, the material is delivered at the door-step of the section Engineer. Every step of this activity is made online (SAP)

21) E-Poles Process

This is a process configured in SAP through which the poles transactions between the Vendor-Section officer-Civil wing can be performed seamlessly. The complete business cycle is mapped in SAP right from supply of material by the vendor to the section office location to the payments made to the vendor.

22] LC Application :

A mobile application is under development for taking and returning LC by O&M and department staff for doing various line works, DTR maintenance, attending restoration of supply to consumers etc., The application covers the details of LC requests and returned timings, reason for LC, name and designation of the department staff and shift operator. LC approved by AE/operation and Dy EE/Operation (for urban feeders only). The Proper utilisation of the application to avoid accidents and efficient functioning of the Department works.

23] Line Patrolling :

Application is developed in department mobile app for line patrolling of 11kv and 33 kV Lines. Provision has been incorporated in the logins of LM, AE and DYEE in operation wings. The person carrying out line patrolling has to go location wise pole to pole and enter the defects noticed as per the checklist given in the application.

24] Meter life cycle :

An application has been developed for tracking of meter in various stages i.e., from date of purchase of meter from vendor to Survey Report of the meter. This Meter Life Cycle application will enable proper utilization and accountability at the same time minimize the misuse of meter in field and LT lab. This tracking system will show different stages of Meter flow in the IT application.

25] PTR maintenance :

An application has been developed for Monitoring the Periodic Maintenance of PTRs done by Dy.EE/TRE's for every quarter in all circles. The application provides the details of periodical testing of PTRs in 33/11KV SS and also the working condition of the other equipment in the Sub Station.

26] SS Equipment Monitoring :

A mobile application has been developed for monitoring of 33/11 KV SS protection and other equipment abnormalities by the Shift Operator at SS in each shift. The Shift operator working in 33/11KV Sub Stations have to enter the details of any abnormalities / parameter values found in their shifts in 33/11 KV Sub stations. An SMS will be initiated to the concerned Officers (Operation wing, Protection wing & TRE wing) to notify the abnormalities for further rectification.

27] SBM (Spot Billing Machine) Android Software:

Android Based Mobile APP is developed for scanning (with Dongle) of meters which connects to Bluetooth Printer to generate power bill. It is real time data transfer to server immediately and bill issued to consumer in the spot within 4 sec. The geographic location of meter can be fetched for easy identification of service location. This application is totally maintained by APSPDCL.

28] SCM (Spot Collection Machine) Android Software:

SCM Android software is developed for collection of all categories of LT Service CC charges in ERO counters and RC (Revenue Cashier) in field and by connecting to Bluetooth Printer, the Receipt can be generated. It updates collection details to APSPDCL Server in real-time. It reduces the dependency on collection machine. It is working to fulfil the APSPDCL requirement without any glitches in collection activities at ERO's and RC counters. This application totally maintained by APSPDCL.

29] GST Implementation :

GST is implemented in SAP as per GST act. w.e.f 01.07.2017. E Invoice (B2B) and E- way bill (B2B) implemented as per the GST Rule.

30] Energy efficient Pump Sets Cycle :

Customization of the complete cycle of Energy efficient pump Set project is done in SAP. The pricing, material handling and billing process is mapped in SAP so that the complex business process of providing Energy efficient pump sets to consumers has been made very simple

31] EODB (Ease of Doing Business):

Estimate generation at DIC portal: For releasing of service (All HT & LT - III categories) with extension work involvement, Estimate and demand is being generated instantaneously in online through integration with SAP as per the requirements of customer.

32] Raithu Nestham:

In order to provide prompt service to Agricultural consumers, a system has been under development in SAP which is named as "Raithu Nestham". This system will accelerate the estimate sanction process by enforcing time-bound release and incase of delay, it will be escalated to next higher authority for preparation of estimate and release of supply.

33] Creation of N4 Notification for PTR Failures and Tracking:

Previously during PTR failures manual procedure was followed and which was causing duplication of PM10 orders and there is no proper data regarding how many PTRs were failed during a particular period. New T Code is developed for Creation of PM10 orders through N4 Notification i.e., one PM 10 order will be created against one N4 notification. All the inspection reports of failed PTR and repaired PTR, vendor fixation, healthy replacement will be available against N4 Notification for reference.

34] Creation of N4 Notification for DTR Failures and Tracking:

Previously during DTR failures manual procedure was followed and which was causing duplication of PM10 orders and there is no proper data regarding how many DTRs were failed during a particular period. New T Code is developed for Creation of PM10 orders through N4 Notification i.e., one PM 10 order will be created against one N4 notification. All the inspection reports of failed DTR and repaired DTR, vendor fixation, healthy replacement will be available against N4 Notification for reference.

35] Online entry of Activities at SPM centres in SAP:

Digitalisation of joint Inspection, Sick Equipment inspection Register and Test Results registers are created for further analysis of cause of failure and arriving of expenditure incurred and planning for cost cutting.

5.7 Focus on Industrial Consumers :

In order to encourage HT consumers to consume more power to achieve higher sales targets,

1. DISCOMs are taking effective steps in improving the quality and reliability of power, which is most crucial in increasing the sales.
2. DISCOMs are making wide publicity about the relaxation of TOD tariff during the morning peak hours period, through frequent interactions/ meetings with major HT consumers.
3. Periodical testing of all HT services so that defective meters/meters with errors beyond permissible limits are replaced immediately thereby avoiding any leakage of sales.

4. Ensuring appropriate rating of the metering equipment i.e CTs, PTs and energy meters with 0.2s class of accuracy thereby actual consumption can be recorded.

6 Performance Improvement Plan of APSPDCL for FY 2023-24 to FY 2028-29 :

6.1 Loss Reduction Initiatives :

In order to bring down Distribution losses to a sustainable level, APSPDCL proposed the following action plan for loss reduction:

- Bifurcation of over loaded 11kV and 33kV feeders
- Erection of additional Power transformers in existing 33/11 kV substations, Where the existing power transformers are overloaded
- Erection of additional DTRs and enhancement of capacity of DTRs in towns & urban areas
- Bifurcation of existing mixed rural feeders into exclusive agricultural feeders, to know the exact agriculture sales & distribution losses and also to regulate the agriculture supply
- By conducting intensive inspections by operation wing and DPE wing to minimize the theft/Direct tapping/Unauthorized usage of power supply to reduce the losses.
- Erection of new substations
- Erection of capacitor banks
- Renovation of DTR earthing & conversion of LT- three wire system into LT-five wire system to minimize the neutral currents
- Loss reduction by reliability improvement – Proposal for providing of 33KV & 11KV covered conductor/UG Cables in tree dense areas in urban area
- Continuous monitoring of top ten high line loss towns and Mandal headquarters and preparing action plan to get down AT&C losses to permissible limits.

7 Key Financial Parameters :

The key financial parameters of APSPDCL are detailed below.

7.1 Capital Expenditure :

Capital expenditure (CAPEX) is defined as the expenditure incurred by DISCOM on but not limited to acquire or upgrade physical assets such as property, buildings or equipment. It may be noted that the scope of expenditure is limited to physical, immovable assets only.

For the period from FY 2023-24 to FY 2028-29, the licensee has estimated the capital expenditure as below.

S. no.	Particulars	FY24	FY25	FY26	FY27	FY28	FY29
1	CAPEX under ongoing Schemes	3776	2638	3692	1862	305	305
2	Capex towards Substations	267	268	251	284	314	357
3	Capex towards augmentation of PTRs	114	114	107	120	133	152
4	Capex towards DTRs	810	644	747	832	938	1,056
5	Capex towards Lines	583	484	534	596	669	755
6	Metering & Associated Equipment	105	113	114	116	118	120
7	Technology upgradation and R&M	190	201	212	224	237	250
8	Civil Inftrastructure Development & Others	33	45	45	45	45	45
Total		5877	4506	5701	4079	2760	3041

Note: The licensee corrected the error with regard to capital expenditure amount towards capital expenditure of lines mentioned in the resource plan filings for 5th and 6th control periods and the revised amount is taken into consideration for all relevant computations in the present business plan.

7.2 Asset Base :

Total capitalization for the Base Year and the Control Period has been projected based on the following assumptions:

1) Capitalization of Base Investment and Capital Work-in-Progress (CWIP): Capitalization of assets for MYT period has been considered based on historical actual capitalization trends and capital expenditure projected for the Control Period.

2) **Capitalization of Expenses:**

   a) Interest during Construction (IDC): Interest during Construction (IDC) has been calculated as a percentage of the average Capital Works-in-Progress for the year.
   b) Operational and Maintenance (O&M) Expenses: Operational and Maintenance (O&M) Expenses capitalized has been projected at 11% of capital expenditure incurred for the year.

Thus, the licensee has projected capital investment undertaken and its capitalisation for the Base Year and Control Period as given below:

Closing Balance of CWIP = Opening Balance of CWIP + Capital Expenditure during the year + Expenses Capitalized – Investment Capitalized

(Rs in Crs)

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Opening Balance of Capital Work in Progress (CWIP)	3,067	5,367	4,492	4,309	3,176	1,369
Capital Expenditure during the year	5,877	4,506	5,701	4,079	2,760	3,041
Expenses Capitalized	647	496	627	449	304	335
Interest During Construction	197	274	360	328	284	172
Total expenses capitalized	844	770	986	776	585	502
Transfer to fixed assets	4,422	6,150	6,807	5,984	5,131	3,371
Closing CWIP	**5,367**	**4,492**	**4,309**	**3,176**	**1,369**	**1,499**

7.3 Investment :

For the period from FY2023-24 to FY2028-29, loan requirement is as follows: additional investment required is calculated as follows.

Particulars (Rs. Cr)	FY24	FY25	FY26	FY27	FY28	FY29
Capital Expenditure	5,877	4,506	5,701	4,079	2,760	3,041
Consumer Contributions & Grants	2962	1962	2793	1707	796	821
Loan Requirement	2,915	2,543	2,908	2,373	1,964	2,221
Ongoing Loans (Receipts)	1,369	523	218	218	218	218
New Loans Requirement (Receipts)	1,546	2,020	2,690	2,155	1,746	2,003

7.4 O&M Expense :

The Operation & Maintenance (O&M) Expenses consist of the following components:

a. Employee Expenses (EE) including Salaries, wages and other employee costs;
b. Administrative & General costs (A&G) including legal charges, audit fees, rent, rates and taxes;

c. Repairs and Maintenance (R&M) including equipment maintenance, repairs, fault corrections, etc.

Licensee has adopted method recommended by commission in 3rd Control period MYT order. The methodology adopted by the licensee for projection of O&M expenses for 4th Control period is as below:

a. Repair and Maintenance (R&M) Expenses

As per MYT order for 4th Control period, commission has recommended all the licensees to project R&M expenses as 2.05% of the opening balance of the Gross Fixed Assets (GFA) for the year. Hence, the licensee has considered the 2.05% of the opening GFA of the respective year for the next 5 years.

Below table shows the projections summary of the R&M expenses:

Name of the Parameter	FY24	FY25	FY26	FY27	FY28	FY29
Average R&M as % of Opening GFA	2.05%	2.05%	2.05%	2.05%	2.05%	2.05%
Opening GFA	15509	**19,931**	**26,081**	**32,720**	**38,704**	**43,835**
R&M expenses	**318**	**407**	**531**	**668**	**788**	**890**

b. Employee expenses (EE) and Administrative and General (A&G) expenses

As per MYT order for 4th Control period, commission has recommended all the licensees to project EE and A&G expense based on the norms linked to Number of Substations (SS), line length (Circuit KM), Number of consumers and Number of DTRs. Licensee has adopted the same methodology for projecting the employee expenses and A&G expenses for 5th Control period. The methodology for projecting employee expenses is explained below. Same methodology has been adopted for projecting A&G expenses:

(1) For each year, actual Employee expenses is allocated to Substations, Line length, DTRs and Consumers in the ratio of 49%:21%:10%:20%. The following ratios are calculated: Employee expense/ Substation, Employee expense/ circuit km of line length, Employee expense/ DTR, Employee expense/ Consumer.

Below table shows the historical data for Employee expenses, A&G expenses and Number of Substations (SS), line length (Circuit KM), Number of consumers and Number of DTRs.

Parameter	Unit	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
Employee Expenses (EE)	**Rs. Crs.**	**1,798**	**1,907**	**1,121**	**1,150**	**1,132**
A&G Expenses	**Rs. Crs.**	**159**	**193**	**79**	**75**	**118**
No. of Consumers	Nos.	12,278,356	12,614,450	7,662,379	7,917,502	8,196,112
Number of DTRs	Nos.	735,586	771,331	599,766	651,177	689,853
Line Lengths	Kms	470,390	481,719	288,844	297,967	305,967
Number of SS	Nos.	2,205	2,237	1,450	1,481	1,503

Below table shows the historical approved norms for the ratios:

Parameter	Unit	FY 19-20	FY 20-21	FY 21-22	FY 22-23
EE / Consumers	Rs./Nos	330	347	365	383
EE / DTR	Rs./Nos	3720	3912	4114	4326
EE / Line	Rs./Kms	9774	10278	10809	11366
EE /SS	Rs./Nos.	5071416	5333101	5608289	5897677
A&G Exp/ Consumers	Rs./Nos.	22	23	24	26
A&G Exp/DTR	Rs./Nos.	245	257	271	285
A&G Exp/line	Rs./Kms	650	683	718	756
A&G Exp/SS	Rs./Nos.	333346	350546	368635	387656

(2) To arrive at the average of these ratios, the Licensee has considered the data from FY 2018-19 onwards. Average of these ratios for the 5 years between FY2018-19 and FY2022-23 has been considered as the norms for FY2020-21. These norms for FY2021-22 onwards are escalated for by using the escalation rate calculated based on the WPI and CPI index as shown below:

Escalation Rate: For the projections of the expenses, licensee has considered the escalation (inflation) rate as calculated from the WPI and CPI indexes in the 3rd Control period as shown below.

Inflation rate depends on the Consumer Price Index (CPI) for industrial workers and Wholesale Price Index (WPI). The below table lists the CPI (Industrial Worker) and WPI data from year 2018 to year 2022.

Particulars	2018	2019	2020	2021	2022
WPI	**118.90**	**121.20**	**121.80**	**135.00**	**151.30**
CPI	**294.83**	**317.42**	**335.00**	**351.43**	**372.17**

Source: CPI - www.labourbureau.nic.in, WPI - www.eaindustry.nic.in (Office of the Economic Advisor website)

Basis the observed historical CPI and WPI numbers (CPI- Industrial Workers: 40% and WPI: 60%) and calculated the inflation factor based on the illustrative methodology suggested by CERC as shown below:

Year	WPI	CPI	Composite number	Rt= Yt/Y1	Ln (Rt)	Year - 1	Product
2018	118.90	294.83	189.27				0.00
2019	121.20	317.42	199.69	1.06	0.05	1.00	0.05
2020	121.80	335.00	207.08	1.09	0.09	2.00	0.18
2021	135.00	351.43	221.57	1.17	0.16	3.00	0.47
2022	151.30	372.17	239.65	1.27	0.24	4.00	0.94
A= Sum of Product column			1.65				

Year	WPI	CPI	Composite number	Rt= Yt/Y1	Ln (Rt)	Year - 1	Product
B= 6A			9.90				
C= n(n-1)(2n-1); n= number of years of data			180				
D=B/C			0.05				
g= exp (D)-1			0.06				
Escalation rate= g*100			5.65				

The inflation factor is observed to be 5.65% during for the last 5 years of consideration. Hence, for projections of the expenses, licensee has considered escalation rate of 5.65%.

Below are the projected norms for FY2020-21 onwards.

Parameter	FY21	FY22	FY23
EE / Consumers	**291**	**307**	**325**
EE / DTR	**2,038**	**2,153**	**2,275**
EE / Line	**8,071**	**8,527**	**9,009**
EE /SS	**3,890,485**	**4,110,297**	**4,342,529**
A&G Exp/Consumers	**25**	**26**	**28**
A&G Exp/DTR	**177**	**187**	**198**
A&G Exp/line	**693**	**732**	**774**
A&G Exp/SS	**335,400**	**354,350**	**374,371**

Parameter	FY24	FY25	FY26	FY27	FY28	FY29
EE / Consumers	**343**	**362**	**383**	**404**	**427**	**451**
EE / DTR	**2,404**	**2,539**	**2,683**	**2,834**	**2,995**	**3,164**
EE / Line	**9,518**	**10,056**	**10,624**	**11,224**	**11,858**	**12,528**
EE /SS	**4,587,882**	**4,847,097**	**5,120,958**	**5,410,292**	**5,715,974**	**6,038,927**
A&G Exp/Consumers	**29**	**31**	**33**	**35**	**37**	**39**
A&G Exp/DTR	**209**	**221**	**233**	**246**	**260**	**275**
A&G Exp/line	**817**	**864**	**912**	**964**	**1,018**	**1,076**
A&G Exp/SS	**395,523**	**417,870**	**441,480**	**466,424**	**492,776**	**520,618**

(3) The projected ratios based on the escalation rates are multiplied by the projected Number of Substations (SS), line length (Circuit KM), Number of consumers and Number of DTRs in order to arrive at the employee expenses and A&G expenses for the respective years of 5th Control period.

(4) Licensee has also considered the expense component for pay hike to outsourced employees.

Below table shows the projected Number of Substations (SS), line length (Circuit KM), Number of consumers and Number of DTRs and the projected employee expense and A&G expenses:

Parameter	Unit	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
No. of Consumers	Nos.	7,224,249	7,448,377	7,677,866	7,912,921	8,153,736	8,400,506
Number of DTRs	Nos.	703,573	713,893	725,223	737,163	749,903	763,483
Line Lengths	Kms	312,994	318,443	324,206	330,294	336,768	343,679
Number of SS	Nos.	1,564	1,662	1,751	1,846	1,944	2,050
Employee Expense arrived as per norms	Rs. Cr.	1,432	1,577	1,730	1,898	2,084	2,289
Future provision towards P&G Trust	Rs. Cr.	800	800	800	973		
Addition Interest on Pension Bonds		413	647	666	684	705	722
Employer Contribution to EPF		79	96	105	124	137	150
Provision for gratuity EPF of holders		40	40	40	40	40	40
Employee Expenses(including provisions)	Rs. Cr.	**2,764**	**3,160**	**3,341**	**3,720**	**2,965**	**3,201**
A&G Expenses	Rs. Cr.	123	136	149	164	180	197

The licensee estimated the employee expenses as per the methodology adopted by the Hon'ble APERC in the true-up order of distribution business for 3rd control period, wherein the contribution to pension fund was added to the employee cost arrived as per norms.

O&M projections summary for the Control period and break-up are shown in the table below.

Parameter	Unit	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Employee Cost	Rs. Crs	2,764	3,160	3,341	3,720	2,965	3,201
A&G Cost	Rs. Crs	123	136	149	164	180	197
R&M Cost	Rs. Crs	318	407	5301	668	788	890
Total O&M Expenses	**Rs. Crs**	3,206	3,703	4,021	4,552	3,933	4,288

7.5 Depreciation

The depreciation every year for the particular asset class has been calculated as per below formula considering the Depreciation rates for respective asset class of asset base and also Fully Depreciated Assets during the control period.

Depreciation for the year = (Opening balance of the gross fixed assets for the year – Fully Depreciated Assets till previous year) * Rate of depreciation

The Depreciation rates as per Ministry of Power guidelines have been assumed to arrive at next 5 years depreciation which is shown below:

Asset Class	Rate of Depreciation
Buildings and Other Civil Works	3.02%
Battery Chargers	33.40%
Material Handling Equipment/Plant & Machinery	7.84%
Meters / Meter Equipment	12.77%
Office Equipment and Air Conditioners	12.77%
Plant & Machinery and Lines, Cables & Network	7.84%
Capacitor Banks	5.27%
Furniture & Fixtures	12.77%
Vehicle – Car / Jeep / Scooter / Motor Cycle/ Lorry / Truck	33.40%
Computers and IT Equipment	12.77%
Intangible assets (Software, Goodwill etc.)	10.00%

The Fully depreciated assets till the year have been deducted from the opening balance of the next year to calculate the depreciation. Depreciation computation after considering the Fully Depreciated Assets (FDA) balances is tabulated below:

Particulars (Rs. Cr.)	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Opening Balance of assets	15,509	19,931	26,081	32,720	38,704	43,835
Asset Additions during the Year	5,877	4,506	5,701	4,079	2,760	3,041
Fully Depreciated assets during the year	410	433	584	1,057	865	561
Depreciation During the Year	819	1,170	1,661	2,172	2,574	2,932

7.6 Consumer Contribution and Grants:

The consumer contribution additions and Grants has been estimated based on the past trend and new consumer additions in the next 5 years of the control period.

Below table provides the projections of the grants in 5th Control period.

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Opening Balance	0	2,494	3,871	5,973	6,896	6,871
Additions during the year	2,558	1,538	2,348	1,239	305	305
Deductions during the year	64	161	246	316	330	319
Closing Balance	**2,494**	**3,871**	**5,973**	**6,896**	**6,871**	**6,856**

Below table provides the projections of the Consumer Contribution in 5th Control period.

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Opening Balance	2372.73	2472.1	2576.44	2686	2801.04	2921.82
Additions during the year	404.061	424.264	445.477	467.751	491.139	515.696
Deductions during the year	304.689	319.923	335.92	352.716	370.351	388.869
Closing Balance	**2472.1**	**2576.44**	**2686**	**2801.04**	**2921.82**	**3048.65**

7.7 Regulated Rate Base :

The Hon'ble Commission has outlined principles for computation of Regulated Rate Base (RRB) in Regulation 4 of 2005.

Calculation of RRB :

The honourable commission has proposed a computation methodology (in the excel spreadsheet) for the RRB calculation for the year, which is as follows:

"RRB = (OCFA – AD – CC) + ΔRAB+WC where,

- **OCFA:** Original Cost of Fixed Assets at the beginning of the Year available for use and necessary for the purpose of the licensed business.
- **AD:** Amounts written off or set aside on account of depreciation of fixed assets pertaining to the regulated business at the beginning of the Year.
- **CC:** Total contributions made by the users towards the cost of construction of distribution/service lines by the Licensee and also include the capital grants/subsidies received for this purpose at the beginning of the year.
- **ΔRAB:** Change in the Rate Base in the year. This component would be the average of the value at the beginning and end of the year as the asset creation is spread across a year and is arrived at as follows:

$$\Delta RAB = (Inv - D - CC)/2$$

- Inv: Investments projected to be capitalised during the year of the Control Period and approved.
- D: Amount set aside or written off on account of Depreciation of fixed assets for the year of the Control Period.
- CC: User Contributions pertaining to the ΔRAB and capital grants/subsidies received during year of the Control Period for construction of service lines or creation of fixed assets.

Based on the above computation methodology, RRB has been calculated as shown below table. The Original Cost of Fixed Assets (OCFA), Accumulated Depreciation and Total Consumer Contribution calculated for Base Year and 4th Control period i.e., from 2018-19 to 2023-24 are as follows:

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Assets	**19,931**	**26,081**	**32,888**	**38,704**	**43,835**	**47,206**
-OCFA Opening Balance	15,509	19,931	26,081	32,720	38,704	43,835
-Additions to OCFA	4,422	6,150	6,807	5,984	5,131	3,371
Acc Depreciation Closing Balance	**9,018**	**10,187**	**11,849**	**14,000**	**16,574**	**19,506**
- Acc Depreciation Opening Balance	8,199	9,018	10,187	11,849	14,000	16,574
- Depreciation for the year	819	1,170	1,661	2,172	2,574	2,932
Con Contributions closing balance	**4,966**	**6,447**	**8,659**	**9,697**	**9,792**	**9,905**
-Con Contributions Opening Balance	2,373	4,966	6,447	8,659	9,697	9,792
-Additions to Cons Contributions	2,593	1,481	2,212	1,038	96	112
Working Capital	321	350	388	417	353	386
Change in Rate Base	**505**	**1,750**	**1,467**	**1,387**	**1,230**	**163**
Regulated Rate Base	5,764	8,047	11,301	14,017	16,592	18,018

7.8 Weighted Average Cost of Capital (WACC) :

The Regulation prescribes that the licensees will be compensated for the financing costs through Return on Capital Employed (ROCE) principles. This principle is aimed to provide the licensee with the return on debt as well as return on equity at a normative level. The licensee has computed the ROCE as provided in the Clause 15 of the Regulation which specifies that the ROCE be computed by multiplying the Regulated Rate Base (RRB) by the Weighted Average Cost of Capital (WACC).

The Regulation specifies the following methodology for computation of ROCE:

Return on Capital Employed (RoCE) for the RRB for the year 'i' shall be computed in the following manner:

$RoCE_i = WACC * RRB_i$

Where RRBi is the Regulated Rate Base for the year 1 and WACC is the Weighted Average Cost of Capital. The detailed computation of RRB is explained in Section 2.5 above. With respect to the WACC, the Regulation specifies the formula as follows:

$$WACC_{RRB} = \left[\frac{D/E}{1+D/E}\right] \quad r_d + \left[\frac{1}{1+D/E}\right] \quad r_e$$

Where,

D/E is the Debt to Equity Ratio – Licensee is proposing a normative Debt: Equity ratio of 75:25

- r_d is the Cost of Debt – Licensee has considered the cost of debt as the weighted average of the debt rates for the ongoing loans and projected loans.

- r_e is the Return on Equity – It has been the prevailing regulatory practice to consider 14% as the Return on Equity (ROE) in the ARR of Network business of AP Power Utilities. The APDISCOMs request the Hon'ble APERC to continue the same practice for the 4th Control period also, in view of the prevailing equity market conditions.

Based on the RRB explained earlier, the WACC and the ROCE for the 4th Control Period is as follows:

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Capital Structure						
Debt Percent	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
Equity percent	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Cost of Funds						
Cost of Debt percent	9.7%	8.6%	9.9%	10.0%	10.1%	10.1%
Return on Equity percent	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
WACC	**10.8%**	**10.0%**	**10.9%**	**11.0%**	**11.1%**	**11.1%**

7.9 Return on Capital Employed :

The licensee has arrived at RoCE for all five years of the control period as a product of Regulated Rate Base (RRB) and Weighted Average Cost of Capital (WACC) which is as follows:

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
Regulated Rate Base	**5,764**	**8,047**	**11,301**	**14,017**	**16,592**	**18,018**
WACC	**10.8%**	**10.0%**	**10.9%**	**11.0%**	**11.1%**	**11.1%**
Return on Capital Employed	623	805	623	1,543	1,840	1,999

7.10 Taxes on Income :

The licensee projects 15% tax (Minimum Alternate Tax) on Return on Equity during the current fiscal and during ensuing control period. The details are as follows:

	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
RRB	**5,764**	**8,047**	**11,301**	**14,017**	**16,592**	**18,018**
25% of Regulatory Rate Base	1,441	2,012	2,825	3,504	4,148	4,504
ROE %	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Expected Profit @ 14% on 25% of RRB	202	282	396	491	581	631
Tax on Income @ 15%	**36**	**50**	**70**	**87**	**102**	**111**

8 Aggregate Revenue Requirement :

Following table shows the projected revenue requirement for the distribution licensee during the 4th Control Period.

Particulars	FY24 (RE)	FY25	FY26	FY27	FY28	FY29
O&M Charges (Net)	3,206	3,704	4,025	4,554	3,938	4,297
Depreciation	819	1,170	1,661	2,172	2,574	2,932
Advance Against Depreciation	0	0	0	0	0	0
Taxes on Income	36	50	70	87	102	111
Other Expenditure	25	25	26	27	28	29
Special Appropriations	0	0	0	0	0	0
Total Expenditure	4,085	4,949	5,782	6,840	6,643	7,369
Less: IDC and expenses capitalized*	197	274	360	328	284	172
Less: O&M expenses capitalized	0	0	0	0	0	0
Net Expenditure	3,888	4,675	4,026	4,877	5,666	6,494
Add Return on Capital Employed	623	805	1,169	1,543	1,840	1,999
Total Distribution ARR	4,511	5,480	5,195	6,341	7,397	8,345
Less: Wheeling Revenue from Third Party/Open Access/NTI (if any)	441	556	659	749	784	794
Revenue Requirement, (Net transferred to Retail Supply Business)	**4,070**	**4,923**	**4,796**	**5,923**	**6,960**	**7,887**

9 Financial Statements of APSPDCL for FY 2023-24 to FY 2028-29 :

The profit and loss account for Distribution and Retail supply business of APSPDCL and the balance sheet from FY2023-24 to FY2028-29 are presented in the table below. The revenue from sale of power for the respective year is arrived by escalating the average per unit category revenue of the previous year by 5% starting from the FY 2022-23, whose average per unit category revenue arrived as per the annual report for FY 2022-23. Similarly, the per unit power purchase cost is escalated@3% year on year.

Profit and Loss Statement:

Particulars	FY23	FY24	FY25	FY26	FY27	FY28	FY29
INCOME							
Revenue from sale of power	19,048	12,987	14,715	16,621	18,343	20,236	22,729
Revenue Subsidies and grants	4,816	9,695	10,617	11,222	12,272	11,739	11,975
Other Income	1,507	1,676	1,828	1,969	2,098	2,172	2,224

Particulars	FY23	FY24	FY25	FY26	FY27	FY28	FY29
TOTAL INCOME	**25,372**	**24,301**	**27,173**	**29,715**	**32,590**	**34,263**	**37,353**
EXPENDITURE							
Purchase of Power	19,644	17,580	19,266	21,094	22,769	24,579	26,787
Repairs & Maintenance (Net of Capitalization)	332	318	409	535	671	793	899
Employee Costs (Net of Capitalization)	2,650	2,764	3,160	3,341	3,720	2,965	3,201
Administration & General Expenses (Net of Capitalization)	108	123	136	149	164	180	197
Depreciation and Related Debits (Net)	815	819	1,170	1,661	2,172	2,574	2,932
Interest and Finance charges	1,668	2,765	3,012	2,931	2,982	3,001	3,047
Other Expenses	295	92	234	267	312	313	314
SUB TOTAL	**25,511**	**24,461**	**27,387**	**29,978**	**32,790**	**34,405**	**37,377**
LESS: EXPENSES CAPITALISED							
Interest and Finance charges capitalized	141	197	274	360	328	284	172
Other expenses capitalized	0	0	0	0	0	0	0
Sub-Total (13+14)	**141**	**197**	**274**	**360**	**328**	**284**	**172**
Other Debits	0	0	0	0	0	0	0
Extra-ordinary items	0.0	0	0	0	0	0	0
Sub Total (15+16)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Expenditure(6 TO 12 -13-14+15+16)	**25,370**	**24,264**	**27,113**	**29,618**	**32,462**	**34,121**	**37,205**
PROFIT/(LOSS) BEFORE TAX	1.26	37	61	97	129	141	148
Provision for Income tax	0.0	36	50	94	116	137	146
PROFIT/(LOSS) AFTER TAX	1.26	1	11	3	12	5	2
Net Prior Period Credit /(Charges)	1,233	0	0	0	0	0	0
SURPLUS/(DEFICIT)	**1,233**	**1**	**11**	**3**	**12**	**5**	**2**

Note: For FY 23, the revenue from sale of power includes D-D revenue as well, for the remaining years, the revenue from sale of power doesn't include D-D revenue**.**

Balance Sheet:

Particulars	FY23	FY24	FY25	FY26	FY27	FY28	FY29
Sources of Funds							
1. Shareholders' Funds							
a) Share Capital	359	359	359	359	359	359	359
b) Reserves and surplus	-7,126	-4,531	-3,039	-824	226	327	441
2. Loan Funds							
a) Secured Loans	24,818	28,371	25,043	22,531	19,289	15,896	12,439
b) Other long term liabilities	2,210	2,614	5,898	9,128	13,720	16,663	21,138
b) Long term provisions	3,399	3,739	4,079	4,419	4,932	5,298	5,702
Total	**23,660**	**30,552**	**32,340**	**35,612**	**38,525**	**38,543**	**40,079**
Application of Funds							
1. Fixed Assets							
a) Gross Block	15,509	19,931	26,081	32,888	38,704	43,835	47,206
b) Less: Accumulated Depreciation	8,199	9,018	10,187	11,849	14,000	16,574	19,506
c) Net Block	**7,311**	**10,913**	**15,894**	**21,039**	**24,704**	**27,261**	**27,700**
d) Capital Work-in-progress	3,067	5,367	4,492	4,309	3,176	1,369	1,499
Deferred tax asset	0	0	0	0	0	0	0
Other Non-current assets	0	117	119	121	123	126	129
2. Investments	185	287	287	287	287	287	287

Long term loans and advances	461	475	489	504	519	534	550
3. Current Assets, Loans & Advances							
a) Inventories	507	743	590	748	570	426	473
b) Trade Receivables	14,165	14,873	12,642	11,378	10,240	9,216	8,295
c) Other Receivables	7,490	8,296	8,452	8,351	8,247	8,168	8,149
d) Cash & Bank balances	167	176	184	194	203	214	224
e) Loans & Advances	901	946	993	1,043	1,095	1,150	1,207
	23,230	**25,035**	**22,862**	**21,714**	**20,356**	**19,174**	**18,348**
Less: Current Liabilities and Provisions							
a) Short term Borrowings	3,565	3,565	3,785	3,628	3,628	3,628	3,628
b) Trade Payables	5,563	4,660	4,904	5,851	4,428	4,375	2,949
c) Other current liabilities	1,388	3,227	2,887	2,612	2,268	1,843	1,453
d) Short term Provisions	77	189	226	272	316	362	404
	10,593	**11,641**	**11,803**	**12,363**	**10,640**	**10,208**	**8,435**
Net Current Assets	**12,637**	**13,393**	**11,059**	**9,351**	**9,716**	**8,966**	**9,913**
Total	**23,660**	**30,552**	**32,340**	**35,612**	**38,525**	**38,543**	**40,078**

10. Conclusion

1. If the proposed investments are incurred, the licensee would have sufficient network capacity to meet the expected load growth.
2. With the increase in network capacity reliability of power supply would increase.
3. The agriculture services are also proposed to be installed with smart meters under YSR Vyasvasaya Uchita Vidyuth Pathakam. With this consumer metering would reach 100%. This would enable accurate measurement of agricultural consumption.
4. Smart meters are also proposed to be installed for all the feeders. This would improve energy accounting with more precision.
5. The voltage wise line losses are expected to reduce as follows
   a. LT losses would be reduced from 5.09% to 4.96 % by the FY 34.
   b. 11kV losses would be reduced from 3.33 % to 3.23% by the FY 34.
   c. 33 kV losses would be reduced from 3.22 % to 3.12% by the FY 34.
6. With the implementation of the proposed investments and improvements, the distribution system of the APSPDCL would become more robust, accident free as well as improve the quality of power supply.