TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

From
Executive Director (HRD & Planning),
APTRANSCO, Vidyut Soudha,
Vijayawada –520008.

To
The Secretary,
A.P.E.R.C., 11-4-660, 4th floor,
Singareni Bhavan, Red Hills,
Lakdi-ka-pool, Hyderabad -4.

Lr.No.ED/HRD&Plg/SE/Plg/DE/Plg&RAC/ADE/RAC&Ref/F.SEP/D. No.90 /17, Dt.8 .08.2017.

Sir,

Sub: - APTRANSCO – Revised State Electricity Plan – Submission – Reg.

Ref: 1) Lr.No. APERC/JD(PPP)/F.No./D.No.207 dt.17.03.2017.
2) Lr.No. APERC/JD(PPP)/F.No./D.No.240/2017 dt.25.03.2017.
3) Lr.No.ED/HRD&Plg/SE/PlgDE/Plg&RAC/ADE/RAC&Ref/F.SEP/D. No. 62/17, Dt. 02.05.2017.
4) Record of Proceedings dt. 01.07.2017 by APERC.

***

With reference to the letters cited at reference (1) and (2), APTRANSCO has submitted the State Electricity Plan for the balance 3rd control period (FY 2017-18 to FY 2018-19) and 4th control period (FY 2020 to FY 2024) before Hon'ble APERC vide reference (3) cited.

It is to submit that, Hon'ble APERC in the hearing dt. 01.07.2017 vide reference (4) cited commented that, *"Sri K.Gopal Choudary, learned counsel, who is requested by the commission to assist the commission in the matter pointed out that the projections made in the different plans submitted by the distribution companies and the transmission corporation are not complementary to each other and are presenting many areas of divergence. Sri P.Shiva Rao, learned Standing Counsel is requested to have a comprehensive relook by the utilities into the entire issue and report to the Commission by the next date of hearing.*

Accordingly, APTRANSCO has revised State Electricity Plan for the balance 3rd control period (FY 2017-18 to FY 2018-19) and 4th control period (FY 2020 to FY 2024) by removing the divergences among the plans submitted by APTRANSCO/APDISCOMs.

In view of the above, I am directed to submit the revised State Electricity Plan to Hon'ble APERC for Approval.

Encl: 4 sets of Revised State Electricity Plan

Yours faithfully,

Executive Director/HRD & Planning

Andhra Pradesh Electricity Regulatory Commission
2246

STATE ELECTRICITY PLAN

(FY 2018 – FY 2024)

July 2017

State Electricity Plan for balance 3rd Control Period (FY 2017-18 to FY 2018-19) and 4th Control Period (FY 2019-20 to FY 2023-24)

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1 Introduction

The State Electricity Plan (SEP) for Andhra Pradesh from FY 2017-18 to FY 2023-24 considers the projections of energy demand for the said period. Various factors like historical trends, new capital city, PCPIR (Petroleum, Chemicals and Petrochemical Investment Region) corridor, Vizag Chennai Industrial Corridor (VCIC), Sri City SEZ, new airports, new sea ports etc. have been considered for projecting the energy demand for the state up to FY 2023-24. The energy demand is projected to grow at a CAGR of about 8.4% in the said period as per the resource plan submitted by DISCOMs.

The availability of energy from various sources (long term and medium term) and the addition of generation capacity of various fuel types (coal, gas, hydel, nuclear and Renewables) in order to meet the increasing demand. Addition of around 2,385 MW of thermal capacity, 3,235 MW of renewable energy capacity and around 960 MW of Hydel capacity are projected to be added from FY 2017-18 to FY 2023-24. No retirement of thermal stations has been considered till FY 24. Accordingly, the SEP also considers the projected additions of substations and Transmission lines by APTRANSCO up to FY 2023-24. Around 259 Nos. of substations and 16,161 Ckm of Transmission lines are projected to be added from FY 2016-17 to FY 2023-24.

1.1 APERC Guidelines

The Andhra Pradesh Electricity Regulatory Commission (APERC), directs that APTRANSCO has to formulate State Electricity Plan in co-ordination with Discoms and APGENCO for the promotion of generation, Transmission, distribution and supply of electricity and notify the same once in the Control Period under consideration for tariff review.

APTRANSCO, in preparing the State Electricity Plan, shall publish the draft State Electricity Plan and invite suggestions and objections thereon from licensees,

generating companies, the Commission and the public within such time as may be specified by the Commission:

Provided that APTRANSCO shall:

(a) notify the plan after considering the comments of the Commission and all stakeholders, and obtaining the approval of the State Coordination Forum; and

b) revise the plan incorporating therein the directions, if any, given by the State Coordination Forum while granting approval under (a) above.

The State Electricity Plan would be for a short-term framework of a period equal to Control Period under consideration for tariff review while giving a perspective for two (2) Control Periods (Control Period under consideration for tariff review and subsequent Control period) and shall include:

- Short-term and long-term demand forecast, with inputs from the last approved Load Forecast;
- Suggested areas/locations for capacity additions in generation and Transmission keeping in view the economics of generation and Transmission, losses in the system, load centre requirements, grid stability, security of supply, quality of power including voltage profile etc. and environmental considerations including rehabilitation and resettlement;
- Integration of such possible locations with Transmission system and development of state grid including type of Transmission systems and requirement of redundancies;
- Different technologies available for efficient generation, Transmission and distribution ; and
- Fuel choices based on economy, energy security and environmental considerations.

The State Electricity Plan would be used as a reference document by all

stakeholders and also assist CEA in planning the National Electricity Plan or any other Plan requiring inputs from the State.

1.2 Power for All

Andhra Pradesh is one of the state in the country selected for implementation of "Power for All" - flagship program of Govt. of India.

The objective of the above program is to supply 24x7 quality, reliable and affordable power supply to all domestic, commercial and industrial consumers within a fixed timeframe. This program covers the entire gamut of power sector, including generation, Transmission, distribution, consumer initiatives, renewable energy, energy efficiency measures, financial health of the utilities and support required from Govt. of India to achieve the objectives of the program.

The program would be implemented jointly by Govt. of India & Govt. of Andhra Pradesh as partners. The various ministries of Central Govt. which would be involved in this program are Ministry of Power, Ministry of Coal, Ministry of Petroleum & Natural Gas, Ministry of New & Renewable Energy, Ministry of Environment & Forests and Ministry of Railways.

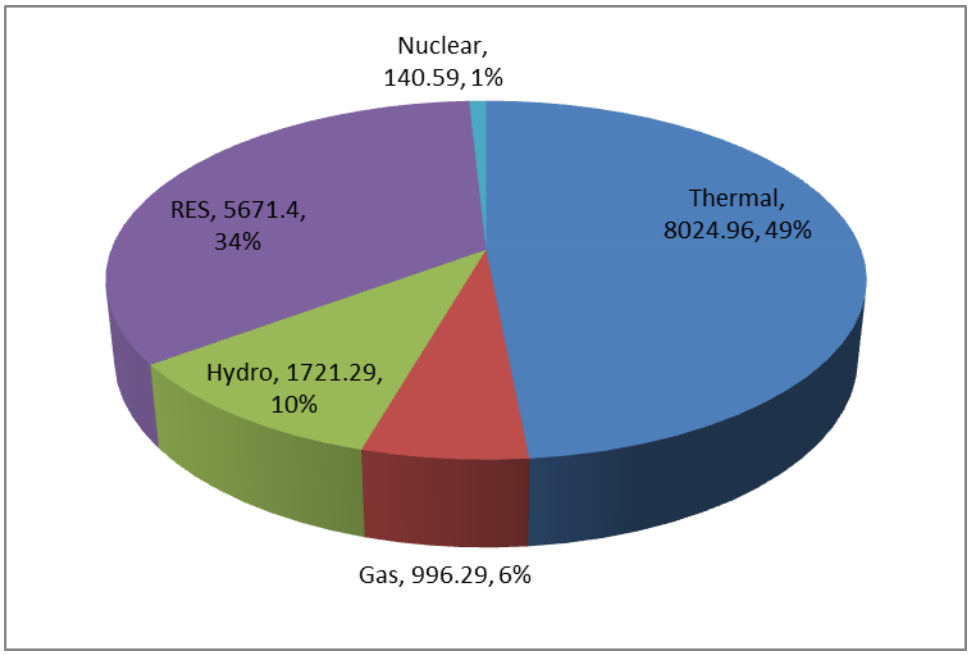
CEA would be functioning as the nodal authority for implementation & monitoring of the program. The Central PSUs namely NTPC, CIL, MCL, WCL, SCCL, PFC, REC, NHPC, NPCIL, PGCIL, BHEL, EESL, BEE, SECI, ONGC, GAIL, NVVNL along-with the State PSUs APGENCO, APTRANSCO, APDISCOMS, NREDCAP and SECM would be partners in the implementation of the program.

1.3 Andhra Pradesh Power Sector at a glance

The total installed capacity of Andhra Pradesh is 16,553 MW as per power allocation after state bifurcation as on 30-06-2017. The total number of consumers in the state is 171.82 lakhs which includes 138.85 lakhs of domestic, 12.54 lakhs of commercial, 1.44 lakhs of industrial, 16.57 lakhs of agricultural categories as on 31.3.2017. The total energy consumption (at utility periphery) in Andhra Pradesh during FY 2016-17 was 55,160 MU and the peak demand was 7,965 MW.

1.3.1 Installed Capacity

The present installed capacity in the state is 16,553 MW , comprising 4,410 MW of APGenco thermal, 1,721 MW of APGenco hydel, 251 MW of APGPCL & APDiscom Gas, 2,089 MW of CGS Share, 2,415 MW of IPP's & others and 5,671 MW of NCE's.



1.3.2 Position of Transmission and Distribution

The Transmission infrastructure as on 31-03-2017 consists of 10 Nos. of 400 kV substations, 87 Nos. of 220 kV substations, 190 Nos. of 132 kV substations and 22,031 Ckm of EHT lines. The Transmission losses during FY 2016-17 was 2.92%.

There are 2,766 Nos. of 33/11 kV substations and 24,803 ckm of 33 KV lines as on 31st March 2017.

1.3.3 Power Supply Position

Power is being supplied to Domestic, Commercial & Industrial consumers along with Agricultural consumers in rural areas through mixed feeders. There are 706 Nos. of dedicated/express industrial feeders. 7 hours three phase power supply is being given to agricultural consumers mostly in single/two spells and supply timings are rotated every 7 days.

Three phase supply to rural areas for Domestic, Commercial & Industrial consumers is along with 7 hrs Agricultural supply only. Whereas, balance 17 hrs supply is given to rural areas through single phase power supply. As a result, most of the consumers, other than Agricultural in rural areas on mixed feeders get 24 hours of supply every day.

Agricultural feeders have been separated from Domestic feeders in 14 mandals on a pilot basis during 2011. In these mandals, domestic consumers are being extended 3 phase supply depending upon availability of power. However, there is a system in Andhra Pradesh which enables single phase supply to be extended to all domestic consumers through suitable control mechanism at the substations.

Since 2014, all rural areas have been extended 24 hours single phase/ three phase power supply to all Domestic, Commercial & Industrial consumers. The segregation of Agricultural feeders would enable extension of 24x7, reliable 3 phase supply to all domestic, commercial & industrial consumers.

2 Load Forecast

2.1 Short Term load forecast from FY2016-17 to FY2018-19

The consolidated Sales and Load forecast is prepared using **Trend method,** keeping in view demand expected to come up due to new capital city, PCPIR (Petroleum, Chemicals and Petrochemical Investment Region) corridor, Vizag Chennai Industrial Corridor (VCIC), Sri City SEZ , new airports, new sea ports.

Special package to Andhra Pradesh state would further stimulate the Industrial sales.

New lift irrigation schemes i.e. Purushottampatnam , Krishnavaram under Polavaram LI Scheme, Chintalapudi, Kondaveeti Vaagu etc, will further contribute in increasing demand.

APDiscoms prepared a detailed revised **Resource Plan** so as to submit to the Honourable Commission in July 2017. The sales and energy forecast as per the Tariff Filings, and Resource Plan are provided in the following table:

LT Category	FY 2016-17	FY 2017-18	FY 2018-19
LT-I Domestic	12,206	13,599	15,154
LT-II Non-domestic/Commercial	2,554	2,827	3,131
LT-III Industrial	2,577	2,836	3,127
LT-IV Cottage Industries	42	44	47
LT-V Agriculture	11,668	12,085	12,518
LT-VI Street Lighting & PWS	853	830	808
LT-VII General Purpose	150	160	171
LT-VIII Temporary Supply	1	3	3
LT Total (Restricted)	**30,052**	**32,384**	**34,958**
LT Total (Unrestricted)	**30,070**	**32,384**	**34,958**
HT Category			
HT-I Industry	10,452	11,385	12,417
HT-I (B) Ferro-Alloys	1,718	1,871	2,038
HT-II Others (Commercial)	1,270	1,376	1,493
HT-III Public Infrastructure and Tourism	90	97	104
HT - IV Agriculture	1,273	1,720	1,794
HT-V Railway Traction	1,284	1,331	1,381
HT-VI Townships and Residential Colonies	67	70	73
HT-VII Green Power	0	0	0
HT-VII RESCOs	703	744	800
HT-VIII Temporary Supply	3	3	3
HT Total (Restricted)	**16,861**	**18,598**	**20,103**
HT Total (Unrestricted)	**16,861**	**18,598**	**20,103**
LT+HT Total (Restricted)	**46,912**	**50,983**	**55,062**

LT Category	FY 2016-17	FY 2017-18	FY 2018-19
LT+HT Total (Unrestricted)	**46,931**	**50,983**	**55,062**
T& D losses –MU	**5,949**	**6,507**	**6,876**
T& D losses -in %	11.25%	11.32%	11.10%
Energy Requirement - MU	**52,880**	**57,490**	**61,938**
T losses in %	2.92%	2.90%	2.87%
Energy Requirement - MU	**54,848**	**57,490**	**61,938**
Annual Load Factor - %	78.61%	76.00%	76.00%
Peak Load – MW	**7,965**	**8,635**	**9,303**

2.2 Long Term Load Forecast from FY 2019-20 to FY 2023-24

The consolidated Sales and Load forecast is prepared using trend method, in view of demand expected to come up due to new capital city, PCPIR (Petroleum, Chemicals and Petrochemical Investment Region) corridor, Vizag Chennai Industrial Corridor (VCIC), Sri City SEZ, new airports, new sea ports. Special package to Andhra Pradesh state would further stimulate the Industrial sales.

New lift irrigation schemes i.e Purushottampatnam , Krishnavaram under Polavaram LI Scheme, Chintalapudi, Kondaveeti Vaagu etc, 24x7 power supply to all consumers and 7 hrs supply to agriculture consumers will further contribute in increasing demand.

Transmission losses will be reduced from present (FY2016-17) level of 2.92% to 2.87% by FY2018-19 and will further come down to 2.74% by FY 2023-2024. T & D losses will follow similar trends from 11.25% in FY 2016-17 to 11.10% by FY2018-19 and further come down 10.02% by FY2023-24 due to efficiency gains and measures like HVDS (High voltage distribution system) undertaken by AP Discoms.

The category wise sales forecast and state level energy and peak demand forecast from FY2019-20 to FY2023-24 as submitted in the Resource plan to

APERC is as below:

LT Category	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
LT-I Domestic	16,891	18,829	20,995	23,415	26,120
LT-II Non-domestic/Commercial	3,469	3,845	4,263	4,729	5,248
LT-III Industrial	3,454	3,821	4,233	4,698	5,220
LT-IV Cottage Industries	50	53	56	59	63
LT-V Agriculture	12,967	13,432	13,915	14,417	14,937
LT-VI Street Lighting & PWS	786	765	745	725	705
LT-VII General Purpose	184	196	210	225	242
LT-VIII Temporary Supply	3	3	3	3	3
LT Total (Restricted)	**37,801**	**40,944**	**44,420**	**48,270**	**52,538**
LT Total (Unrestricted)	**37,801**	**40,944**	**44,420**	**48,270**	**52,538**
HT Category	0	0	0	0	0
HT-I Industry	13,559	14,823	16,225	17,780	19,506
HT-I (B) Ferro-Alloys	2,222	2,423	2,645	2,890	3,159
HT-II Others (Commercial)	1,621	1,762	1,918	2,090	2,278
HT-III Public Infrastructure and Tourism	112	121	131	142	156
HT - IV Agriculture	1,804	1,847	1,857	1,867	1,877
HT-V Railway Traction	1,432	1,486	1,542	1,601	1,662
HT-VI Townships and Residential Colonies	77	81	85	90	93
HT-VII Green Power	0	0	0	0	0
HT-VII RESCOs	873	964	1,077	1,215	1,381
HT-VIII Temporary Supply	3	3	3	3	3
HT Total (Restricted)	**21,702**	**23,511**	**25,483**	**27,676**	**30,117**
HT Total (Unrestricted)	**21,702**	**23,511**	**25,483**	**27,676**	**30,117**
LT+HT Total (Restricted)	**59,503**	**64,454**	**69,904**	**75,947**	**82,654**
LT+HT Total (Unrestricted)	**59,503**	**64,454**	**69,904**	**75,947**	**82,654**
T& D losses -MU	**7,315**	**7,746**	**8,125**	**8,637**	**9,200**
T& D losses -in %	10.95%	10.73%	10.41%	10.21%	10.02%
Energy Requirement - MU	**66,818**	**72,200**	**78,029**	**84,584**	**91,854**
T losses in %	2.85%	2.83%	2.80%	2.77%	2.74%
Energy Requirement - MU	**66,818**	**72,200**	**78,029**	**84,584**	**91,854**
Annual Load Factor - %	75.00%	75.00%	75.00%	75.00%	75.00%
Peak Load - MW	**10,170**	**10,989**	**11,877**	**12,874**	**13,981**

2.3 19th EPS (Electric Power Survey) by CEA

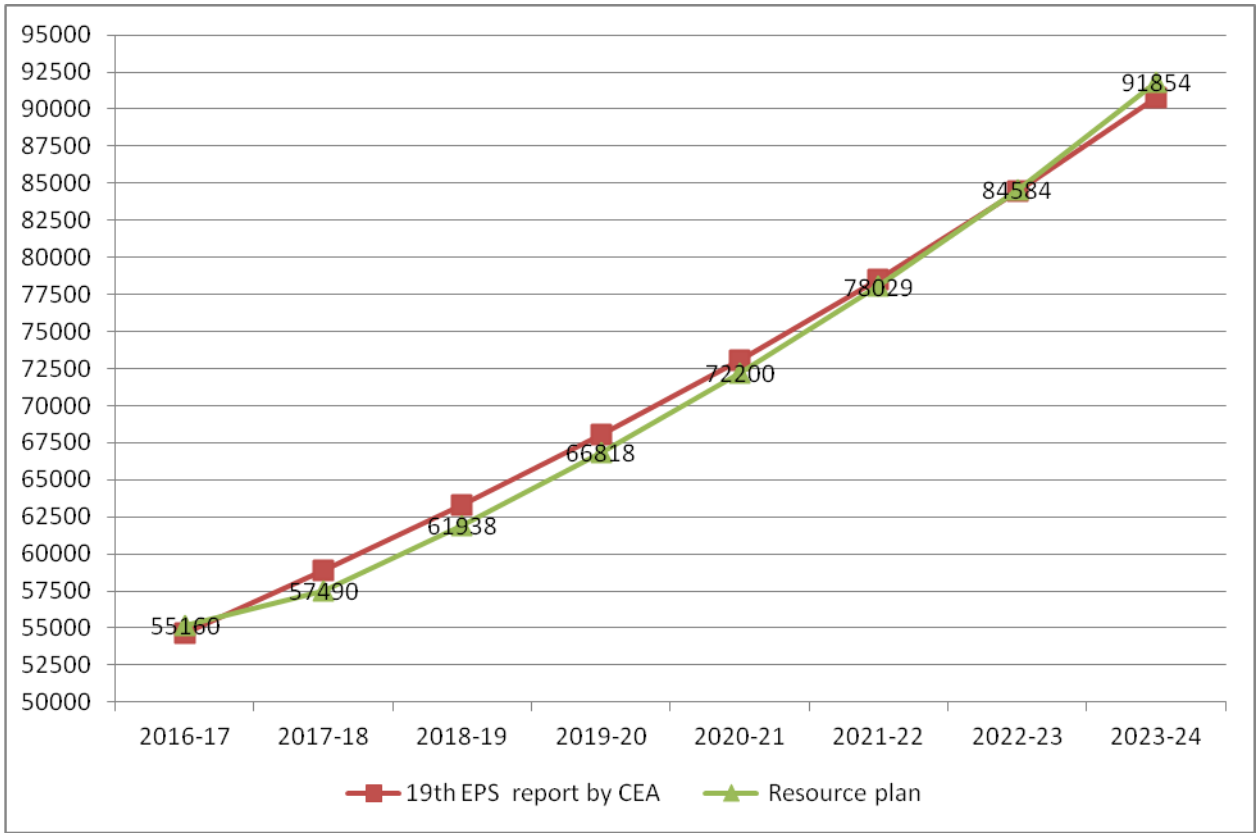
The load forecast published by Central Electricity Authority (CEA) in 19th Electric Power Survey is tabulated below.

	2015-16	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
ENERGY CONSUMPTION – Mus							
1. Domestic	11385	12735	13873	15060	16290	17557	18910
2. Commerical	3802	4322	4726	5165	5644	6165	6732
3.Public lighting	318	324	337	351	366	381	397
4.Public Water Works	668	682	709	737	766	796	827
5.Irrigation	11087	12556	13101	13674	14276	14907	15570
6.Industries LT	2319	2520	2737	2972	3226	3501	3799
7. Industries HT	12539	13315	14651	16118	17727	19493	21432
8.Railway traction	1458	1516	1577	1640	1706	1774	1845
Bulk Supply	767	856	911	969	1032	1098	1169
Total(Energy Consumption)	**44343**	**48826**	**52622**	**56686**	**61033**	**65672**	**70681**
T&D losses-MU	5129	5615	5974	6336	6715	7110	7528
T&D losses - %	10.37	10.31	10.20	10.05	9.91	9.77	9.63
Energy Requirement-MU	**49471**	**54441**	**58597**	**63022**	**67746**	**72781**	**78207**
Annual Load Factor-%	76.4	75.38	75.38	75.38	75.38	75.38	75.39
Peak Electricity Demand-MU	7392	8245	8874	9544	10259	11021	11843
Energy Requirement(Ex Bus) – MU	49681	54673	58846	63290	68034	73090	78540
T&D losses (Ex Bus)-%	10.75	10.69	10.58	10.43	10.29	10.15	10.01

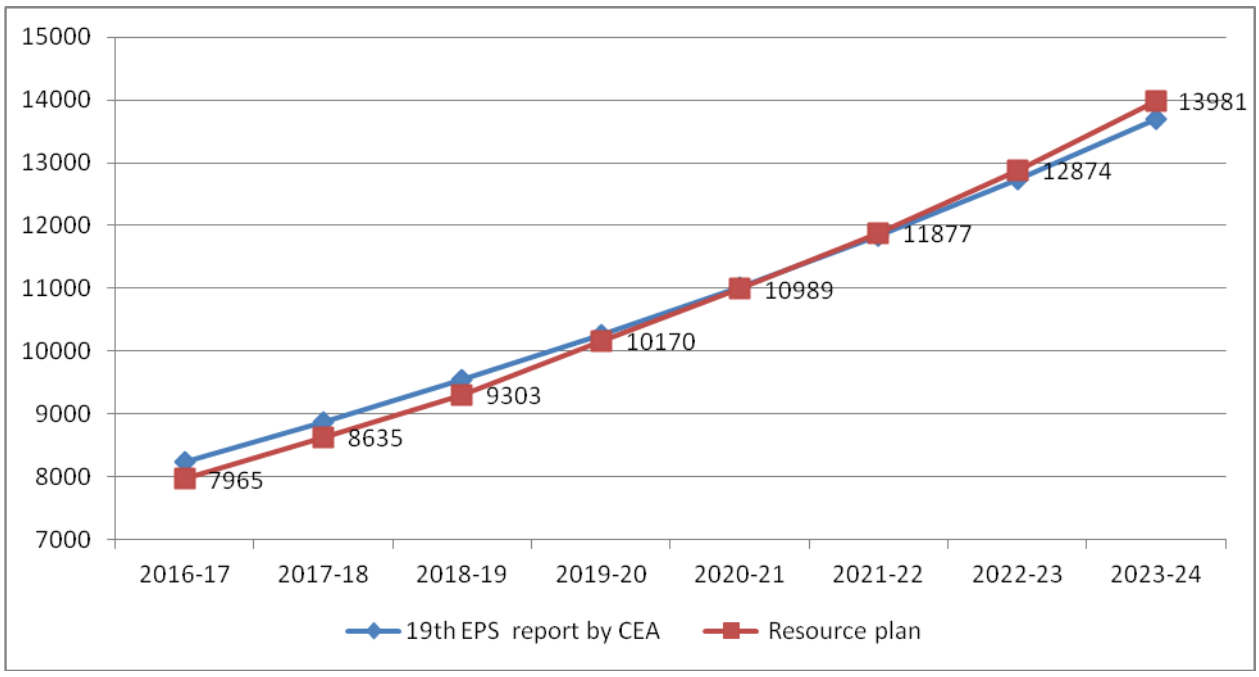
2.4 Comparison of Load Forecasts

Comparison of Energy (MU) forecast projected by Discoms to 19th EPS are shown in below table and figure 1. The slight change in Discoms load forecast (as filed in the Discoms Resource plan) compared to 19th EPS report by CEA is due to expected higher industrial sales growth, 9hrs supply to Agriculture, Energy efficiency initiatives like Domestic Efficient Lighting Programme (DELP), Domestic Efficient Fans Programme (DEFP) etc.

Energy Requirement (MU)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	CAGR 2017-24
19th EPS report by CEA	54673	58846	63290	68034	73090	78540	84429	90794	7.50%
Resource plan	55160	57490	61938	66818	72200	78029	84584	91854	7.60%



Peak Demand (MW)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	CAGR 2017-24
19th EPS report by CEA	8245	8874	9544	10259	11021	11843	12731	13690	7.5%
Resource plan	7965	8635	9303	10170	10989	11877	12874	13981	8.4%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19th EPS report by CEA
Resource plan

3 Generation Plan

3.1 Energy Availability from various sources

This section discusses the methodology and assumptions considered for estimating the quantum of power purchase of the Licensee for the next two control periods - FY 2017-18 to FY 2018-19 and FY 2019-20 to FY 2023-24. 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.

3.1.1 APGENCO

The below table shows the projected capacities of the existing Thermal and Hydel generating stations of APGENCO including its share in the interstate projects. The APDISCOMs would purchase the 100% share from the existing APGENCO stations.

Source	Project Installed Capacity (MW)	Contracted Capacity -AP Share (MW)
THERMAL		
Dr. NTTPS (I, II, III)	1,260	1,260
RTPP-I	420	420
RTPP-II	420	420
RTPP- III	210	210
Dr. NTTPS – IV	500	500
SDSTPS – I	800	800
SDSTPS – II	800	800
TOTAL THERMAL	**4,410**	**4,410**
HYDEL		
Interstate projects:		
Machkund, Orissa	84	38.7
T.B. Station, Karnataka	57.6	26.6

Source	Project Installed Capacity (MW)	Contracted Capacity -AP Share (MW)
State projects:		
Donkarayi	25	25
Upper Sileru	240	240
Lower Sileru	460	460
Srisailam right bank PH	770	770
Nagarjunsagar right canal PH	90	90
PABM	20	20
Mini hydro	1	1
Nagarjunsagar Tail Pond	50	50
TOTAL HYDEL	**1,798**	**1,721**
TOTAL APGENCO	**6,208**	**6,131**

3.1.2 APGENCO Capacity Additions/ Contract Expiry

The following table captures the expected capacity addition of APGENCO Thermal and Hydel stations from FY 2016-17 to FY 2023-24:

Source	Project Installed Capacity (MW)	Expected COD
THERMAL		
RTPP- IV	600	Oct-17
VTPS - V	800	Apr-20
SDSTPS Unit-3	800	Apr-20
TOTAL THERMAL	**2,200**	
HYDEL		
Interstate projects:		
Polavaram – 12 Units	960	Apr-22
TOTAL HYDEL	**960**	
TOTAL APGENCO	**3,160**	

**Based on the latest information, data has been updated with respect to Resource Plan*

An additional 3,160 MW of capacity is expected to be added by APGENCO by the completion of the fourth control period.

3.1.3 Central Generating Stations

The Discoms have Power Purchase Agreements (PPA) with the Central

Generating Stations to purchase power from NTPC (SR), NTPC (SR) Stage-III, NTPC -Talcher-II, NTPC Simhadri-I and Simhadri Stage-II, Neyveli Lignite Corporation Ltd ("NLC"), Madras Atomic Power Station ("MAPS") and Kaiga Atomic Power Station ("KAPS") NTECL Vallur and NTPL Tuticorn (JV of NLC and TNEB). The share of the DISCOMs in the total capacity of the stations is as mentioned below for FY 2016-17.

Name of the Station	Capacity	AP Share	
	MW	MW	%
NTPC-(SR) Ramagundam I & II	2100	289	13.74%
NTPC-(SR) STAGE – Ramagundam- III	500	73	14.52%
NTPC-TALCHER-II	2000	183	9.16%
NLC TS II STAGE-I	630	48	7.55%
NLC TS II STAGE-II	840	84	9.96%
MAPS	440	17	3.90%
KAIGA 1 & 2	440	53	11.99%
KAIGA 3 & 4	440	56	12.74%
NTPC Simhadri Stage-I	1000	461	46.11%
NTPC Simhadri Stage-II	1000	221	22.13%
Vallur (JV) NTPC with TANGEDCO *	1500	95	6.34%
Tuticorin	1000	124	12.37%
Bundled power under JVNSM	-	385	-
TOTAL	**11,890**	**2,089**	**17.57%**

Apart from the existing CGS stations, new CGS stations are expected to come up with which the Discoms are expected to enter into PPA. The list of new CGS stations as per the latest information is given below:

Name of the Station	AP Share (MW)	Date of Commissioning (COD)
Kalapakkam	61	Apr-18
Kudigi - I & II	200	Apr-19
TOTAL	**261**	

**Based on the latest information, data has been updated with respect to Resource Plan*

3.1.4 APGPCL & APDISCOM gas based generating stations

The share of APDISCOMs in the APGPCL stations is **34 MW**. APDISCOMs bought out the erstwhile GVK Phase-I (now known as Godavari Gas Power Plant) on April 22nd 2016. Hence, the entire **216.82 MW** capacity of Godavari Gas Power Plant is now being scheduled for APDISCOMs.

Project Name	Installed Capacity (MW)	AP Share (MW)
APGPCL - I	100	9
APGPCL - II	172	25
Godavari Gas Power Plant	217	217
Total	**489**	**251**

3.1.5 APGPCL & APDISCOM gas based generating stations

In Gas IPP's, Lanco's PPA with the licensee expired on 01.01.2016; Spectrum's PPA with the license expired on 18.04.2016 and BSES's PPA with the licensee will expire in Oct 2017. After the expiry of PPA with Lanco, Spectrum and BSES, the licensee has decided not to procure power from them.

The following IPP's are under commercial operation in the State:

Project Name	Installed Capacity (MW)	AP Share (MW)
GVK Extension	220	101
Vemagiri	370	171
Gautami	464	214
Konaseema	444	205
Total	**1,498**	**691**

The availability from these new CCPPs is subject to availability of natural gas supply by KG D6 wells.

3.1.6 Non-Conventional Energy Sources (NCE)

The expected cumulative installed capacities of NCE projects in the state from FY 2017-18 to FY 2023-24 is given below:

NCE's – Installed Capacity (MW)	FY 2016-17 (Existing)	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
NCE - Bio-Mass	157	157	157	157	157	157	157	157
NCE - Bagasse	121	121	121	121	121	121	121	121
NCE - Municipal Waste to Energy	6	6	42	57	63	63	63	63
NCE - Industrial Waste based power project	22	22	29	29	29	29	29	29
NCE - Wind Power	3,566	4,066	4,266	4,566	4,566	4,566	4,566	4,566
NCE - Mini Hydel	86	86	106	106	106	106	106	106
NCE - NCL Energy Ltd	8	8	8	8	8	8	8	8
NCE – Solar	601	601	601	601	601	601	601	601
NCE – Solar Parks	1,100	2,050	2,250	3,250	3,250	3,250	3,250	3,250
Total - NCE's	**5,666**	**7,116**	**7,580**	**8,895**	**8,901**	**8,901**	**8,901**	**8,901**

**Based on the latest information, data has been updated with respect to Resource Plan*
\# Wind energy capacity has been limited to the capacity envisaged by the State Wind Policy

The average PLF factored in for computation of energy availability from various NCE sources is listed down in the below table.

PLF of NCE Sources	
NCE Source	**PLF (%)**
NCE - Bio-Mass	27.4%
NCE – Bagasse	10.9%
NCE - Municipal Waste to Energy	17.9%
NCE - Industrial Waste based power project	17.9%
NCE - Wind Power	23.5%
NCE - Mini Hydel	17.9%
NCE - NCL Energy Ltd	7.5%
NCE – Solar	18.9%

3.1.6.1 Solar Power Projects

- In order to promote Solar Power Projects in the State of AP, GoAP vide G.O Ms. No.8, dated: 12.02.2015 has issued a new solar policy – 2015 applicable for a period of 5 years targeted minimum solar capacity addition of 5000 MW by FY 2019-2020.
- To achieve above target, GoAP directed APDISCOMs for procurement of 1000 MW Solar Power through competitive bidding process and APDISCOMs entered PPAs for a capacity of 619 MW with consent of APERC. Out of 619 MW, 512 MW has been Commissioned.
- GoAP also targeted to set up 4000 MW solar capacity through Solar Parks in Kurnool, Kadapa and Ananthapur districts with the support of GoI.
- Out of targeted capacity of 4000 MW, 1100 MW Commissioned so far (250 MW at N.P. Kunta, Anantapur District and 850 MW at Gani, Kurnool District)
- The solar parks coming up in the AP State are as follows:

S.No.	Name of the Project	Location of Project	Capacity (in MW)
1	Ananthapuram- I Ultra Mega Solar park (1500 MW) (1000 MW for NTPC and 500 MW for SECI VGF scheme)	NP Kunta, Anathapur District	1000MW
		Galiveedu Mandal, Kadapa district	500 MW
2	Kurnool Ultra Mega solar park (1000 MW NTPC through developers)	Gani, Kurnool	1000MW
3	Ananthapuram- II Ultra Mega Solar Park (500 MW through APGENCO)	Talaricheruvu(V), near Tadipatri, Ananthapur(Dist)	500 MW
4	Kadapa Ultra Mega Solar Park	Mylavaram	1000 MW

- The installed capacity of Solar Power Projects in the AP state as on 31.03.2017 is 1867 MW.
- Andhra Pradesh stood first in India both in the Solar capacity addition as well in the cumulative capacity as on 31st March 2017.
- The Solar Park at Gani, Kurnool District, is the largest solar power capacity Commissioned at single location in the world.

3.1.7 Other Sources

3.1.7.1 Case-I Medium Term:

AP Discoms have signed the PPA with KSK Mahanadi for 400 MW for 100% of its share from 15th June 2016 to May 31st 2021.

3.1.7.2 Case-I Long Term

The licensees have signed PPA with Thermal Power Tech for 500 MW. This project is operating from 1-4-2015. Out of which 46.11% share i.e. 231MW was considered for AP.

3.1.7.3 Hinduja Power Plant

The licensees have signed a long term PPA with Hinduja Power plant for 1,040 MW. The first unit of 520 MW was synchronized on 06-12-2015 and the COD was declared on 11-01-2016 and the second unit COD was declared on 03-07-2016.

3.2 Sector wise Capacity Addition FY 2017-18 to FY 2018-19

The below table captures the expected capacity addition of APGENCO Thermal and Hydel stations, IPPS, CGS and Renewable energy sources during FY207-18 to FY2018-19.

Type of projects	2017-18	2018-19	Total
APGENCO			
Thermal Plants			**600**
Rayalaseema TPP Stage IV Unit 6 (1x600 MW)	**600**		600
Medium / Case-1 Bid			**0**
Private Projects			**0**
Central Generating Stations			**448**
Kalpakam	**61**		61
Wind and NCE	**500**	**264**	**764**
Solar	**950**	**200**	**1150**
Totals	**2111**	**464**	**2575**

* *Based on the latest information, data has been updated with respect to Resource Plan*

3.3 Coal Requirement by APGENCO

The present total availability of coal by APGENCO is 17.67 MTPA against the requirement of 23 MTPA to generate 26,964 MU. The coal is mainly supplied by CIL and SCCL the details are tabulated below for FY 2016-17.

Sl. No.	Description	Units	2016-17
1	Coal Based Generation programme during 2016-17 (Target)	MU	33,355
1.1	Coal based generation achieved during 2016-17 (Actual)	MU	26,964
2	Coal Requirement		
2.1	For plants designed for domestic coal	MT	21.0
2.2	For plants designed on imported coal	MT	2.0
2.3	Total Coal requirement	MT	23.0
3	Coal availability from indigenous sources		
3.1	From CIL (Received Qty.)	MT	9.75
3.2	From SCCL (Received Qty.)	MT	7.15
3.3	From captive mines	MT	-
3.4	From e-auction/stock	MT	-
3.5	Total domestic coal availability	MT	16.90
3.6	Requirement of imported coal for blending	MT	0.77

The above details pertain to Dr. NTTPS (1,760 MW), RTPP (1,050 MW) and Krishnapatnam Stg-I (1,600 MW).

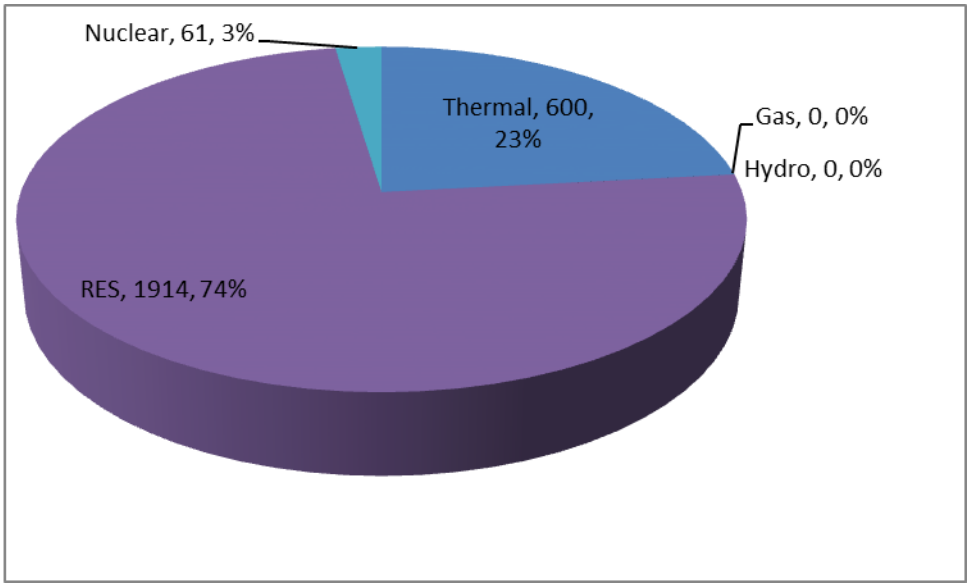
The coal required by APGENCO is 19.51 MTPA to generate 23,897 MU by FY 2018-19 and the details are tabulated below for FY2018-19.

Sl No	Description	Units	2018-19
1	Coal Requirement	MTPA	19.51
1.1	Coal based generation	MU	23,897
1.2	Hydro based generation	MU	3,420
1.3	Total coal based generation	MU	23,897
2	Coal Requirement		
2.1	Imports by plants designed on imported coal		
2.2	Domestic coal requirement	MTPA	19.51

The above details pertain to Dr. NTTPS (1760 MW), RTPP (1050 MW) and Krishnapatnam Stg-I (1600 MW) and RTPP-IV 600 MW.

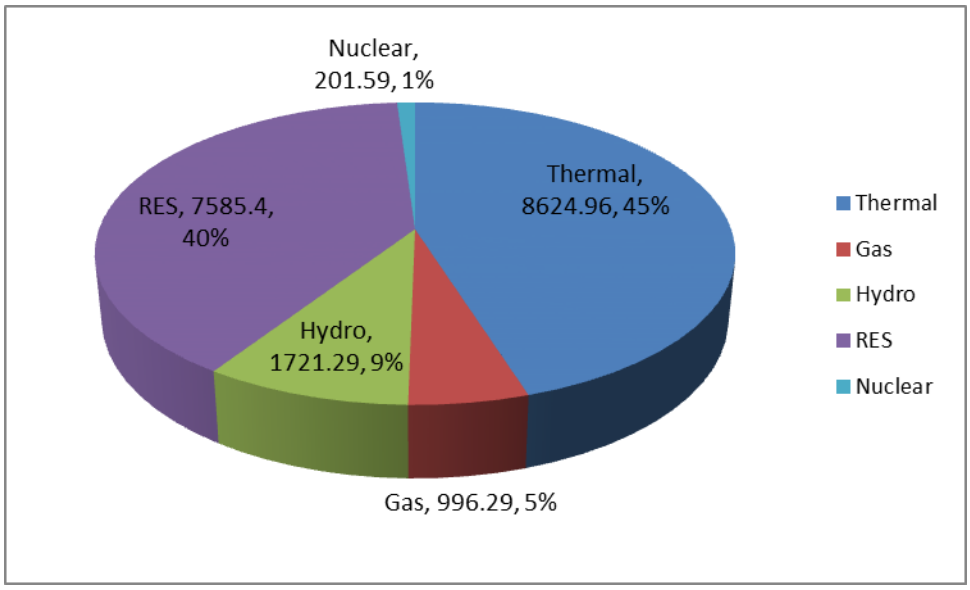
3.4 Fuel Wise Capacity Addition FY 2018 – FY 2019

The expected total capacity addition from FY2017-18 to FY 2018-19 is 2,575 MW which comprises of 600 MW thermal, 61 MW Nuclear and 1,914 MW Renewable Energy Sources.



3.5 Expected Installed Capacity by 31st March 2019

The expected installed capacity by 31st March 2019 would be 19,129 MW comprises of 8,625 MW thermal, 996 MW gas, 1,721 MW Hydro, 202 MW Nuclear and 7,585 MW Renewable Energy Sources.



3.6 Sector wise capacity addition from FY 2019-20 to FY 2023-24

The below table depicts the expected capacity addition of APGENCO Thermal and Hydel stations ,IPPS ,Central Generating stations and Renewable Energy Sources during FY 2019-20 to FY 2023-24.

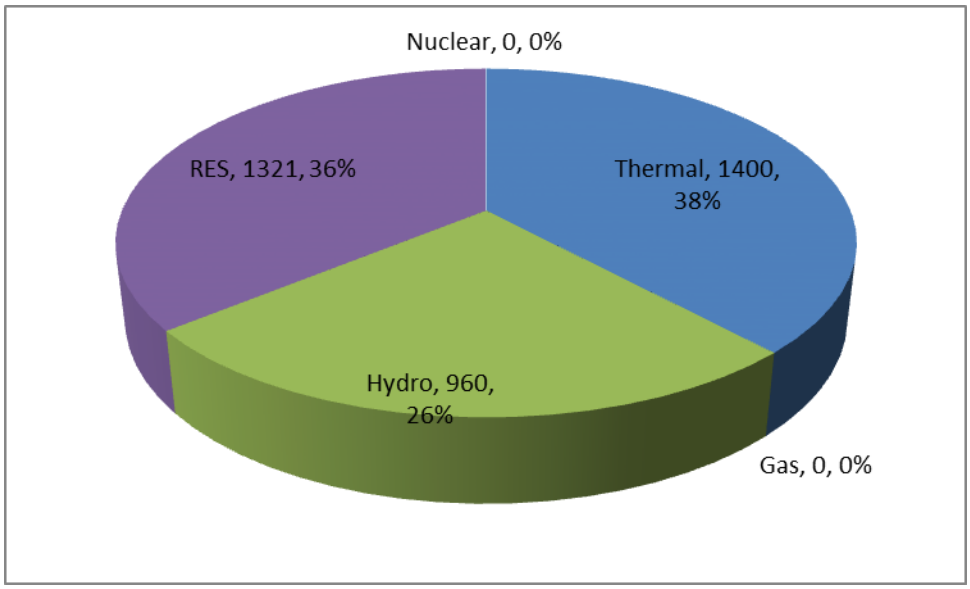
Type of projects	2019-20	2020-21	2021-22	2022-23	2023-24	Total
APGENCO						
Hydro Plants						**960**
Polavaram (12x80MW)				**480**	**480**	960
Thermal Plants						**1600**

Vijayawada TPS Stage V (1x800 MW)		**800**				800
Krishnapatnam TPP (JVP) Stage II (1x800 MW)		**800**				800
Medium / Case-1 Bid						**-400**
KSK Mahanadi (MT) (184+216 MW)			**-400**			-400
Central Generating Stations						**0**
Kudigi	**200**					200
Wind and NCE	**315**	**6**		**0**	**0**	321
Solar	**1000**					1000
Totals	**1515**	**1606**	**-400**	**480**	**480**	**3681**

** Based on the latest information, data has been updated with respect to Resource Plan*

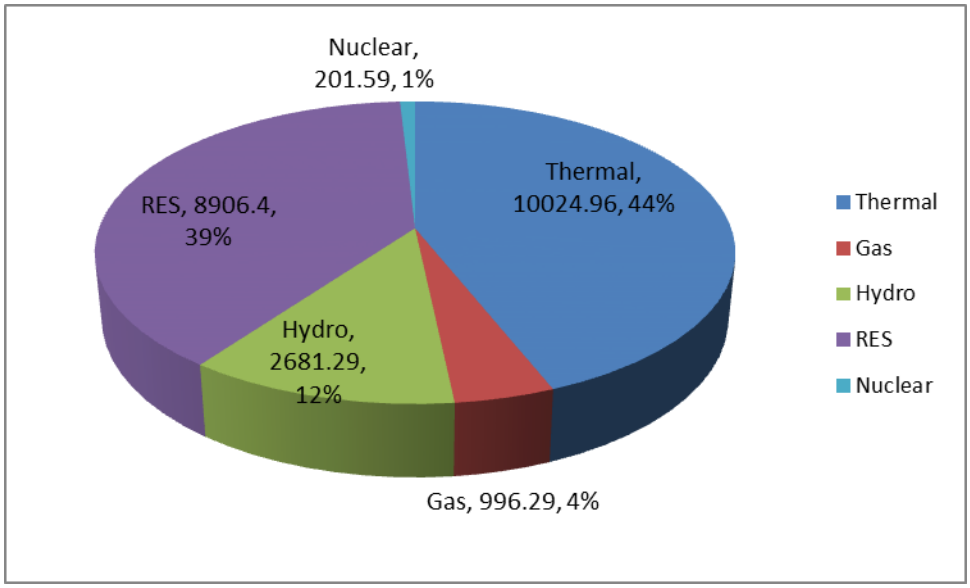
3.7 Fuel wise Capacity addition FY 2019-20 to FY 2023-24

The total capacity addition from FY2019-20 to FY2023-24 is 3,681 MW which comprises of 1,400 MW thermal, 960 MW hydro and 1,321 MW Renewable energy sources.



3.8 Expected installed capacity by March 2024

The expected Installed capacity by 31-03-2024 is 22,811 MW which comprises of 10,025 MW thermal, 996 MW gas, 2,681 MW hydro, 201 MW Nuclear and 8,906 MW Renewables.



3.9 Coal Requirement by APGENCO by FY 2023-24

42.16 MTPA (Million tons per annum) of coal is required by APGENCO thermal plants by FY 2023-24 out of which 33.39 MTPA of domestic coal and balance 8.77 MTPA of coal needs to be imported to generate 63,142 MU and the details are tabulated below for FY2023-24.

Sl No	Description	Units	2023-24
1	Coal Requirement	MTPA	42.16
1.1	Coal based generation	MU	63,142
1.2	Hydro based generation	MU	5,728
1.3	Total coal based generation	MU	63,142
2	Coal Requirement		
2.1	Imports by plants designed on imported coal	MTPA	8.77
2.2	Domestic coal requirement	MTPA	33.39

The above details pertain to Dr. NTTPS (1760MW), RTPP (1050MW) and Stg-I (1600MW) and RTPP-IV (600MW) Dr. NTTPS-V (800MW), SDSTPS Stg-2 (800MW).

3.10 New Technologies adopted by APGENCO

APGENCO has established two units of 800 MW at SDSTPS stage-1, Nellore using **Super Critical technology** as this technology offers advantages in terms of improved efficiency, reduced emissions and low operating costs. And also started construction of two more units of 800MW at Dr. NTTPS Stage-V and SDSTPS Stage – II, further plans are afoot to establish 4X1000MW at Srikakulam with **Ultra Super Critical technology**.

3.11 Environmental considerations by APGENCO

In view of the environmental considerations, washed coal is preferred for thermal power plants to reduce ash content. Further, APGENCO also ventured in solar power generation and Commissioned 5.426 MWp in West Godavari District and has taken up 500MW at Thalaricheruvu in Ananthpuram district.

Further APGENCO has floated tenders to establish 960 MW (12X80) Polavaram Hydroelectric project at Anguluru, near Rajahmundry to utilize the surplus monsoon flows of Godavari.

4 Introduction of Transmission Plan

Transmission Planning is a continuous process of identification of Transmission system additional requirement, their timing and need. The Transmission requirement could arise from

i) New generation addition in the system
ii) Increase in demand
iii) System strengthening that may become necessary to achieve reliability as per the planning criteria under change load scenario.

The Transmission requirement are identified, studied and firmed through the Transmission planning process.

The Transmission system consists of Inter state Transmission system (ISTS) and Intra state Transmission system (Intra STS). ISTS is mainly owned by and operated by PGCIL which is also Central Transmission Unit whereas Intra –State Transmission system are mainly owned by the state.

The Intra-STS serves the following purposes.

i) Evacuation power from the state's generating stations (both under state and private sector) having beneficiaries in the state.

ii) Onward Transmission within the state from ISTS boundary up to the various substations of the state grid network.

iii) Transmission within the state grid for delivery of power to the load centers within the state.

There has been a consistent increase in Transmission network and transformation capacity in the state. This increase is in consonance with increase in generation and demand of electricity in the state. This as part of growth in Transmission highlights requirements of Transmission network to carry bulk power over longer distances and then at the same time optimize ROW, minimize losses and to improve grid stability.

The objective of the Transmission Planning is to develop Transmission Expansion Plan based on the load forecast and generation supply scenario developed as part of the Load forecast and Resource plan for the state of Andhra Pradesh with the inputs of DISCOMs and GENCO. The purpose of this report was to present a comprehensive summary of the process, assumptions, methodology, Transmission network expansion plan required to ensure the Transmission system which would be capable transmitting the planned generation to meet the forecast loads up to FY 2019. The proposed Transmission system was evaluated for the load and generation conditions for FY 2019.

The system studies were carried out for the Peak Load Scenario and analyzed the Transmission system required from FY 2016-17 to FY 2018-19 which comes under short term plan. The tentative Transmission expansion plan for the period FY 2020-24 is also presented based on the load requirement which comes under Long term plan.

This report envisages the various assumptions & standards adopted for conducting load flows followed for preparation of Transmission Resource plan from FY2017 to FY2019. After conducting load flows studies and contingency analysis under maximum thermal generation scenario as the peak demand occurs in March various generation evacuation schemes at 765KV, 400KV are depicted. The Transmission expansion plan which includes 400KV and 220 KV lines and Substations are also depicted. Sub Transmission plan comprises of 132KV network is also prepared and depicted.

4.1 Criteria for Load Flow Studies

The assumptions and standards adopted while conducting Load Flow studies for UHV (200KV and above) are shown below.

4.1.1 Standard Transformer sizes

The utility's standard Transformer Sizes

Voltage	ONAN Rating (MVA)	OFAF Rating (MVA)
765/400 KV*	900	1500
400 / 220 kV	190	315
220 / 132 kV	60	100

4.1.2 Standard Conductor types

Sl. No	Item	Conductor Type	Configuration
1	765 KV Line	Quad Bersimis	ACSR Bersimis,4/PH, 42/4.57 mm Al + 7/2.54 mm Steel
2	400 kV Lines	Twin Moose	ACSR Moose, 2/PH, 61/3.53mm
3	220 kV Lines	Single Moose	ACSR Moose, 1/PH, 61/3.53mm

4.1.3 Operating Limits under normal conditions

The operating limits as in practice for system studies are adopted as follows:

Sl. No	Item	Operating Limit during normal conditions
1	765/400 KV 1500 MVA Transformer*	900MVA
2	400 / 220 kV 315 MVA Transformer	190 MVA
3	220 / 132 kV 100 MVA Transformer	60 MVA
4	765 KV Quad Bersimis Line*	2250MVA
5	400 kV Twin Moose Line	555 MVA
6	220 kV Single Moose / Zebra Line	178 MVA
7	132 kV Panther Line	67 MVA

4.1.4 Thermal Limits of Transmission Lines at Rated Voltage

Thermal limit of the Transmission line shall be its thermal loading limit. The thermal loading limit of a line is determined by design parameters based on ambient temperature, maximum permissible conductor temperature, wind speed , solar radiation , absorption coefficient , emissivity coefficient etc. The maximum permissible thermal line loadings for different types of line configurations and different type of conductors are taken as per revised CEA guide lines.

Notes:

75 °C is the normal maximum operating conductor temperature

100 °C is the maximum emergency operating conductor temperature, permitted for short duration of periods, during emergencies in the system.

(A) Number of transformers in 765/400KV ,400/220 kV and 220/132 kV Sub-Stations: Based on the standard transformer sizes adopted, transformer loading limits adopted and the CEA specified sub-station loading limits, the utility has adopted the maximum number of transformers in 765/400KV, 400/220 kV and 220/132 kV Sub-Stations as 4. In Uravakonda, Uravakonda – 2, Hindupur and Manubolu 400/220KV SS maximum number of Transformers adopted are four.

(B) The Transformer augmentation in 220/132kV substations will be carried out in the long term planning studies considering minimum of 2 numbers PTRs to meet the N-1 contingency. The additional PTR will be provided whenever the substation load reaches 90 MVA.

(C) Capacity of Substation

As per CEA revised planning criteria, the capacity of any single substation at different voltage levels shall not normally exceed:

SS Voltage	**SS MVA(Max Capacity)**
765 KV	9000MVA
400 KV	2000 MVA
220KV	500 MVA
132 KV	250 MVA

(D) Voltage Limits

Permitted voltage limits, as per CEA guidelines

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

(E) Power Factor of the Loads: All loads are assumed to have a power factor of 0.9, this being the minimum specified in the Code of Technical Interface.

4.2 Contingency criteria:

The system is planned to supply loads during normal conditions and the following contingency conditions without the need for rescheduling of generation and to maintain voltage and line loading criteria.

Outage of one Transmission circuit

Outage of one Interconnecting Transformer or

Outage of one generator.

Outage of a *400 KV* DC *(Double Circuit AC)* line in case of evacuation for a generating station of 1000 MW and above located in a difficult terrain like seacoast susceptible to yearly cyclones

Outage of a single circuit 765 KV line

(Prior to such contingency, all elements shall be considered to be in service)

Criteria for single contingency (N-1):

The Transmission planning was based on a deterministic approach using the single contingency (or N-1) criterion. This is the most common approach used world-wide, and it requires the system to be able to operate satisfactorily with one element out of service (Generator, Transmission Line or Transformer), and to survive the transition from the normal state to the contingency state without any

operator intervention.

An exception to the above criteria, is that the system shall survive a 400kV DC line outage evacuating a power plant located in the coastal area, because damage caused by cyclones are of great concern to APTRANSCO.

5 Transmission Plan for Short Term and Long Term

5.1 Capacity Addition in Transmission during Short Term i.e., FY 2016-19

The state is at present handling 55,160 MU (FY 2016-17) of energy & maximum demand reached in FY 2016-17 is 7965 MW. This is likely to increase to 61,938 MU of energy & 9303 MW of peak demand by FY 2018-19. To meet this demand, robust & reliable Transmission network is required for Transmission (inter-state & intra state) of required energy.

For handling the above energy, PGCIL (CTU) has drawn up the following plans:

Inter Regional Lines (ER-SR corridor): PGCIL constructed Anugul-Srikakulam-Vemagiri 765 kV double circuit lines. Vemagiri-Chilakaluripeta line will be operationalized by June'19. These double circuit 765 kV lines will be able to transmit 3,000 MW power.

APTRANCO can import power from other Regions through this ER-SR corridor, by getting linkage through a 400 kV substations at Srikakulam (Palasa).

APTRANSCO has planned of Transmission system addition during the period FY 2016-17 to FY 2018-19 which includes 5104 ckm of 400 KV, 4950 ckm of 220 kV ,1751 ckm of 132 kV lines and 18 numbers 400 kV substations, 44 numbers 220 kV substations and 60 numbers 132 kV substations.

The 400 kV network enhancements also cover a 400 kV Transmission ring network around the new capital city Amaravathi and cities of Vijayawada & Guntur with 4 numbers 400 kV substations and 7 numbers 220KV substations.

5.1.1 Load Requirement.

Discoms have projected their circle wise Demand forecast and submitted to honorable APERC in Discoms Resource plan. District wise demand forecast from FY 2018 to FY 2024 is shown in the below table.

DEMAND FORECAST (MW)							
Circle Name	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Circle 1: Srikakulam	202	216	232	249	268	288	311
Circle 2: Vizianagaram	297	319	343	368	397	428	461
Circle3: visakhapatnam	923	1,016	1,122	1,242	1,380	1,536	1,714
Circle 4: Rajahmundry	658	713	775	843	918	1,002	1,095
Circle 5: Eluru	949	1,026	1,104	1,199	1,294	1,401	1,520
Total EPDCL	**3,029**	**3,290**	**3,576**	**3,901**	**4,257**	**4,655**	**5,101**
Circle 1: Vijayawada	747	833	929	1,039	1,163	1,304	1,464
Circle 2: Guntur	766	843	929	1,024	1,130	1,249	1,381
Circle 3: Ongole	512	552	596	644	697	755	818
Circle 4: Nellore	655	706	760	820	885	956	1,033
Circle 5: Tirupati	940	1,009	1,082	1,163	1,252	1,350	1,457
Circle 6: Kadapa	543	579	616	656	700	748	801
Circle 7: Anantapur	844	890	937	987	1,041	1,099	1,161
Circle 8: Kurnool	845	895	949	1,007	1,072	1,142	1,219
Total SPDCL	**5,852**	**6,307**	**6,798**	**7,340**	**7,940**	**8,603**	**9,334**
Total for state	**8,881**	**9,597**	**10,374**	**11,241**	**12,197**	**13,258**	**14,435**

5.1.1.1 Capacity Addition in Transmission for load type (400kV, 220kV & 132kV).

Due to increase in the district wise load from 2016 to FY 2019 the load scheduling is being done and Transmission expansion programme is prepared . The following plan is the abstract of the lines and Substations proposed to meet the additional load in the FY 2016-17.

FY	Sub-Stations			Lines		
	(Nos.)			Ckm		
	400	220	132	400	220	132
2017	1	11	11	226	954	221
2018	1	14	25	104	1169	1016

2019	6	11	24	398	1192	513
Total	**8**	**36**	**60**	**728**	**3315**	**1750**

5.1.2 Generation Evacuation

For evacuation of power from Power projects Transmission system is to be planned which includes lines and Substations. The abstract of generation evacuation plan programmed for FY 2016-17, FY 2017-18 and FY2018-19 which includes lines and Substation are shown below:

5.1.2.1 Capacity Addition in Transmission for Generation type (400kV, 220kV & 132kV).

FY	**Sub-Stations**			**Lines**		
	(Nos.)			**Ckm**		
	400	**220**	**132**	**400**	**220**	**132**
2017	4	5	0	2492	596	0
2018	1	2	0	380	456	0
2019	4	1	0	644	100	0
Total	**9**	**8**	**0**	**3516**	**1152**	**0**

5.1.3 System Improvements:

In case of overloading of the existing line/substation new system is to be proposed for next higher voltage. This also includes re conductoring of existing Transmission system with higher ampacity conductors. These are categorized under system improvement for strengthening the system**.** The following plan is the abstract shown for system strengthening for FY 2016-17, FY 2017-18 and FY 2018-19.

5.1.3.1 Capacity Addition in Transmission for System Improvement type (400kV, 220kV & 132kV).

FY	Sub-Stations			Lines		
	(Nos.)			Ckm		
	400	**220**	**132**	**400**	**220**	**132**
2017	0	0	0	0	298	0
2018	1	0	0	420	86	0
2019	0	0	0	440	61	0
Total	**1**	**0**	**0**	**860**	**445**	**0**

5.2 Capacity Addition in Transmission Plan Long Term (FY 2020 to 2024)

Tentative Transmission expansion plan for the long term i.e from FY 2019-20 to FY 2023-24 is also done as per the load requirement. This includes 1756 ckm of 400 KV lines, 1050 ckm of 220 kV lines and 1614 ckm of 132 kV lines and 6 numbers of 400 kV substations, 20 numbers of 220kV substations and 112 numbers of 132kV substations towards Transmission expansion.

5.2.1 Capacity Addition in Transmission for during Long Term (FY 2020 to 2024). (400kV, 220kV & 132kV).

FY	Sub-Stations			Lines		
	(Nos.)			Ckm		
	400	**220**	**132**	**400**	**220**	**132**
2019-20	0	2	18	0	60	353
2020-21	3	2	30	174	200	440
2021-22	1	4	20	742	220	241
2022-23	1	3	22	400	150	115

2023-24	1	8	22	440	395	465
Total	**6**	**19**	**112**	**1756**	**1025**	**1614**

5.3 Details of Transmission Expansion Plan for Short Term i.e. FY 2016 to 2019.

5.3.1 Transmission Plan Programmed for Load Growth.

5.3.1.1 Substations programmed during FY 2016-17 (400kV, 220kV & 132kV).

400kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)
1	Garividi	400/220

220kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)
1	Madanapalli	220/132
2	Kuppam	220/132

3	Thimmapuram 220/11kv (lis)	220/11
4	Goddumarri (220/11kv)	220/11
5	Vajrakarur	220/132
6	Gollapuram	220/132
7	Shapuram (sw.stn)	
8	Bokasampalli (220/132/33kv)	220/132/33
9	Subbarayanipalli (220/33kv)	220/33
10	Mutyalacheruvu (220/132kv)	220/132
11	Muchumarri (220/11kv)	220/11

132kV Substations:

SN	Name of the SS	Voltage Ratio (kV/kV)
1	Gannavaram	132/33
2	Tadimarri	132/33
3	Taticherla	132/33
4	Mantralayam	132/33
5	33 kV features at 132 kV Switching Station Noonegundlapalle	132/33
6	Rudravaram	132/33
7	Pedda Waltair	132/33
8	Saluru	132/33
9	Garbham	132/33
10	Srikakulam Town	132/33
11	33KV features at 132KV SS Inkollu	132/33

5.3.1.2 Lines programmed during FY 2016-17 (400kV, 220kV & 132kV).

400kV Lines:

SN	KV	Transmission line	Ckt type	Line length (cktkm)
1	400	Kalapaka (vzg) to proposed Garividi	D/C	226

220kV Lines:

Sn	Kv	Transmission line	Ckt type	Line length (cktkm)
1	220	Garividi to Tekkali 2nd ckt string	S/c	92
2	220	LILO to proposed Garividi 400kV SS from Garividi - Pendurthy ckt-1	D/C	20
3	220	LILO to proposed Garividi 400kV SS from Garividi - Pendurthy ckt-2	D/C	20
4	220	LILO to proposed Garividi 400kV SS from Adrpalem - Bobbili ckt-1	D/C	20
5	220	LILO to proposed Garividi 400kV SS from Adr palem - Bobbili ckt-2	D/C	20
6	220	Garividi to proposed Bobbili 220kV SS	D/C	80
7	220	2nd ckt strng Vijjeswaram to Nidadavolu	S/c	6
9	220	Gundala to Nunna	D/C	18
10	220	LILO of Manubolu 400kv SS - Renugunta 220kv ckt 2 to Sullurpet SS	D/C	60
11	220	Palamneru to proposed Madanapalli SS	S/c	58
12	220	Palamneru to proposed 220kv SS Kuppam SS	D/C	150
13	220	LILO to proposed Thimmapuram 220/11 kv (hnSS-ii) lift irrigation SS from Chinakampalli - Kalikiri sc line	D/C	20
14	220	LILO to proposed Gollapuram SS from Pulivendula-Hindupur line ckt 1	D/C	20

Sn	Kv	Transmission line	Ckt type	Line length (cktkm)
15	220	RTPP (Muddanur) to Chinakampalli 3rd & 4th ckts.	D/C	120
16	220	Yellanur SS to proposed Gaddamvaripalli SS	D/C	9
17	220	Gaddamvaripalli to proposed Goddumarri SS	D/C	18
18	220	Pulivendula to proposed Mutyalacheruvu (LIS)	D/C	110
19	220	Muddanur to proposed 220/11kv Brahmi ind. Bulk load of 150MVA	S/c	25
20	220	Shapuram to propsoed Subbarayanipalli (LIS) 220kv SS	S/c	10
21	220	Shapuram to propsoed Boksampalli SS	D/C	15
22	220	400kv Gani SS (Panyam) to 220kv pooling substations (ps1, ps2, ps3 & ps4)	D/C	32
23	220	Malayala SS to proposed Muchumarri (lis) SS	S/c	13
24	220	400kv Narnoor SS to propsoed Brahmanakothur (LIS)	S/c	18

132kV Lines:

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
1	132	132 kV DC/SC line from 220/132/33 kV Nunna substation to the proposed 132/33 kV Gannavaram substation	15.00
2	132	132kV DC/SC line from 220/132/33 kV Pulivendula Substation to the proposed 132/33 kV Tadimarri Substation	48.00

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
3	132	2 nd circuit on 132kV Anantapur - Kalyandurg DC/SC line	63.00
4	132	132kV DC Line for LILO of 2 nd circuit of 132kV Anantapur - Kalyandurg to the proposed 132kV SS Taticherla	6.00
5	132	132 kV DC/SC line from 132 kV Yemmiganur Substation to proposed 132 kV Mantralayam Substation	23.00
6	132	132kV LILO line from 132 kV Nandyal - Allagadda Circuit -II to the proposed 132/33 kV Rudravaram Substation	13.00
7	132	132/33 KV SS at Peddawaltair (Hybrid GIS) and connected 132 KV DC XLPE UG cable and overhead line from 220/132 KV Dairy Farm SS to proposed SS. (2 X 31.5 MVA PTR) (2.3km-OH, 3.5-Cable)	5.80
8	132	Erection of additional 2.15 Km of 132kV UG Cable from VUDA Park (Loc. No. 18 (old CTT)) to first location after VIMS (Loc. No. 6)	2.15
9	132	132kV DC radial line from 220/132 kV Bobbili SS to the proposed 132/33 kV SS Salur	22.00
10	132	132kV LILO line from 132 kV Garividi - Bobbili Circuit -II to the proposed 132/33 kV Garbham Substation	0.50
11	132	132kV DC/SC radial line from 132 kV Narsannapeta Substation to the proposed 132/33 kV Srikakulam Town Substation	23.00

5.3.1.3 Substations programmed during FY 2017-18 (400kV, 220kV & 132kV).

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Kalikiri	400/220	L

220kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Pydibhimavaram	220/132	L
2	Koruprolu	220/132	L
3	Kakinada sez	220/132	L
4	Duvva	220/132	L
5	Nuziveedu	220/132	L
6	Guntur	220/132	L
7	Malkapuram	220/132	L
8	Repalle	220/132	L
9	Kandukur(prksm)	220/132	L
10	Atmakur	220/132	L
11	Racharlapadu	220/132	L
12	Naidupeta	220/132	L
13	Dharmavaram	220/132	L
14	Adoni	220/132	L

132 kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)
1	Paderu	132/33
2	Mummidivaram	132/33
3	Gollapalem	132/33
4	Narayanapuram	132/33

SN	Name of the Substation	Voltage Ratio (kV/kV)
5	Veldurthy (Uppalapadu)	132/33
6	Anumulapalle	132/33
7	Vinjamur	132/33
8	Kallurupalli	132/33
9	Katrayapadu	132/33
10	Koruturu	132/33
11	Kadivedu	132/33
12	Amarapuram	132/33
13	Mudigubba	132/33
14	Ramasamudram	132/33
15	Pachikapallam	132/33
16	Penumur	132/33
17	Kothapalli(Gudipala)	132/33
18	Pasuparthur	132/33
19	132 kV features at Rajampet 220/33 kV SS	132/33
20	Yerpedu	132/33
21	Chodavaram	132/33
22	Ponnuru	132/33
23	Rapur	132/33
24	33 kV features at Rentachintala 220/132 kV Substation	132/33
25	GIS SS Amaravati	132/33

5.3.1.4 Transmission lines programmed during FY 2017-18 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	400	LILO to proposed Kalikiri 400kV SS from Muddanur-Chittor ckt 1	L	D/C	52
2	400	LILO to proposed Kalikiri 400 kV SS from Muddanur-Chittor ckt 2	L	D/C	52

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	400kv SS Garividi to proposed Pydibhimavaram SS	L	D/C	50
2	220	LLILO to proposed 220kV SS Koruprolu from VSS-Kakinada sc line	L	D/C	20
3	220	LLILO to proposed 220kV SS Koruprolu from Parwada - Samarlakota SC line	L	D/C	32
4	220	Proposed Koruprolu 220kV SS to M/s brighton energy corp.ltd. (BECL) bulk load 140mva at Nakkapalli	L	D/C	20
5	220	Samarlakota (pdp) to proposed 220kv SS Kakinda sez	L	D/C	120
6	220	Kakinda Sez to bulk load m/s. Gail	L	D/C	10
7	220	LILO to proposed 220kv SS Duvva from Vemagiri - Bhimavaram (Undi) ckt-2	L	D/C	4
8	220	LILO to proposed 220kv SS Nuziveedu from VTS - Kamavarapu Kota sc line	L	D/C	24
9	220	220kv Kamavarapu kota to proposed 400kv SS Kamavarapukota	L	D/C	10
10	220	Sattenapalli 400kv SS to proposed	L	D/C	55

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
		Guntur 220kv SS			
11	220	Chilakaluripeta 400kv SS to proposed Guntur SS	L	D/C	60
12	220	Guntur SS to proposed Repalle 220kv SS	L	D/C	120
13	220	Inavolu 400kv SS to proposed 220kv SS Malkapuram	L	D/C	6
14	220	LILO to proposed Malkapuram 220kv SS from VTS-Podili ckt-1	L	D/C	10
15	220	Podili 400kv SS to proposed Kandukur(prksm) 220kv SS	L	D/C	96
16	220	Podili 220kv SS to proposed 400kv SS Podili	L	D/C	20
17	220	LILO to proposed Podili 400kV SS from Purchur- Podili 220kV line ckt 1	L	D/C	10
18	220	LILO to proposed Podili 400kv SS from Purchur- Podili 220kv line ckt2	L	D/C	10
19	220	LILO of Nellore-Podili ckt1 to proposed Atmakur SS	L	D/C	20
20	220	LILO of Nellore-Podili ckt2 to proposed Atmakur SS	L	D/C	20
21	220	LILO of Nellore - Ongole ckt-1 to proposed Racharlapadu 220kv SS	L	D/C	20
22	220	Rachagunneri 400kv SS to proposed Naidupet (Menakuru) 200kv SS	L	D/C	80
23	220	Proposed Kalikiri 400kV SS to proposed Madanapalli SS	L	D/C	80
24	220	LILO of Kalikiri - Chittor sc line to proposed Kalikiri 400kV SS	L	D/C	20
25	220	Proposed Kalikiri 400kv SS to Kalikiri 220kv SS	L	D/C	20
26	220	Thirumalayapalli to propsed	L	D/C	168

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
		Dharamvaram 220kv SS			
27	220	Gooty 400kv SS to proposed Adoni SS	L	D/C	64

132kV Lines:

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
1	132	132 kV DC radial line from 132 kV Araku substation to the proposed 132/33 kV Paderu substation	45.00
2	132	132kV DC radial line from proposed 220kV SS Amalapuram to the proposed 132 kV Mummidivaram substation	15.00
3	132	Erection of 132kV DC Line for making LILO of 132kV Ramachandrapuram – Amalapuram radial line to proposed 132/33 kV Mummidivaram SS	8.00
4	132	Stringing of 2nd circuit on existing 132kV Kakinada – Yanam DC/SC Line	42.00
5	132	Erection of 132kV DC line for making LILO of 2nd circuit of 132kV Kakinada – Yanam line to the proposed 132/33 kV Gollapalem SS	6.00
6	132	132kV LILO line from 132 kV Nidadavolu - Bhimadolu to the proposed 132/33 kV Narayanapuram Substation	2.00
7	132	132kV DC/SC line from Macherla 132 kV SS to the proposed 132/33 kV Veldurthy Substation	21.00
8	132	132kV DC radial line from 132 kV Cumbum Substation to the proposed 132/33 kV Anumalapalle Substation	17.00
9	132	132 kV 2nd circuit stringing on existing 132 kV Cumbum - Giddalur DC/SC line	37.50

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
10	132	132kV DC/SC radial line from proposed 220/132 kV Atmakur Substation to the proposed 132/33 kV Vinjamur Substation	25.00
11	132	132kV DC/SC radial line from 400/220 kV Manubolu Substation to the proposed 132/33 kV Kallurpalli Substation	25.00
12	132	132kV DC radial line from proposed 220/132 kV Atmakur SS to the proposed 132/33 kV SS Katrayapadu	36.00
13	132	132kV DC radial line from proposed 132/33 kV Kallurpalli Substation to the proposed 132/33 kV Koruturu substation	25.00
14	132	132kV DC radial line from 400/220/132kV SS Manubolu to the proposed 132/33 kV Kadivedu substation	25.00
15	132	132kV DC/SC line from Jammalabanda 132 kV Substation to the proposed 132/33 kV Amarapuram Substation	32.00
16	132	2 nd circuit on 132kV DC/SC line from Pulivendula 132/33 kV Substation to the Kadiri 132/33 kV Substation	29.00
17	132	132 kV DC/SC line from 132/33 kV Kadiri substation to the proposed 132/33 kV Mudigubba substation	25.00
18	132	132 kV DC/SC line from 220/132/33 kV Madanapalli substation to the proposed 132/33 kV Ramasamudram substation	30.00
19	132	132kV DC/SC line from Nagari 220/132/33 kV Substation(Under construction) to the proposed 132/33 kV Pachikapallam Substation	40.00
20	132	132kV DC radial line from proposed 132/33kV Pachikapallam to the proposed 132/33 kV Penumur substation	20.00

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
21	132	2nd circuit stringing on 132kV DC/SC Line from 220/132kV SS Nagari to 132kV SS Pachikapallam	40.00
22	132	132 kV DC radial line from 132 kV Noonegundlapalli switching station to the proposed 132/33 kV Kothapalli substation	25.00
23	132	132kV DC radial line from 220/132/33kV SS Palamaneru to the proposed 132/33 kV Pasuparthur substation	25.00
24	132	132kV DC Line with XLPE Cable from proposed Up-gradation of 132/33kV SS Tadepalli to 220/132/33kV SS to proposed 132kV SS AIIMS/Mangalagiri	9.00
25	132	132kV DC Line with XLPE UG Cable from 220/132kV SS Diary Farm to the proposed 132 kV GIS SS at Ozone Valley.	12.00
26	132	33kV 400sqmm 1 core copper XLPE Cable with terminal blocks (for 2 LVs)	2.00
27	132	132kV DC Line with XLPE UG Cable from 220kV Diary Farm to the proposed 132 kV GIS SS at Kapuluppada.	14.00
28	132	33kV 400sqmm 1 core copper XLPE Cable with terminal blocks (for 2 LVs)	2.00
29	132	132kV DC Linr from 400/220/132kV SS Rachagunneri to proposed 132kV SS Yerpedu	5.00
30	132	132 kV DC/SC line from 132/33 kV Kasimkota substation to the proposed 132/33 kV Chodavaram substation	28.00
31	132	132kV DC radial line from proposed 220/132 kV Guntur Substation to the proposed 132/33 kV Ponnuru substation	35.00
32	132	132kV DC radial line from 400/220/132 kV Manubolu Substation to the proposed 132/33	40.00

Sl. No	Voltage Level kV	Transmission line	Length in Ckt KM
		kV Rapur substation	
33	132	stringing of 2nd circuit on 220kV Kamavarapukota – 132kV Chintalapudi DC/SC Line	28.00
34	132	stringing of 2nd circuit on the existing 132kV Chilakaluripeta – 132kV Vinukonda DC/SC Line	52.00
35	132	stringing of 2nd circuit on 132kV Parchur - Chirala line	25.00
36	132	stringing of 2nd circuit from 220kV SS Markapur to 132kV SS Kesinenipally	19.00
37	132	2nd circuit stringing on existing 132 kV Markapur – Cumbum	32.00
38	132	Stringing of 2nd circuit from 132kV SS Medarametla to 132kV SS Kanigiri	74.90
39	132	132kV DC Line for LILO of 2nd circuit of 132kV Medarametla - Kanigiri line to 220kV SS Podili	15.00
40	132	stringing of 2nd circuit on 132kV Narsannapeta – Srikakulam Town DC/SC Line	23.00
41	132	132kV DC Line with XLPE UG Cable from proposed 220/132/33kV SS Amaravati to the proposed 132/33kV SS Amaravati	5.00

5.3.1.5 Substations programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type

1	Kakinada sez	400/220	L
2	Eluru	400/220	L
3	Gudivada	400/220	L
4	Inavolu/thullur	400/220	L
5	Chilakaluripeta	400/220	L
6	Rachagunneri	400/220	L

220kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Achutapuram	220/132	L
2	Amalapuram	220/132	L
3	Eluru	220/132	L
4	Gannavaram	220/132	L
5	Machilipatnam	220/132	L
6	Amaravathi	220/132	L
7	Chilakaluripet	220/132	L
8	Tadepalli	220/132	L
9	Piduguralla	220/132	L
10	Chervi	220/132	L
11	Sambepalli	220/132	L

132kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)
1	AIIMS/Mangalagiri	132/33
2	Ozone Valley	132/33
3	Kapuluppada	132/33

SN	Name of the Substation	Voltage Ratio (kV/kV)
4	Yernagudem	132/33
5	G Chodavaram	132/33
6	Narasapuram	132/33
7	GIS at Moghalrajpuram	132/33
8	Yadavalli	132/33
9	33 KV features at 220 KV Rentachintala SS	132/33
10	V.Kota	132/33
11	C.Orampadu	132/33
12	Kalasapadu	132/33
13	T.Sundupalli	132/33
14	Satellite City	132/33
15	Brahmamgarimattam	132/33
16	33kV features at 132kV Switching station Nagalapuram	132/33
17	33kV features at 220/132/33kV Boksampalli HNSS Substation	132/33
18	Chinnarikatla	132/33
19	East Gangavaram	132/33
20	Jaggampeta	132/33
21	Mylavaram	132/33
22	33kV features at 132KV LIS Madakasira	132/33
23	GIS SS Achampeta	132/33
24	GIS SS Dondapadu	132/33

5.3.1.6 Transmission lines programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	400	LILO to proposed 400kv Kakinada sez from Hinduja TPP to 400kV SS Kamavarapukota ckt1	L	D/C	20
2	400	LILO to proposed 400kv Kakinada sez from Hindujat TPP to 400kv SS Kamavarapukota ckt2	L	D/C	20
3	400	LILO of Vemagiri - Sattenapalli ckt1 to proposed Eluru 400kv SS	L	D/C	20
4	400	LILO of Vemagiri - Sattenapalli ckt2 to proposed Eluru 400kV SS	L	D/C	20
5	400	LILO of VTS Stg-V- Sattenapalli ckt-1 to proposed Inavolu/Thullur 400kV SS	L	D/C	56
6	400	LILO of VTS Stg-V- Sattenapalli ckt-2 to proposed Inavolu/Thullur 400kv SS	L	D/C	56
7	400	Gudivada 400 kV SS to proposed Chilakaluripeta 400 kV SS	L	D/C	206

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	Brandix to proposed 220kv SS Achutapuram	L	D/C	16
2	220	Kakinada to proposed Amalapuram SS	L	D/C	110
3	220	LILO to proposed Amalapuram 220kv SS from Vemagiri - Bhimavaram (Undi) ckt-1	L	D/C	96
4	220	Eluru 400kv SS to proposed 220kv SS Eluru	L	D/C	30
5	220	LILO to proposed Eluru 220kv SS from Bhimadole - Nunna ckt-1	L	D/C	30
6	220	LILO to proposed Eluru 220kv SS from Bhimadole - Nunna ckt-2	L	D/C	30

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
7	220	LILO to proposed 400kv SS Eluru from Bhimavaram -Gudivada ckt-1	L	D/C	50
8	220	LILO to proposed 400kv SS Eluru from Bhimavaram -Gudivada ckt-2	L	D/C	50
9	220	Gudivada 400kv SS to proposed Machilipatnam SS	L	D/C	100
10	220	LILO to 400kv SS Gudivada from Nunna - Gudivda ckt -1	L	D/C	6
11	220	LILO to 400kv SS Gudivada from Nunna - Gudivda ckt-2	L	D/C	6
12	220	Gudivada 220kv SS to proposed 400kv SS Gudivada	L	D/C	10
13	220	LILO to proposed Gannvaram SS from Gudivada 220kv SS- Gudivada 400kV SS ckt-1	L	D/C	80
14	220	LILO to proposed Gannvaram SS from Gudivada 220kv SS- Gudivada 400kv SS ckt-2	L	D/C	80
15	220	LILO to 400kv SS Chilakaluripeta from Sattenapalli 400kv SS to Purchur ckt 1	L	D/C	10
16	220	LILO to 400kv SS Chilakaluripeta from Sattenapalli 400kv SS to Purchur ckt 2	L	D/C	10
17	220	Inavolu 400kv SS to proposed 220kv SS Amaravathi	L	D/C	14
18	220	LILO to proposed 220kv SS Amaravathi from VTS - Tallapalli ckt-2	L	D/C	4
19	220	Chilakaluripeta 400kv SS to proposed 220kv SS Chilakaluripeta	L	D/C	50
20	220	Malkapuram to proposed 220kv Tadepalli SS (xlpe cable)	L	D/C	12
21	220	LILO to proposed Piduguralla 220kv SS from VTS-Tallapalli ckt-3	L	D/C	4
22	220	LILO to proposed Piduguralla 220kv SSs from VTS-Tallapalli ckt-4	L	D/C	4
23	220	Rachagunneri 400kv SS to proposed Cherivi 200kv SS	L	D/C	100

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
24	220	Sullurpet SS to proposed Cherivi 200kv SS	L	D/C	60
25	220	Rachagunneri 400kv SS to M/s Prakash Ferro Industries pvt ltd.(pfil) bulk load of 65mva	L	D/C	20
26	220	Rachagunneri 400kv SS to Scsez Satyaveedu 220/11kv SS bulk load of 150mva	L	D/C	110
27	220	LILO to proposed Gollapuram SS from Pulivendula-Hindupur line ckt 2	L	D/C	20
28	220	LILO to proposed Adoni SS from Gooty-Adoni ckt1	L	D/C	20
29	220	LILO to proposed Adoni SS from Gooty-Adoni ckt-2	L	D/C	20
30	220kv	400kv Kalikiri to 220kv SS Sambepalli	L	D/C	40

132kV lines :

Sl. No	kV	Transmission line	Length in Ckt KM
1	132	Stringing of 2nd circuit on 132kV Uravakonda - Guntakal DC/SC Line	30.00
2	132	LILO of one circuit of 132kV Uravakonda - Guntakal Line to 220kV SS Vajrakarur	6.00
3	132	a) Modification of 132kV Garividi - Palakonda line LILO to 132kV SS Ckilakapalem with M+0 Type Multi-circuit towers & b) Making 132kV Pydibhimavaram - Ponduru line through instead of LILO at 132kV SS Chilakapalem	1.00
4	132	132kV DC line with XLPE UG Cable from 132kV SS Vijayawada to the proposed 132/33 kV GIS SS Moghalrajpuram	6.00
5	132	132kV DC/SC line from tapping point to the proposed 132/33 kV Yernagudem Substation	1.00
6	132	2nd circuit stringing on 132 kV Nidadavolu - KV Kota line from 220kV SS Kamavarapukota to the proposed 132kV SS Yernagudem	38.00

Sl. No	kV	Transmission line	Length in Ckt KM
7	132	132kV DC/SC line from proposed 220/132 kV Pydibhimavaram Substation to the proposed 132/33 kV G.Chodavarm Substation	9.00
8	132	132kV DC radial line from proposed 220/132 kV SS Nuzividu to the proposed 132/33 kV SS Narsapuram	25.00
9	132	132kV DC radial line(UG Cable) from 220/132 kV Gunadala Substation to the proposed 132/33 kV GIS substation Moghalrajpuram	8.00
10	132	33kV 400sqmm 1 core copper XLPE Cable with terminal blocks (for 2 LVs)	2.00
11	132	2 nd circuit on 132kV DC/SC line from Parchur 220/132 kV Substation to the Martur 132/33 kV Substation	19.28
12	132	132 kV DC/SC line from 132/33 kV Martur substation to the proposed 132/33 kV Yadavalli substation	18.00
13	132	132kV DC/SC line from 220/132/33 kV Palamaneru Substation to the proposed 132/33 kV V.Kota Substation	42.00
14	132	132 kV DC/SC line from 220/132 kV Rajampet substation to the proposed 132/33 kV C. Orampadu substation	22.00
15	132	132kV DC radial line from proposed 220/132kV Porumamilla to the proposed 132/33 kV Kalasapadu substation	36.00
16	132	132kV DC radial line from 132/33kV SS Rayachoti to the proposed 132/33kV SS T. Sundupalli	20.00
17	132	132kV DC radial line from 220/132kV SS Chinakampalli to the proposed 132/33kV SS Satellite city	30.00
18	132	132kV DC radial line from proposed 220/132kV SS Porumamilla to the proposed 132/33kV SS Brahmamgarimattam	15.00
19	132	132kV DC Radial line from 220/132kV SS Podili to proposed 132kV SS Chinnarikatla	26.00
20	132	132kV DC radial line from 220/132kV SS Podili to the proposed 132/33kV SS at East Gangavaram	21.00

Sl. No	kV	Transmission line	Length in Ckt KM
21	132	132kV DC radial line from 220/132kV SS Samarlakota to the proposed 132/33kV SS at Jaggampet	20.00
22	132	132kV DC radial line from 220/132kV SS Kondapalli to the proposed 132/33kV SS at Mylavaram	25.00
23	132	Stringing of 2nd circuit from 220kV SS Gollapuram to 132kV SS Lepakshi	15.00
24	132	132kV DC line from 132kV SS Lepakshi to the proposed 132kV SS Palasamudram	20.00
25	132	132kV DC Line with XLPE UG Cable from proposed 220/132/33kV SS Amaravati to the proposed 132/33kV SS Achampeta	32.00
26	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Amaravati to the proposed 132/33kV SS Dondapadu	15.00
27	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Malkapuram to the proposed 132/33kV SS Dondapadu	11.00

5.3.2 Transmission Plan Programmed for Generation Evacuation.

5.3.2.1 Substations programmed during FY 2016-17 (400kV, 220kV & 132kV).

400kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)
1	Kamavarapukota	400/220
2	Jammalmadugu	400/220
3	Uravakonda	400/220
4	Gani (panyam)	400/220

220kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)
1	Tirumalaipally	220/132
2	Chakrayapet	220/132
3	Porumamilla	220/132
4	Jammalamadugu	220/132
5	Borampalli	220/132

5.3.2.2 Transmission Lines programmed during FY 2016-17 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ckt type	Line length (cktkm)
1	400	Hinduja TPP to proposed Kamavarapukota 400kv SS	D/C	488
2	400	Kamavarapukota to border point(Suryapet)	D/C	180
3	400	RTPP(Muddanur) stg iv 400kv to Chittor 400kv SS	D/C	506
4	400	Proposed Jammalmadugu to proposed Uravakonda	D/C	256
5	400	Proposed Jammalmadugu to Kurnool SS ckts 1&2	D/C	240
6	400	LILO to proposed Gani (Panyam) 400kv SS from Jammalmadugu to Kurnool 400kv SS ckt1	D/C	40
7	400	LILO to proposed Gani (Panyam) 400kv SS from Jammalmadugu to Kurnool 400kv SS ckt2	D/C	40
8	400	Proposed Uravakonda to Veltur (M.B.Nagar)	D/C	248
9	400	LILO to proposed N.P.Kunta 400kv SS from Chinakampalli - Hindupur ckt-1	D/C	60
10	400	LILO to proposed N.P.Kunta 400kv SS from Chinakampalli -Hindupur ckt-2	D/C	60

Sn	Kv	Transmission line	Ckt type	Line length (cktkm)
11	400	Krishnapatnam to Chittor	D/C	374

220kV Lines:

Sn	Kv	Transmission line	Ckt type	Line length (cktkm)
1	220	Proposed Jjammalmadugu 400kv SS to proposed Tirumalaipally SS	D/C	34
2	220	Proposed Jammalmadugu 400kv SS to proposed Chakrayapet SS	D/C	140
3	220	Proposed Jammalmadugu 400kv SS to proposed Porumamilla SS	D/C	150
4	220	Proposed Jammalmadugu 400kv SS to proposed Jjammalamadugu 220kv SS	D/C	20
5	220	Proposed Uravakonda 400kv SS to proposed Borampalli SS	D/C	110
6	220	Proposed Uravakonda 400kv SS to proposed Borampalli SS	D/C	110
7	220	Uravakonda 400kv SS to proposed Vajrakarur 220kv SS	D/C	32

5.3.2.3 Substations programmed during FY 2017-18 (400kV, 220kV & 132kV).

400kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Hindupur	400/220	G

220kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Betamcherla	220/132	G

2	Pampanur thanda	220/132	G

5.3.2.4 Transmission lines programmed during FY 2017-18 (400kV, 220kV & 132kV).

400kV Lines:

S N	KV	TRANSMISSION LINE	IC	Ckt Type	Line Length (Cktkm)
1	400	VTPS Stg V TO Sattenapalli 400KV SS	G	D/C	120
2	400	Proposed Hindupur to proposed Uravakonda	G	D/C	260

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	Proposed Jjammalmadugu 400kv SS to proposed Betamcherla SS	G	D/C	136
2	220	Uravakonda 400kv SS to proposed Pampanur thanda SS	G	D/C	140
3	220	Uravakonda 400kv SS to proposed Pampanur thanda SS	G	D/C	140
4	220	Proposed Hindupur 400kv SS to Hindupur 220kv SS	G	D/C	40

5.3.2.5 Substations programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Substations:

Sn	Name of the substation	Voltage ratio (kv/kv)	Type
1	Mylavaram	400/220	G
2	Uravakonda-2	400/220	G

3	Talaricheruvu	400/220	G
4	Aspiri	400/220	G

220kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
1	Penugonda	220/132	G

5.3.2.6 Transmission lines programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	400	Polavaram HEPS to Kamavarapukota 400kv SS	G	D/C	170
2	400	Proposed Jammalmadugu to Kurnool SS ckts 3&4	G	D/C	240
3	400	Jammalmadugu to proposed Mylavaram 400kv SS	G	D/C	20
4	400	LILO to proposed Talaricheruvu 400kv SS from Uuravakonda - Jammalamadugu ckt-1	G	D/C	2
5	400	LILO to proposed Talaricheruvu 400kv SS from Uravakonda - Jammalamadugu ckt-2	G	D/C	2
6	400	Kurnool to proposed Aspiri 400kv SS	G	D/C	160
7	400	Uravakonda to proposed Uravakonda -2 400kv SS	G	D/C	50

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	Hindupur 400kv SS to proposed Penugonda 220kv SS(wind)	G	D/C	100

5.3.3 Transmission Plan Programmed for System Improvement.

5.3.3.1 Substations programmed during FY 2016-17 (400kV, 220kV & 132kV).

400kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
	Nil		

220kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
	Nil		

5.3.3.2 Transmission lines programmed during FY 2016-17(400kV, 220kV & 132kV).

400kV Lines:

SN	KV	TRANSMISSION LINE	IC	Ckt Type	Line Length (Cktkm)
Nil					

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	LILO to proposed 400kv SS Kamavarapukota from VTS - Kamavarapu kota sc line	S	D/C	16
2	220	Pulivendula to Hindupur	S	D/C	252
3	220	Borampali 220kv SS to Kalyandurg 220kv SS	S	D/C	30

5.3.3.3 Substations programmed during FY 2017-18 (400kV, 220kV & 132kV).

400kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
1	Podili	400/220	S

220kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
	Nil		

5.3.3.4 Transmission lines programmed during FY 2017-18 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	400	Vemagiri to proposed 400kv SS Kamavarapukota	S	D/C	200
2	400	Sattenapalli to proposed Podili 400kv SS	S	D/C	220

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	Bhimadole to Nunna 2nd ckt stringing	S	S/c	86

5.3.3.5 Substations programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
	Nil		

220kV Substations:

SN	Name of the Substation	Voltage Ratio (kV/kV)	Type
	Nil		

5.3.3.6 Transmission lines programmed during FY 2018-19 (400kV, 220kV & 132kV).

400kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	400	Eluru 400 kv SS to Gudivada 400 kv SS	S	D/C	80
2	400	LILO to proposed Rachagunneri 400kv SS from Krishnapatnam - Chittor ckt1	S	D/C	180
3	400	LILO to proposed Rachagunneri 400kv SS from Krishnapatnam - Chittor ckt2	S	D/C	180

220kV Lines:

Sn	Kv	Transmission line	Ic	Ckt type	Line length (cktkm)
1	220	Ananthapur to Kalyandurg 2nd ckt stringing	S	S/c	61

5.4 Details of Transmission Expansion Plan for LONG Term i.e. FY 2020 to 2024.

5.4.1 400kV, 220kV & 132kV Substations programmed during FY 2020-24

Sl.no	Name of the substation	Voltage ratio (kv/kv)	Target year of Commissioning

Sl.no	Name of the substation	Voltage ratio (kv/kv)	Target year of Commissioning
1	Koruprolu	400/220	2020-21
2	Nellore pooling station(ap)	400/220	2020-21
3	Nidadavolu 400kv SS	400/220	2020-21
4	Tekkali 400kv SS	400/220	2021-22
5	Kanaganapalli	400/220	2022-23
6	Achutapuram	400/220	2023-24
Sl.no	**220kV**		
1	Kanigiri	220/132	2019-20
2	Vizianagaram	220/132	2019-20
3	Kavali	220/132	2020-21
4	Bapatla	220/132	2020-21
5	Prattipadu	220/132	2021-22
6	Palakonda	220/132	2021-22
7	Dhone 132kv features	220/132	2021-22
8	Anandapuram	220/132	2021-22
9	Editha	220/132	2022-23
10	Tanuku	220/132	2022-23
11	Nagarjuna university	220/132	2022-23
12	Banaganapalli	220/132	2023-24
13	Gunadala extn	220/132	2023-24
14	Gurramkonda	220/132	2023-24
15	Podalakuru	220/132	2023-24
16	sarvepalli	220/132	2023-24

Sl.no	Name of the substation	Voltage ratio (kv/kv)	Target year of Commissioning
17	Simhachalam	220/132	2023-24
18	Upgradation of 220kv anrak switching station to substation	220/132	2023-24
19	Commom point	220/132	2023-24

132kV Substations programmed during FY 2020-24

Sl. No	District Name	Name of the Substation	Target Year of Commissioning
1	Anantapur	Palasamudram	2019-20
2	Krishna	Bantumilli	2019-20
3	Chittoor	Mangalam	2019-20
4	Nellore	Gottiprolu	2019-20
5	Guntur	GIS SS Peddaparimi	2019-20
6	Guntur	GIS SS Navvuluru	2019-20
7	East Godavari	Vepakayaladibba	2019-20
8	West Godavari	Akiveedu	2019-20
9	Visakhapatnam	APMTZ, Nadupuru	2019-20
10	Vizianagaram	Alamanda	2019-20
11	West Godavari	Vatluru/Hanuman Junction	2019-20
12	West Godavari	TR Palem/Gunnampalli	2019-20
13	West Godavari	AttiliI (Pippara)	2019-20
14	West Godavari	Palakollu	2019-20
15	West Godavari	Dharmajigudem	2019-20
16	Srikakulam	Veeraghattam	2019-20
17	Srikakulam	Sarubujjili (Amadalavalasa)	2019-20

Sl. No	District Name	Name of the Substation	Target Year of Commissioning
18	Kurnool	33kV features at Nansuralla LIS SS	2019-20
19	Guntur	GIS SS Uddadrayanipalem	2020-21
20	Guntur	GIS SS Krishnayanipalem	2020-21
21	East Godavari	Annavaram	2020-21
22	Prakasam	Chinnaganjam	2020-21
23	Krishna	Gunadala	2020-21
24	Krishna	Mukthyala	2020-21
25	Krishna	Gampalagudem	2020-21
26	Krishna	Vuyyuru	2020-21
27	Prakasam	Kothapatnam	2020-21
28	Prakasam	Pallamalli	2020-21
29	Prakasam	Singarayakonda	2020-21
30	Prakasam	Mekalavaripalli	2020-21
31	Prakasam	Ulavapadu	2020-21
32	Prakasam	Pullalacheruvu	2020-21
33	Prakasam	Komarole	2020-21
34	Prakasam	Elchuru (V), Santhamaguluru (M)	2020-21
35	Prakasam	Siddannapalem (V), Pullalacheruvu (M)	2020-21
36	Kurnool	Near Ayyaluri Metta (Nandyal)	2020-21
37	Chittoor	Kakalamitta	2020-21
38	Chittoor	Gudipadu	2020-21
39	Chittoor	Vijalapuram	2020-21
40	Kurnool	Gondiparla(E.Thandrapadu)	2020-21

Sl. No	District Name	Name of the Substation	Target Year of Commissioning
41	Srikakulam	Sompeta	2020-21
42	Srikakulam	Hiramandalam	2020-21
43	Krishna	Kabela	2020-21
44	Vizianagaram	Chipurupalli	2020-21
45	Vizianagaram	Nellimarla	2020-21
46	Vizianagaram	GajapathiNagaram	2020-21
47	Guntur	Nekarikallu	2020-21
48	Kurnool	Kosgi	2020-21
49	Krishna	Devanakonda	2021-22
50	Krishna	Kalluru	2021-22
51	Chittoor	Gandhipuram	2021-22
52	Kurnool	Gajulapalli	2021-22
53	Anantapur	Kuderu	2021-22
54	Guntur	Bhattiprolu	2021-22
55	Guntur	Bellamkonda	2021-22
56	Kurnool	33kV features at Krishnagiri LIS SS	2021-22
57	Chittoor	Satyavedu	2021-22
58	Chittoor	Poothalapattu	2021-22
59	Chittoor	BN Kandriga	2021-22
60	Prakasam	Kaligiri	2021-22
61	Prakasam	Veligandla	2021-22
62	Prakasam	Ponnaluru	2021-22
63	Krishna	Penamaluru	2021-22
64	Krishna	Kankipadu	2021-22
65	Krishna	Challapalle	2021-22
66	Srikakulam	Gara	2021-22

Sl. No	District Name	Name of the Substation	Target Year of Commissioning
67	Srikakulam	Polaki	2021-22
68	Srikakulam	Vajrapukothuru	2021-22
69	Vizianagaram	Pusapathirega	2022-23
70	Vizianagaram	Kurupam	2022-23
71	Vizianagaram	Mentada	2022-23
72	Nellore	Duttalur	2022-23
73	Nellore	Buchireddypalem	2022-23
74	Nellore	Somasila	2022-23
75	Nellore	Dakkili	2022-23
76	Nellore	Jonnawada	2022-23
77	Nellore	Vidavaluru	2022-23
78	Visakhapatnam	Madugula	2022-23
79	Visakhapatnam	Sabbavaram	2022-23
80	Visakhapatnam	Nathavaram	2022-23
81	West Godavari	Unguturu	2022-23
82	West Godavari	Undrajavaram	2022-23
83	West Godavari	Veeravasarevu	2022-23
84	Guntur	Peddakakani	2022-23
85	Guntur	Gurazala	2022-23
86	Guntur	Edlapadu	2022-23
87	YSR Kadapa	Galiveedu	2022-23
88	YSR Kadapa	Nandaluru	2022-23
89	YSR Kadapa	Pullampeta	2022-23
90	YSR Kadapa	Lakkireddipalle	2022-23
91	Kurnool	Jupadu	2023-24
92	Kurnool	Miduthur	2023-24

Sl. No	District Name	Name of the Substation	Target Year of Commissioning
93	Kurnool	Chagalamarri	2023-24
94	Nellore	Mallam	2023-24
95	Nellore	Varagali	2023-24
96	Vizianagaram	Govada	2023-24
97	Visakhapatnam	K.Kotapadu	2023-24
98	Visakhapatnam	Vaddadhi	2023-24
99	Visakhapatnam	Bhimili	2023-24
100	Visakhapatnam	Rambili (Lalam Koduru)	2023-24
101	Visakhapatnam	NSTL	2023-24
102	Visakhapatnam	Auto Nagar	2023-24
103	Visakhapatnam	East Point Colony	2023-24
104	East Godavari	Hamsavaram	2023-24
105	East Godavari	Panasapadu, Kakinada rural	2023-24
106	East Godavari	Teki	2023-24
107	East Godavari	Uppalaguptam	2023-24
108	East Godavari	Mamidikuduru	2023-24
109	East Godavari	Gokavaram	2023-24
110	East Godavari	Dwarapudi or Mukkinada	2023-24
111	East Godavari	Atreyapuram	2023-24
112	East Godavari	Addathigala	2023-24

5.4.2 400kV lines Programmed during FY 2020-24:

Sl.no	Voltage level kV	Transmission line	Ckt type	Line length (cktkm)	Target year of Commissioning
1	400kv	Proposed Pudimadaka 765/400kv to proposed Koruprolu (Pudimadaka) 400kv	D/C	90	2020-21

Sl.no	Voltage level kV	Transmission line	Ckt type	Line length (cktkm)	Target year of Commissioning
		SS			
2	400kv	Polavaram hep to proposed Nidadavolu 400kv SS	D/C	4	2020-21
3	400kv	Nellore pooling station PGCIL to proposed Nellore pooling station ap	D/C	20	2020-21
4	400kv	Polaki 765/400kv SS to Tekkali 400/220kv SS	D/C	60	2020-21
5	400kv	Polaki 765/400kv SS to Garividi 400/220kv SS	D/C	180	2021-22
6	400kv	Palasa 765/400kv SS(PGCIL) to Tekkali 400/220kv SS	D/C	120	2021-22
7	400kv	Kalapaka 400kv SS to Koruprolu 400kvSS	D/C	70	2021-22
8	400kv	Itchapuram coal plant gen 400kv to proposed Tekkali 400kv SS	D/C	140	2021-22
9	400kv	LILO of 400kv Uravakonda to Jammalamadugu line to proposed Kanaganapalli 400kv SS	D/C	232	2021-22
10	400kv	Eastcoast TPP(gen) to proposed Garividi 400kv SS	D/C	400	2022-23
11	400kv	Pudimadaka tps to K.V Kota 400kv SS	D/C	440	2023-24
220kV lines Programmed during FY 2020-24:					
12	220kv	Proposed Podili 400kv SS to proposed Kanigiri(Prksm) 220kv SS	D/C	60	2019-20
13	220kv	LILO of VTS-Tallapalli ckt2 to proposed Tadepalli 220kv SS	D/C	20	2020-21
14	220kv	Manubolu 400kv SS to proposed Kavali 220kv SS	D/C	180	2020-21
15	220kv	Koruprolu 400kv SS to proposed Prattipadu 220kv SS	D/C	70	2021-22

Sl.no	Voltage level kV	Transmission line	Ckt type	Line length (cktkm)	Target year of Commissioning
16	220kv	Bobbili to proposed Palakonda SS	D/C	75	2021-22
17	220kv	Tekkali 400kv SS to proposed Palakonda SS	D/C	75	2021-22
18	220kv	Vemagiri 400kv SS to proposed Editha 220kv SS	D/C	40	2022-23
19	220kv	Nidadavolu 400kv SS to proposed Tanuku 220kv SS	D/C	60	2022-23
20	220kv	Sattenapalli 400kv SS to proposed Piduguralla SS	D/C	50	2022-23
21	220kv	Garividi 400kv SS to proposed Vizianagaram 220kv SS	D/C	85	2023-24
22	220kv	Panyam (Gani) 400kv SS to proposed Banaganapalli 220kv SS	D/C	40	2023-24
23	220kv	Gunadala 220kv SS to proposed Gunadala extn 220kv	D/C	10	2023-24
24	220kv	Chilakaluripeta 400kv SS to proposed Bapatla SS	D/C	80	2023-24
25	220kv	220kv Diary Farm to proposed 220kv NSTL	D/C	45	2023-24
26	220kv	400kv Kalikiri to 220kv SS Gurramkonda	D/C	40	2023-24
27	220kv	220kv SS Nellore to 220kv SS Podalakuru	D/C	40	2023-24
28	220kv	400kv Manubolu to 220kv SS Sarvepalli	D/C	25	2023-24
29	220kv	Kalpaka - Brandix ckt 1 LILO to Simhachalam	D/C	5	2023-24
30	220kv	220kv Diary farm to proposed 220kv Anandapuram	D/C	15	2023-24
31	220kv	220kv Gajuwaka to common point	D/C	10	2023-24

132kV Lines programmed during FY 2020-24

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
1	132	Stringing of 2nd circuit on existing 132kV DC/SC Line from 220/132kV SS Gudivada to 132kV SS Chigurukota	23.00	2019-20
2	132	132kV DC line from 132kV SS Chigurukota to the proposed 132/33kV SS Bantumilli	18.00	
3	132	132kV DC line from 220/132kV SS Rachagunneri to the proposed 132/33kV SS Mangalam	30.00	2019-20
4	132	132kV DC line from proposed 220/132kV SS Naidupet to the proposed 132/33kV SS Gottiprolu	30.00	2019-20
5	132	132kV LILO of existing 132kV Kanumolu - Pamarru at proposed 400/220/132kV SS Gudiwada	4.00	2019-20
6	132	132kV LILO of existing 132kV Chilakaluripet - Nallapadu at proposed 220/132kV SS Chilakaluripet	10.50	2019-20
7	132	132kV LILO of existing 132kV Chilakaluripet - Marripalem at proposed 220/132kV SS Chilakaluripet	10.50	2019-20
8	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Amaravati to the proposed 132/33kV SS Peddaparimi	19.00	2019-20
9	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Malkapuram to the proposed 132/33kV SS Navuluru	12.00	2019-20
10	132	132kV DC/SC Line with XLPE UG Cable from proposed 132/33kV SS Peddaparimi to the proposed 132/33kV SS Navuluru	16.00	2019-20
11	132	132kV DC/SC Line from 220/132kV SS Brandix to the proposed 132/33kV	30.00	2019-20

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
		Substation APMTZ		
12	132	132kV DC Line by making LILO of 132kV Gajuwaka – Parawada line at proposed 132kV SS APMTZ	3.00	2019-20
13	132	220kV SS Bommur to 132kV SS Vepakayaladibba	7.00	2019-20
14	132	220kV SS Undi to 132kV SS Akiveedu	15.00	2019-20
15	132	220kV SS Kamavarapukota to 132kV SS Dharmajigudem	25.00	2019-20
16	132	220kV SS Undi to 132kV SS Attili	25	2019-20
17	132	132kV SS Razole to 132kV SS Palakollu	20	2019-20
18	132	132kV SS Rajam to 132kV SS Veeraghattam	35	2019-20
19	132	132kV SS Palakonda to 132kV SS Sarubujjili	20	2019-20
20	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Malkapuram to the proposed 132/33kV SS Uddandrayanipalem	3.00	2020-21
21	132	132kV DC/SC Line with XLPE UG Cable from proposed 132/33kV SS Dondapadu to the proposed 132/33kV SS Uddandrayanipalem	7.00	2020-21
22	132	132kV DC/SC Line with XLPE UG Cable from proposed 220/132/33kV SS Malkapuram to the proposed 132/33kV SS Krishnayanipalem	6.00	2020-21
23	132	132kV DC/SC Line with XLPE UG Cable from proposed 132/33kV SS Navuluru to the proposed 132/33kV SS Krishnayanipalem	3.00	2020-21

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
24	132	132kV SS Pithapuram to 132kV SS Annavaram	30	2020-21
25	132	220kV SS Garividi to 132kV SS Nelimarla	30	2020-21
26	132	220kV SS Kondapalli to 132kV SS Kabela	25	2020-21
27	132	132kV SS Palasa to 132kV SS Sompeta	35	2020-21
28	132	220kV SS Garividi to 132kV SS Chipurupalli	10	2020-21
29	132	132kV TB Vara - 220kV Garividi LILO to Gajapathinagaram	36	2020-21
30	132	220kV SS Kandukur to 132kV SS Singarayakonda	30	2020-21
31	132	Proposed 132kV SS Chinnarikatla to 132kV SS Mekalavaripalli	25	2020-21
32	132	220kV SS Ongole to 132kV SS Kothapatnam	30	2020-21
33	132	proposed 132kV SS Kalasapadu to 132kV SS Komarole	30	2020-21
34	132	220kV SS Gunadala to 132kV SS Gunadala	25	2020-21
35	132	220kV SS Chillakallu to 132kV SS Mukthyala	30	2020-21
36	132	From LILO of 132kV Kondapalli-Nuzividu line to 132kV SS Gampalagudem	40	2020-21
37	132	132kV SS Irala to 132kV SS Kakalamitta	20	2020-21

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
38	132	132kV SS Shanthipuram to 132kV SS Vijalapuram	25	2020-21
39	132	132kV Renigunta-Chandragiri line LILO to 132kV SS Gandhipuram	5	2021-22
40	132	132kV SS Kesinenipalli to 132kV SS Pullalacheruvu	35	2021-22
41	132	132kV Nandyala-Allagadda LILO to 132kV SS Gajulapalli	20	2021-22
42	132	220kV SS Cherivi to 132kV SS Satyavedu	24	2021-22
43	132	132kV SS Penumur to 132kV SS Poothalapattu	20	2021-22
44	132	220kV SS Atmakuru to 132kV SS Kaligiri	30	2021-22
45	132	132kV SS Repalle to Bhattiprolu	17	2021-22
46	132	132kV SS Piduguralla to Bellamkonda	19	2021-22
47	132	132kV SS Kanigiri to Veligandla	26	2021-22
48	132	220kV SS Kandukuru to Ponnaluru	20	2021-22
49	132	220kV SS Rachagunneri to BN Kandriga	25	2021-22
50	132	132kV SS Vinjamuru to 132kV SS Duttaluru	30	2022-23
51	132	132kV SS NTS to 132kV SS Buchireddypalem	10	2022-23

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
52	132	132kV SS Rapur to 132kV SS Somasila	25	2022-23
53	132	132kV SS Rapur to 132kV SS Dakkili	30	2022-23
54	132	132kV Nellore - Atmakuru LILO to 132kV SS Jonnawada	5	2022-23
55	132	220kV SS Racharlapadu to 132kV SS Vidavalur	15	2022-23
56	132	220kV SS Meenakuru to 132kV SS Mallam	40	2023-24
57	132	220kV SS Manubolu to 132kV SS Varagali	20	2023-24
58	132	132kV SS Chodavaram to 132kV SS K.Kotapadu	10	2023-24
59	132	Kasimkota - Pendurthy LILO to Govada	15	2023-24
60	132	Anrak SS to 132kV SS Vaddadhi	20	2023-24
61	132	132kV SS Kapuluppada to 132kV SS Bhimili	15	2023-24
62	132	Brandix to 132kV SS Rambili	15	2023-24
63	132	Dairy Farm to 132kV SS NSTL	10	2023-24
64	132	Gajuwaka to 132kV SS Auto nagar	10	2023-24
65	132	Peddawaltair to East Point colony	5	2023-24

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
66	132	Proposed 220kV SEZ SS to Hamsavaram	25	2023-24
67	132	Proposed 220kV SS Gollaprolu to Hamsavaram	30	2023-24
68	132	Proposed 220kV SS Prathipadu to Hamsavaram	40	2023-24
69	132	LILO of 132kV Kakinada - Peddapuram line to Panasapadu	2	2023-24
70	132	Proposed 220kV Ramachandrapuram to Teki	15	2023-24
71	132	Proposed 132kV SS Mummidivaram to Uppalaguptam	15	2023-24
72	132	LILO of 132kV Amalapuram-Razolu line to Mamidikuduru	3	2023-24
73	132	Proposed 220kV SS Korukonda to Gokavaram	10	2023-24
74	132	132kV SS Biccavolu to Dwarapudi or Mukkinada	12	2023-24
75	132	Proposed 220kV Ramachandrapuram to Dwarapudi or Mukkinada	20	2023-24
76	132	220kV SS Nidadavolu to Atreyapuram	20	2023-24
77	132	132kV LILO of Bommuru-Nidadavolu to Atreyapuram	15	2023-24
78	132	Proposed 132kV SS Gokavaram to Addathigala	35	2023-24
79	132	Proposed 132kV SS Jaggampeta to Addathigala	40	2023-24

Sl. No	Voltage Level kV	Name of Transmission line	Length in Ckt KM	Target year of Commissioning
80	132	132kV SS Palakonda to Hiramandalam	23	2023-24