

**BEFORE THE HONOURABLE TELANGANA ELECTRICITY REGULATORY
COMMISSION**

AT ITS OFFICE AT Vth FLOOR, SINGARENI BHAVAN, RED HILLS, HYDERABAD.

FILING NO. _____/2023
CASE NO. _____/2023

In the matter of:

Filing of the Resource Plan for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34) w.r.t. Regulation No.5 of 2005 issued by the erstwhile APERC and subsequently adopted by TSERC as per Regulation No.1 of 2014.

In the matter of:

TRANSMISSION CORPORATION OF TELANGANA LIMITED
...Applicant

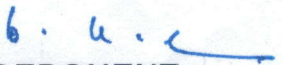
**AFFIDAVIT OF APPLICANT VERIFYING THE APPLICATION
ACCOMPANYING FILING OF RESOURCE PLAN PETITION FOR THE 5TH
CONTROL PERIOD (FY:2024-25 TO FY:2028-29) AND 6TH CONTROL
PERIOD (FY:2029-30 TO FY2033-34)**

I, D. Prabhakar Rao, S/o D. Pashupathi Rao, working for gain at the Transmission Corporation of Telangana Limited do solemnly affirm and say as follows:

1. I am the Chairman and Managing Director of TSTransco, the licensee company operating and controlling the Transmission & SLDC business of electricity in Telangana pursuant to the license granted by the Hon'ble


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

2. I have read and understood the contents of the accompanying filing of the Resource Plan Petition for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34). The statements made in the paragraphs of the accompanying application now shown to me are true to my knowledge derived from the official records made available to me and are based on information and advice received which I believe to be true and correct.


DEPONENT

VERIFICATION:

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


DEPONENT

Solemnly affirmed and signed before me.



COMPANY SECRETARY
TSTRANSCO/HYDERABAD
RAVI KUMAR SULUVA
BCA, FCS
COMPANY SECRETARY, TSTRANSCO,
VIDYUT SOUDHA, HYDERABAD-500 082.

**BEFORE THE HONOURABLE TELANGANA ELECTRICITY REGULATORY
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Filing of the Resource Plan for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34) w.r.t. Regulation No.5 of 2005 issued by the erstwhile APERC and subsequently adopted by TSERC as per Regulation No.1 of 2014.

In the matter of:

TRANSMISSION CORPORATION OF TELANGANA LIMITED

Applicant

The applicant respectfully submits as under:

1. The erstwhile APERC issued Regulation No.5 of 2005 (Terms and Conditions for determination of Tariff for Transmission of Electricity) and subsequently adopted by TSERC as per Regulation No.1 of 2014.
2. The Hon'ble TSERC directed TSTRANSCO to file the Resource Plan petition for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34) before 1st April, 2023.
3. TSTransco herein files the Resource Plan Petition for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34) including information in the form of booklet in standard formats.
4. In the aforesaid circumstances, the applicant respectfully prays the Hon'ble TSERC to:
 - a) Take the accompanying petition on the Resource Plan for the 5th Control Period (FY:2024-25 to FY:2028-29) and 6th Control Period (FY:2029-30 to FY2033-34) on record.

- b) Grant suitable opportunity to TSTRANSCO within a reasonable timeframe to file additional information if required.
- c) Consider the facts and circumstances of the present petition and pass an appropriate order.

TRANSMISSION CORPORATION OF TELANGANA LIMITED
(APPLICANT)

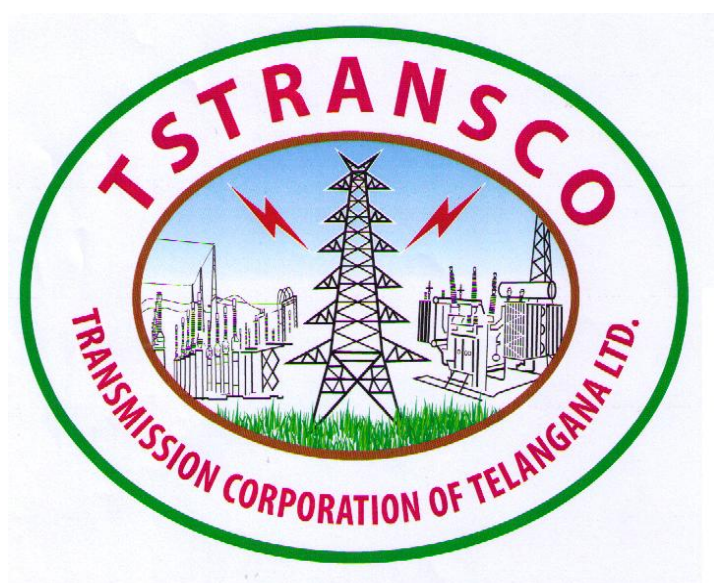
Through

b. h. r.
D. PRABHAKAR RAO
CHAIRMAN AND MANAGING DIRECTOR

Place: HYDERABAD
Dated: 31st March, 2023

Resource Plan

5th Control Period (FY 2024-25 to FY 2028-29) and
6th Control Period (FY 2029-30 to FY 2033-34)



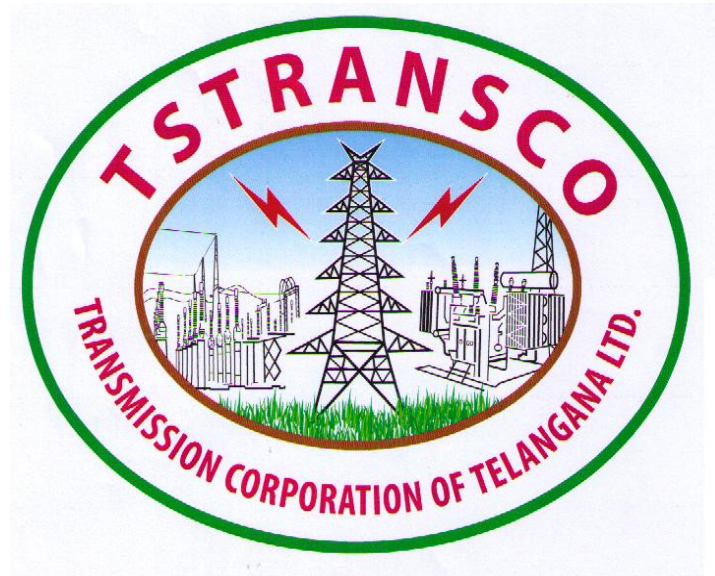
March - 2023

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Chapter 1

Telangana State Load forecast and Load Generation Balance Report for 5th Control Period (FY 2024-25 to FY 2028-29) and 6th Control Period (FY 2029-30 to FY 2033-34)

[Statement of Energy Availability, Energy Requirement and Surplus/Deficit for 5th and 6th Control Periods]



March - 2023

Resource Plan for FY 2024-25 to FY 2033-34

1. State Load forecast and Resource plan of Telangana

1.1 Introduction

The Telangana Electricity Regulatory Commission (TSERC) directs TSTRANSCO to collect and consolidate sales forecast from distribution licensees and to file Resource Plan for Hon'ble Commission's approval as specified under clause 9 of APERC Regulation 5 of 2005 and as adopted by Hon'ble TSERC.

The Resource Plan shall contain the following

- Statement of Energy Availability, Energy Requirement and Surplus/Deficit
- Transmission plan of TSTRANSCO for FY 2024-25 to FY 2028-29
- Transmission plan of TSTRANSCO for FY 2029-30 to FY 2033-34

The Guidelines for Load Forecast and Resource Plan states that the licensee shall submit a Resource Plan for a period of two control periods i.e. Load Forecast from the year of commencement from 1st April and ending on the following 31st March including a detailed plan for the Control Period (FY 2024-25 to FY 2028-29) under consideration for tariff review purpose and an indicative plan for the subsequent control period (FY 2029-30 to FY 2033-34).

The fifth control period starts from 01 April, 2024 and ends on 31 March, 2029 while the sixth control period starts from 01 April, 2029 and ends on 31 March, 2034.

TSTRANSCO herewith submits Resource Plan for the two control periods as per directions of Hon'ble Commission.

The Resource Plan consists of the following:

- Consolidated Sales Forecast
- Loss Trajectory
- Consolidated Load Forecast
- Consolidated Load Generation Balance Report
- Capital Investment Plan (Transmission plan) of TSTRANSCO

1.2 Telangana Power Sector:

The total number of consumers in the state as on 31.03.2022 are 171.39 lakhs which includes Domestic, Non-Domestic, Industrial, Agricultural, EV charging Stations and other categories.

The total energy consumption (at utility periphery) in Telangana during FY 2021-22 is 61160 MU while energy at Transco periphery would be 70957 MU and the Peak Demand is 14160 MW.

1.3 Generation and Transmission:

The Generation Installed capacity in the state as on 31.03.2022 is 17228 MW comprising 4042.5 MW of Thermal, 2430.60 MW of Hydel, 11.16 MW of Mini Hydel, 1200 MW of Singareni TPP, 1000 MW of Chattisgarh Power, 76.31 MW of Inter-state Hydel, 24.51MW of APGPCL, 2496.25 MW of CGS Share, 4300 MW of NCE, 807.31 MW of IPP's and 839.45 MW of Sembcorb (TPCIL).

The present State Transmission infrastructure as on 31.03.2022 consists of 23 Nos. of 400kV Substations, 98 Nos. of 220kV Substations, 247 Nos. of 132kV Substations and 27375 CKM of EHT lines. The Transmission losses during FY 2021-22 were 2.47 %.

1.4 Present Power Supply Position:

TS DISCOMS are currently supplying 24Hrs power to all categories of consumers including agricultural consumers.

1.5 Major Loads and Generation Plants in Telangana:

Major Lift Irrigation schemes are as follows:

a) Existing:

- Kaleshwaram Lift Irrigation Loads (including Link-I of additional 1 TMC loads) - 5068 MW
- Flood Flow Canal Loads - 156 MW.
- Sita Rama Lift Irrigation loads - 650 MW

b) Proposed:

- Palamur - Rangareddy Lift Irrigation loads - 5375 MW
- Additional 1 TMC loads at Link - II and Link - IV of Kaleshwaram Lift Irrigation Scheme including Manchippa, Yacharam Thanda and New Manchippa - 3013 MW

Major Generation plants are as follows:

a) Existing :

- (i) KTPS - 1800 MW (2x250+1x500+1x800 MW)
- (ii) KTPP - 1100 MW (1x500+1x600 MW)
- (iii) Singareni TPP - 1200 MW (2x600 MW)
- (iv) Srisailem HES - 900 MW (6x150 MW)
- (v) Nagarjuna Sagar HES - 815.6 MW (1x110+7x100.8 MW)
- (vi) Bhadradi Thermal Power Station (BTPS) - 1080 MW (4x270 MW)

b) Proposed:

- (i) Yadadri Thermal Power Station (YTPS) of 4000 MW (5x800 MW)
- (ii) Telangana STPP (CGS station) of 1600 MW (2x800 MW)
(TS Share - 1360 MW)

1.6 Consolidated Sales and Load forecast

The consolidated Sales and Load forecast is prepared duly adding the sales and Load forecast of both the DISCOMS. The provisional category wise detailed forecast is placed in the below table:

Category wise Sales Forecast (MU) - Telangana State							
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	ENERGY CONSUMPTION -MUs						
Domestic	14246.35	14992.78	15783.39	16621.07	17508.93	18450.30	19448.76
Commercial	4027.77	4270.87	4531.49	4811.60	5112.54	5434.75	5779.17
Public lighting & Public Water Works	2028.11	2085.00	2160.40	2239.71	2323.16	2411.08	2503.80
Irrigation (Cat-5 + LI)	23456.66	25910.36	26278.31	27819.89	29461.53	31210.51	33074.74
LT Industries	1208.80	1250.09	1293.01	1337.63	1384.02	1432.27	1482.47
HT Industries	15719.28	16637.56	17602.46	18663.88	19808.22	21043.21	22377.44
Railway Traction	978.70	989.29	1272.61	1366.71	1405.94	1605.99	1729.32
Bulk Supply to	-	-	-	-	-	-	-
a)Non-Industrial Consumers	-	-	-	-	-	-	-
b)Private Licensees	-	-	-	-	-	-	-
Others	4469.39	3807.92	5370.44	5736.48	6126.71	6537.90	6980.59
Total (Energy Consumption)	66135.06	69943.87	74292.11	78596.97	83131.05	88126.01	93376.29
Distribution losses	8163.11	8508.91	8948.55	9399.93	9875.76	10382.89	10917.28
Energy Requirement at 132kV level in MU	74298.17	78452.78	83240.66	87996.90	93006.81	98508.90	104293.57
Transmission losses	1920.00	2011.61	2116.86	2219.32	2326.12	2443.03	2564.59

T&D losses -MU	10083.11	10520.52	11065.41	11619.25	12201.88	12825.92	13481.87
Energy Requirement at Grid level - MU	76218.17	80464.39	85357.52	90216.22	95332.93	100951.93	106858.16
Annual Load Factor - %	57.04%	55.21%	55.24%	55.24%	55.23%	55.22%	55.22%
Peak Load in MW (DISCOM periphery)	14869.44	16221.69	17201.69	18185.80	19225.54	20362.93	21562.38
Peak Load in MW (at Grid level)	15254	16638	17639	18644	19706	20868	22092

Transmission Losses

Transmission losses will be reduced from 2.52% in FY 2022-23 to 2.40 % by FY 2028-29 and the details are as tabulated below.

FY	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Transmission Loss %	2.52%	2.50%	2.48%	2.46%	2.44%	2.42%	2.40%

Forecast from FY 2024-25 to FY 2033-34

The Energy required from FY 2024-25 to 2028-29 is as under

FYs	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	CAGR 2024-29
Energy Requirement MU	76218	80464	85358	90216	95333	100952	106858	5.78%
Peak Load MW	15254	16638	17639	18644	19706	20868	22092	6.37%

The Energy required from FY 2029-30 to FY 2033-34 is as under.

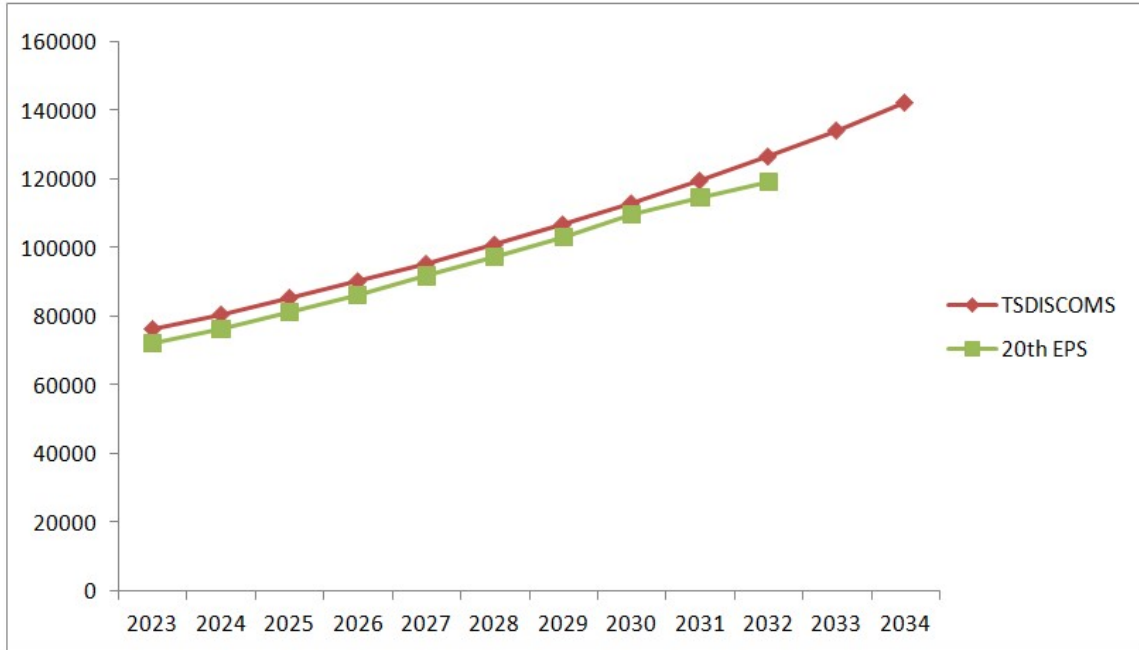
FYs	2029-30	2030-31	2031-32	2032-33	2033-34	CAGR 2029-34
Energy Requirement MU	113055	119681	126775	134386	142552	5.97%
Peak Load MW	23369	24733	26195	27764	29450	5.95%

1.7 Comparison of Load forecasts

Comparison of Energy (MU) forecast prepared by DISCOMS with 20th EPS of CEA are shown in below table and graph.

FYs	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
TSDISCOMS (MU)	76218	80464	85358	90216	95333	100952	106858
20th EPS (MU)	72351	76573	81328	86365	91852	97395	103130

FYs	2029-30	2030-31	2031-32	2032-33	2033-34	CAGR for (2024-25 to 2033-34)
TSDISCOMS (MU)	113055	119681	126775	134386	142552	5.85 %
20th EPS (MU)	109639	114471	119102	NA	NA	5.69 %



2. Generation Plan

Generation plan for two control periods which includes all the available and possible Generation sources to meet the future energy demand.

2.1 Energy Availability from various sources

In the following sections, the capacities and availability from various existing and upcoming generating sources along with their expected date of commissioning have been described.

TELANGANA GENCO

The below table shows the capacities of the existing/up coming Thermal and
Hydel generating stations.

Energy Source	Plant Capaci- -ty (MW)	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
State Thermal Projects (in MW)								
KTPS V	500	500	500	500	500	500	500	500
KTPS VI	500	500	500	500	500	500	500	500
RTS-B	625	625	625	625	625	625	625	625
KTPP Stage-I	500	500	500	500	500	500	500	500
KTPP Stage-II	600	600	600	600	600	600	600	600
KTPS Stage-VII	800	800	800	800	800	800	800	800
BTPS (4x270 MW)	1080	1080	1080	1080	1080	1080	1080	1080
YTPS (5x800 MW)	4000	-	1600	4000	4000	4000	4000	4000
Total Thermal	80425	40425	56425	80425	80425	80425	80425	80425
State Hydel Projects (in MW)								
NSHP	815.6	815.6	815.6	815.6	815.6	815.6	815.6	815.6
NSLCPH	60	60	60	60	60	60	60	60
Pulichintala	120	120	120	120	120	120	120	120
Pochampad	36	36	36	36	36	36	36	36
Nizamsagar	10	10	10	10	10	10	10	10
Palair	2	2	2	2	2	2	2	2
Mini Hydels (Peddapalli)	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
Singur	15	15	15	15	15	15	15	15
Srisaïlam LBH ES	900	900	900	900	900	900	900	900
Priyadarshini Jurala (TS Share)	234	117	117	117	117	117	117	117
Lower Jurala	240	240	240	240	240	240	240	240
Total Hydel	2441.76	2324.76	2324.76	2324.76	2324.76	2324.76	2324.76	2324.76
Solar PV at Jurala	1	1	1	1	1	1	1	1
Total Capacity	10485.26	6368.26	7968.26	10368.26	10368.26	10368.26	10368.26	10368.26

Central Generating Stations

The share of the Telangana in the total capacity of the Central Generating Stations is provided below:

Name of the Station	Capacity (MW)	TS Share (MW)	Percentage %
NTPC (SR)-I & II	2100	353.01	16.81
NTPC (SR) Stage-III	500	88.50	17.7
NTPC Talcher StageII	2000	217.40	10.87
NLC Stage-I	630	5.23	0.83
NLC Stage-II	840	6.89	0.82
NPC-MAPS	440	22.04	5.01
NPC-Kaiga Unit-I&II	440	67.72	15.39
NPC-Kaiga Unit-III & IV	440	72.03	16.37
NTPC Simhadri Stage-I	1000	538.90	53.89
NTPC Simhadri Stage-II	1000	256.80	25.68
NTECL Vallur Thermal Power Plant	1500	106.20	7.08
NLC Tamilnadu (Tuticorn) Unit-I & Unit II	1000	147.50	14.75
Kudigi Unit-I, II & III	2400	281.04	11.71
New Neyvelli Thermal Power plant	1000	61.90	6.19
NLC Exp-I	420	5.46	1.3
KKNPP (Kudankulam Nuclear Power Plant) Unit-I	1000	4.30	0.43
KKNPP (Kudankulam Nuclear Power Plant) Unit-II	1000	50.00	5
NLC Exp-II	500	6.50	1.3
NSM Bundled Phase -II	25650	200.00	0.78
Total	43860	2491.42	5.68

Apart from the above CGS stations, Telangana STPP is expected to come during 5th control period.

Name of the Station	Capacity (MW)	TS Share (MW)	COD/Expected date of commissioning (COD)
Telangana STPP	1600	1360	Unit-I April-2023 & Unit-II June-2023

Independent Power Producers (IPPs)

The share of Telangana from the following IPPs:

Project Name	Plant Capacity (MW)	TS Share (MW)	Remarks
GVK	220	118.558	The Natural gas supplies from RIL KG D-6 fields to these IPPs became zero from 01.03.2013 onwards and hence at present there is no Generation from these 4 IPPs
Vemagiri	370	199.393	
Gouthami	464	250.0496	
Konaseema	444.08	239.314712	
APGPCL Stage - I	-	-	Letter addressed to APGPCL to not schedule power from 1 st February 2020
APGPCL Stage - II	-	-	
Total	1498.08	807.315	

Other Sources

The following Generation capacities are available from other sources:

Name of the Station	Capacity (MW)	TS Share (MW)
Thermal Power Tech (Unit-I)	1240	269.45
Thermal Power Tech (Unit-II)		570
Singareni Thermal Power Plant Stage-I	1200	1200
Chattisgarh Power Purchase	1000	1000

2.2 Estimation of Load Generation Balance

Load Generation Balance is prepared from the above mentioned Generation sources and surplus/deficit in any year would be arrived.

The energy availability from the following sources has been considered for preparation of Load Generation Balance

- All existing Generation sources
- Generation sources with which the licensee has signed PPA like Chattisgarh, Singareni and Thermal Power Tech.
- Other future Generating Stations including TSGENCO thermal, CGS and NCE.

Considering the above assumptions, the energy availability from various sources has been computed which is summarized in the below sections.

TSGENCO Thermal

Energy Availability from TSGENCO Thermal Stations (MU)

Energy Source	Plant Capacity	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period/ PPA Expiry Date
KTPS -V	500	500	3573.15	3519.09	3511.50	3511.50	3508.80	3521.40	3511.50	3508.80	3511.50	3521.40	3508.80	3511.50	05 Years/ 31.03.2024
KTPS - VI	500	500	3566.80	3529.20	3504.00	3519.00	3504.00	3524.58	3504.00	3519.00	3504.00	3529.20	3504.00	3513.60	25 Years/ 22.10.2036
RTS B	62.5	62.5	366.51	413.30	412.80	412.13	412.13	413.30	412.13	309.38	Proposed to retire the unit by the End of December 2029. Hence, generation is not considered				05 Years/ 31.03.2024
KTPP - I	500	500	3328.23	3513.60	3519.00	3504.00	3513.60	3513.60	3519.00	3504.00	3519.00	3513.60	3513.60	3504.00	25 Years/ 13.09.2035
KTPP - II	600	600	4307.64	4229.50	4204.80	4222.80	4204.80	4235.04	4204.80	4216.32	4204.80	4235.04	4204.80	4222.80	25 Years/ 23.03.2041
KTPS - VII	800	800	5101.00	5973.12	5961.60	5956.80	5961.60	5973.12	5959.68	5956.80	5961.60	5973.12	5961.60	5956.80	25 Years/ 25.12.2043
Bhadradri Thermal Power Station (BTPS)	1080	1080	6815.19	8067.60	8044.92	8044.92	8043.62	8067.21	8044.92	8044.92	8044.92	8067.60	8043.62	8043.62	25 Years/ 08.01.2047

Energy Source	Plant Capacity	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period/ PPA Expiry Date
Yadadri Thermal Power Station (Damar-cherla) (YTPS)	4000	4000	0.00	1485.12	23810.88	29784.04	29784.05	29784.23	29784.11	29784.38	29784.05	29784.23	29784.11	29784.38	25 Years/ (From last Unit of anticipated COD) Unit#1 Dec'2023 Unit#2 Mar'2024 Unit#3 May'2024 Unit#4 July'2024 Unit#5 Sept'2024
Total	8042.50	8042.50	27058.52	30730.53	52969.50	58955.19	58932.60	59032.48	58940.14	58843.60	58529.87	58624.19	58520.53	58536.70	

TSGENCO Hydel

The Energy availability (MU) from Hydel stations is as follows:

Energy Source	Plant Capacity	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period/ PPA Expiry Date
NSHP	815.60	815.60	2358.00	2213.00	960.73	955.73	1043.73	1129.73	1224.73	1314.73	1295.73	1299.73	1150.73	1166.73	10 Years / 31.03.2029
NSLCPH	60.00	60.00	157.00	164.00	64.02	64.99	64.02	64.02	65.96	80.03	77.06	74.10	66.20	67.18	10 Years / 31.03.2029
Pulichintala	120.00	120.00	321.00	307.00	255.60	287.46	322.30	359.13	397.95	401.92	405.93	410.01	414.08	418.24	35 Years / 07.09.2053
Pochampad	36.00	36.00	138.10	86.00	74.36	74.36	74.36	74.36	74.37	74.36	74.36	74.36	74.36	74.37	10 Years / 31.03.2029 (Stg-I), 35 Years/ 11.10.2045 (Stg-II)
Nizam sagar	10.00	10.00	11.41	18.00	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	10 Years / 31.03.2029
Palair	2.00	2.00	1.54	1.00	2.76	2.84	2.93	3.02	3.02	2.81	2.79	2.89	2.94	3.03	10 Years / 31.03.2029
Mini Hydels (Peddapalli)	9.16	9.16	3.54	2.70	2.42	2.79	2.30	2.44	2.44	2.42	2.79	2.30	2.44	2.44	
Singur	15.00	15.00	30.00	38.00	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	10 Years / 31.03.2029
SLBHES	900.00	900.00	2200.00	2056.00	1123.94	1123.94	1123.94	1123.94	1123.94	1123.94	1123.94	1123.94	1123.94	1123.94	10 Years / 31.03.2029

Energy Source	Plant Capacity	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period/ PPA Expiry Date
Priyadarshini Jurala	234.00	117.00	226.50	169.00	241.67	243.88	265.40	271.17	277.00	288.68	285.95	278.09	273.00	266.87	35 Years / 03.08.2046
Lower Jurala	240.00	240.00	431.00	359.00	242.90	242.90	242.90	242.90	242.90	242.90	242.90	242.90	242.90	242.90	35 Years / 30.09.2051
Total	2441.76	2324.76	5878.09	5413.70	2998.91	3029.40	3172.39	3301.22	3442.82	3562.30	3541.96	3538.83	3381.10	3396.21	

Central Generating Stations (CGS)

Energy availability (MU) from CGS Plants

Energy Source	Capacity (MW)	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement/ PPA Expiry period
NTPC (SR)-I & II	2100	353.01	2232.00	2699.18	2666.07	2687.41	2618.33	2683.21	2668.76	2668.42	2618.33	2686.07	2669.43	2669.43	27.9.2018
NTPC (SR) Stage-III	500	88.50	573.00	637.20	714.90	621.27	-	-	-	-	-	-	-	-	31.01.2026
NTPC Talcher StageII	2000	217.40	1717.00	1653.33	-	-	-	-	-	-	-	-	-	-	05.04.2023

Energy Source	Capacity (MW)	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement/ PPA Expiry period
NLC Stage-I	630	5.23	35.04	35.14	35.04	35.04	35.04	35.14	35.04	32.12	-	-	-	-	20.02.2030
NLC Stage-II	840	6.89	46.16	46.29	46.16	46.16	46.16	46.29	46.16	27.89	-	-	-	-	20.02.2030
NPC-MAPS	440	22.04	65.00	56.00	56.00	56.00	42.00	-	-	-	-	-	-	-	23.12.2026
NPC-Kaiga Unit-I&II	440	67.72	780.00	427.00	427.00	427.00	320.00	-	-	-	-	-	-	-	23.12.2026
NPC-Kaiga Unit-III & IV	440	72.03	204.00	463.00	463.00	463.00	347.25	-	-	-	-	-	-	-	23.12.2026
NTPC Simhadri Stage-I	1000	538.90	3687.00	4174.86	4163.00	4089.71	4089.71	4150.61	3815.95	-	-	-	-	-	28.02.2028
NTPC Simhadri Stage-II	1000	256.80	1693.00	1992.51	1983.78	1948.86	1948.86	1977.87	1983.78	1948.86	1948.86	1948.86	1948.86	1948.86	29.09.2037
NTECL Vallur Thermal Power Plant	1500	106.20	787.00	810.45	697.78	697.74	697.69	697.69	697.73	697.73	697.73	697.73	697.73	697.73	25.02.2040
NLC Tamilnadu (Tuticorn) Unit-I & Unit II	1000	147.50	1098.29	1101.24	1098.29	1098.29	1098.29	1101.24	1098.29	1098.29	1098.29	1101.24	1098.29	1101.24	28.08.2040
Kudigi Unit-I, II & III	2400	281.04	1691.00	2063.54	2196.33	2095.15	2168.93	2095.15	2196.33	2095.15	2168.93	2074.08	2196.33	2074.08	14.09.2043
New Neyvelli Thermal Power plant	1000	61.90	450.01	460.91	460.91	460.91	460.91	462.15	460.91	460.91	460.91	462.15	460.91	462.15	09.02.2046

Energy Source	Capacity (MW)	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement/ PPA Expiry period
NLC Exp-I	420	5.46	20.00	41.00	-	-	-	-	-	-	-	-	-	-	-
KKNPP (Kudankulam Nuclear Power Plant) Unit-I	1000	4.30	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	PPA is yet to be entered for 15 years. Initiated for signing agreement
KKNPP (Kudankulam Nuclear Power Plant) Unit-II	1000	50.00	357.00	335.00	335.00	335.00	335.00	335.00	335.00	335.00	335.00	335.00	335.00	335.00	
NLC Exp-II	500	6.50	11.00	30.00	-	-	-	-	-	-	-	-	-	-	-
NSM Bundled Phase -II	25650	200.00	1390.00	1394.00	1390.00	1390.00	1390.00	1394.00	1390.00	1390.00	1390.00	1394.00	1390.00	1390.00	25 Years/2042
Telangana Super Thermal Power Project by NTPC, Phase-I	1600	1360	-	11045	11718	11682	12216	12216	12074	12038	12216	12216	12074	12216	25 Years/2048
Total	45460.00	3851.42	16864.50	29493.63	28479.25	28161.54	27842.15	27222.34	26829.93	22820.36	22962.03	22943.11	22898.53	22922.47	

Remarks

NTPC (SR) - I & II : The PPA expired by 27.09.2018. However, based on CEA/ SRPC directions as well as PPA article 12.0, the Energy is being purchased and energy has been projected up to FY 2033-34.

NLC Exp-I : No PPA Exists. Power allocation is based on MoP allocation w.e.f 01.10.2022 onwards

KKNPP Unit-I & II : MoP is allocating un-allocated quota power to TSDISCOMs.

NLC Exp-II : No PPA Exists. Power allocation is based on MoP allocation w.e.f 01.10.2022 onwards

NSM Bundled Phase -II : PSAs are entered for bundled power under NSM for a term of 25 years from the date of CoD of the last unit of the Solar Power Project. Thermal power is allocated as per the allocation letter by MoP, GoI from time to time.

Telangana Super Thermal Power Project by NTPC, Phase-I : CoD Unit-I:Apr-23, Unit-II:Jun-23 Biennial OH(35 days), Major OH (45days), Capital OH (60days) and Forced outage (2%) are considered.

Renewable Energy sources (RE)

PLF of NCE Sources	
Bio-Mass	80%
Bagasse	55%
Mini Hydel	45%
MSW	80%
Wind Power	25%
Solar	25%

The energy availability (MU) from RE sources:

Energy Source	Capacity in MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
RE - Bio-Mass	51.00	210.240	84.096	42.048	42.048	42.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RE-Bagasse	74.20	393.630	321.360	321.360	321.360	196.090	116.590	116.590	0.000	0.000	0.000	0.000	0.000
RE-Industrial	18.50	129.650	129.650	129.650	129.650	129.650	129.650	105.120	105.120	105.120	52.560	52.560	52.560
RE-MSW	6.60	185.010	214.440	438.000	438.000	438.000	438.000	438.000	438.000	438.000	438.000	438.000	438.000
RE-Wind Power	100.80	280.540	280.540	280.540	280.540	280.540	280.540	280.540	280.540	280.539	280.539	280.539	280.539
Mini Hydel	7.55	10.050	10.050	10.050	7.884	7.884	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RE Solar Competetive Bidding 2012	171.99	376.660	376.660	376.660	376.660	376.660	376.660	376.660	376.660	376.660	376.660	376.660	376.660
RE Solar Competetive Bidding 2013	189.50	415.005	415.005	415.005	415.005	415.005	415.005	415.005	415.005	415.005	415.005	415.005	415.005
RE Solar Competetive Bidding 2014	513.00	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470	1123.470
RE Solar Competetive Bidding 2015	1954.50	4280.355	4280.360	4280.355	4280.355	4280.355	4280.355	4280.355	4280.355	4280.355	4280.355	4280.355	4280.355

Energy Source	Capacity in MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
RE - Solar JNNSN (RPSSGP)	4.75	6.240	6.240	6.240	6.240	6.240	6.240	6.240	6.240	6.240	6.240	6.240	6.240
RE - Solar NTPC - Ramagundam	10.00	21.900	21.900	21.900	21.900	21.900	21.900	21.900	21.900	21.900	21.900	21.900	21.900
RE Solar NVNNL Bundled Power	45.81	100.320	100.320	100.320	100.320	100.320	100.320	100.320	100.320	100.324	100.324	100.324	100.324
RE Solar 400MW Bundled Power	400.00	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000
RE Solar Additions													
a) SECI ISTS Tr-VI		876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000	876.000
b) NTPC CPSU Tr-I & II		3705.500	3705.500	3705.500	3705.500	3705.500	3705.500	3705.500	3705.500	3705.480	3705.480	3705.480	3705.480
c) NTPC CPSU Tr-III		-	802.620	2288.550	2288.550	2288.550	2288.550	2288.550	2288.550	2288.550	2288.550	2288.550	2288.550
d) NHPC CPSU Tr-III		-	-	1095.000	1095.000	1095.000	1095.000	1095.000	1095.000	1095.000	1095.000	1095.000	1095.000
e) SECI ISTS Tr-IX		-	1092.000	2190.000	2190.000	2190.000	2190.000	2190.000	2190.000	2190.000	2190.000	2190.000	2190.000
Future Addition:	-	-	-	-	867.75	911.14	956.69	1004.53	1054.76	1107.49	1162.87	1221.01	1282.06
Total NCE's	3548.20	12990.57	14716.21	18576.65	19442.23	19360.35	19276.47	19299.78	19233.42	19286.14	19288.95	19347.09	19408.14

IPPs

The expected energy availability (MU) from the IPPs is as follows

Energy Source	Plant Capacity	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period/ PPA Expiry Date
GVK	220	118.558	-	-	-	-	-	-	-	-	-	-	-	-	#
Vemagiri	370	199.393	-	-	-	-	-	-	-	-	-	-	-	-	
Gouthami	464	250.0496	-	-	-	-	-	-	-	-	-	-	-	-	
Kona seema	444.08	239.314712	-	-	-	-	-	-	-	-	-	-	-	-	
APGPCL Stage -I			-	-	-	-	-	-	-	-	-	-	-	-	##
APGPCL Stage -II			-	-	-	-	-	-	-	-	-	-	-	-	
Total	1498.08	807.315	-	-	-	-	-	-	-	-	-	-	-	-	

The Natural gas supplies from RIL KG D-6 fields to these IPPs became zero from 01.03.2013 onwards and hence at present there is no generation from these 4 IPPs

Letter addressed to APGPCL to not schedule power from 1st February 2020

Expiry Date:

GVK Extension	-	13.04.2024
GMR Vemagiri	-	15.09.2029
GVK Gouthami	-	14.06.2024
Konaseema	-	29.06.2025

Other Sources:

The below table shows the energy availability (MU) from the following sources

- Thermal Power Tech
- Singareni Stage - I
- Chattisgarh Power Purchase

Energy Source	Capacity MW	TS Share MW	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34	PPA Agreement Period / PPA Expiry Date
Thermal Power Tech (Unit - I)	1240	269.45	2245.98	2258.7253	2360.4	2360.4	2360.4	2366.80	2360.40	2360.40	2360.40	2366.80	2360.40	2360.40	25 years/ 19.04.2040
Thermal Power Tech (Unit - II)		570	4751.2	4750.7673	-	-	-	-	-	-	-	-	-	-	8 Years / 29.03.2024
Singareni Thermal Power Project Stage-I	1200	1200	8747.15	8937.98	9243.89	9243.89	9243.89	9270.49	8911.38	8911.38	8911.38	8937.98	9243.89	9243.89	25 Years/ 2041
Chattisgarh Power Purchase	1000	1000	0.00	6824.73	7055.09	7055.09	7055.09	7074.41	7055.09	676.52	-	-	-	-	12 Years/ 2029
Total	3440	3039.45	15744.33	22772.20	18659.38	18659.38	18659.38	18711.70	18326.87	11948.30	11271.78	11304.78	11604.29	11604.29	

Remarks:

Chhattisgarh Power Purchase : CSERC vide order dated 13.04.2022 approved PAF :82% for FY 2023-24 & 85% from FY 2024-25 onwards as per the Production plan of Captive coal mine.

Chhattisgarh State Power Distribution Company Limited (CSPDCL) is scheduling Zero energy to TSDISCOMs. However, the projections has been calculated based on the normative availability as the TSDISCOMs have already considered payment of around Rs.2100 Crores under LPS rules 2022.

The below table shows the consolidated energy availability in MU from various Energy sources

Energy Source	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	FY 2030-31	FY 2031-32	FY 2032-33	FY 2033-34
Thermal	27058.52	30730.53	52969.50	58955.19	58932.60	59032.48	58940.14	58843.60	58529.87	58624.19	58520.53	58536.70
Hydel	5878.09	5413.70	2998.91	3029.40	3172.39	3301.22	3442.82	3562.30	3541.96	3538.83	3381.10	3396.21
Total (Thermal + Hydel)	32936.61	36144.23	55968.41	61984.59	62104.99	62333.70	62382.96	62405.90	62071.83	62163.02	61901.63	61932.91
CGS	16864.50	29493.63	28479.25	28161.54	27842.15	27222.34	26829.93	22820.36	22962.03	22943.11	22898.53	22922.47
NCE (RE)	12990.57	14716.21	18576.65	19442.23	19360.35	19276.47	19299.78	19233.42	19286.14	19288.95	19347.09	19408.14
IPP&APGPCL	-	-	-	-	-	-	-	-	-	-	-	-
Others	15744.33	22772.20	18659.38	18659.38	18659.38	18711.70	18326.87	11948.30	11271.78	11304.78	11604.29	11604.29
Total Energy Availability	78536.01	103126.27	121683.69	128247.74	127966.87	127544.21	126839.54	116407.98	115591.78	115699.86	115751.54	115867.81
Total Energy Requirement	76218.17	80464.39	85357.52	90216.22	95332.93	100951.93	106858.16	113055.14	119680.88	126774.97	134385.59	142551.73
Energy Surplus/ Deficit	2317.84	22661.88	36326.17	38031.52	32633.94	26592.28	19981.38	3352.84	-4089.10	-11075.11	-18634.05	-26683.92

From the above table, it can be observed that the state is expected to experience surplus till FY 2029-30 and come in to deficit from FY 2030-31.

Chapter 2

TSTRANSCO Transmission Plan for 5th Control Period FY 2024-25 to FY 2028-29



March - 2023

Transmission Plan for 5th Control Period FY 2024-25 to FY 2028-29

2.1 Introduction

The Telangana State had handled 70957 MU of Energy for the FY 2021-22 and met peak demand of 14160 MW. The total Energy may likely to increase to 108395 MU of energy and with an expectation of peak demand by 20486 MW by the end of 5th Control Period during FY 2028-29.

Handling of the above peak demand needs improvement of Transmission System within the State for which Central Transmission Utility (CTU) and TSTRANSCO have planned certain transmission schemes.

Inter Regional Lines (WR-SR corridor):

The PGCIL has started construction of Warora (Maharashtra)-Warangal (Telangana)-Maheshwaram (Telangana)-Kurnool (AP) 765 kV double circuit line and the works are in progress.

2.2 Transmission Resource Plan

The objective of the Transmission Planning is to develop new Transmission Network suitably to handle the increasing demand growth in both TSSPDCL and TSNPDCL and to handle Generation planning.

The purpose of Resource Plan is to present a comprehensive summary of the process, assumptions, methodology, Transmission network expansion plan and investment required to ensure necessary Transmission system suitably to meet the demand growth anticipated during FY 2028-29.

The proposed Transmission system required for the FY 2028-29 ending in the 5th Control Period is accessed for the estimated peak load of 20486 MW and additional Generation evacuation. The system studies will be carried out for the entire Peak Load of 20486 MW.

The load flow studies and short circuit studies would be carried out duly incorporating the schemes mentioned at para 2.5 and para 2.6.

2.3 The various assumptions and standards are going to be adopted from CEA Transmission Planning criteria, 2023 for conducting load flows and short circuit studies. The Transmission planning includes 400kV, 220kV and 132kV Substations and associated. The detailed list of substations and lines proposed at 400kV, 220kV and 132kV levels are furnished at para 2.5 and para 2.6.

(A) Standard Transformer sizes:

The utility's standard Transformer Sizes

Voltage	Rating (MVA)
765/400 KV	1500
400 / 220 kV	500/315
220 / 132 kV	160/100

(B) Standard Conductor types:

Sl. No	Item	Conductor Type	Configuration
1	765 KV Line	Hexa Zebra	ACSR Zebra, 6/PH, 484 Sq.mm
2	765 KV Line	Quad Bersimis	ACSR Bersimis,4/PH, 724.69 Sq.mm
3	400 kV Lines	Quad Moose	ACSR Moose, 4/PH, 597 Sq.mm
4	400 kV lines	Twin Moose	ACSR Moose, 2/PH, 597 Sq.mm
5	220 kV Lines	Single Moose	ACSR Moose, 1/PH, 597 Sq.mm
6	132 kV Lines	Panther	ACSR Panther, 1/PH, 210 Sq.mm

(C) Thermal Loading Limits of Transmission Lines:

As per the CEA Manual on Transmission Planning criteria, 2023 (applicable from 1st April, 2023), thermal loading limits of transmission lines at different voltage levels are as tabulated below:

Conductor	45°C ambient 75°C Conductor Temperature	
	Amp	MVA
765 KV Hexa Zebra ACSR	3276	4341
765 KV Quad Bersimis ACSR	2824	3742
400 kV Quad Moose ACSR	2456	1702
400 kV Twin Moose ACSR	1228	851
220 kV Zebra ACSR	546	208
220kV Moose ACSR	614	234
132kV Panther ACSR	374	86

(D) Maximum Capacity of Substation

As per the CEA Manual on Transmission Planning criteria, 2023 (applicable from 1st April, 2023), the capacity of any single sub-station at different voltage levels shall not normally exceed as given in column (B) and (C) in the following table:

Voltage Level (A)	Transformation Capacity	
	Load Serving Substation (B)	Generation Pooling substations (C)
765 KV	9000MVA	9000MVA
400 KV	2500 MVA	5000MVA
220KV	1000 MVA	1000 MVA
132kV	500 MVA	500 MVA

(E) Voltage Limits

As per the CEA Manual on Transmission Planning criteria, 2023 (applicable from 1st April, 2023), permitted operational voltage limits are as tabulated below:

Nominal Voltage in kV	Maximum Voltage in kV	Minimum Voltage in kV
765	800	728
400	420	380
220	245	198
132	145	122

(F) Contingency criteria:

As per the CEA Manual on Transmission Planning criteria, 2023 (applicable from 1st April, 2023), all the equipment in the transmission system shall remain within their normal thermal and voltage ratings after outage / loss of any one of the following elements (called single contingency or 'N-1'), but without load shedding / rescheduling of generation:

- Outage of a 132 kV single circuit,
- Outage of a 220kV single circuit,
- Outage of a 400kV single circuit,
- Outage of an Inter-Connecting Transformer(ICT)/power transformer,
- Outage of a 765 KV single circuit

(G) Maximum Short Circuit Level

As per the CEA Manual on Transmission Planning criteria, 2023 (applicable from 1st April, 2023), the rated breaking current capability of switchgear at different voltage levels are as tabulated below:

765 KV breakers :	63 KA
400 kV breakers :	80 KA
220 kV breakers :	63 KA
132kV breakers :	40 KA

(H) District wise/ Circle wise load forecast

The district wise/ Circle wise load forecast submitted by TSNPDCL & TSSPDCL for the period FY 2022-23 TO 2028-29 is shown in the below table:

Name of the DISCOM	Circle/ District Name	FY	FY	FY	FY	FY	FY	FY
		22-23	23-24	24-25	25-26	26-27	27-28	28-29
	Energy Requirement in MU							
TSNPDCL	Warangal	1095.70	1266.68	1441.46	1496.20	1554.52	1616.17	1680.34
	Hanumakonda	1280.38	1358.31	1443.45	1534.29	1631.57	1735.80	1847.49
	Bhupalpally	1301.10	1387.79	1482.74	1584.73	1694.69	1813.29	1941.27
	Jangaon	1176.44	1233.54	1295.12	1359.58	1427.36	1498.65	1573.64
	Mahabubabad	835.34	888.03	946.04	1008.52	1076.11	1149.33	1228.72
	Karimnagar	3696.08	3949.79	4232.46	4542.30	4882.99	5257.56	5670.70
	Jagitial	1048.87	1102.99	1161.46	1222.90	1287.71	1356.11	1428.28
	Peddapally	2133.09	2260.39	2296.32	2441.35	2597.36	2765.29	2946.16
	Khammam	1805.43	1895.94	1993.97	2097.08	2206.02	2321.10	2442.69
	Bhadradi Kothagudem	1110.51	1160.72	1215.15	1271.93	1331.55	1394.15	1459.85
	Nizamabad	2632.44	2762.79	2910.45	3058.99	3215.62	3380.81	3554.99
	Kamareddy	1301.99	1347.65	1422.85	1495.25	1571.53	1651.88	1736.48
	Adilabad	428.79	452.56	478.46	505.90	535.08	566.10	599.06
	Nirmal	789.75	822.43	864.31	908.34	954.82	1003.88	1055.66
	Mancherial	968.53	1017.86	1022.30	1076.09	1132.97	1193.10	1256.71
Asifabad	329.73	344.76	360.96	377.89	395.67	414.34	433.95	

TSSPDCL	Banjara Hills	2449.29	2360.26	2771.61	2839.19	3023.43	3192.19	3347.53
	Secunderabad	1725.10	1680.79	1830.81	1786.58	1918.28	1965.81	2014.29
	Hyd-South	1546.51	1564.87	1686.65	1736.59	1816.5	1893.23	1967.78
	Hyd-Central	1855.08	1824.49	1987.68	2022.32	2113.36	2180.24	2249.47
	Cybercity	3457.00	3390.55	4097.13	4247.36	4714.49	5063.36	5436.77
	Rajendranagar	4582.80	5016.76	5409.22	5811.8	7225.62	8103.97	9118.08
	Sarooranagar	1979.73	2100.11	2240.23	2358.67	2465.18	2589.76	2720.29
	Vikarabad	1653.88	1873.79	1965.26	1782.15	2135.79	2257.73	2367.31
	Medchal	3888.80	4004.06	4378.66	4308.99	4781.67	5020.05	5263.34
	Habsiguda	2623.74	2692.14	2958.45	2953.28	3198.82	3368.45	3522.51
	Nalgonda	5288.64	5637.53	5698.99	5866.01	6136.72	6399.26	6667.16
	Suryapet	2426.11	2891.74	2931.7	2814.73	3222.03	3388.91	3560.33
	Yadadri	2215.46	2606.49	2699.92	2565.34	2972.32	3155.95	3330.3
	Mahaboobnagar	2388.13	2763.44	2822.48	2808.57	3074.5	3219.3	3367.85
	Gadwal	939.28	1017.42	1013.61	1170.23	1129.04	1191.95	1258.85
	Nagarkurnool	2160.97	1810.3	1835.49	3480.98	2045.29	2159.28	2280.17
	Wanaparthy	1352.47	1165.07	1174.68	1703.81	1313.98	1389.34	1469.67
	Narayanpet	743.59	872.17	885.98	921.24	978.44	1037.14	1093.63
	Medak	2519.85	2956.36	3076.13	2888.96	3449.9	3667.52	3893.65
	Sangareddy	5166.61	5563.01	5865.06	6228.12	6320.64	6597.63	6878.34
Siddipet	3360.64	3420.81	3460.29	3939.97	3801.36	3993.34	4194.84	
Peak Load at DISCOM Periphery in MW		14869	16222	17202	18186	19226	20363	21562
Peak Load at Grid level - in MW (Transco Periphery)		15254	16638	17639	18644	19706	20868	22092

2.4 Transmission Schemes

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

1. Evacuation of Power from the Power Projects.
2. System improvement i.e. to meet the additional load growth and for improvement of voltage profile, Voltage control and reduction of Transmission Losses.

Capital works are mainly funded by Power Finance Corporation Limited, Rural Electrification Corporation Limited.

2.5 Transmission Resource Plan from FY 2022-23 and FY 2023-24

TSTRANSCO has drawn up investment plans of Rs. 3399.00 Crores for the period FY 2022-23 and FY 2023-24.

The investment includes construction of 3 Nos. 400kV SS, 4 Nos. 220kV SS and 11 Nos. 132 kV SS along with associated lines excluding Lift Irrigation Sub-stations. The investment plan does not include the cost of Lift Irrigation Substations and associated lines, as they are going to be funded by Irrigation Department and are enclosed as Annexure-I.

TSTRANSCO plans to strengthen the network by addition of new Substations, Lines, Reactors and augmentation of Power Transformer Capacities at 400kV, 220kV & 132kV voltage levels. This includes 715 Ckm of 400 kV lines, 628.02 Ckm of 220 kV lines and 616.76 Ckm of 132 kV lines towards Transmission strengthening and 5510 MVA at 400kV, 2550 MVA at 220kV & 2587 MVA at 132kV level including augmentation of Power Transformer Capacities in existing substations. The network improvement also includes 400kV, 220kV and 132kV network in and around Hyderabad City along with construction of new GIS substations and associated lines and under-ground cabling system.

400kV Substations during FY 2022-23 and FY 2023-24

Transmission Investment Plan			
Sl.No	Name of The Sub-Station	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2022-23			
1	400/220kV Damaracherla SS	2x500	140.93
2	400/220/132kV Choutuppall SS	2x500+2x160	178.41
3	400/220/132kV KTPP SS	2x500+2x160	155.80
	Sub Total	3640	475.14
2023-24			
NIL			
	Grand Total	3640	475.14

400KV Transmission Lines during FY 2022-23 and FY 2023-24

Sl. No.	Transmission lines	Length CKM	Estimated cost (Rs. in Crores)
2022-23			
1	400kV QMDC Line from Yadadri TPP Switchyard to proposed 400/220kV Damaracherla SS	10	24.88
2	LILO of both circuits of existing 400kV Mamidipally-Khammam TMDC Line to proposed 400/220/132kV Choutuppall SS	34	63.00
3	400kV QMDC line from Yadadri TPP (Damaracherla) Switchyard to proposed 400/220/132kV Choutuppall SS	185	342.10
4	400kV QMDC line from Yadadri TPP Switchyard to 400/220kV Dindi SS	208	373.20
5	400kV QMDC line from Yadadri TPP Switchyard to 400/220kV Jangoan SS	278	466.50
	Sub Total	715	1269.68
2023-24			
NIL			
	Grand Total	715	1269.68

400kV Bay Extensions during FY 2022-23 and FY 2023-24

Sl.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2022-23			
1	2 Nos 400kV bays at Dindi SS	400kV QMDC line from Yadadri TPP Switchyard to 400/220kV Dindi SS	15.86
2	2 Nos 400kV bays at Jangoan SS	400kV QMDC line from Yadadri TPP Switchyard to 400/220kV Jangoan SS	15.86
		Sub Total	31.72
2023-24			
NIL			
		Grand Total	31.72

Augmentation of Power Transformer Capacities at 400kV Substations during FY 2022-23 and FY 2023-24

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2022-23				
1	400/220kV Veltor SS	4x315	2x315+2x500	53.78
2	400/220kV Gajwel SS	3x315+1x500	2x315+2x500	27.96
3	400/220kV Asupaka SS	1x315	2x315	2.14
4	400/220kV Suryapet SS	2x315	2x315+1x500	35.45
5	400/220kV Dichpally SS	3x315	3x315+1x500	33.59
			Sub Total	152.92
2023-24				
NIL				
			Grand Total	152.92

400kV Reactors during FY 2022-23 and FY 2023-24

Sl. No.	Name of the Substation at which Reactor is proposed	Capacity of Reactor in MVAR	Estimated cost (Rs. in Crores)
2022-23			
1	400kV Asupaka SS	1x80+1x63	28.22
2	400kV Maheshwaram SS	1x125	16.31
3	400kV Suryapet SS	1x125	16.31
4	400kV Dindi SS	2x125	32.62
5	400kV Janagaon SS	1x125	16.31
6	400kV KTPP SS	1x125	Cost included in SS
7	400kV Kethireddypalli SS	1x125	16.31
8	400kV Narsapur SS	1x125	16.31
9	400kV Choutuppal SS	1x125	Cost included in SS
	Sub Total	1268	142.39
2023-24			
NIL			
	Grand Total	1268	142.39

220 kV Substations during FY 2022-23 and FY 2023-24

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2022-23			
1	220kV SS at Husnabad in Karimnagar Dist	2x100+2x50	31.08
2	Erection of 220/132kV Sub-Station at Ammavaripet in Warangal-Urban District	2x100	32.82
	Sub Total	500	63.90
2023-24			
1	220/132/33kV Substation at Borampet in Ranga Reddy district	2x160+2x80	40.37
2	Upgradation of 132/33kV Kathalapur SS to 220/132/33kV SS Kathalapur in Jagityal District	2x100	28.13
	Sub Total	680	68.50
	Grand Total	1180	132.40

220KV Transmission Lines during FY 2022-23 and FY 2023-24

Sl. No.	Transmission lines	Length CKM	Estimated cost (Rs. in Crores)
2022-23			
1	LILO of 220kV Gachibowli-Shivarampally line to 400/220/132kV Rayadurg GIS - UG cable	10.32	83.45
2	220kV DC line from 400/220kV Substation Jangaon to proposed 220/132/33kV Substation Husnabad	120	41.19
3	220kV DC Line from 400/220/132kV SS Gajwel to 220/132kV SS Siddipet	80	32.51
4	Erection of 220kV DC Line on Galvanized Towers with Moose ACSR Conductor for LILO of one circuit of 220kV Mahabubabad - Warangal line to proposed 220kV Ammavaripet SS	62	30.38
	Sub Total	272.32	187.53
2023-24			
1	a) 220kV DC (OH) line on Multi Circuit Towers with ACSR Moose conductor from 400kV Narsapur SS to proposed 220kV Borampet SS	152	79.80
	b) 220kV DC line with UG Cable from 400kV Narsapur SS to proposed 220kV Borampet SS	10	89.23
2	LILO of 220kV Medaram - Dichpally line to proposed Upgradation of 132/33kV Kathalapur SS to 220/132/33kV SS Kathalapur in Jagityal District	3.7	2.91
3	LILO of existing 220kV Pulukurthy-Bhimghanapur SC line to proposed 400/220/132kV KTPP SS at Ramappa point with Twin Moose DC Line	50	54.50
4	LILO of existing 220kV Salivagu-Bhimghanapur SC line to proposed 400/220/132kV KTPP SS at Ramappa point with Twin Moose DC Line	50	54.50
5	220kV SMDC line from 400/220kV SS Damarcherla to 220kV Huzurnagar SS	90	62.10
	Sub Total	355.70	343.04
	Grand Total	628.02	530.57

220kV Bay Extensions during FY 2022-23 and FY 2023-24

Sl.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2022-23			
1	220kV Bays at 400kV Gajwel SS (2 Nos) and 220kV Siddipet SS (2Nos)	Gajwel-Siddipet	5.60
	Sub Total		5.60
2023-24			
1	220kV Bays at 400kV Narsapur SS - 2 Nos	Narsapur- Borampet	2.80
	Sub Total		2.80
	Grand Total		8.40

Augmentation of Power Transformer Capacities at 220kV Substations during FY 2022-23 and FY 2023-24

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2022-23				
1	220kV HIAL SS	1x20+1x50	2 x 50	22.19
2	400kV Suryapet SS	2x100	1x160 + 2x100	8.35
3	400kV Gajwel SS	2x160+1x100	3x160	4.79
4	220kV Jangaon SS	2x100	2x100+1x160	7.35
	Sub Total			42.68

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2023-24				
1	220kV Manthani SS	2x100	3x100	6.26
2	400kV Narsapur SS	1x160 + 1x100	1x160 + 2x100	3.63
3	220kV Mahabubabad SS	2x100	3x100	5.83
4	220kV Bheemgal SS	1x100 +1x160	2x160+1x100	7.35
5	220kV Jagityal SS	3x100	3 x 100+1x 160	7.35
6	220kV Fabcity SS	2x100	3x100	7.57
7	220kV Jurala SS	3x100	2x160+1x100	20
8	220kV Wanaparthy SS	2x160+1x100	3x160	10
9	220kV Renjal SS	2x100	1x160+1x100	10
			Sub Total	77.99
			Grand Total	120.67

Capacitor Banks at 220kV Substations during FY 2022-23 and FY 2023-24

Sl.No	Name of the Substation at which Capacitor is proposed	Capacity of Capacitor in MVAR	Estimated cost (Rs. in Crores) including cost of erection
2022-23			
NIL			
2023-24			
1	220kV Tandur SS	10	0.54
			Sub Total
			Grand Total
			0.54

132kV Substations during FY 2022-23 and FY 2023-24

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2022-23			
1	33kV Features at upcoming 220/132kV Sub-Station, Ammavaripet in Kazipet (M), Warangal Urban (District)	2x50	7.37
2	132/33kV SS at Padmanagar in Karimnagar District	2x16	10.41
3	132/33kV GIS Substation at Manikonda in Ranga Reddy District	2x80	45.53
4	132kV SS Patancheru in Medak District	2x31.5	13.83
5	132/33kV SS Raparthy in Medak District	3x16	13.87
	Sub Total	403	91.01
2023-24			
1	132/33kV SS at Nuthankal in Nalgonda district	2x50+1x16	15.58
2	132/33kV SS at Peechara in Warangal Dist	2x31.5	14.14
3	132/33kV SS at Pammy in Khammam District	2x31.5	13.40
4	33kV features at 132 KV RTSS Kothagudem, Kothagudem Bhadradi District	2x16	9.02
5	132/33kV SS at Salkunoor in Nalgonda District	2x16	10.18
6	132/33kV SS Koutala in Komaram Bheem Asifabad District	2x16	11.05
	Sub Total	338.00	73.37
	Grand Total	741.00	164.38

132KV Transmission Lines during FY 2022-23 and FY 2023-24

Sl. No.	Transmission lines	Length CKM	Estimated cost (Rs. in Crores)
2022-23			
1	132kV DC line from 220kV Thimmajipet SS to 132kV SS Jadcherla	36	10.48
2	Stringing of 2 nd Ckt on existing 132kV DC/SC line from 220/132/33kV Boothpur to 132/33kV SS Marikal in Mahaboobnagar District	42	9.18
3	132kV 2 nd circuit stringing on existing 132kV DC/SC Husnabad-Palamaukula line	35	3.50
4	132kV line with MC towers for making Double LILO of 132kV Palamakula-Husnabad DC line to proposed 220/132/33kV Substation Husnabad	8	2.88
5	132kV DC line from 220/132/33kV Pedagopathi SS to 132kV SS Madira.	80	19.24
6	132kV LILO line with MC Towers from 132kV Chillakallu - Khammam DC line to proposed 220/132/33kV Pedagopathi SS	120	28.38
7	LILO of 132kV Durshed - Siricilla line to proposed 132/33kV SS Padmanagar	14	8.88
8	Erection of 132kV DC/SC line with ACSR Panther conductor from Loc.no.16 (of existing 132kV line from RC Puram to M/s MHPL) to proposed 132/33kV Patancheru substation on Narrow Base Towers.	4.7	7.86
9	Erection of 132kV DC/SC line from 132kV SS Pedda Shankarampet to the proposed 132/33kV SS Raparthy	16	6.92
10	2 nd circuit stringing on existing 132kV DC/SC line from 220/132/33kV Kalwakurthy SS to 132/33kV SS Achampet in Nagarkurnool District	38	7.76
11	2 nd circuit stringing on existing 132kV DC/SC line from 220/132/33kV SS Chegur to 132/33kV SS Kothur in Rangareddy District	7	1.24
12	Erection of 132kV DC line from 400/220/132kV SS Narsapur to 132/33kV SS Yeldurthy in Medak District	46	24.99
13	2 nd circuit stringing on existing 132kV DC/SC line from 132/33kV Shaligowraram SS to 132/33kV Mothkur SS in Nalgonda District	22	4.27
14	LILO of 132kV Raidurg - Shivarampally line to 132/33kV SS Manikonda with 132kV 1200sqmm XLPE UG Cable.	4.4	53.75
	Sub Total	473.10	189.33

Sl. No.	Transmission lines	Length CKM	Estimated cost (Rs. in Crores)
2023-24			
1	Stringing of 2 nd circuit from Loc.No.16 to Loc.No.75 (Tapping Tower) on existing 132kV DC/SC line from 400/220/132 kV SS Suryapet to 132/33kV SS Thungathurthy towers with Panther ACSR conductor	16.5	2.64
	Erection of 132kV DC/SC line from Loc.No.75 (Tapping tower) to proposed to 132/33kV SS Nuthankal on Galvanised towers with Panther ACSR conductor	9.5	9.28
2	132kV DC line with HTLS conductor on Galvanised towers by making LILO of existing 132kV line from 220/132/33kV Warangal SS to 132/33kV Jangoan SS at proposed 132/33kV Peechara SS	24	25.80
3	132kV DC line for LILO of 132kV Kusumanchi-Chilakallu line at the proposed 132/33kV Pammy SS	16	8.26
4	132kV line on MC towers for accomodation of 132kV line to 132/33kV SS Inavole and 132kV line to 132kV SS Wardhannapet from proposed 220/132kV Ammavaripet SS (AP8)	13.96	12.08
	132kV DC/SC line from AP8 to 132/33kV SS Inavole	2.32	1.69
	132kV DC/SC line from AP8 to 132/33kV SS Wardhannapet	16.25	11.86
5	Erection of 132kV DC line for making one circuit LILO of 132kV DC line from 220/132kV substation Miryalaguda to 132/33kV substation Suryapet line at the proposed 132kV Sub-Station, Salkanoor	6	2.20
6	132kV DC/SC line from existing 132kV Sirpur Kagaznagar SS to proposed 132kV SS Koutala	43.528	40.67
	Sub Total	148.06	114.48
	Grand Total	621.16	303.81

132kV Bay Extensions during FY 2022-23 and FY 2023-24

Sl. No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2022-23			
1	132kV Jadcherla SS - 2 Nos	Thimmajipet -Jadcherla	1.84
2	220/132/33kV Boothpur SS - 1 No. and 132kV Marikal SS - 1 No	Boothpur - Marikal	2.52
3	132/33kV Madhira Substation - 2 Nos	Pedagopathi - Madhira	1.80
4	132/33kV Peddashankarampet SS - 1 No	Peddashankarampet - Raparthy	0.92
5	220kV Kalwakurthy SS - 1 No and 132kV Achampet SS - 1 No	Kalwakurthy - Achampet	1.92
6	220kV Chegur SS - 1 No, 132kV Kothur SS - 1No	Chegur-Kothur	1.92
7	400/220/132kV Narsapur SS - 2 Nos and 132/33kV Yeldurthy SS - 2 Nos	Narsapur- Yeldurthy	3.88
8	132kV Shaligowraram SS - 1No, 132/33kV Motkur SS - 1No	Shaligowraram-Mothkur	1.94
9	132kV Palamakula SS - 1No 132kV Husnabad SS - 1No	Husnabad - Palamakula	1.74
		Sub Total	18.48
2023-24			
1	400kV Suryapet SS - 1 No	Suryapet - Nuthankal	0.95
2	132KV Wardannapet SS - 1 No and 132kV Inavole SS -1 No	Ammavaripet- Wardhannapet & Ammavaripet-Inavole	2.30
3	132KV Sirpur Kagaznagar SS - 1No	Sirpur Kagaznagar- Koutala	0.94
		Sub Total	4.19
		Grand Total	22.67

**Augmentation of Power Transformer Capacities at 132kV Substations
during FY 2022-23 and FY 2023-24**

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2022-23				
1	132kV Khaitalapur SS	1x80+1x31.5	2x80	0.25
2	132kV Jadcherla SS	1x50+1x31.5	2x50	2
3	220kV Bhoothpur SS	1x50+1x10/16	1x50 + 1x31.5	0.13
4	132kV Yerrabelly SS	2x31.5	2x50	0.26
5	132kV Wadapally SS	1x31.5+1x15	1x31.5+1x50	0.13
6	132kV Suryapet SS	2x80	3x80	4.26
7	132kV Palamakula SS	2x31.5	1x50+1x31.5	2.13
8	220kV Dichpally SS	2x50	1x80+1x50	3.58
9	132kV Balanagar SS	3x50	1x80+2x50	6.27
10	132kV Gangadhara SS	2x16	2x16+1x31.5	0.92
11	132kV Choutuppal SS	2x50	3x50	2.92
12	132kV Medchal SS	3x50	2x50+1x80	0.25
13	132kV Aitipamula SS	1x50+ 1x31.5	1x31.5+1x80	3.58
14	132kV Khaithalapur SS	1x80+1x31.5	2x80	0.23
15	132kV Marriguda SS	2x50	1x31.5+2x50	0.92
			Sub Total	27.83

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2023-24				
1	132kV Chintal SS	2x50	1x80+1x50	0.69
2	220kV Fabcity SS	2x50	3x50	4.07
3	132kV Mamidipally SS	1x50+1x31.5	2x50+1x31.5	2.74
4	132kV Turkayamjal SS	1x50+1x31.5	1x50+1x80	2.47
5	220kV Ghanapur SS	1x31.5+1x80	2x80	2.51
6	132/33kV Gachibowli SS	2x80	3x80	3
7	132kV Bandlaguda SS	2x80	3x80	3
8	132kV SS Kothur SS	3x50	1x80+2x50	3
9	132kV LGMPET SS	2x50	1x50+1x80	4.69
10	132kV Alwal SS	2x31.5	3x31.5	2.47
11	220kV Mahabubnagar SS	1x31.5+1x50	2x50	5.00
12	132kV Achampet SS	1x50+1x80	2x80	3.58
13	132kV Kataram SS	1x50+1x31.5	2x50	2.71
14	132kV Godur SS	2x31.5	1x50+1x31.5	1.97
15	132kV Wardhannapet SS	2x50	3x50	0.93
16	132kV Luxitpet SS	1x31.5+1x16	1x31.5+1x50	2.13
17	132kV Medak SS	2x50	3x50	2.93
18	132kV Manoharabad SS	1x80+1x50	1x80+2x50	2.93
19	132kV Ramayampet SS	2x31.5	1x50+1x31.5	2.13

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
20	132kV Bachannapet SS	3x16	1x31.5+2x16	0.13
21	132kV Burgupally SS	1x31.5+1x16	2x31.5	0.13
22	132kV Padmajiwadi SS	1x31.5+1x16	2x31.5	1.54
23	132kV Munugodu SS	1x31.5+1x10/16	2x31.5	0.13
24	132kV Thirumalaipally SS	2x31.5+1x10/16	3x31.5	1.54
25	132kV Pudur SS	2x31.5	2x31.5+1x16	1.20
26	132kV Dharmaram SS	2x31.5	2x31.5+1x16	1.15
27	132kV Kathlapur SS	2x31.5	2x31.5+1x16	1.25
28	132kV Chippalapally SS	1x31.5+1x16	1x31.5+2x16	1.13
29	132kV Mudhole SS	2x16	3x16	1.03
30	220kV SS Bhongir	2x50	1x80+1x50	0.27
31	132kV Nekkonda SS	1x50+1x31.5	2x50	0.16
32	132kV Nellikuduru SS	1x31.5+1x16	1x50 +1x31.5	0.16
33	132kV Mustyal SS	2 x 50	3x50	1.27
34	132kV Thallada SS	1x50+1x31.5	2x50	0.16
35	220kV Fabcity SS	2x50	3x50	1.45
36	220kV Kosigi SS	1x16+1x31.5	1x31.5+1x50	0.16
37	132kV Munagala SS	1x16+2x31.5	3x31.5	0.16
38	132kV Kodad SS	2x50	3x50	1.26
39	132kV Yellandu SS	1x50+1x31.5	2x50	0.16

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
40	132kV Jadcherla SS	2x50	3x50	1.54
41	220kV Nagarkurnool SS	1x50+2x31.5	2x50+1x31.5	0.16
			Sub Total	69.09
			Grand Total	96.92

Capacitor Banks at 132kV Substations during FY 2022-23 and FY 2023-24

Sl.No	Name of the Substation at which Capacitor is proposed	Capacity of Capacitor in MVAR	Estimated cost (Rs. in Crores) including cost of erection
2022-23			
NIL			
2023-24			
1	132kV Puttapahad SS	10	0.54
		Sub Total	0.54
		Grand Total	0.54

Investment plan for FY 2022-23 and FY 2023-24

The total investments (Rs. in Crores) required for 132kV, 220kV and 400kV systems during FY 2022-23 and FY 2023-24 are tabulated as detailed below.

TABLE

FYs	Sub-Stations			Lines			Power Transformer Augmentation			Reactors/ Capacitors			Bay Extensions		
	Nos.			Ckm			Nos.			Nos.			Nos.		
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV
2022-23	3	2	5	715	272.32	468.70	6	4	16	11	0	0	4	4	19
2023-24	0	2	6	0	355.70	148.06	0	10	41	0	0	1	0	2	4
Total	3	4	11	715	628.02	616.76	6	14	57	11	1	1	4	6	23

The statement of MVA capacity of planned substations and improvement of MVA capacity of PTRs in existing substations, MVAR of Reactors/Capacitors

STATEMENT

FYs	MVA capacity planned in new substations			Augmentation			Reactors/Capacitors		
	MVA			MVA			MVAR		
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV
2022-23	3640	500	403	1870	410	534.5	1268	0	0
2023-24	0	680	338	0	960	1311.5	0	10	10
Total	3640	1180	741	1870	1370	1846	1268	10	10

Cash Flows in Rs. Crores.

FYs	Sub-Stations			Lines			Power Transformer Augmentation			Reactors/ Capacitors			Bay Extensions			Total
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	INV
2022-23	475.14	63.90	91.01	1269.68	187.53	135.58	152.92	42.68	27.83	142.39	0	0	31.72	5.60	18.48	2644.46
2023-24	0	68.50	73.37	0	343.04	114.48	0	77.99	69.09	0	0.54	0.54	0	2.80	4.19	754.54
Total	475.14	132.40	164.38	1269.68	530.57	250.06	152.92	120.67	96.92	142.39	0.54	0.54	31.72	8.40	22.67	3399.00

2.6 Transmission Resource Plan from FY 2024-25 to FY 2028-29

TSTRANSCO has drawn up investment plans of Rs. 3001.85 Crores for the period FY 2024-25 to FY 2028-29.

The investment includes 1 No. 400kV SS, 7 Nos. 220kV SS and 34 Nos. 132kV SS along with associated lines excluding Lift Irrigation Sub-stations. The investment plan does not include the cost of Lift Irrigation Substations and associated lines, as they are going to be funded by Irrigation Department and are enclosed as Annexure-I.

TSTRANSCO plans to strengthen the network by addition of new Substations, Lines, Reactors and augmentation of Power Transformer Capacities at 400kV, 220kV & 132kV levels. This includes 100 Ckm of 400kV lines, 272 Ckm of 220kV lines and 1332.03 Ckm of 132kV lines towards Transmission strengthening and 1000 MVA at 400kV, 3510 MVA at 220kV and 5251.5MVA at 132 kV level including augmentation of Power Transformers. The network improvement also includes 400 kV, 220 kV and 132kV network in and around Hyderabad City along with construction of new GIS substations and associated lines and under-ground cabling system.

400kV Substations Planned from FY 2024-25 to FY 2028-29

Transmission Investment Plan			
Sl.No.	Name of The Sub-Station	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2024-25			
NIL			
2025-26			
1	400/220kV Integrated Steel Plant SS in Khammam Dist.	2x500	202.51
	Sub Total	1000	202.51
2026-27 to 2028-29			
NIL			
	Grand Total	1000	202.51

400KV Transmission Lines Planned from FY 2024-25 to FY 2028-29

Sl. No.	Transmission lines	Length CKM	Estimated cost (Rs. in Crores)
2024-25			
NIL			
2025-26			
1	400kV QMDC Line from Julurupadu SS to Integrated Steel Plant in Khammam Dist	100	212.00
	Sub Total	100	212.00
2026-27 to 2028-29			
NIL			
	Grand Total	100	212.00

400kV Bay Extensions Planned from FY 2024-25 to FY 2028-29

Sl.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2024-25			
NIL			
2025-26			
1	2 Nos 400kV bays at Julurupadu SS	400kV QMDC Line from Julurupadu SS to Integrated Steel Plant	21.50
	Sub Total		21.50
2026-27 to 2028-29			
NIL			
	Grand Total		21.50

**Augmentation of Power Transformer Capacities Planned at 400kV
Substations from FY 2024-25 to FY 2028-29**

Sl.No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2024-25 to 2028-29				
NIL				

400kV Reactors Planned from FY 2024-25 to FY 2028-29

Sl.No.	Name of the Substation at which Reactor is proposed	Capacity of Reactor in MVAR	Estimated cost (Rs. in Crores)
2024-25 to 2028-29			
NIL			

220 kV Substations Planned from FY 2024-25 to FY 2028-29

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2024-25			
1	220/33kV Substation at Kollur	2x50	23.25
	Sub Total	100.00	23.25
2025-26			
1	132kV features at existing 220/33kV SS Nagaram	2x100	25.91
	Sub Total	200	25.91
2026-27			
1	220/33kV SS Sainikpuri	2x100	21.45
	Sub Total	200	21.45

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs. in Crores)
2027-28			
1	220/132/33kV Substation at Kachavani Singaram	2x100+2x50	41.45
2	Up gradation of existing 132/33kV RC Puram SS to 220/132/33kV SS	2x160	35.37
3	33kV features at 220kV SS Medchal	2x50	15.00
	Sub Total	720.00	91.82
2028-29			
1	33 KV features at 220/11kV SS Vemnur	2x50	15.00
	Sub Total	100	15.00
	Grand Total	1320	177.43

220kV New Transmission Lines Planned from FY 2024-25 to FY 2028-29

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
2024-25			
1	220kV DC line from 400/220/132kV Narsapur SS to 220/132/33kV Minpur SS	65.00	114.40
2	LILO of one circuit of existing 220kV Gachibowli - Shankarpally DC line at proposed 220/33kV Kollur SS.	3.00	3.62
3	Providing second Source of supply to 220/132kV GIS SS Osmania University from 220kV SS Nagole by Laying of 220kV XLPE UG Cable	14.00	124.40
	Sub Total	82.00	242.42

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
2025-26			
1	220kV Single Moose DC Line from proposed 400/220/132kV KTPP SS to 220/132kV Manthani SS	98	67.62
2	LILO of both circuits of 220kV Malkaram-Narketpally DC line to proposed 400/220/132kV Choutuppall SS on Multi Circuit towers	60	44.10
	Sub Total	158.00	111.72
2026-27			
1	Proposed upgradation of 132kV Moulali-Gunrock line to 220kV line duly making LILO to proposed 220/33kV SS Sainikpuri with 1000Sq.mm XLPE UG Cable	4.00	40.00
	Sub Total	4.00	40.00
2027-28			
1	Up gradation of existing 132kV Gachibowli-RC Puram DC line to 220kV DC line	20.00	22.83
2	Erection of 220kV DC line for LILO of circuit - II of the existing 220kV Ghanapur SS - 220kV Hayathnagar SS to the proposed 220kV Sub-Station Kachavani Singaram.	4.00	1.54
3	Erection of 220kV DC for LILO of circuit - I of the existing 220kV Ghanapur SS - 220kV Chandrayangutta SS to the proposed 220kV Sub-Station Kachavani Singaram	4.00	1.54
	Sub Total	28.00	25.91
2028-29			
NIL			
	Grand Total	272.00	420.05

220 KV Bay Extension Works Planned from FY 2024-25 to FY 2028-29

Sl.No	Name of the Substation at which Bay extension is proposed	Name of the line for which work is proposed	Estimated cost (Rs. in Crores)
2024-25			
1	400/220/132kV Narsapur SS - 2 Nos and 220/132/33kV Minpur SS - 2Nos	Narsapur - Minpur	7.92
2	220/132/33kV Nagole SS - 2 Nos and GIS feeder Bays at 220/132kV GIS Osmania University SS - 2Nos	Osmania University - Nagole	9.52
	Sub Total		17.44
2025-26			
1	220kV Manthani SS - 2 Nos	KTPP- Manthani	3.62
	Sub Total		3.62
2026-27			
NIL			
2027-28			
1	220kV Gachibowli SS - 2 Nos with PASS Module	Up gradation of existing 132 KV Gachibowli-RC Puram DC line to 220 KV DC line	5.00
	Sub Total		5.00
2028-29			
NIL			
	Grand Total		26.06

**Augmentation of Power Transformer Capacities Planned at 220kV
Substations from FY 2024-25 to FY 2028-29**

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2024-25				
1	220kV Kalwakurthy SS	2x160+1x100	3x160	10
2	220kV Gachibowli SS	3x160	4x160	5
3	220kV Moulali SS	1x100 + 2x160	3x160	10
4	220kV Nagole SS	2x100	1x100+1x160	10
5	220kV Siricilla SS	3x100	1x160+2x100	10
6	220kV Kosgi SS	2x100	1x160+2x100	12
7	220kV Sadasivpet SS	1x160+1x100	2x160	10
	Sub Total			67.0
2025-26				
1	220kV Shivarampally SS	2x160+2x100	3x160+1x100	10
2	220kV Shamshabad SS	2x100	3x100	10
3	220kV Madgula SS	2x100	3x100	10
4	220/132kV Huzurabad SS	1x160+2x100	2x160+1x100	10
5	220kV Jurala SS	2x160+1x100	3x160+1x100	12
6	220kV Siddipet SS	1x160+2x100	2x160+1x100	10
	Sub Total			62.0
2026-27				
1	220kV Nagole SS	1x100 +1x160	2x160	10
2	220/132kV Siricilla SS	1x160+2x100	2x160+1x100	10
3	220kV Yeddumailram SS	2x160+1x100	3x160	10
4	220kV Timmajipet SS	2x100	1x100+1x160	10
5	220kV Nagarkurnool SS	2x100	1x100+1x160	10
	Sub Total			50.0

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2027-28				
1	220kV Fabcity SS	3x100	1x160+2x100	12
2	220/132kV Huzurabad SS	2x160+1x100	3x160	10
3	220kV Kosgi SS	1x160+2x100	2x160+1x100	10
4	220kV Sadasivpet SS	2x160	2x160+1x100	10
	Sub Total			42.0
2028-29				
1	220 /33kV GIS Chanchalguda SS	3x50	4x50	5
2	220kV Shadnagar SS	1x160+2x100	2x160+1x100	10
3	220kV Chegur SS	2x160	2x160+1x100	10
4	220kV Shamshabad SS	3x100	2x100+1x160	10
5	400kV Malkaram SS	1x100+1x160	2x160	10
6	220/132kV Siricilla SS	2x160+1x100	3x160	10
7	220kV Siddipet SS	2x160+1x100	3x160	10
	Sub Total			65.0
	Grand Total			286.00

Capacitor Banks Planned at 220kV Substations from FY 2024-25 to FY 2028-29

Sl. No	Name of the Substation at which Capacitor is proposed	Capacity of Capacitor in MVAR	Estimated cost (Rs. in Crores) including cost of erection
2024-25 to 2026-27			
NIL			
2027-28			
1	220/132/33kV SS Waddekothapally	15	0.81
	Sub Total	15	0.81
2028-29			
NIL			
	Grand Total	15	0.81

132kV Substations Planned from FY 2024-25 to FY 2028-29

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs in Crores)
2024-25			
1	132/33kV SS Puttandoddi (V), Itikyal (M)	1x31.5+1x10/16	11.95
2	132/33kV SS Kanchanpally(V) of Valigonda(M)	2x50	14.96
3	132/33kV SS at Choppadandi	2x31.5	13.61
4	132/33kV SS Dandu Malkapur in Yadadri Bhuvanagiri District	2x50	15.44
5	132/33kV SS K.C Thanda, Maheswram (M)	2x50	15.68
6	132/33kV SS Boinpally	2x31.5	14.28
7	132/33kV SS at Ankampalem(V), Dammamet (M)	2x31.5	14.28
8	132/33kV SS at Dilwapur	2x31.5	14.28
9	132/33kV SS Singarajupally	2x50	15.68
10	132/33kV SS Bommalararam	2x31.5	14.28
11	132/33kV SS Pangal	2x31.5	14.28
12	132/33kV SS Aziznagar	2x50	15.68
13	132/33kV SS Abdullapurmet	2x50	15.68
	Sub Total	1025.50	190.08
2025-26			
1	132/33kV SS Seetharambagh	2x80	23.81
2	132/33 kV SS at Tallapet.	3x16	8.57
3	132/33 kV SS at Pitlam	2x31.5	12.75
4	132/33kV SS Addakal (V) & (M)	2x16	7.82
	Sub Total	303.00	52.95

Sl. No	Name of the Substation	Transformer capacity MVA	Estimated cost (Rs in Crores)
2026-27			
1	132/33kV AIS/GIS at R.P. Nilayam.	2x80	24.70
2	132/33kV Substation at PTO, Petlaburz	2x80	23.82
3	132/33kV SS at Kothanandikonda(V) , Adavidevulapally (M)	2x31.5	14.28
4	132/33kV SS Neredugomma.	2x31.5	14.28
	Sub Total	446.00	77.08
2027-28			
1	132/33kV IDA Mallapur SS.	1x80+1x50	16.05
2	33kV features at 132/11kV LI SS Kothakota (V) & (M)	2x31.5	14.28
3	132/33kV SS at Enugalu (V) of Parvathagiri (M)	2x31.5	14.28
4	132/33kV SS Kannaigudem(V) & (M)	2x31.5	14.28
5	132/33kV SS Seetharampur (V), Gundala (M)	2x31.5	14.28
6	132/33kV SS Thurkalamaddikunta	2x31.5	14.28
7	132/33kV SS at Burgampahad	2x31.5	14.28
8	132/33kV SS at Jannaram	2x31.5	14.28
9	132/33kV Nallabelly	2x31.5	14.28
10	132/33kV SS Chada	2x31.5	14.28
11	132/33kV Somaram	2x31.5	14.28
12	132/33 kV SS near around V.M Home, Saroornagar, Rythu Bazar (Kothapet)	2x80	17.41
	Sub Total	920.00	176.26
2028-29			
1	132/33kV Substation at Kondapur (V) & Dhanwada (M).	2x31.5	13.23
	Sub Total	63.00	13.23
	Grand Total	2757.50	509.60

List of 132kV Transmission Lines Planned from FY 2024-25 to FY 2028-29

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
2024-25			
1	132kV LILO of existing 132kV Maddur - Makthal DC/SC line to 132/33kV Narayanpet Sub-Station	2.00	2.87
2	a) 132kV 2 nd circuit from 220/132kV SS Kamareddy to Loc No 33-34 of 132kV DC/SC line of 132kV SS Chippapally	10.00	1.20
	b) 132kV DC/SC line from loc 33-34 of 132kV DC/SC line of 132kV SS Chippapally to 132/33kV SS Domakonda	5.50	2.59
	c) 132kV 2 nd Circuit from 132/33kV SS Domakonda to 132/33kV SS Biknur	9.00	1.08
3	132kV 2 nd circuit stringing from 132/33kV SS Amangal to 132/33kV SS Keshampet	27.63	6.16
4	132kV DC/SC line on Galvanised Towers with Panther ACSR from the existing 132/33kV Sub-Station, Ramannapet to the proposed 132kV Sub-Station at Kanchanpally	15.00	7.40
5	132kV DC/SC line on Galvanised Towers with Panther ACSR for LILO of 132kV Alampur - Gadwal line at the proposed 132/3 kV Puttandoddi Sub-Station.	6.00	1.81
6	132kV DC/SC line from 132/33KV Choutuppal SS to proposed 132/33kV SS at Dandu Malkapur	18.00	18.18
7	2 nd circuit from 220kV Shadnagar to 132kV SS Srirangapur.	13.40	3.35
8	a) Stringing of two circuits on already approved (under construction) 132kV Multi circuit towers from 220/132KV SS Manthani up to Loc. No. 19 of existing 132kV Manthani - Kataram line	10.00	0.95
	b) 132kV DC line from existing Loc. No. 19 upto Loc.No. 34A, of 132kV Manthani - Kataram line	10.00	2.10

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
	c) Stringing of 2 nd circuit from newly proposed DC line (from Loc No. 34A of 132kV Manthani - Kataram) to 132/33kV Chennur SS on the existing DC/SC line	19.00	2.28
	d) Stringing of 2 nd circuit from Loc. No. 34A of existing 132kV Manthani - Kataram line to 132/33kV SS Kataram	26.00	3.12
9	132kV DC/SC line for LILO of 132kV line from 220kV Malyalapally SS to 220kV Durshed SS at the proposed 132/33kV Choppadandi SS	26.00	9.25
10	Erection of 132kV DC/SC line from 220/132kV SS Jangaon to proposed 132/33kV SS Singarajupally	28.50	30.78
11	132kV LILO of 132kV Ghanpur-Sangli to proposed 132/33kV SS Abdullapurmet	6.00	7.20
12	132kV 2 nd circuit stringing from 132/33KV SS Ghanapur to 132/33 KV Abdullapurmet SS	19.00	3.23
13	132 KV DC line from 220/132/33 KV SS Bhongiri to proposed 132/33 KV SS Bommalararam	44.00	26.40
14	132 kV DC/SC line from 220 KV Singotam SS to Pangal SS	11.00	11.88
15	132 KV DC line from Kanakamamidi to proposed 132/33 KV SS Aziznagar	22.00	13.20
16	132 kV LILO of 132kV Durshed -Mallaram line to 132/33 kV SS Boinpally	14.00	16.80
17	132 kV LILO of 132kV Sarangapur-132kV SS Bhainsa to 132 kV Dilwapur	16.00	19.20
18	132 kV LILO of 132kV Khammam-132kV SS Peddagopathi to 132 kV Ankampalem	8.00	9.60
19	132 kV LILO of 132kV Shamshabad-132kV SS Kothur to 132 kV K.C.Thanda	12.00	14.40
	Sub Total	378.03	215.03

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
2025-26			
1	132kV DC/SC line from existing 132/33kV Zaheerabad SS to existing 132/33kV SS Narayankhed	60.00	52.59
2	a) Connecting the existing 132kV Shapurnagar - Bhongir - Aleru line to 400/220/132kV Malkaram SS and 400/220/132kV Ghanapur SS (UG cable)	2.00	14.25
	b) Second circuit stringing of existing 132kV DC/SC line for connecting the existing 132kV Shapurnagar - Bhongir - Aleru idle line to 400/220/132kV Malkaram Sub-Station	5.00	1.83
3	132kV DC/SC line from 220/132/33kV Banswada SS to the proposed 132/33kV Pitlam SS.	26.50	19.81
4	132kV DC line for LILO of upcoming 132kV Dharmapuri - Luxettipet at the proposed 132/33kV SS, Tallapet	30.00	8.02
5	132kV Multi circuit towers with ACSR panther conductor for making LILO of 132kV Warangal-Kamalapur line and 132kV Warangal-Kalvasrampur line to existing 220kV SS Nagaram.	8.80	4.11
6	132kV DC/SC line on Galvanised Towers with Panther ACSR from the existing 132/33kV Sub-Station, Ghanapur to the proposed 132kV Sub-Station at Addakal	18.00	8.69
7	132kV DC line with Single Moose from proposed 220/132kV Indravelly SS to 132/33kV Asifabad SS on 220kV Galvanized DC towers	148.00	59.94
8	132kV DC line with 630 Sqmm 132kV UG cable from Asifnagar Sub-Station to the proposed 132/33kV GIS substation at Seetharambagh	8.00	37.98
9	132kV DC line from 132/33kV SS Munugodu to 400/220/132kV SS Choutuppall	42.00	25.20
	Sub Total	348.30	232.42

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
2026-27			
1	a) 132kV DC line with 630 Sqmm 132kV UG cable for LILO of Moulali - Shapurnagar line to the proposed 132kV RPNilayam SS	4.80	21.42
	b) 132kV DC OH line on galvanised double circuit towers with panther ACSR	1.00	1.91
2	132kV DC Line from proposed 220/132kV Indravelly SS to 132/33 kV Utnoor SS	30.00	7.65
3	a) 2 nd circuit stringing from 132kV SS Nandipet to 132kV LI SS CH. Kondur	7.50	1.27
	b) LILO of 132kV Nandipet - CH.Kondur line to 132kV LI SS Bagepally	43.00	25.80
4	132kV DC/SC line from 132/33kV SS Wadapally to 132/33 kV Kothanandikonda SS	38.00	41.04
5	132kV DC/SC line from 132/33kV SS Guntipally to 132 kV Neredugomma	25.00	27.00
6	a) 132 kV DC line with 630 Sqmm 132 kV UG cable	3.00	13.53
	b) 132 kV DC line with 630 Sqmm 132 kV UG cable and 132 kV DC OH line on galvanised double circuit towers with Panther ACSR from the 220 kV GIS substation, Imlibun to the proposed 132/ 33 kV GS SS at Police Transport Organisation (PTO), Petlaburz	7.00	2.58
	Sub Total	159.30	142.20
2027-28			
1	Erection of 132kV DC line from proposed 220/132kV SS Madugula to existing 132/33kV Takkalapally (Yacharam) SS	34.00	9.93
2	LILO of 132kV line from 220kV Fabcity SS to 132kV Mamidipally SS at 132kV MD Pally SS	23.60	22.13
3	132kV DC line on Galvanized Towers with Invar ACSR for LILO of circuit - II of the 132kV Ghanapur - Bandlaguda line to the proposed 220/132/33kV Sub-Station, Kachavani Singaram	2.00	1.01

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
4	132kV DC line on Galvanized Towers with Panther ACSR for LILO of circuit - II of the 132kV Ghanapur - Moulali line to the proposed 220/132/33kV Sub-Station, Kachavani Singaram.	2.00	0.50
5	132kV DC OH line on galvanised NB towers with Panther ACSR for LILO of 132kV Ghanapur - Moulali line at the proposed 132kV IDA Mallapur SS	4.00	3.00
6	2 nd circuit stringing from 132kV SS Sirpur-Khagaznagar to 132kV SS Asifabad on existing towers	32.00	5.44
7	133kV DC/SC line from 132/33kV Narsampet SS to the proposed 132/33kV Nallabelly SS.	16.00	17.28
8	132kV DC/SC line from 132/33kV SS Mothkur to proposed 132kV SS Chada	25.00	27.00
9	132kV DC/SC line from 220/132/33kV SS Ammavaripet to proposed 132kV SS Somaram	32.00	34.56
10	132 kV LILO of 132kV Nekkonda-Wardannapet to 132 kV Enugallu	10.00	12.00
11	132kV DC/SC line from 132/33kV SS Kamalapur to 132/33kV SS Kannaigudem	32.00	34.56
12	132kV DC/SC line from 132/33kV SS Mothkur to 132 kV Seetharampur	26.00	28.08
13	LILO of 132kV Durshed-Malyalapalli to 132 kV Thurkalamaddikunta SS	1.00	1.20
14	LILO of 132kV Seetarampatnam-Bhadrachalam to 132 kV Burgampad SS	10.00	12.00
15	LILO of 132kV Chandrayanngutta-Bandlaguda to 132 kV V.M.Home SS	6.00	7.20
	Sub Total	255.60	215.89
2028-29			
1	2 nd circuit from 132/33kV SS Yerrabelli to 132/33kV SS Munugodu	42.00	7.14
2	2 nd circuit from Budidampadu to Yellandu	30.00	5.10
3	2 nd circuit stringing from 132kV SS Chelpur to existing 132/33kV SS Regonda in Warangal District	15.00	2.55

Sl. No	Name of the Transmission Line	Length CKM	Estimated cost (Rs. in Crores)
4	2 nd circuit stringing from 132kV Ayyagaripally SS to 132kV SS Dornakal	20.00	3.40
5	2 nd circuit stringing from 132/33kV SS Ayyagaripally to existing 132/33kV SS Nellikuduru in Mahabubabad District	27.00	4.59
6	132kV DC/SC line from 220/132kV SS Janagaon to 132/33kV SS Mustyala in Janagaon District	23.50	25.38
7	2 nd circuit stringing from 220/132kV SS Janagaon to 132/33kV SS Bachannapet in Janagaon District	13.30	2.26
8	132 kV DC/SC Line from 132 kV SS, Maddur to 132/33 kV SS, Kondapur	20.00	21.60
	Sub Total	190.80	72.02
	Grand Total	1332.03	877.56

132kV Bay Extension Works Planned from FY 2024-25 to FY 2028-29

Sl.No	Name of the Substation at which Bay extension is proposed	Name of the line for which is work is proposed	Estimated cost (Rs. in Crores)
2024-25			
1	132/33kV Narayanpet Sub-Station - 2 Nos	LILO of Maddur - Makthal to Narayanpet SS	2.28
2	a) 220/132kV SS Kamareddy- 1 No	Kamareddy - Domakonda	0.92
	b) 132/33kV SS Domakonda - 1 No		0.92
	c) 132/33kV SS Domakonda- 1 No and 132/33kV SS Biknur - 1 No	Domakonda-Biknur	1.84
3	132/33kV SS Amangal - 1 No and 132/33kV SS Keshampet - 1No	Amangal-Keshampet	2.52
4	132/33kV SS Ramannapet - 1No	Ramannapet-Kanchanpally	1.11
5	132/33kV Choutuppall SS - 1 No	Choutuppall - Dandu Malkapur	1.11

Sl.No	Name of the Substation at which Bay extension is proposed	Name of the line for which is work is proposed	Estimated cost (Rs. in Crores)
6	220kV SS Shadnagar - 1No and 132kV SS Srirangapur- 1 No	Shadnagar - Srirangapur	2.04
7	220/132kVSS Manthani - 2 Nos, 132kV SS Kataram - 1 No and 132kV SS Chennur - 1 No	Manthani - Kataram and Manthani- Chennur	3.68
8	220/132kV SS Jangaon - 1 No	Jangaon - Singarajupally	1.02
9	132/33kV SS Ghanapur - 1 No and 132/33kV SS Abdullapurmet - 1 No	Ghanapur - Abdullapurmet	2.04
10	132/33 kV Boinpally SS - 2 Nos	LILO of Durshed - Mallaram line to Boinpally	2.04
11	220/132/33 KV SS Bhongiri - 2Nos	Bhongiri - Bommalararam	2.04
12	132/33kV SS Kanakamamidi - 2Nos	Kanakamamidi - Aziznagar	2.04
13	132/33 kV Dilwapur SS - 2 Nos	LILO of Sarangapur - Bhainsa to Dilwapur	2.04
14	132 kV Ankampalem - 2 Nos	LILO of Khammam- Peddagopathi to Ankampalem	2.04
15	132 kV K.C.Thanda - 2 Nos	LILO of Shamshabad- Kothur to K.C.Thanda	2.04
16	220 KV Singotam SS - 1No	Singotam - Pangal	1.02
Sub Total			32.74
2025-26			
1	132/33kV Zaheerabad SS - 1 No and 132/33 kV SS Narayankhed- 1No	Zaheerabad - Narayankhed	2.28
2	220kV SS Shapurnagar - 1 No and 400kV SS Malkaram - 1 No	Connecting the existing 132 kV Shapurnagar - Bhongir - Aleru line to 400/220/132 kV Malkaram SS and 400/220/132 kV Ghanapur SS	2.28
3	132/33kV Sub-Station Ghanapur - 1 No	Ghanpur- Addakal	0.92
4	132/33kV Asifabad SS - 2 Nos	Indravelly - Asifabad	1.92

Sl.No	Name of the Substation at which Bay extension is proposed	Name of the line for which is work is proposed	Estimated cost (Rs. in Crores)
5	132/33kV Asifnagar SS - 2 Nos	Asifnagar - Seetharambagh	1.84
6	132/33kV SS Munugodu - 2 Nos and 400/220/132kV SS Choutuppal - 2 Nos	Munugodu - Choutuppal	4.08
Sub Total			13.32
2026-27			
1	132/33 kV Utnoor SS - 2 Nos	Indravelly - Utnoor	1.92
2	a) 132kV SS Nandipet - 1 No and 132kV LI SS CH. Kondur - 1 No	Nandipet - CH. Kondur	2.04
	b) 132kV LI SS Bagepally - 2 Nos	LILO of Nandipet - CH.Kondur line to Bagepally	2.04
3	132/33kV SS Wadapally - 1 No 132/33kV SS Kothanandikonda - 1No	Wadapally - Kothanandikonda	2.04
4	132/33kV SS Guntipally-1 No 132/33kV SS Neredugomma-1 No	Guntipally - Neredugomma	2.04
Sub Total			10.08
2027-28			
1	220/132kV RC Puram SS - 6 Nos	Up gradation of existing 132 KV Gachibowli-RC Puram DC line to 220 KV DC line	6.90
2	132/33kV SS Takkalapally - 2 Nos	Madugula - Takkalapally	1.84
3	132/33kV SS MD Pally - 2 Nos	LILO of Fabcity - Mamidipally to MD Pally	1.84
4	132kV SS Sirpur-Khagaznagar - 1 No and 132kV SS Asifabad - 1 No	Sirpur-Khagaznagar - Asifabad	2.04
5	132/33kV Narsampet SS - 1 No and 132/33kV Nallabelly SS - 1 No	Narsampet - Nallabelly	2.04
6	132/33kV SS Mothkur - 1No	Mothkur - Chada	1.02
7	220/132/33kV SS Ammavaripet - 1 No	Ammavaripet - Somaram	1.02
8	132kV Enugallu - 2 Nos	LILO of Nekkonda-Wardannapet to Enugallu	2.04

Sl.No	Name of the Substation at which Bay extension is proposed	Name of the line for which is work is proposed	Estimated cost (Rs. in Crores)
9	132/33kV SS Kamalapur-1 No 132/33kV SS Kannaigudem - 1 No	Kamalapur - Kannaigudem	2.04
10	132/33KV SS Mothkur -1 No 132/33 kV Seetharampur -1 No	Mothkur - Seetharampur	2.04
11	132 kV Thurkalamaddikunta SS -2 Nos	LILO of Durshed- Malyalapalli to Thurkalamaddikunta	2.04
12	132 kV Burgampad SS - 2 Nos	LILO of Seetarampatnam- Bhadrachalam to Burgampad	2.04
13	132 kV V.M.Home SS -2 Nos	LILO of Chandrayangutta- Bandlaguda to V.M.Home	2.04
		Sub Total	28.94
2028-29			
1	132/33kV SS Yerrabelli - 1 No and 132/33kV SS Munugodu - 1No	Yerrabelli - Munugodu	2.04
2	220kV Budidampadu SS - 1No and 132kV Yellandu SS - 1No	Budidampadu - Yellandu	2.04
5	132kV SS Ayyagaripally - 1 No 132kV SS Nellikuduru - 1 No	Ayyagaripally - Nellikuduru	2.04
6	220kV SS Janagaon - 1 No 132kV SS Mustyala- 1 No	Janagaon - Mustyala	2.04
7	132kV SS Ayyagaripally - 1 No 132kV SS Dornakal - 1 No	Ayyagaripally - Dornakal	2.04
8	132kV SS Chelpur - 1 No 132kV SS Regonda - 1 No	Chelpur- Regonda	2.04
9	220kV SS Janagaon - 1 No 132kV SS Bachannapet- 1 No	Janagaon - Bachannapet	2.04
8	132 kV SS, Maddur - 1 No 132/33 kV SS, Kondapur - 1 No	Maddur - Kondapur	2.04
		Sub Total	16.32
		Grand Total	101.40

**Augmentation of Power Transformer Capacities Planned at 132kV
Substations from FY 2024-25 to FY 2028-29**

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2024-25				
1	132kV IDPL SS	1x80+1x50	2x80	3.00
2	132kV Chintal SS	2x50	1x80+1x50	3.00
3	132kV Gudur SS	1x31.5+1x16	2x31.5	4.00
4	132kV Kothur SS	3x50	1x80+2x50	6.00
5	132kV Bhiknoor SS	1x31.5+1x16	2x31.5	4.00
6	132kV Alwal (Keshampet) SS	2x31.5	3x31.5	4.50
7	132kV Srirangapur SS	1x31.5+1x50	2x31.5+1x50	4.50
8	132kV Mothkur SS	2x50	2x50+1x31.5	5.00
9	132kV NimmappallySS	2x16	1x31.5+1x16	4.00
10	132kV Ch. Kondur SS	2x16	1x16+1x31.5	4.00
11	132kV LGM Pet SS	2x50	1x80+1x50	6.00
12	132kV Dharmasagar LIS	1x50	1x50+1x31.5	4.50
13	132kV Balanagar SS	2x50+1x80	2x80+1x50	6.00
14	132/33kV Sirikonda SS	1x31.5+1x50	2x50	5.00
15	220kV Bheemgal SS	1x80+1x50	2x80	6.00
16	132/33kV Lingampet SS	2x31.5	1x31.5 +1x50	5.00
17	132/33kV Marikal SS	3x31.5	2x50 +1x31.5	5.00
18	220kV Moulali SS	1x50 + 2x80	2x50 + 2x80	5.50
19	220kV Nagole SS	1x31.5+1x80	2x80	6.00
			Sub Total	91.00

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2025-26				
1	220 /132/33kV GIS Osmania University	2x80	3x80	4.50
2	132kV MD Pally SS	1x80+2x50	2x80+1x50	6.00
3	220kV Shamshabad SS	2x50	3x50	5.50
4	132kV Mamidipally SS	2x50+1x31.5	3x50	5.00
5	220kV Madgula SS	2x31.5	2x50	10.00
6	132kV ZTS Moulali SS	2x50	1x50+1x80	6.00
7	132/33kV Mulkanoor SS	2x31.5	1x31.5+1x50	5.00
8	132/33kV Jangapally SS	3x16	2x31.5+1x16	8.00
9	132/33kV Kachapur SS	3x16	2x31.5+1x16	8.00
10	132kV Maddur SS	2x31.5+1x50	1x31.5+2x50	5.00
11	132kV Midjil SS	2x31.5	3x31.5	4.50
12	132kVPashamylaram SS	4x50	3x50+1x80	6.00
13	132kVKowdipally SS	2x50	1x80+1x50	6.00
14	132kV Medak SS	3x50	2x50+1x80	6.00
15	132kV Narayankhed SS	2x50	1x80+1x50	6.00
16	132kV Aitipamula SS	1x80+1x31.5	1x80+1x50	5.00
17	132kV Choutuppal SS	3x50	1x80+2x50	6.00
18	132/33kV Karimnagar SS	2x31.5+1x50	1x31.5+2x50	5.00
19	132/33kV Water works SS	2x31.5	3x31.5	4.50
20	132kV Mahabubnagar SS	2x50+1x80	1x50+2x80	6.00
	Sub Total			118.00
2026-27				
1	132kV Jubilee Hills SS	2x80+2x50	4x80	8.00
2	400kV Malkaram SS	2x80	2x80+1x50	5.50
3	220kV Fabcity SS	3x50	2x50+1x80	6.00

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
4	132/33kV Gangadhara SS	1x31.5+2x16	3x31.5	8.00
5	132/33kV Kamanpur SS	2x16	1x16+1x31.5	4.00
6	132/33kV Korutla SS	1x31.5+1x50	2x50	5.00
7	132kV Gadwal SS	1x50+1x80	1x80+2x50	5.50
8	132kV Alampur SS	2x31.5	3x31.5	4.50
9	132kV Peddadagada SS	2x31.5	1x50+1x31.5	5.00
10	132kV Narsapur SS	2x50	1x80+1x50	6.00
11	132kV Zaheerabad SS	1x80+1x50+1x31.5	2x80+1x31.5	6.00
12	132kV Siddipet SS	2x31.5+1x50	1x31.5+2x50	5.00
13	132kV Chegunta SS	1x80+1x50	2x80	6.00
14	132kV Ramannapet SS	3x50	2x80+1x50	12.00
	Sub Total			86.50
2027-28				
1	132kV Mamidipally SS	3x50	1x80+2x50	6.00
2	132kV Amangal SS	1x50+2x31.5	3x50	10.00
3	132/33kV Pudur SS	2x31.5+1x16	3x31.5	4.00
4	132/33kV Raikal SS	1x16+1x31.5	2x31.5	4.00
5	132/33kV Mallaram SS	1x31.5+1x50	2x50	5.00
6	132kV Thirumalaipally SS	2x31.5+1x16	2x31.5+1x50	5.00
7	132kV Jadcherla SS	2x50	1x80+1x50	6.00
8	132kV Khillaghanapur SS	2x31.5	3x31.5	4.50
9	132kV Thukkapur SS	2x50	1x80+1x50	6.00
10	132kV Kalwakurthy SS	3x50	1x50+2x80	12.00
11	132kV Makthal SS	2x31.5+1x50	1x31.5+2x50	5.00
12	132kV Kandi SS	3x50	2x50+1x80	6.00
13	132kV Peddashankarampet SS	2x31.5	1x31.5+1x50	5.00
14	132kV Gummadidala SS	1x80+1x50	2x80	6.00
	Sub Total			84.50

Sl. No	Name of the Substation at which augmentation of Power Transformer is proposed	Existing capacity of Power Transformer in MVA	Capacity of power transformers after augmentation in MVA	Estimated cost (Rs. in Crores) including cost of erection
2028-29				
1	132kV Gunrock SS	2x80+2x50	4x80	12.00
2	132kV Alwal SS	3x31.5	1x50+2x31.5	5.00
3	132/33kV Nimmapally SS	2x16	2x31.5	8.00
4	132/33kV Kathalapur SS	2x31.5+1x16	3x31.5	4.00
5	132/33kV Chippalapally SS	2x16+1x31.5	3x31.5	8.00
6	132kV Amarchinta SS	2x31.5	3x31.5	4.50
7	132kV Ganganpally SS	1x31.5+1x16	2x31.5	4.00
8	132kV Narayanpet SS	2x31.5	3x31.5	4.50
9	132kV Duddeda SS	2x31.5	1x31.5+1x50	5.00
10	132kV Angadikistapur SS	2x31.5	1x31.5+1x50	5.00
11	132kV Chinna Shankarampet SS	2x10/16	2x31.5	7.00
12	220kV SS Narketpally SS	1x50+1x31.5	1x80+1x50	6.00
13	132kV Habsipur SS	2x50	1x80+1x50	6.00
14	132kV Doultabad SS	1x31.5+1x16	2x31.5	4.00
15	132kV SS Choutuppal SS	3x50	2x80+1x50	12.00
			Sub Total	95.00
			Grand Total	475.00

Capacitor Banks Planned at 132kV Substations from FY 2024-25 to FY 2028-29

Sl. No	Name of the Substation at which Capacitor is proposed	Capacity of Capacitor in MVAR	Estimated cost (Rs. in Crores) including cost of erection
2024-25			
1	132/33kV Takkalapally SS	5	0.27
2	132/33kV Ch.Shankarampet SS	10	0.54
3	132/33kV Chandulapur SS	5	0.27
4	132/33kV Balnagar-2 SS	10	0.54
5	132/33kV Jogipet SS	5	0.27
6	132/33kV Polepally (Jadcherla) SS	10	0.54
7	132/33kV Gudur SS	5	0.27
8	132kV Yadagirigutta SS	5	0.27
	Sub Total	55	2.97
2025-26			
1	132/33kV Kowdipalli SS	5	0.27
2	132/33kV Doualthabad SS	5	0.27
3	132/33kV Halia SS	10	0.54
4	132/33kV Godur SS	5	0.27
5	132/33kV Bhiknoor SS	5	0.27
6	132/33kV Peddanagaram SS	5	0.27
7	132kV Aitipamula SS	5	0.27
	Sub Total	40	2.16
2026-27			
1	132/33kV Duddeda SS	5	0.27
2	132/33kV Minpur SS	10	0.54
3	132/33kV Makthal SS	5	0.27
4	132/33kV Chityal SS	5	0.27
5	132/33kV Burgupally SS	5	0.27
6	132/33kV Dornakal SS	5	0.27
7	132kV Kanagal SS	5	0.27
	Sub Total	40	2.16

Sl. No	Name of the Substation at which Capacitor is proposed	Capacity of Capacitor in MVAR	Estimated cost (Rs. in Crores) including cost of erection
2027-28			
1	132/33kV Palamakula SS	10	0.54
2	132/33kV Pashamailaram SS	5	0.27
3	132/33kV Narayanpet SS	10	0.54
4	132/33kV Mothkur SS	5	0.27
5	132/33kV CH Kondur SS	5	0.27
6	132kV Yerrabelli SS	5	0.27
	Sub Total	40	2.16
2028-29			
1	132/33kV Tukkapur SS	5	0.27
2	132/33kV Yeldurthy SS	10	0.54
3	132/33kV Zaheerabad SS	10	0.54
4	132/33kV Regonda SS	5	0.27
5	132/33kV Chennur SS	5	0.27
6	132/33kV Musthyal SS	15	0.81
7	132kV Munugodu SS	5	0.27
	Sub Total	55	2.97
	Grand Total	230	12.42

2.7 Total Transmission Investments

The total investments (Rs. in Crores) required for 132kV, 220kV and 400kV systems from FY2024-25 to FY 2028-29 are tabulated as detailed below.

FYs	Sub-Stations			Lines			Power Transformer Augmentation			Reactors/ Capacitors			Bay Extensions		
	(Nos.)			Ckm			Nos.			Nos.			Nos.		
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV
2024-25	0	1	13	0.00	82.00	378.03	0	7	20	0	0	8	0	4	32
2025-26	1	1	4	100.00	158.00	348.30	0	6	23	0	0	7	2	2	13
2026-27	0	1	4	0.00	4.00	159.30	0	5	17	0	0	7	0	0	10
2027-28	0	3	12	0.00	28.00	255.60	0	4	16	0	1	6	0	2	28
2028-29	0	1	1	0.00	0.00	190.80	0	7	20	0	0	7	0	0	16
Total	1	7	34	100.00	272.00	1332.03	0	29	96	0	1	35	2	8	99

The statement of MVA capacity of planned substations and improvement of MVA capacity of PTRs in existing substations, MVAR of Reactors/Capacitors

STATEMENT

FYs	MVA capacity planned in new substations			Augmentation			Reactors/Capacitors		
	MVA			MVA			MVAR		
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV
2024-25	0	100	1025.5	0	620	540.5	0	0	55
2025-26	1000	200	303	0	540	624.5	0	0	40
2026-27	0	200	446	0	300	473.5	0	0	40
2027-28	0	720	920	0	280	399	0	15	40
2028-29	0	100	63	0	450	456.5	0	0	55
Total	1000	1320	2757.5	0	2190	2494	0	15	230

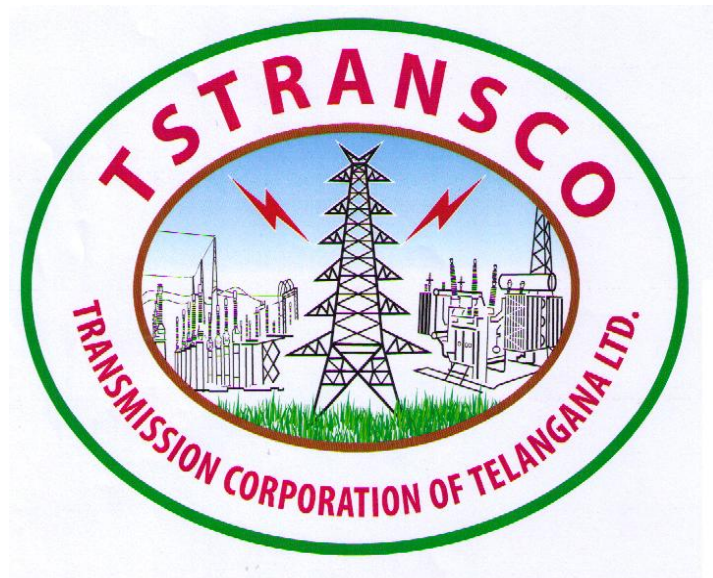
Cash Flows in Rs. Crores.

FYs	Sub-Stations			Lines			Power Transformer Augmentation			Reactors/ Capacitors			Bay Extensions			Total
	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	400kV	220kV	132kV	INV
2024-25	0.00	23.25	190.08	0.00	242.42	215.03	0.00	67.00	91.00	0.00	0.00	2.97	0.00	17.44	32.74	881.93
2025-26	202.51	25.91	52.95	212.00	111.72	232.42	0.00	62.00	118.00	0.00	0.00	2.16	21.50	3.62	13.32	1058.11
2026-27	0.00	21.45	77.08	0.00	40.00	142.20	0.00	50.00	86.50	0.00	0.00	2.16	0.00	0.00	10.08	429.47
2027-28	0.00	91.82	176.26	0.00	25.91	215.89	0.00	42.00	84.50	0.00	0.81	2.16	0.00	5.00	28.94	673.29
2028-29	0.00	15.00	13.23	0.00	0.00	72.02	0.00	65.00	95.00	0.00	0.00	2.97	0.00	0.00	16.32	279.54
Total	202.51	177.43	509.60	212.00	420.05	877.56	0.00	286.00	475.00	0.00	0.81	12.42	21.50	26.06	101.40	3322.34

FYs	Voltage wise				Year wise			Investment
	132 kV	220 kV	400 kV	Total	Prev FY	Cur FY	Fut FY	
					0.3	0.5	0.2	
2024-25	531.82	350.11	0.00	881.93	0.00	440.97	176.39	617.35
2025-26	418.85	203.25	436.01	1058.11	317.43	529.06	211.62	1058.11
2026-27	318.02	111.45	0.00	429.47	128.84	214.74	85.89	429.47
2027-28	507.75	165.54	0.00	673.29	201.99	336.65	134.66	673.29
2028-29	199.54	80.00	0.00	279.54	83.86	139.77	0.00	223.63
Total	1975.98	910.35	436.01	3322.34	732.12	1661.17	608.56	3001.85

Chapter 3

TSTRANSCO Transmission Plan for 6th Control Period FY 2029-30 to FY 2033-34



March - 2023

Transmission Plan for FY 2029-30 to FY 2033-34

3.1 Resource Plan for 6th control period from FY 2029-30 to FY2033-34 (Tentative)

The purpose of this report was to present a comprehensive summary of transmission network expansion plan and investment required to ensure the transmission system to meet the loads up to 2033-34. This plan consists of No. of Substations and No. of CKM of lines required up to 2033-34 at 400kV, 220kV and 132kV level.

3.2 Investment plan 400kV, 220kV and 132kV

The year wise No. of substations, lines in CKM and corresponding investments (Rs. in Crores) required for 400kV, 220kV and 132kV system are shown below.

FYs	2029-30	2030-31	2031-32	2032-33	2033-34	Total
Substations						
400kV						
No of Substations	0	0	0	0	0	0
Cost (Rs. in Crores)	0	0	0	0	0	0
220kV						
No of Substations	1	1	1	1	1	5
Cost (Rs. in Crores)	31.44	31.44	31.44	31.44	31.44	157.20
132kV						
No of Substations	1	2	1	1	2	7
Cost (Rs. in Crores)	15.68	31.36	15.68	15.68	31.36	109.76
Lines						
400kV						
Line CKM	0	0	0	0	0	0
Cost (Rs. in Crores)	0	0	0	0	0	0
220kV						
Line CKM	110.00	90.00	120.00	100.00	120.00	540.00
Cost (Rs. in Crores)	96.80	79.20	105.60	88.00	105.60	475.20
132kV						
Line CKM	30.00	45.00	30.00	30.00	50.00	185.00
Cost (Rs. in Crores)	32.40	48.60	32.40	32.40	54.00	199.80
Total Substations & Lines Cost (Rs. in Crores)	176.32	190.60	185.12	167.52	222.40	941.96

3.3 Total Transmission Investments for the period FY 2029-30 to FY 2033-34

The total investments (Rs. in Crores) required for 132kV, 220kV and 400kV systems from FY 2029-30 to FY 2033-34 are shown below.

(Rs. in Crores)

FYs	2029-30	2030-31	2031-32	2032-33	2033-34	Total
132kV	48.08	79.96	48.08	48.08	85.36	309.56
220kV	128.24	110.64	137.04	119.44	137.04	632.40
400kV	0	0	0	0	0	0
Total	176.32	190.60	185.12	167.52	222.40	941.96

Annexure-I

Lift Irrigation Schemes

TSTRANSCO planned Transmission network required for Kaleshwaram Lift Irrigation Scheme to meet power supply demand required for lifting of water from Godavari Basin (2 TMC and additional 1 TMC) and also for Palamuru -Ranga Reddy Lift Irrigation Scheme for lifting 2 TMC of water from Krishna River and for Sita Rama Lift Irrigation Scheme for lifting of water from Godavari River. The Transmission network related to the Lift Irrigation Schemes is as follows:

Lift Irrigation Schemes during FY 2022-23 and FY 2023-24

400 kV LIS Substations during FY 2022-23 and FY 2023-24

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
2022-23				
1	400/11 kV Velgatoor Sub-station.	5x160+2x25	850	235.52
2	400/11 kV Pegadapally (Namapur) Sub-station.	4x160+2x25	690	203.71
3	400KV Kachapur Switching Station	-	-	152.30
4	400 /11 kV Veljipur Sub-Station	4x160+2x25	690	151.12
5	400/11 kV Chinagundavelli (Yellaipally) Sub-Station	6x160+2x25	1010	187.39
6	400/11 KV New Tukkapur SS	4x120+2x25	530	139.18
7	400/220 kV Annaram Sub-Station	3x500	1500	170.06
Sub Total			5270	1239.28
2023-24				
1	400/11kV Narlapur Sub-station	4x165+2x25	710	89.31
2	400/11kV Yedula Sub-station.	5x165+2x25	875	111.18
3	400/11kV Vатtem Sub-station.	5x165+2x25	875	86.41

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
4	400/11kV SS at Uddandapur	3x165+2x25	545	97.32
Sub Total			3005	384.22
Grand Total			8275	1623.50

400 kV LIS Transmission Lines during FY 2022-23 and FY 2023-24

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
2022-23			
1	400 kV QMDC line from SCCL(Jaipur) to proposed 400/220kV Annaram Substation	40.00	67.20
2	LILO of 400kV QMDC Line from STPP Jaipur- Gajwel 400/220/132kV SS to Kachapur Switching station	20.00	33.60
3	LILO of 400kV QMDC Line from Telangana STPP NTPC (2x800MW)- 400/220/32kV Narsapur SS to Kachapur Switching station	20.00	33.60
4	400kV QMDC Line from 400kV Kachapur Switching station to 400/220kV Ramadugu SS	36.00	60.48
5	400kV QMDC Line from 400kV Kachapur Switching station to 400/11kV Pegadapally (Namapur) SS	64.00	107.52
6	400kV QMDC Line from 400kV Velgatoor Swichyard to 400/11kV Pegadapally (Namapur) SS	58.00	97.44
7	400kV QMDC Line from 400kV Kachapur Switching station to 400/11kV Velgatoor SS	70.00	117.60
8	400kV QMDC Line from 400/11 kV Tippapur Substation to 400/11kV Veljipur Switchyard	10.00	16.80
9	400kV QMDC Line from 400/13.8/11 kV Chandlapur Substation to 400/11kV 400/11 KV Chinnagundevalli (Yellaipally) SS	20.00	16.80
10	400kV QMDC Line from 765/400kV Nizamabad Substation to (PGCIL) to existing 400/13.8/11kV Chandlapur Substation	240.00	403.20

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
11	400kV TMDC Line from 400/11 kV Tukkapur Substation to 400/11kV New Tukkapur Switchyard	1.00	0.99
Sub Total		579	955.23
2023-24			
1	400kV Narlapur-Yedula QMDC Line	55.362	88.29
2	400kV Yedula-Dindi QMDC Line	110.64	158.29
3	400kV Yedula-Veltoor QMDC Line	93.602	134.10
4	400kV Vatttem-Yedula QMDC Line	60.74	82.71
5	400kV Uddandapur-Maheshwaram QMDC Line	120.524	169.93
6	400kV Uddandapur-Vatttem QMDC Line	68.284	95.39
Sub Total		509.152	728.71
Grand Total		1088.152	1683.94

400 kV LIS Bay Extension Works during FY 2022-23 and FY 2023-24

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2022-23			
1	2 Nos. 400kV Feeder Bay Extensions at 400 kV Switchyard at SCCL(Jaipur)	400 kV QMDC line from SCCL(Jaipur) to proposed 400/220 kV Annaram Substation	18.69
2	2 Nos. 400 kV Bay extensions at 400/11 kV Tippapur Substation	400kV QMDC Line from 400/11kV Tippapur Substation to 400/11kV Veljipur Switchyard	18.69
3	4 Nos. 400 kV Bay extensions at 400/13.8/11 kV Chandlapur Substation	(i) 400kV QMDC Line from 400/13.8/11 kV Chandlapur Substation to 400/11kV Chinnagundevalli (Yellaipally) Switchyard (ii) 400kV QMDC Line from 765/400kV Nizamabad Substation to (PGCIL) to existing 400/13.8/11kV Chandlapur Substation.	32.87
4	2 Nos. 400 kV GIS Bay Extensions at Nizamabad 765/400 kV existing Substation (PGCIL)	400kV QMDC Line from 765/400kV Nizamabad Substation to (PGCIL) to existing 400/13.8/11kV	60.86

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
		Chandlapur Substation.	
5	2 Nos 400 kV Bay extensions at 400/11 kV Tukkapur Substation	400kV TMDC Line from 400/11 kV Tukkapur Substation to 400/11kV New Tukkapur Switchyard	18.69
Sub Total			149.80
2023-24			
1	2 Nos at 400kV Dindi SS	400kV QMDC line from Dindi SS to Yedula LISS.	6.84
2	2 Nos at 400kV Veltoor SS	400kV QMDC line from Veltoor SS to Yedula LISS.	13.19
3	2 Nos at 400kV Vатtem SS.	400kV QMDC line from Vатtem LISS to Uddandapur LISS.	10.78
Sub Total			30.81
Grand Total			180.61

400 kV Reactor Details during FY 2022-23 and FY 2023-24

S.No.	Name of Substation at which Reactor is proposed	Capacity of Reactor (MVAR)	Estimated cost (Rs. in Crores)
2022-23			
1	400/11 kV Kachapur Switching Station	2x125 MVAR	13.2156
2	400/220 kV Annaram substation	125 MVAR	6.60781
3	400/11 kV Velgatoor Sub-station.	125 MVAR	6.60781
4	400/11 KV Tukkapur SS	125 MVAR	6.60781
5	400/11 kV Namapur Sub-station.	125 MVAR	6.60781
6	400/220/11kV Ramadugu SS	125 MVAR	6.60781
7	400/220/11kV Kamalapuram SS	125MVAR	16.31
Sub Total		1000	62.56465
2023-24			
1	400/11kV Narlapur Sub-station	125 MVAR	Cost included in the SS
2	400/11kV Yedula Sub-station.	125 MVAR	
3	400/11kV Vатtem Sub-station.	125 MVAR	
4	400/11kV Uddandapur Sub-station	125MVAR	
Sub Total		500	-
Grand Total		1500	62.56465

220 kV LIS Substations during FY 2022-23 and FY 2023-24

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
2022-23				
1	220/11kV Devannapet Sub-Station	3x40+2x25	170	43.47
2	220/11 KV Yacharam Thanda Sub-station.	3x40+2x25	170	39.58
3	220/11 KV Manichippa Sub-station.	2x40+2x10/16	112	35.93
4	Additional Load 16 MW at Manichippa for New Manichippa PH	2x31.5	63	33.32
Sub Total			515	152.30
2023-24				
NIL				
Grand Total			515	152.30

220 kV LIS Transmission Lines during FY 2022-23 and FY 2023-24

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
2022-23			
1	220kV TMDC line from 400/220kV Jangaon to Devannapet	110	33.04
2	220kV DC line from 400/220kV Ditchpally SS to 220/11kV Yacharam Thanda SS	53.7	33.91
3	220 kV TMDC Line from 400/220 KV Annaram SS to 220/11 KV SS at Medigadda	96	90.00
4	220 kV DC line from 400/220 kV Dichpally SS to proposed 220/11 kV Manchippa LIS SS	46	20.02
5	LILO of one circuit of 220kV KTPS V-- Lower Sileru-II Line to B.G.Kothur SS	33.39	24.64
Sub Total		339.09	201.61
2023-24			
NIL			
Grand Total		339.09	201.61

220 kV LIS Bay Extension Works during FY 2022-23 and FY 2023-24

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2022-23			
1	2 Nos 220kV Bay Extensions at 400/220 kV Jangaon Sub station	220kV DC line from 400/220kV Jangaon Sub-station to proposed Devannapet 220/11kV LIS SS	9.86
2	2 Nos 220kV Bay Extensions at 400/220 kV Dichpally Sub station	220kV DC line from 400/220kV Dichpally Sub-station to proposed Yacharam Thanda 220/11kV LIS SS	6.23
3	2 Nos 220 kV Bay Extensions at Medigadda 220/11 kV Substation	220 kV TMDC line from Medigadda to proposed 400/220 kV Annaram Substation	6.83
Sub Total			22.92
2023-24			
NIL			
Grand Total			22.92

Lift Irrigation Schemes for 5th Control Period

400 kV LIS Substations from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
2024-25 to 2028-29				
NIL				

400 kV LIS Transmission Lines from FY 2024-25 to FY 2028-29

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
2024-25 to 2028-29			
NIL			

400 kV LIS Bay Extension Works from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2024-25 to 2028-29			
NIL			

400 kV Reactor Details from FY 2024-25 to FY 2028-29

S.No.	Name of Substation at which Reactor is proposed	Capacity of Reactor (MVAR)	Estimated cost (Rs. in Crores)
2024-25 to 2028-29			
NIL			

220 kV LI Substations from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
2024-25				
1	220/132/11kV SS Chelmeda	2x160+3x60	500	83.81
2	220/132/11kV SS Borancha	2x100+2x60	320	46.243
3	220/11kV SS Pokkur	2x25	50	49.24
Sub Total			870.00	179.29
2025-26 to 2028-29				
NIL				
Grand Total			870.00	179.29

220 kV LI Transmission Lines from FY 2024-25 to FY 2028-29

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
2024-25			
1	220kV DC line from existing 220/132kV Sadasivapet SS to now proposed 220/132/11kV SS at Chelmeda Pump House	25	19.09
2	Replacement of existing 220kV DC line of Single Moose conductor from 400/220kV Shankarpally SS to 220/132kV Sadasivapet SS with HTLS Conductor (520mm ² ACCC)	76	62.11
3	220kV SMDC line from existing 400/220kV Narsapur SS to now proposed 220/132/11kV SS at Borancha	140	106.84
4	220kV SMDC line from proposed 220 /132/11kV SS Chelmeda to now proposed 220/132/11kV SS at Borancha	80	61.01
5	LILO of 220kV Sundilla - Medigadda TMDC Line at Pokkur 220/11KVSS	6	6.95
Sub Total		327	256.00
2025-26 to 2028-29			
NIL			
Grand Total		327	256.00

220 kV LIS Bay Extension Works from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2024-25			
1	2 Nos 220kV Feeder Bays at 220kV SS Sadasivapet	220/132kV Sadasivapet SS to now proposed 220/132/11kV SS at Chelmeda Pump House	2.77
2	2 Nos 220kV Feeder Bays at 400/220kV SS Narsapur	400/220kV Narsapur SS to now proposed 220/132/11kV SS at Borancha	7.5095
Sub Total			10.2795
2025-26 to 2028-29			
NIL			
Grand Total			10.2795

132 kV LIS Substations from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation	Transformer capacity (MVA)	Total Transformer capacity (MVA)	Estimated cost (Rs. in Crores)
2024-25				
1	132/11kV SS Ambabhavani	2x16	32	14.42
2	132/11kV SS Kambalapally	2x16	32	14.59
3	132/11kV SS Nellikal	2x25	50	18.37
4	132/11kV SS Lingampally	2x60	120	34.50
5	132/11kV SS Hoti-Khurd	2x16	32	19.25
6	132/11kV SS Chityala	2x25	50	9.28
7	132/11kV SS Wadapally	2x25	50	9.28
8	132/11kV SS Ramthirth	2x16	32	9.2413
9	132/11kV SS Nallasomanadri (Gattu)	2x31.5	63	15.97
Sub Total			461	144.90
2025-26 to 2028-29				
NIL				
Grand Total			461	144.90

132 kV LI Transmission Lines from FY 2024-25 to FY 2028-29

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
2024-25			
1	132kV DC Line to proposed 132/11kV Kambalapally LI SS from existing 220/132kV K.M.Pally SS	96	76.06
2	132kV LILO Line to the proposed 132kV Amba Bhavani LI SS from the proposed one Ckt of 132kV DC line from the existing 220/132kV K.M.Pally Sub-Station to now proposed 132/11kV Kambalapally LIS	2	1.86
3	Erection of 132KV LILO to the proposed Nellikal LIS from the existing 132KV SC line from 220/132/11KV Nagarjuna Sagar receiving station to 132KV Nagarjuna Sagar Left canal SS under Nellikal LIS	3	3.423
4	Erection of 132kV DC line from proposed 220/132/11kV LI SS at Chelmeda Khurd Pump House to now proposed 132/11kV LI SS at Lingampally Pump House.	18	9.43
5	Erection of 132kV DC line to the proposed 132/11KV Hoti-Khurd LI SS from the proposed 132/11kV Lingampally LI SS	38	9.88
6	Erection of 132 KV DC/SC line from existing 132/33 KV Haliya SS to proposed 132/11 KV Chityala SS	28	17.84
7	Erection of 132 KV DC/SC line from existing 132/33 KV New Wadapally SS to proposed 132/11 KV Wadapally LIS SS	12	7.65
8	Erection of 132 KV DC/SC line from Proposed 132/11 KV Chityala SS to proposed 132/11 KV Wadapally LIS SS	22	14.02
9	Erection of 132kV DC line from proposed 220/132/11kV SS at Borancha to now proposed 132/11kV SS at Ramthirth	60	31.40

S.No.	Name of the Transmission line	Length CKM	Estimated cost (Rs. in Crores)
10	Making LILO of one Ckt of 220KV TMDC line from the existing 400/220kV Sundilla SS to 220kV Medigadda LI SS line to proposed 220/11kV Pokkur LI SS	6	6.95
11	LILO of 132 kV DC/SC line of 220/132 kV Jurala SS - 132/33 kV Ieeja SS to now proposed 132/11kV Nallasomanadri (Gattu) LI SS	11.5	16.36
12	2 nd circuit stringing on the existing 132 kV DC/SC line from 220/132 kV Jurala SS to 132/33 kV Ieeja	36.27	6.70
Sub Total		332.77	201.573
2025-26 to 2028-29			
NIL			
Grand Total		332.77	201.573

132 kV LIS Bay Extension Works from FY 2024-25 to FY 2028-29

S.No.	Name of the Substation at which Bay extension is proposed	Name of line for which the work is proposed	Estimated cost (Rs. in Crores)
2024-25			
1	2 Nos Bay extensions at 220/132kV K.M.Pally SS	220/132kV K.M.Pally SS to now proposed 132/11kV Kambalapally LI SS	2.77
2	1 No. Bay extension at existing 132/33kV Haliya SS	132/33kV Haliya SS to proposed 132/11 KV Chityala SS	1.27
3	1 No. 132 kV Bay extension at existing 132/33 KV New Wadapally SS	132/33kV New Wadapally SS to proposed 132/11 KV Wadapally LIS SS	1.27
4	1 No. 132 kV Bay extension at 220kV Jurala	2 nd circuit stringing on the existing 132 kV DC/SC line from 220/132 kV Jurala SS to 132/33 kV Ieeja	1.2034
5	1 No. 132 kV Bay extension at 132kV Ieeja		1.2038
Sub Total			7.7172
2025-26 to 2028-29			
NIL			
Grand Total			7.7172