**NORTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED**

(Distribution and Retail Supply of Electricity Licensee)

****

**Filing of Resource Plan for 5th Control Period**

**(FY2024-25 to FY28-29)**

**1st April 2023**

Table of Contents

[1 Introduction 9](#_Toc131185902)

[2 Sales Forecast 10](#_Toc131185903)

[2.1 Approaches to Sales Forecasting 10](#_Toc131185906)

[2.2 Historical Sales Summary 12](#_Toc131185907)

[2.3 Sales Forecast for the Control Period 12](#_Toc131185908)

[2.4 Category wise sales projection 13](#_Toc131185909)

[2.5 Consolidated Sales Projections 28](#_Toc131185910)

[3 Loss Trajectory 30](#_Toc131185911)

[4 Energy Requirement Forecast 34](#_Toc131185912)

[5 Load Forecast 36](#_Toc131185913)

[5.1 Time series analysis: 36](#_Toc131185914)

[5.2 5th Control Period (FY 2024-25 to FY 2028-29) 37](#_Toc131185915)

[5.3 Subsequent Control Period (6th Control Period) 44](#_Toc131185916)

[5.4 Historic Information 45](#_Toc131185917)

[6 Power Procurement Plan 47](#_Toc131185918)

[6.1 Energy Requirement 47](#_Toc131185919)

[6.2 Energy Availability 48](#_Toc131185920)

[6.3 Energy Balance 60](#_Toc131185929)

[6.4 Power Procurement Plan (Short-term & Long-term): 60](#_Toc131185930)

[7 Distribution Plan 62](#_Toc131185931)

[7.1 Network Plan Base Capital Expenditure: 63](#_Toc131185932)

[7.2 Methodology 63](#_Toc131185933)

[7.3 Network Additions Summary 69](#_Toc131185934)

[7.4 Network Element Definition and Cost Details 73](#_Toc131185935)

[7.5 Base Capex Network Additions Financial Summary: 77](#_Toc131185936)

[7.6 Other Capital Expenditure 78](#_Toc131185937)

[7.7 Summary of Other Capital Expenditure 91](#_Toc131185938)

[7.8 Summary of Total Capital Expenditure (Base & Other Capex). 95](#_Toc131185939)

**List of Tables**

[Table 1: LT- I Domestic 5th Control Period 12](#_Toc131186021)

[Table 2:LT- I Domestic 6th Control Period 12](#_Toc131186022)

[Table 3: LT- II Non- Domestic 5th Control Period 12](#_Toc131186023)

[Table 4: LT- II Non- Domestic 6th Control Period 13](#_Toc131186024)

[Table 5: LT-III Industrial 5th Control Period 13](#_Toc131186025)

[Table 6: LT-III Industrial 6th Control Period 13](#_Toc131186026)

[Table 7: LT-IV Cottage Industries 5th Control Period 14](#_Toc131186027)

[Table 8: LT-IV Cottage Industries 6th Control Period 14](#_Toc131186028)

[Table 9: LT-V Agriculture 5th Control Period 15](#_Toc131186029)

[Table 10:LT-V Agriculture 6th Control Period 15](#_Toc131186030)

[Table 11: LT-VI Street Lighting & PWS 5th Control Period 15](#_Toc131186031)

[Table 12: LT-VI Street Lighting & PWS 6th Control period 16](#_Toc131186032)

[Table 13: LT-VII General Purpose 5th Control period 16](#_Toc131186033)

[Table 14: LT-VII General Purpose 6th Control period 16](#_Toc131186034)

[Table 15: LT-VIII Temporary Supply 5th Control period 17](#_Toc131186035)

[Table 16: LT-VIII Temporary Supply 6th Control period 17](#_Toc131186036)

[Table 17: LT-IX Electric Vehicle Charging Station 5th Control period 18](#_Toc131186037)

[Table 18: LT IX Electric Vehicle Charging Station 6th Control period 18](#_Toc131186038)

[Table 19: Sales Projections as submitted by TSIIC for Kakatiya Mega Textile park 19](#_Toc131186039)

[Table 20: HT-I Industrial and Ferro Alloys 5th Control period 19](#_Toc131186040)

[Table 21: HT-I Industrial and Ferro Alloys 6th Control period 19](#_Toc131186041)

[Table 22: HT-II Others 5th Control Period 20](#_Toc131186042)

[Table 23: HT-II Others 6th Control Period 20](#_Toc131186043)

[Table 24: HT-III Airports, Bus stations & Railway stations 5th control period 21](#_Toc131186044)

[Table 25: HT-III Airports, Bus stations & Railway stations 6th control period 21](#_Toc131186045)

[Table 26: HT-IV Govt. LIS, Agriculture 5th Control Period 22](#_Toc131186046)

[Table 27: HT-IV Govt. LIS, Agriculture 6th control period 23](#_Toc131186047)

[Table 28: HT-IV CPWS 5th Control Period 23](#_Toc131186048)

[Table 29: HT-IV CPWS 6th Control Period 23](#_Toc131186049)

[Table 30: Sales Projections as submitted by SCR for HT V Railway Traction 24](#_Toc131186050)

[Table 31: HT-V Railway Traction 5th Control Period 24](#_Toc131186051)

[Table 32: HT-V Railway Traction 6th Control Period 25](#_Toc131186052)

[Table 33: HT-VI Colony Consumption 5th control period 25](#_Toc131186053)

[Table 34: HT-VI Colony Consumption 6th control period 25](#_Toc131186054)

[Table 35: HT-VII Temporary Supply 5th control period 26](#_Toc131186055)

[Table 36: HT-VII Temporary Supply 6th control period 26](#_Toc131186056)

[Table 37: RESCO 5th control period 27](#_Toc131186057)

[Table 38: RESCO 6th control period 27](#_Toc131186058)

[Table 39: Consolidated Sales Projections 5th control period 27](#_Toc131186059)

[Table 40: Consolidated Sales Projections 6th control period 28](#_Toc131186060)

[Table 41:Loss Trajectory for 5th Control Period 29](#_Toc131186061)

[Table 42:Loss Trajectory for 6th Control Period 30](#_Toc131186062)

[Table 43 Total distribution losses in the distribution system for the 5th Control Period 30](#_Toc131186063)

[Table 44 Total distribution losses in the distribution system for the 6th Control Period 30](#_Toc131186064)

[Table 45 Transmission loss trajectory for the 6th Control Period 31](#_Toc131186065)

[Table 46 Transmission loss trajectory for the 6th Control Period 31](#_Toc131186066)

[Table 47 PGCIL Loss Trajectory 5th Control Period 32](#_Toc131186067)

[Table 48 PGCIL Loss Trajectory 6th Control Period 32](#_Toc131186068)

[Table 49 CSPDCL Loss Trajectory 5th Control Period 32](#_Toc131186069)

[Table 50 CSPDCL Loss Trajectory 6th Control Period 32](#_Toc131186070)

[Table 51 Energy Requirement 5th Control Period 33](#_Toc131186071)

[Table 52 Energy Requirement 6th Control Period 34](#_Toc131186072)

[Table 53: Time series analysis (state level) 5th Control Period 35](#_Toc131186073)

[Table 54: Open access 5th control period 36](#_Toc131186074)

[Table 55: Captive generating plants 5th control period 37](#_Toc131186075)

[Table 56: Load factor 5th control period 37](#_Toc131186076)

[Table 57: TSNPDCL – Coincident Demand (MW) 38](#_Toc131186077)

[Table 58: TSNPDCL – Non-coincident Demand (MW) 39](#_Toc131186078)

[Table 59: Captive generating plants 5th control period 44](#_Toc131186079)

[Table 60: Historic technical & commercial losses 44](#_Toc131186080)

[Table 61: Historic peak demand 45](#_Toc131186081)

[Table 62 Energy Requirement for 5th CP 46](#_Toc131186082)

[Table 63 Energy Requirement for 6th CP 46](#_Toc131186083)

[Table 64 Addition of new generating stations 47](#_Toc131186084)

[Table 65 TS Genco Thermal Stations details 48](#_Toc131186085)

[Table 66 TS Genco Hydel Stations details 49](#_Toc131186086)

[Table 67 Central Generating Stations details 50](#_Toc131186087)

[Table 68 Other Generating Stations details 51](#_Toc131186088)

[Table 69 NCES details 52](#_Toc131186089)

[Table 70 TS Genco Thermal Energy Availability for 5th CP 53](#_Toc131186090)

[Table 71 TS Genco Thermal Energy Availability for 6th CP 53](#_Toc131186091)

[Table 72 TS Genco Hydel Energy Availability for 5th CP 54](#_Toc131186092)

[Table 73 TS Genco Hydel Energy Availability for 6th CP 54](#_Toc131186093)

[Table 74 CGS stations Energy Availability for 5th CP 55](#_Toc131186094)

[Table 75 CGS stations Energy Availability for 6th CP 55](#_Toc131186095)

[Table 76 NCES sources Energy Availability for 5th CP 56](#_Toc131186096)

[Table 77 NCES sources Energy Availability for 6th CP 57](#_Toc131186097)

[Table 78 Other sources Energy Availability for 5th CP 57](#_Toc131186098)

[Table 79 Other sources Energy Availability for 6th CP 58](#_Toc131186099)

[Table 80 Other sources Energy Availability for 5th CP 58](#_Toc131186100)

[Table 81 Other sources Energy Availability for 6th CP 58](#_Toc131186101)

[Table 82 Energy Balance for 5th CP 59](#_Toc131186102)

[Table 83 Energy Balance for 6th CP 59](#_Toc131186103)

# Introduction

The Filing of Resource Plan for 5th Control Period i.e., FY 2024-25 to FY 2028-29 in accordance with the Telangana State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Wheeling and Retail Sale of Electricity), Regulation 4 of 2005 before the Hon’ble Commission’s approval shall contain the following:

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

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

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

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

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

* Sales Forecast
* Loss Trajectory
* Load Forecast
* Power Procurement Plan
* Distribution Plan

# Sales Forecast

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

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

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



## Approaches to Sales Forecasting

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

### **Trend Method**

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

The voltage wise sales forecast for all categories has been projected for the two Control Periods viz. FY 2024-25 to FY 2028-29 and FY 2029-30 to FY 2033-34 by considering the following data:

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

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

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

### **Econometric analysis**

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

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

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

## Historical Sales Summary

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

## Sales Forecast for the Control Period

* In FY 2017-18, the Licensee has re-organized the jurisdiction of existing Operation Circles/ Divisions/Sub-Divisions/Sections and subsequently formed total 16 Circles covering all the Districts encompassed by TSNPDCL.
* Further, it is to submit that as there are no load reliefs imposed since 20th November 2014 and considering the same there is no necessity of considering the LR quantum separately for projections.
* The 5yr, 4yr, 3yr, 2yr & 1yr CAGR of the sales growth for the period FY 2016-17 to FY 2021-22 and FY 2017-18 to FY 2022-23 are computed for each consumer category in each circle. The HT and LT sales for FY 2021-22 (October, 2021 to March, 2022) are used as a base for projections for H2 FY 2022-23 and estimated sales for FY 2022-23 are used as a base for the projections from FY 2023-24.

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

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

## Category wise sales projection

### LT-I Domestic

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

Table 1: LT- I Domestic 5th Control Period

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

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

Table 2:LT- I Domestic 6th Control Period

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

### LT-II Non-Domestic

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

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

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

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

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

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

### LT-III Industrial

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

Table 5: LT-III Industrial 5th Control Period

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

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

Table 6: LT-III Industrial 6th Control Period

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

### LT-IV Cottage Industries

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

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

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

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

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

### LT-V Agriculture

The licensee has projected the Agricultural Sales for H2 FY 2022-23 and FY 2023-24 and 5th Control Period at 5%. Further, the licensee expects the growth rate of 5% in agricultural category keeping in view the irrigation lands still to be cultivated which needs pumping water and release of new connections. The sales growth arrived at Discom level and corresponding sales projections for the 5th Control Period are as follows:

Table 9: LT-V Agriculture 5th Control Period

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

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

Table 10:LT-V Agriculture 6th Control Period

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

### LT-VI Street Lighting & PWS

From the historical sales information, a reduction of sales is observed in this category in most of the circles, which may be due to increase in usage of LEDs for street lighting. Hence, a nominal growth of 2% is adopted for the circles showing minor reduction of sales and appropriate CAGR (5yr to 1yr) is adopted for the remaining circles. The sales growth arrived at Discom level and corresponding sales projections for the 5th Control Period are as follows:

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

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

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

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

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

### LT-VII General Purpose

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

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

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

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

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

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

### LT-VIII Temporary Supply

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

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

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

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

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

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

### LT-IX Electric Vehicle Charging Stations

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

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

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

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

Table 18: LT IX Electric Vehicle Charging Station 6th Control period

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

### HT-I Industrial and Ferro Alloys

At 11 kV, 33 kV & 132 kV voltage levels, negative /meager growth rates have been recorded in some of the circles during the previous years in the Industrial segment. Hence, a nominal growth rate of 2% is adopted for such circle and in some of the circles the growth rates are either significantly higher or lower without any trend and in such circles moderated growth rates of 5% is considered for projection of sales.

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

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

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

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

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

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

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

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

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

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

### HT-II Others

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

Table 22: HT-II Others 5th Control Period

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

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

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

Table 23: HT-II Others 6th Control Period

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

### HT-III Airports, Bus stations & Railway stations

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

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

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

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

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

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

HT VA: Lift Irrigation

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

For 132 kV Voltage level i.e., the energy supplied for Lift Irrigation Schemes, it is observed that the historical growth trend in this category has many variations due to variations in the operation of Lift Irrigation pumps based on rainfall, water levels in reservoirs, etc. Considering the above, it is to be noted that it is difficult to predict the energy growth in this category. Further, the sales recorded in H1 FY 2022-23 of 410 MU are on very lower side and it can be treated as an exception when compared to the sales recorded in the past two years viz. 1295 MU in H1 FY 2021-22 and 975 MU in H1 FY 2020-21. Considering the above, the licensee has considered the sales recorded in FY 2021-22 as the base for the projection for FY 2023-24. Coming to the growth rate, the licensee considered growth rate of 10% for projection of sales in this category. The sales growth arrived at DISCOM level and corresponding sales projections for the 5th& 6th Control Period are as follows:

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

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

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

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

HT IVB: CPWS

Considering the past trend of sales in each circle, the licensee has adopted appropriate growth rates for few circles with positive growth and a nominal growth rate of 5% or 2% for circles where abnormal growth is recorded. The sales growth arrived at DISCOM level and corresponding sales projections for the 5th& 6th Control Period are as follows:

Table 28: HT-IV CPWS 5th Control Period

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

Table 29: HT-IV CPWS 6th Control Period

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

### HT-V Railway Traction

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

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

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

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

Table 31: HT-V Railway Traction 5th Control Period

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

Table 32: HT-V Railway Traction 6th Control Period

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

### HT-VI Colony Consumption

In most of the circles, negative / meager growth rates are recorded based on past historical data. Considering the past trend of sales in each circle, a nominal growth rate of 2% is adopted in most of the circles to project sales in 5th and 6th Control Period. The growth rates arrived at DISCOM level for the 5th & 6th Control Period and corresponding sales projections are as follows:

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

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

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

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

### HT VII Temporary Supply

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

Table 35: HT-VII Temporary Supply 5th control period

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

\*Negative growth rates on account of loss of existing service in FY 2022-23 H1

Table 36: HT-VII Temporary Supply 6th control period

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

### HT VIII RESCO

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

Table 37: RESCO 5th control period

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

Table 38: RESCO 6th control period

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

## Consolidated Sales Projections

Table 39: Consolidated Sales Projections 5th control period

| **Description** | **Estimated** | **5th Control Period (Projections)** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **2022-23** | **2023-24** | **2024-25** | **2025-26** | **2026-27** | **2027-28** | **2028-29** |
| **LT Category** | **13058**​ | **13740**​ | **14460**​ | **15222**​ | **16028**​ | **16879**​ | **17779**​ |
| LT-I Domestic | 4010​ | 4243​ | 4491​ | 4753​ | 5032​ | 5328​ | 5642​ |
| LT-II Non-domestic/Commercial | 861​ | 915​ | 972​ | 1033​ | 1098​ | 1168​ | 1243​ |
| LT-III Industrial | 240​ | 245​ | 251​ | 257​ | 263​ | 269​ | 275​ |
| LT-IV Cottage Industries | 9​ | 9​ | 10​ | 10​ | 11​ | 11​ | 12​ |
| LT-V Agriculture | 7514​ | 7890​ | 8285​ | 8699​ | 9134​ | 9591​ | 10070​ |
| LT-VI Street Lighting & PWS | 361​ | 370​ | 380​ | 389​ | 399​ | 409​ | 420​ |
| LT-VII General Purpose | 55​ | 58​ | 61​ | 64​ | 67​ | 70​ | 74​ |
| LT-VIII Temporary Supply | 8​ | 8​ | 9​ | 9​ | 9​ | 10​ | 10​ |
| LT-IX EVs | 0​ | 1​ | 4​ | 8​ | 15​ | 23​ | 32​ |
| **HT Category** | **6286**​ | **6803**​ | **7257**​ | **7763**​ | **8316**​ | **8922**​ | **9586**​ |
| HT-I Industry Segregated & Ferro Alloys | 1922​ | 2151​ | 2280​ | 2447​ | 2632​ | 2840​ | 3071​ |
| HT-II Others (Commercial) | 180​ | 190​ | 201​ | 213​ | 225​ | 238​ | 252​ |
| HT-III Airports, Bus Stations and Railway Stations | 8​ | 8​ | 8​ | 8​ | 8​ | 9​ | 9​ |
| HT-IV(A) Govt. Lift Irrigation Schemes | 2011​ | 2209​ | 2426​ | 2666​ | 2929​ | 3219​ | 3537​ |
| HT-IV(B) CPWS | 520​ | 532​ | 544​ | 558​ | 571​ | 585​ | 599​ |
| HT-V(A) Railway Traction | 530​ | 553​ | 588​ | 614​ | 641​ | 670​ | 700​ |
| HT-VI Townships and Residential Colonies | 139​ | 141​ | 144​ | 147​ | 150​ | 153​ | 156​ |
| HT-VII Temporary Supply | 31​ | 32​ | 33​ | 34​ | 35​ | 36​ | 37​ |
| HT-VIII RESCOs | 945​ | 987​ | 1031​ | 1076​ | 1124​ | 1173​ | 1225​ |
| HT-IX EVs | 0​ | 0​ | 0​ | 0​ | 0​ | 0​ | 0​ |
| **Total** | **19345**​ | **20543**​ | **21717**​ | **22985**​ | **24344**​ | **25801**​ | **27365**​ |

Table 40: Consolidated Sales Projections 6th control period

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

# Loss Trajectory

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

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

Table :Loss Trajectory for 5th Control Period

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

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

Table :Loss Trajectory for 6th Control Period

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

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

Table Total distribution losses in the distribution system for the 5th Control Period

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

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

Table Total distribution losses in the distribution system for the 6th Control Period

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

**Transmission Loss Trajectory:**

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

Table Transmission loss trajectory for the 6th Control Period

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

Table Transmission loss trajectory for the 6th Control Period

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

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

**PGCIL Loss trajectory:**

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

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

Table PGCIL Loss Trajectory 5th Control Period

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

Table PGCIL Loss Trajectory 6th Control Period

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

**CSPDCL Loss trajectory**:

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

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

Table CSPDCL Loss Trajectory 5th Control Period

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

Table CSPDCL Loss Trajectory 6th Control Period

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

# Energy Requirement Forecast

The sales forecast output has been considered for projecting the energy requirements for the next two control periods. The sales forecast output was adjusted for the LT losses, 11 kV losses and 33 kV losses as per the loss trajectory to arrive at the energy requirement of the licensee. This energy requirement was further grossed up by Transmission losses to arrive at the total energy requirement of the Licensee at the State periphery. The Power procurement plan would be tied up with the energy requirement and checked for any surplus or deficit. The power procurement plan would adequately source power from other sources in periods where the energy/ peak deficit occurrence is envisaged.

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

Table Energy Requirement 5th Control Period

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

Table Energy Requirement 6th Control Period

| **Description** | **FY2029-30** | **FY2030-31** | **FY2031-32** | **FY2032-33** | **FY2033-34** |
| --- | --- | --- | --- | --- | --- |
| LT Sales in MU | 18618 | 19501 | 20430 | 21408 | 22438 |
| LT Loss (%) | 5.32% | 5.31% | 5.30% | 5.29% | 5.28% |
| **LT Energy Requirement in MU** | 19664 | 20595 | 21574 | 22604 | 23689 |
| HT sales (11kV) in MU | 3868 | 4190 | 4551 | 4956 | 5412 |
| 11kV Loss (%) | 3.82% | 3.81% | 3.80% | 3.80% | 3.79% |
| **Energy Requirement (11kV) in MU** | 24466 | 25767 | 27157 | 28648 | 30247 |
| HT sales (33kV) in MU | 852 | 868 | 883 | 900 | 916 |
| 33kV Loss (%) | 3.44% | 3.44% | 3.43% | 3.43% | 3.42% |
| **Energy Requirement (excluding EHT) in MU** | 26222 | 27583 | 29038 | 30596 | 32267 |
| EHT sales in MU | 5595 | 6061 | 6569 | 7124 | 7731 |
| **Energy Requirement (including EHT) in MU** | 31817 | 33644 | 35607 | 37720 | 39998 |
| Transmission Loss (%) | 2.39% | 2.37% | 2.35% | 2.34% | 2.33% |
| **Total Energy Requirement at State Periphery in MU** | **32595** | **34460** | **36465** | **38624** | **40950** |

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

# Load Forecast

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

## Time series analysis:

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

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

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

Where:

Z: Seasonality Factor

m: Slope of the hourly plotted demand

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

C: Intercept of the hourly plotted demand

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

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

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

**Load Forecast (Voltage and Category wise)**

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

### Category wise consumers

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

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

### Scheduled Consumers through Open Access

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

Table 54: Open access 5th control period

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

### Other Suppliers using Network

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

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

### Captive Generating Plants

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

Table 55: Captive generating plants 5th control period

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

### Load Profiles

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

Table 56: Load factor 5th control period

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

Table 57: TSNPDCL – Coincident Demand (MW)

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

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

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

### Assumptions

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

### Impact of Government policies

#### Impact of Solar Roof-top:

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

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

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

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

### Alternative approaches

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

### Sensitivity Analysis

Demonstrating criticality of the assumptions through a sensitivity analysis

#### Base forecast

The Licensee has projected the category wise sales based on the modified trend approach. The sales forecast for the control period has been developed primarily based on analysis of historic data for the period FY 2016-17 to FY 2022-23 H1. Further, the licensee has considered the additional loads estimated by various consumers for the future period. The growth rates adopted by the licensee is assuming the business-as-usual scenario.

#### High forecast

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

#### Low forecast

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

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

### Inputs for Major Loads

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

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

## Subsequent Control Period (6th Control Period)

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

### Category wise consumers

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

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

### Other Suppliers using Network

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

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

### Captive Generating Plants

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

Table 59: Captive generating plants 5th control period

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

### Assumptions

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

## Historic Information

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

***Details are enclosed vide Annexure-1.***

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

Table 60: Historic technical & commercial losses

| **Description** | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
| --- | --- | --- | --- | --- | --- | --- |
| **% Loss** | | | | | |
| AT&C losses | 16.11% | 24.74% | 28.74% | 36.34% | 9.03% | 13.11% |
| Total Distribution Losses | 13.69% | 12.31% | 11.23% | 11.06% | 10.81% | 10.80% |
| Transmission Losses | 3.37% | 3.25% | 2.85% | 2.65% | 2.57% | 2.47% |

1. Energy utilization, peak load, power factor data and annual load factors for the previous 5 years

Table 61: Historic peak demand

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

# Power Procurement Plan

## Energy Requirement

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

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

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

Table Energy Requirement for 5th CP

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

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

Table Energy Requirement for 6th CP

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

## Energy Availability

### **Addition of Generating Capacity**

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

Table Addition of new generating stations

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

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

### **Installed capacity from various sources**

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

**TS GENCO**

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

**TS GENCO – Thermal**

Table TS Genco Thermal Stations details

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Telangana Share (MW)** | **Auxiliary consumption (%)** | **PLF (%)** | **PPA Period/**  **PPA Expiry Date** |
| 1 | KTPS-V | 500 (2x250) | 9% | 90% | 31.03.2024 |
| 2 | KTPS-VI | 500 (1x500) | 8% | 85% | 22.10.2036  (25 years from the date of COD) |
| 3 | RTS-B | 62.5 (1x62.5) | 10% | 85% | 31.03.2024 |
| 4 | Kakatiya (KTPP) – I | 500 (1x500) | 8% | 90% | 13.09.2035  (25 years from the date of COD) |
| 5 | Kakatiya (KTPP) – II | 600 (1x600) | 7% | 90% | 23.03.2041 (25 years from the date of COD) |
| 6 | KTPS-VII | 800 (1x800) | 5% | 80% | 25.12.2043  (25 years from the date of COD) |
| 7 | Badradri  (BTPS Units 1 to 4) | 1080 (4x270) | 9% | 85% | 09.01.2047 (25 Years from the date of CoD) |
| 8 | Yadadri  (YTPS Units 1 to 5) | 4000 (5x800) | 8% | 85% | 25 years (From Last Unit of Anticipated COD) |

**TS GENCO – Hydel**

Table TS Genco Hydel Stations details

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

**Central Generating Stations (CGS):**

The Licensee has Power Purchase Agreements with various Central Generating Stations to purchase power from i) Thermal power plants like NTPC RSTPS I&II, NTPC RSTPS-III, NTPC Talcher Stage-II, NTPC Simhadri Stage-I and Stage-II, NTPC Kudigi, Vallur Thermal Power Plant (NTECL - Vallur), Neyveli Lignite Corporation Ltd (“NLC”) TPS-II Stage-I and Stage-II, NNTPP, NLC Expn I & II, NLC Tamilnadu Power Limited (Tuticorin), Telangana STPP Phase I and ii) Nuclear power plants like Madras Atomic Power Station (“MAPS”), Kaiga Atomic Power Station (“KAPS”) and NPC Kudankulam. The share of the Telangana State in the total capacity of the stations and the PPA period/ PPA expiry date are provided below for 5th & 6th Control Periods.

Table Central Generating Stations details

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

**Others**

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

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

Table Other Generating Stations details

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Telangana Share (MW)** | **Auxiliary consumption (%)** | **PLF (%)** | **PPA Period/**  **PPA Expiry Date** |
| 1 | Sembcorp Energy Unit I | 269.45 | 6% | 95% | Apr - 2040 (25 Years) |
| 2 | Sembcorp Energy Unit II | 500 | 6% | 95% | Mar - 2024 (08 Years) |
| 3 | Singareni Thermal Power Project Stage -I | 1200 | 6% | 90% | Dec - 2041 (25 Years) |
| 4 | Chhattisgarh Power (CSPDCL) | 1000 | 5% | 82% | May - 2029 (12 Years) |

**Non-Conventional Energy Sources (NCES):**

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

Table NCES details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Telangana Share (MW)** | **Auxiliary consumption (%)** | **PLF (%)** |
| 1 | NCE - Bio-Mass | 6 | 9% | 80% |
| 2 | NCE - Bagasse | 67 | 8% | 55% |
| 3 | NCE - Municipal Waste to Energy | 63 | 11% | 80% |
| 4 | NCE - Industrial Waste based power project | 19 | 9% | 80% |
| 5 | NCE - Wind Power | 128 | 1% | 25% |
| 6 | NCE - Mini Hydel | 3 | 1% | 45% |
| 7 | NCE - Solar | 2844 | 0.1% | 25% |
| 8 | NTPC CPSU | 2737 | 0.1% | 25% |
| 9 | NHPC CPSU | 500 | 0.1% | 25% |
| 10 | SECI | 1400 | 0.1% | 25% |
| 11 | NTPC Bundled Scheme under JNNSM Ph-1 | 46 | 0.1% | 25% |
| 12 | NTPC Bundled Scheme under JNNSM Ph-II (400 MW) | 400 | 0.1% | 25% |

### **Energy Availability (MU) forecast**

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

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

**TS GENCO – Thermal**

Table TS Genco Thermal Energy Availability for 5th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 5th Control Period** | | | | |
| **FY 2024-25** | **FY 2025-26** | **FY 2026-27** | **FY 2027-28** | **FY 2028-29** |
| 1 | KTPS-V | 3512 | 3512 | 3509 | 3521 | 3512 |
| 2 | KTPS-VI | 3504 | 3519 | 3504 | 3525 | 3504 |
| 3 | RTS-B | 413 | 412 | 412 | 413 | 412 |
| 4 | Kakatiya (KTPP) – I | 3519 | 3504 | 3514 | 3514 | 3519 |
| 5 | Kakatiya (KTPP) – II | 4205 | 4223 | 4205 | 4235 | 4205 |
| 6 | KTPS-VII | 5962 | 5957 | 5962 | 5973 | 5960 |
| 7 | Badradri  (BTPS Units 1 to 4) | 8045 | 8045 | 8044 | 8067 | 8045 |
| 8 | Yadadri  (YTPS Units 1 to 5) | 23811 | 29784 | 29784 | 29784 | 29784 |
|  | Total | **52970** | **58955** | **58933** | **59032** | **58940** |

Table TS Genco Thermal Energy Availability for 6th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 6th Control Period** | | | | |
| **FY 2029-30** | **FY 2030-31** | **FY 2031-32** | **FY 2032-33** | **FY 2033-34** |
| 1 | KTPS-V | 3509 | 3512 | 3521 | 3509 | 3512 |
| 2 | KTPS-VI | 3519 | 3504 | 3529 | 3504 | 3514 |
| 3 | RTS-B | 309 | 0 | 0 | 0 | 0 |
| 4 | Kakatiya (KTPP) – I | 3504 | 3519 | 3514 | 3514 | 3504 |
| 5 | Kakatiya (KTPP) – II | 4216 | 4205 | 4235 | 4205 | 4223 |
| 6 | KTPS-VII | 5957 | 5962 | 5973 | 5962 | 5957 |
| 7 | Badradri  (BTPS Units 1 to 4) | 8045 | 8045 | 8068 | 8044 | 8044 |
| 8 | Yadadri  (YTPS Units 1 to 5) | 29784 | 29784 | 29784 | 29784 | 29784 |
|  | **Total** | **58844** | **58530** | **58624** | **58521** | **58537** |

**TS GENCO – Hydel**

Table TS Genco Hydel Energy Availability for 5th CP

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

Table TS Genco Hydel Energy Availability for 6th CP

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

**Central Generating Stations (CGS)**

Table CGS stations Energy Availability for 5th CP

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

Table CGS stations Energy Availability for 6th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 6th Control Period** | | | | |
| **FY 2029-30** | **FY 2030-31** | **FY 2031-32** | **FY 2032-33** | **FY 2033-34** |
| 1 | NTPC (SR) - I & II | 2668 | 2618 | 2686 | 2669 | 2669 |
| 2 | NTPC (SR) Stage III | 0 | 0 | 0 | 0 | 0 |
| 3 | Talcher Stage 2 | 0 | 0 | 0 | 0 | 0 |
| 4 | NTPC Simhadri Stage I | 0 | 0 | 0 | 0 | 0 |
| 5 | NTPC Simhadri Stage II | 1949 | 1949 | 1949 | 1949 | 1949 |
| 6 | NTPC Kudigi - I, II & III | 2095 | 2169 | 2074 | 2196 | 2074 |
| 7 | NLC Stage-I | 32 | 0 | 0 | 0 | 0 |
| 8 | NLC Stage-II | 28 | 0 | 0 | 0 | 0 |
| 9 | NNTPP (New Neyveli) | 461 | 461 | 462 | 461 | 462 |
| 10 | NLC Expansion 1 | 41 | 41 | 41 | 41 | 41 |
| 11 | NLC Expansion 2 | 30 | 30 | 30 | 30 | 30 |
| 12 | NPC-MAPS | 0 | 0 | 0 | 0 | 0 |
| 13 | NPC-Kaiga unit I & II | 0 | 0 | 0 | 0 | 0 |
| 14 | NPC-Kaiga unit III & IV | 0 | 0 | 0 | 0 | 0 |
| 15 | NPC- Kudankulam | 28 | 28 | 28 | 28 | 28 |
| 16 | Kudankulam (KKNPP) Unit-II | 335 | 335 | 335 | 335 | 335 |
| 17 | Vallur Thermal Power Plant (NTECL - Vallur) | 698 | 698 | 698 | 698 | 698 |
| 18 | NLC Tamilnadu Power Ltd (Tuticorin) | 1098 | 1098 | 1101 | 1098 | 1101 |
| 19 | NSM Bundled Ph II | 1390 | 1390 | 1394 | 1390 | 1390 |
| 20 | Telangana STPP (phase I) | 12038 | 12216 | 12216 | 12074 | 12216 |
|  | **Total** | **22891** | **23033** | **23014** | **22969** | **22993** |

**Non-Conventional Energy Sources (NCES):**

Table NCES sources Energy Availability for 5th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 5th Control Period** | | | | |
| **FY 2024-25** | **FY 2025-26** | **FY 2026-27** | **FY 2027-28** | **FY 2028-29** |
| 1 | NCE - Biomass | 42 | 42 | 42 | 0 | 0 |
| 2 | NCE - Bagasse | 321 | 321 | 196 | 117 | 117 |
| 3 | NCE - Municipal Waste to Energy | 438 | 438 | 438 | 438 | 438 |
| 4 | NCE - Industrial Waste based power project | 130 | 130 | 130 | 130 | 105 |
| 5 | NCE - Wind Power | 281 | 281 | 281 | 281 | 281 |
| 6 | NCE - Mini Hydel | 10 | 8 | 8 | 0 | 0 |
| 7 | NCE - Solar | 6224 | 6224 | 6224 | 6224 | 6224 |
| 8 | NTPC CPSU | 5994 | 5994 | 5994 | 5994 | 5994 |
| 9 | NHPC CPSU | 1095 | 1095 | 1095 | 1095 | 1095 |
| 10 | SECI | 3066 | 3066 | 3066 | 3066 | 3066 |
| 11 | NTPC Bundled Scheme under JNNSM Ph-1 | 100 | 100 | 100 | 100 | 100 |
| 12 | NTPC Bundled Scheme under JNNSM Ph-II (400 MW) | 876 | 876 | 876 | 876 | 876 |
|  | **Total** | **18577** | **18574** | **18449** | **18320** | **18295** |

Table NCES sources Energy Availability for 6th CP

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

**Others:**

Table Other sources Energy Availability for 5th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 5th Control Period** | | | | |
| **FY 2024-25** | **FY 2025-26** | **FY 2026-27** | **FY 2027-28** | **FY 2028-29** |
| 1 | Sembcorp Unit I | 2360 | 2360 | 2360 | 2367 | 2360 |
| 2 | Sembcorp Unit II | 0 | 0 | 0 | 0 | 0 |
| 3 | Singareni CCL | 9244 | 9244 | 9244 | 9270 | 8911 |
| 4 | CSPDCL | 7055 | 7055 | 7055 | 7074 | 7055 |
|  | **Total** | **18659** | **18659** | **18659** | **18712** | **18327** |

Table Other sources Energy Availability for 6th CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Generating Source** | **Energy Availability in MUs for 6th Control Period** | | | | |
| **FY 2029-30** | **FY 2030-31** | **FY 2031-32** | **FY 2032-33** | **FY 2033-34** |
| 1 | Sembcorp Unit I | 2360 | 2360 | 2367 | 2360 | 2360 |
| 2 | Sembcorp Unit II | 0 | 0 | 0 | 0 | 0 |
| 3 | Singareni CCL | 8911 | 8911 | 8938 | 9244 | 9244 |
| 4 | CSPDCL | 677 | 0 | 0 | 0 | 0 |
|  | **Total** | **11948** | **11272** | **11305** | **11604** | **11604** |

**Summary of Energy Availability:**

Table Other sources Energy Availability for 5th CP

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

Table Other sources Energy Availability for 6th CP

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

## Energy Balance

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

Table Energy Balance for 5th CP

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

Table Energy Balance for 6th CP

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

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

**Short-term plan for 5th Control Period:**

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

**Long-term plan for 6th Control Period:**

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

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

1. **Singareni Phase II**
   1. Discoms are planning to enter into PPA with Singareni CCL unit 3 (800 MW) capacity and this unit is expected to be Commissioned during FY 2026-27
   2. There is a scope for installation of 1600 MW additional capacity for Singareni CCL (Units 4 & 5).
2. **Telangana STPP**
   1. Currently Discoms are allotted 85% share from TSTPP (1600 MW) plant. The negotiations are going on to allot the remaining 15% share as well to TS Discoms only.
   2. There is a scope for installation of 2400 MW (3x800 MW each) additional capacity for Telangana STPP.
3. **Central Generating Stations**
   1. The availability from CGS stations for 1019 MW (incl Simhadri 539 MW) is reduced during 6th Control Period due to expiry of PPAs. The station-wise PPA details are provided in above sections (section 7.2)
   2. Discoms would ensure the cost effectiveness and would explore option of extending PPAs if required.
4. **Non-Conventional Energy Sources (NCES)**
   1. The variable costs from NCES (Solar) have reduced significantly in the last few years. There are two modes for procuring Solar power Distributed mode (generating plants are placed close to sub-stations to reduce losses) and Centralized mode (generating plants are concentrated in a single region like SECI, CPSU, etc.)
   2. Currently Discoms are procuring Solar power in both modes and would explore these options in future based on cost-competitiveness.
5. In addition to these, Discoms would try to bridge smaller energy deficit gaps by utilizing the **Short-term Market** purchases

# Distribution Plan

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

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

## Network Plan Base Capital Expenditure:

## Methodology

### **Data**

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

***Sales Projection***

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

***Sub-division Classification***

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

***Network Loading Data***

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

***Power Transformer Details***

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

***Feeder Details***

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

***Distribution Transformer Details***

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

### **Network Element Details**

#### **Sub-station Unit**

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

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

#### **Power Transformer Unit**

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

* + Power Transformer
  + HV Breaker
  + LV Breaker
  + 33 KV AB switch

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

#### **Feeder Unit**

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

#### **DTR Unit**

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

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

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

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

#### **Sub-station**

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

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

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

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

#### **Power Transformer**

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

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

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

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

#### **Feeders**

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

**New feeders will be proposed under the following conditions:**

* Redistribution of feeder currents is done for each sub-station, irrespective of the feeder loading
* If after the redistribution, peak feeder current exceeds more than threshold limits and an additional feeder can be accommodated in the sub-station
* The above applies only if no new sub-station addition is being proposed
* After the new feeders are proposed as per condition mentioned above, the peak currents in the feeders are distributed equally among the ones overloaded and the new feeders proposed to calculate the feeder loading at the end of year.

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

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

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

#### **Distribution Transformers**

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

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

### **Threshold Peak Loading of Network Elements**

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

Table Threshold values

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

## Network Additions Summary

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

Table Summary of Network Projections

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

Table Detailed Network Projections

| **Network Projections Results (5th CP)** | **Base Year** | **Total 5th Control period** | | | | | **Total for 5th CP** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FY 2023-24** | **FY 2024-25** | **FY 2025-26** | **FY 2026-27** | **FY 2027-28** | **FY 2028-29** |
| **New Sub-station Additions** | | | | | | | |
| Urban nos. | 2 | 4 | 5 | 7 | 8 | 9 | 33 |
| Semi Urban nos. | - | - | - | 1 | - | 1 | 2 |
| Rural nos. | 9 | 15 | 24 | 36 | 50 | 66 | 191 |
| Total number of Sub-stations | 11 | 19 | 29 | 44 | 58 | 76 | 226 |
| Total Capacity Added (MVA) | 66 | 112 | 170 | 279 | 369 | 410 | 1,340 |
| No. of Feeders | 48 | 84 | 126 | 192 | 248 | 324 | 974 |
| **Sub-station addition due to overloaded feeders** | | | | | | | |
| Urban nos. | - | - | - | - | - | - | - |
| Semi Urban nos. | - | - | - | - | - | - | - |
| Rural nos. | 38 | 38 | 38 | 36 | 27 | 36 | 175 |
| Total Number of Sub-stations | 38 | 38 | 38 | 36 | 27 | 36 | 175 |
| Total Capacity Added (MVA) | 190 | 190 | 190 | 180 | 135 | 180 | 875 |
| No of Feeders | 152 | 152 | 152 | 144 | 108 | 144 | 700 |
| Total Capacity Added (MVA) | 256 | 302 | 360 | 459 | 504 | 590 | 2,215 |
| **Total number of Sub-stations** | | | | | | | |
| Urban nos. | 2 | 4 | 5 | 7 | 8 | 9 | 33 |
| Semi Urban nos. | - | - | - | 1 | - | 1 | 2 |
| Rural nos. | 47 | 53 | 62 | 72 | 77 | 102 | 366 |
| Total Number of Sub-stations | 49 | 57 | 67 | 80 | 85 | 112 | **401** |
| Total Capacity Added (MVA) | 256 | 302 | 360 | 459 | 504 | 590 | 2,215 |
| No of Feeders | 200 | 236 | 278 | 336 | 356 | 468 | 1,674 |
| **Total number of PTRS in new Sub-stations** | | | | | | | |
| PTR No(8 MVA) | 2 | 4 | 5 | 8 | 8 | 10 | 35 |
| PTR No(5 MVA) | 10 | 16 | 26 | 43 | 61 | 66 | 212 |
| Total Number of PTRs in new Sub-stations | 12 | 20 | 31 | 51 | 69 | 76 | 247 |
| Total Capacity Added (MVA) | 66 | 112 | 170 | 279 | 369 | 410 | 1,340 |
| **Total number of PTRs in Sub-station due to over loaded feeders** | | | | | | | |
| PTR No(8 MVA) | - | - | - | - | - | - | - |
| PTR No(5 MVA) | 38 | 38 | 38 | 36 | 27 | 36 | 175 |
| Total number of PTR | 38 | 38 | 38 | 36 | 27 | 36 | 175 |
| Total Capacity Added (MVA) | 190 | 190 | 190 | 180 | 135 | 180 | 875 |
| **New PTR Additions in existing Sub-stations number** | | | | | | | |
| PTR No(8 MVA) | 2 | 3 | 2 | 5 | 5 | 5 | 20 |
| PTR No(5 MVA) | 13 | 15 | 26 | 40 | 51 | 62 | 194 |
| Total PTR numbers added | 15 | 18 | 28 | 45 | 56 | 67 | **214** |
| Total Capacity Added (MVA) | 81 | 99 | 146 | 240 | 295 | 350 | 1,130 |
| **PTR Augmentation number** | | | | | | | |
| PTR augmented in Urban and Semi-Urban Sub-station | 13 | 17 | 21 | 23 | 30 | 34 | 125 |
| PTR augmented in Rural Sub-station | 1 | 2 | 4 | 4 | 7 | 11 | 28 |
| Total PTRs augmented | 14 | 19 | 25 | 27 | 37 | 45 | **153** |
| PTR capacity augmented in MVA | 41 | 55 | 70 | 76 | 103 | 122 | 427 |
| Total PTR capacity added (MVA) | 122 | 154 | 216 | 316 | 398 | 472 | 1557 |
| Feeder Additions in Existing Sub-stations | **-** | **3** | **6** | **13** | **18** | **24** | **64** |
| **Total Capacity Addition (New Sub-station + Existing Sub-station) MVA** | 378 | 456 | 576 | 775 | 902 | 1062 | 3772 |
| **Total no of feeders added including Sub-stations due to overloaded feeders** | 200 | 239 | 284 | 349 | 374 | 492 | 1,738 |
| **Total number of PTRs added** | 65 | 76 | 97 | 132 | 152 | 179 | 636 |
| **Total Capacity of PTRs added (MVA)** | 337 | 401 | 506 | 699 | 799 | 940 | 3345 |
| **DTR Additions** | | | | | | | |
| 25 KVA | 6396 | 6729 | 7065 | 7417 | 7787 | 8176 | 37174 |
| 63 KVA | 1170 | 1231 | 1292 | 1357 | 1425 | 1496 | 6801 |
| 100 KVA | 3005 | 3189 | 3383 | 3589 | 3803 | 4026 | 17990 |
| 160 KVA | 259 | 276 | 294 | 314 | 334 | 353 | 1571 |
| 315 KVA | 71 | 76 | 81 | 87 | 92 | 97 | 433 |
| **Total DTRs** | **10901** | **11501** | **12115** | **12764** | **13441** | **14148** | **63969** |

Table Summary of Network Projections

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

Table Detailed Network projections

| **Network Projections Results (6th CP)** | **Total 6th Control Period** | | | | | **Total for 6th CP** |
| --- | --- | --- | --- | --- | --- | --- |
| **FY 2029-30** | **FY 2030-31** | **FY 2031-32** | **FY 2032-33** | **FY 2033-34** |
| **New Sub-station Additions** | | | | | | |
| Urban nos. | 4 | 4 | 4 | 4 | 4 | 20 |
| Semi Urban nos. | - | 1 | 1 | 1 | 1 | 4 |
| Rural nos. | 43 | 44 | 44 | 51 | 52 | 234 |
| Total number of Sub-stations | 47 | 49 | 49 | 56 | 57 | 258 |
| Total Capacity Added (MVA) | 277 | 290 | 305 | 345 | 320 | 1,537 |
| No. of Feeders | 196 | 206 | 206 | 234 | 238 | 1,080 |
| **Sub-station addition due to overloaded feeders** | | | | | | |
| Urban no. | - | - | - | - | - | - |
| Semi Urban nos. | - | - | - | - | - | - |
| Rural nos. | 36 | 36 | 36 | 36 | 36 | 180 |
| Total Number of Sub-stations | 36 | 36 | 36 | 36 | 36 | 180 |
| Total Capacity Added (MVA) | 180 | 180 | 180 | 180 | 180 | 900 |
| No of Feeders | 144 | 144 | 144 | 144 | 144 | 720 |
| Total Capacity Added (MVA) | 457 | 470 | 485 | 525 | 500 | 2,437 |
| **Total number of Sub-stations** | | | | | | |
| Urban nos. | 4 | 4 | 4 | 4 | 4 | 20 |
| Semi Urban nos. | - | 1 | 1 | 1 | 1 | 4 |
| Rural nos. | 79 | 80 | 80 | 87 | 88 | 414 |
| Total Number of Sub-stations | 83 | 85 | 85 | 92 | 93 | **438** |
| Total Capacity Added (MVA) | 457 | 470 | 485 | 525 | 500 | 2,437 |
| No of Feeders | 340 | 350 | 350 | 378 | 382 | 1,800 |
| **Total number of PTRS in new Sub-stations** | | | | | | |
| PTR No(8 MVA) | 4 | 5 | 5 | 5 | 5 | 24 |
| PTR No(5 MVA) | 49 | 50 | 53 | 61 | 56 | 269 |
| Total Number of PTRs in new Sub-stations | 53 | 55 | 58 | 66 | 61 | 293 |
| Total Capacity Added (MVA) | 277 | 290 | 305 | 345 | 320 | 1,537 |
| **Total number of PTRs in Sub-stations due to over loaded feeders** | | | | | | |
| PTR No(8 MVA) | - | - | - | - | - | - |
| PTR No(5 MVA) | 36 | 36 | 36 | 36 | 36 | 180 |
| Total number of PTR | 36 | 36 | 36 | 36 | 36 | 180 |
| Total Capacity Added (MVA) | 180 | 180 | 180 | 180 | 180 | 900 |
| **New PTR Additions in existing Sub-stations number** | | | | | | |
| PTR No(8 MVA) | 5 | 5 | 5 | 5 | 5 | 25 |
| PTR No(5 MVA) | 46 | 47 | 52 | 54 | 55 | 254 |
| Total PTR numbers added | 51 | 52 | 57 | 59 | 60 | **279** |
| Total Capacity Added (MVA) | 270 | 275 | 8 | 310 | 315 | 1,178 |
| **PTR Augmentation number** | | | | | | |
| PTR augmented in Urban and Semi-Urban Sub-stations | 25 | 27 | 27 | 29 | 31 | 139 |
| PTR augmented in Rural Sub-stations | 3 | 4 | 8 | 9 | 9 | 33 |
| Total PTRs augmented | 28 | 31 | 35 | 38 | 40 | **172** |
| PTR capacity augmented in MVA | 81 | 88 | 96 | 104 | 110 | 478 |
| Total PTR capacity added (MVA) | 351 | 363 | 104 | 414 | 425 | 1656 |
| Feeder Additions in Existing Sub-stations | 7 | 10 | 15 | 22 | 23 | **76** |
| **Total Capacity Addition (New Sub-stations + Existing Sub-stations) MVA** | 808 | 833 | 589 | 939 | 925 | 4093 |
| **Total no of feeders added including Sub-stations due to overloaded feeders** | 347 | 360 | 365 | 400 | 405 | 1,876 |
| **Total number of PTRs added** | 140 | 143 | 151 | 161 | 157 | 752 |
| **Total Capacity of PTRs added (MVA)** | 727 | 745 | 493 | 835 | 815 | 3615 |
| **DTR Additions** | | | | | | |
| 25 KVA | 6863 | 7137 | 7422 | 7718 | 8026 | 37,166 |
| 63 KVA | 1256 | 1306 | 1358 | 1412 | 1468 | 6,800 |
| 100 KVA | 3837 | 4054 | 4284 | 4530 | 4794 | 21,499 |
| 160 KVA | 361 | 382 | 404 | 427 | 453 | 2,027 |
| 315 KVA | 98 | 104 | 110 | 116 | 123 | 551 |
| **Total DTRs** | **12415** | **12983** | **13578** | **14203** | **14864** | **68043** |

## Network Element Definition and Cost Details

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

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

1. PTR Unit Cost (Rs. / Unit): For calculating the cost of installing a PTR in a sub-station we have considered the following:
   * PTR of 5 MVA and 8 MVA capacities in Rural and Urban & Semi Urban areas respectively
   * 33 KV AB switch
   * Associated Equipment and labour cost

PTR unit additions in existing sub-station in Rural and Urban areas in a year is multiplied with the PTR unit cost in Rural and Urban areas respectively for that year to arrive at the total cost of installing of PTRs addition in existing sub-station. On similar lines as the sub-station unit cost, the present PTR unit cost has been escalated by a certain percentage year-on-year to get the PTR unit cost for subsequent years of the control period. This has been done to account for the possible increase in the material and labour cost during the 5th & 6th control period.

1. Feeder Unit Cost (Rs. / feeder): For calculating the cost for erecting a feeder in a sub-station is considered the following:
   * Feeder breaker and metering
   * Bay extension
   * 11 kV line
   * Associated Equipment and labour cost

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

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

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

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

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

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

The cost data for FY 2022-23 is considered for projections of network cost for base year i.e., FY 2023-24. A Price Escalation of **4.57%** is considered for YoY cost projections by considering 60% of WPI and 40% of CPI variation over past five years.

The network element unit cost arrived based on the cost data is the value pertaining to FY 2022-23. Considering the possible increase in material and labour costs, the network unit cost has been escalated by the above-mentioned percentage of price escalation year-on-year. The number of network additions each year has been multiplied by the relevant network unit cost for that year to arrive at the total cost of installing the new network elements in that year.

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

Table Per unit cost of equipment

| **Sl. No.** | **Cost Data** | **TSNPDCL** | |
| --- | --- | --- | --- |
| **Details** | **Units** | **Rs.** |
| **A** | **Sub-station Unit Addition** | | |
|  | **Sub-station with 1\*5 MVA with 4 feeders (Rural)** | **Rs. Lakh/SS Unit** | **405.19** |
|  | Labor Cost | **Rs. Lakh/SS Unit** | 59.53 |
|  | Material Cost | **Rs. Lakh/SS Unit** | 345.65 |
|  | **Sub-station with 2\*5 MVA PTR with 4 feeders (Rural)** | **Rs. Lakh/SS Unit** | **482.71** |
|  | Labor Cost | **Rs. Lakh/SS Unit** | 61.83 |
|  | Material Cost | **Rs. Lakh/SS Unit** | 420.88 |
|  | **Sub-station with 1\*8 MVA PTR with 6 feeders (Urban)** | **Rs. Lakh/SS Unit** | **492.48** |
|  | Labor Cost | **Rs. Lakh/SS Unit** | 76.72 |
|  | Material Cost | **Rs. Lakh/SS Unit** | 415.76 |
|  | **Sub-station with 2\*8 MVA PTR with 6 feeders (Urban)** | **Rs. Lakh/SS Unit** | **596.17** |
|  | Labor Cost | **Rs. Lakh/SS Unit** | 76.72 |
|  | Material Cost | **Rs. Lakh/SS Unit** | 519.45 |
| **B** | **PTR Addition** | | |
|  | **5 MVA PTR Addition** | **Rs. Lakh/PTR Unit** | **62.73** |
|  | Labor Cost | **Rs. Lakh/PTR Unit** | 0.52 |
|  | Material Cost | **Rs. Lakh/PTR Unit** | 62.20 |
|  | **8 MVA PTR Addition** | **Rs. Lakh/PTR Unit** | **88.65** |
|  | Labor Cost | **Rs. Lakh/PTR Unit** | 0.52 |
|  | Material Cost | **Rs. Lakh/PTR Unit** | 88.13 |
| **C** | **PTR Augmentation** | | |
|  | **Urban & Semi Urban PTR Augmentation (5 MVA to 8 MVA)** | **Rs. Lakh /PTR Unit** | **58.33** |
|  | Labor Cost | **Rs. Lakh /PTR Unit** | 1.42 |
|  | Material Cost | **Rs. Lakh /PTR Unit** | 56.91 |
|  | **Rural PTR Augmentation (3.15 MVA to 5 MVA)** | **Rs. Lakh /PTR Unit** | **52** |
|  | Labor Cost | **Rs. Lakh /PTR Unit** | 1.42 |
|  | Material Cost | **Rs. Lakh /PTR Unit** | 50.59 |
| **D** | **Feeder Addition** | | |
|  | **Feeder Addition in Existing Sub-station** | **Rs. Lakh /Feeder Unit** | **27.98** |
|  | Labor Cost | **Rs. Lakh /Feeder Unit** | 7.49 |
|  | Material Cost | **Rs. Lakh /Feeder Unit** | 20.49 |
| **E** | **DTR Addition** | | |
|  | **DTR 25 KVA** | **Rs. /DTR Unit** | **478798** |
|  | Labor Cost | Rs. /DTR Unit | 113966 |
|  | Material Cost | Rs. /DTR Unit | 364832 |
|  | **DTR 63 KVA** | **Rs. /DTR Unit** | **627374** |
|  | Labor Cost | Rs. /DTR Unit | 127168 |
|  | Material Cost | Rs. /DTR Unit | 500205 |
|  | **DTR 100 KVA** | **Rs. /DTR Unit** | **701363** |
|  | Labor Cost | Rs. /DTR Unit | 133227 |
|  | Material Cost | Rs. /DTR Unit | 568136 |
|  | **DTR 160 KVA** | **Rs. /DTR Unit** | **765168** |
|  | Labor Cost | Rs. /DTR Unit | 133227 |
|  | Material Cost | Rs. /DTR Unit | 631942 |
|  | **DTR 315 KVA** | **Rs. /DTR Unit** | **1358459** |
|  | Labor Cost | Rs. /DTR Unit | 133227 |
|  | Material Cost | Rs. /DTR Unit | 1225232 |

## Base Capex Network Additions Financial Summary:

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

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

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

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

## Other Capital Expenditure

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

* AT&C loss reduction
* Reliability Improvement & Contingency Schemes
* Renovation & Modernization
* Technology Upgradation
* New Consumer Capex
* Civil Infrastructure Development
* **AT & C Loss Reduction:** The licensee proposes to invest in the following areas under loss reduction schemes

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

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

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

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

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

* **Reliability improvement and Contingency Schemes:**

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

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

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

* **Contingency schemes**

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

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

**Provision of alternate supply at 11 KV level:** The licensee intends to erect 2,650 KM of 11 KV line to provide alternate 11 KV supply for improving reliability in power supply by providing supply to a part of feeder in the event of break downs, line clears etc. Accordingly, an amount of Rs.186 Crores approximately is expected to be incurred during the ensuing control period (5th & 6th).

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

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

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

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

* **Renovation and Modernization.**

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Other Capex: Renovation and Modernization for 5th Control Period in Rs. Cr.** | | | | | | | |
| **Sl. No** | **Investment Area** | **FY 2024-25** | **FY 2025-26** | **FY 2026-27** | **FY 2027-28** | **FY 2028-29** | **Total 5th Control Period** |
| 1 | R&M of Sub-station | 5.25 | 7.88 | 10.50 | 13.13 | 15.75 | 52.50 |
| 2 | VCBs in Sub-station | 0.38 | 0.56 | 0.75 | 0.94 | 1.13 | 3.75 |
| 3 | 33KV Line | 27.50 | 41.25 | 55.00 | 68.75 | 82.50 | 275.00 |
| 4 | 11KV Line | 13.08 | 19.61 | 26.15 | 32.69 | 39.23 | 130.75 |
| 5 | DTR | 6.30 | 9.45 | 12.60 | 15.75 | 18.90 | 63.00 |
| 6 | LT line | 1.25 | 1.88 | 2.50 | 3.13 | 3.75 | 12.50 |
| 7 | PTRs | 3.00 | 4.50 | 6.00 | 7.50 | 9.00 | 30.00 |
| 8 | Safety Equipment | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 17.50 |
| **Total** | | **59.75** | **88.375** | **117** | **145.625** | **174.25** | **585** |

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

* **Technology up gradation**

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

**GIS Mapping:**

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

**WAN:**

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

**Automation of Sub-stations:**

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

**SCADA/DMS:**

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

Benefits are:

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

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

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

* **New consumer Capex**

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

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

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

* **Civil Infrastructure Development**

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

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Other Capex: Civil Infrastructure for 6th Control Period in Rs. Cr.** | | | | | | | |
| **Sl. No.** | **Investment Area** | **FY 2029-30** | **FY 2030-31** | **FY 2031-32** | **FY 2032-33** | **FY 2033-34** | **Total 6th Control Period** |
| 1 | Construction of Office Buildings | 30 | 30 | 30 | 30 | 30 | 150 |
| 2 | Administrative Support (furniture) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | | **30** | **30** | **30** | **30** | **30** | **150** |

* **Capacitor Bank**

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

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

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

* **AGL Feeder Segregation**

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

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

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

## Summary of Other Capital Expenditure

Table Summary of other capex

| **Sl. No.** | **Investment Area** | **Total Other Capex for 5th Control Period** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **in Rs. Cr.** | | | | | |
| **FY 24-25** | **FY 25-26** | **FY 26-27** | **FY27-28** | **FY 28-29** | **Total 5th CP** |
| A | **AT & C Loss Reduction** | **23.20** | **10.50** | **12.50** | **15.50** | **12.30** | **74.00** |
|  | Conversion of S-Ph to 3-Ph AGL DTRs | 17.5 | 0.5 | 0.5 | 0.5 | 0.5 | 19.50 |
|  | Replacing OH line with UG cables | 1.50 | 2.50 | 2.50 | 3.00 | 3.00 | 12.50 |
|  | Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph) | 4.20 | 7.50 | 9.50 | 12.00 | 8.80 | 42.00 |
| B | **Reliability Improvement & Contingency Schemes** | **56.63** | **82.00** | **96.43** | **97.85** | **104.10** | **437.00** |
|  | Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor) | 2.50 | 4.00 | 5.00 | 4.50 | 5.00 | 21.00 |
|  | Covered Conductor | 2.50 | 5.00 | 7.50 | 9.00 | 9.00 | 33.00 |
|  | **Provision of alternate supply at 33 KV for consumers** | **3.78** | **9.00** | **11.33** | **10.95** | **4.95** | **40.00** |
|  | Addition of 33KV lines | 3.63 | 8.70 | 10.88 | 10.65 | 4.53 | 38.38 |
|  | No. of Bays | 0.15 | 0.30 | 0.45 | 0.30 | 0.43 | 1.63 |
|  | Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines | 0.50 | 1.50 | 2.00 | 0.75 | 0.25 | 5.00 |
|  | **Provision of alternate supply at 11 KV for consumers** | **12.35** | **15.00** | **18.10** | **20.15** | **27.40** | **93.00** |
|  | Addition of 11KV line | 12.00 | 14.50 | 17.50 | 19.50 | 26.50 | 90.00 |
|  | No. of Bays | 0.35 | 0.50 | 0.60 | 0.65 | 0.90 | 3.00 |
|  | Provision of alternate supply for LT consumers (Addition of LT line) | 27.50 | 35.00 | 40.00 | 42.50 | 50.00 | 195.00 |
|  | Replacement of damaged LT AB cable in SC/ST habitations | 7.50 | 12.50 | 12.50 | 10.00 | 7.50 | 50.00 |
| C | **Renovation & Modernization** | **59.75** | **88.38** | **117.00** | **145.63** | **174.25** | **585.00** |
|  | R&M of Sub-station | 5.25 | 7.88 | 10.50 | 13.13 | 15.75 | 52.50 |
|  | VCBs in Sub-station | 0.38 | 0.56 | 0.75 | 0.94 | 1.13 | 3.75 |
|  | 33KV Line | 27.50 | 41.25 | 55.00 | 68.75 | 82.50 | 275.00 |
|  | 11KV Line | 13.08 | 19.61 | 26.15 | 32.69 | 39.23 | 130.75 |
|  | DTR | 6.3 | 9.45 | 12.6 | 15.75 | 18.9 | 63.00 |
|  | LT line | 1.25 | 1.875 | 2.5 | 3.125 | 3.75 | 12.50 |
|  | PTRs | 3 | 4.5 | 6 | 7.5 | 9 | 30.00 |
|  | Safety Equipment | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 17.50 |
| D | **Technology Upgradation** | **62.75** | **63.75** | **64.75** | **66.00** | **67.70** | **324.95** |
|  | Automation of Sub-stations | 7.50 | 8.00 | 8.50 | 9.00 | 10.00 | 43.00 |
|  | GIS mapping | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 37.50 |
|  | WAN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 5.00 |
|  | SCADA/DMS | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 150.00 |
|  | Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analysis, etc. | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 75.00 |
|  | Administrative support (Computers and printers) | 1.75 | 2.25 | 2.75 | 3.50 | 4.20 | 14.45 |
| E | **New Consumer Capex** | **118.00** | **125.08** | **132.58** | **140.54** | **148.97** | **665.18** |
|  | 33 KV line for new consumer (Including LI schemes) | 0.08 | 0.08 | 0.09 | 0.10 | 0.10 | 0.45 |
|  | **Consumer Meters** | **20.58** | **21.81** | **23.12** | **24.51** | **25.98** | **116.01** |
|  | LT 1-Phase Meters | 18.07 | 19.15 | 20.30 | 21.52 | 22.81 | 101.86 |
|  | LT 3-Phase Meters | 1.70 | 1.80 | 1.90 | 2.02 | 2.14 | 9.55 |
|  | LT CT Meters | 0.82 | 0.86 | 0.92 | 0.97 | 1.03 | 4.59 |
|  | HT metering Net (Meter cost including CT/PT) | 1.94 | 2.06 | 2.18 | 2.31 | 2.45 | 10.94 |
|  | Infrastructure required for AGL | 95.40 | 101.12 | 107.19 | 113.62 | 120.44 | 537.78 |
| F | **Civil Infrastructure Development** | **23.40** | **23.40** | **23.40** | **23.40** | **23.40** | **117.00** |
|  | Construction of Office Buildings | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 100.00 |
|  | Administrative Support (furniture) | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 17.00 |
| g | **Capacitor Bank** | **17** | **17** | **17** | **17** | **17** | **85.00** |
|  | 2/1 MVAR Capacitor Bank | 15 | 15 | 15 | 15 | 15 | 75.00 |
|  | 600 KVAR Line Capacitor | 2 | 2 | 2 | 2 | 2 | 10.00 |
| H | **AGL Feeder Segregation** | **78.75** | **112.5** | **157.5** | **225** | **216** | **789.75** |
| **Total Other Capex for TSNPDCL** | | **439.48** | **522.61** | **621.16** | **730.91** | **763.72** | **3077.88** |

Table Summary of Other Capex

| **Sl. No.** | **Investment Area** | **Total Other Capex for 6th Control Period** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **in Rs. Cr.** | | | | | |
| **FY 29-30** | **FY 30-31** | **FY 31-32** | **FY 32-33** | **FY 33-34** | **Total 6th CP** |
| A | **AT & C Loss Reduction** | **23.20** | **10.50** | **12.50** | **15.50** | **12.30** | **74.00** |
|  | Conversion of S-Ph to 3-Ph AGL DTRs | 17.5 | 0.5 | 0.5 | 0.5 | 0.5 | 19.50 |
|  | Replacing OH line with UG cables | 1.50 | 2.50 | 2.50 | 3.00 | 3.00 | 12.50 |
|  | Replacement of existing 34 sq.mm. conductor with 55 sq. mm. conductor (3-Ph) | 4.20 | 7.50 | 9.50 | 12.00 | 8.80 | 42.00 |
| B | **Reliability Improvement & Contingency Schemes** | **56.63** | **82.00** | **96.43** | **97.85** | **104.10** | **437.00** |
|  | Reconductoring of lines (55 sq.mm. conductor with 100 sq.mm. conductor) | 2.50 | 4.00 | 5.00 | 4.50 | 5.00 | 21.00 |
|  | Covered Conductor | 2.50 | 5.00 | 7.50 | 9.00 | 9.00 | 33.00 |
|  | **Provision of alternate supply at 33 KV for consumers** | **3.78** | **9.00** | **11.33** | **10.95** | **4.95** | **40.00** |
|  | Addition of 33KV lines | 3.63 | 8.70 | 10.88 | 10.65 | 4.53 | 38.38 |
|  | No. of Bays | 0.15 | 0.30 | 0.45 | 0.30 | 0.43 | 1.63 |
|  | Replacement of existing 100 sq.mm. conductor with higher size of conductor in 33 KV lines | 0.50 | 1.50 | 2.00 | 0.75 | 0.25 | 5.00 |
|  | **Provision of alternate supply at 11 KV for consumers** | **12.35** | **15.00** | **18.10** | **20.15** | **27.40** | **93.00** |
|  | Addition of 11KV line | 12.00 | 14.50 | 17.50 | 19.50 | 26.50 | 90.00 |
|  | No. of Bays | 0.35 | 0.50 | 0.60 | 0.65 | 0.90 | 3.00 |
|  | Provision of alternate supply for LT consumers (Addition of LT line) | 27.50 | 35.00 | 40.00 | 42.50 | 50.00 | 195.00 |
|  | Replacement of damaged LT AB cable in SC/ST habitations | 7.50 | 12.50 | 12.50 | 10.00 | 7.50 | 50.00 |
| C | **Renovation & Modernization** | **59.75** | **88.38** | **117.00** | **145.63** | **174.25** | **585.00** |
|  | R&M of Sub-station | 5.25 | 7.88 | 10.50 | 13.13 | 15.75 | 52.50 |
|  | VCBs in Sub-station | 0.38 | 0.56 | 0.75 | 0.94 | 1.13 | 3.75 |
|  | 33KV Line | 27.50 | 41.25 | 55.00 | 68.75 | 82.50 | 275.00 |
|  | 11KV Line | 13.08 | 19.61 | 26.15 | 32.69 | 39.23 | 130.75 |
|  | DTR | 6.3 | 9.45 | 12.6 | 15.75 | 18.9 | 63.00 |
|  | LT line | 1.25 | 1.875 | 2.5 | 3.125 | 3.75 | 12.50 |
|  | PTRs | 3 | 4.5 | 6 | 7.5 | 9 | 30.00 |
|  | Safety Equipment | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 17.50 |
| D | **Technology Upgradation** | **62.75** | **63.75** | **64.75** | **66.00** | **67.70** | **324.95** |
|  | Automation of Sub-stations | 7.50 | 8.00 | 8.50 | 9.00 | 10.00 | 43.00 |
|  | GIS mapping | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 37.50 |
|  | WAN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 5.00 |
|  | SCADA/DMS | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 150.00 |
|  | Hardware refresh, SAP upgradation Data Analyses tools, Dashboard, Outage Management System (OMS), PTR Monitoring system, Load flow analysis, etc. | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 75.00 |
|  | Administrative support (Computers and printers) | 1.75 | 2.25 | 2.75 | 3.50 | 4.20 | 14.45 |
| E | **New Consumer Capex** | **118.00** | **125.08** | **132.58** | **140.54** | **148.97** | **665.18** |
|  | 33KV line for new consumer (Including LI schemes) | 0.08 | 0.08 | 0.09 | 0.10 | 0.10 | 0.45 |
|  | **Consumer Meters** | **20.58** | **21.81** | **23.12** | **24.51** | **25.98** | **116.01** |
|  | LT 1-Phase Meters | 18.07 | 19.15 | 20.30 | 21.52 | 22.81 | 101.86 |
|  | LT 3-Phase Meters | 1.70 | 1.80 | 1.90 | 2.02 | 2.14 | 9.55 |
|  | LT CT Meters | 0.82 | 0.86 | 0.92 | 0.97 | 1.03 | 4.59 |
|  | HT metering Net (Meter cost including CT/PT) | 1.94 | 2.06 | 2.18 | 2.31 | 2.45 | 10.94 |
|  | Infrastructure required for AGL | 95.40 | 101.12 | 107.19 | 113.62 | 120.44 | 537.78 |
| F | **Civil Infrastructure Development** | **30.00** | **30.00** | **30.00** | **30.00** | **30.00** | **150.00** |
|  | Construction of Office Buildings | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 150.00 |
|  | Administrative Support (furniture) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| G | **Capacitor Bank** | **17** | **17** | **17** | **17** | **17** | **85.00** |
|  | 2/1 MVAR Capacitor Bank | 15 | 15 | 15 | 15 | 15 | 75.00 |
|  | 600 KVAR Line Capacitor | 2 | 2 | 2 | 2 | 2 | 10.00 |
| H | **AGL Feeder Segregation** | **96.25** | **137.5** | **192.5** | **275** | **264** | **965.25** |
| **Total Other Capex for TSNPDCL** | | **463.58** | **554.21** | **662.76** | **787.51** | **818.32** | **3286.38** |

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

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

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