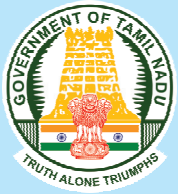


ENERGY DEPARTMENT

POLICY NOTE
2021 - 2022

DEMAND No. 14

V SENTHILBALAJI
Minister for Electricity, Prohibition and Excise

INDEX

VISION

It is prime objective of the government to ensure uninterrupted power supply to all categories of electricity consumers in the State. TANGEDCO and TANTRANSCO are facing a severe financial crisis. A detailed study about the finance and administrative structure of both the organisations will be undertaken. The State's own installed capacity will be improved though speedy completion of delayed projects and capacity addition in renewable energy. Renewed emphasis will be placed on saving of energy and reduction of distribution losses by the use of modern technology and improvement in distribution infrastructure.

The huge financial losses of TANGEDCO have made its operation unsustainable. A strategic study for financial turnaround and administrative restructuring of TANGEDCO and TANTRANSCO will be taken up under the ADB assisted Chennai –

Kanyakumari Industrial corridor (CKIC) Power Sector Investment Project funds. The Government will act speedily on the findings of the study to save the electrical utilities from impending collapse.

The installed generation capacity of TANGEDCO's own Thermal Power plants is only 4,320 MW, of which 12 units with installed generation capacity of 2,520 MW are more than 25 years old and may need to be replaced soon. This Government is determined not only to ensure that the State is assured of adequate availability of power, but also to ensure that the State does not suffer any shortage of power even in long run. This will be achieved by addition of adequate green power to its installed generating capacity.

All efforts are being taken to maintain 24x7 uninterrupted power supply in the State. In addition to ensuring reliable power supply to the consumers, "Minnagam" a New State Level

Centralized Customer Care Centre has been launched wherein the consumers can register all complaints related to Power supply.

In order to rectify frequent interruptions of power supply in some part of the State, Mass Maintenance Program was taken up throughout the State from 19.06.2021 to 28.06.2021 for 10 days. Maintenance works causing obstructions to uninterrupted power supply like clearance of Tree branches, Replacement of damaged poles, Rectification of leaned poles, Insertion of poles to rectify the low-sag of conductors, Replacement of Pillar boxes and Sub Station Maintenance were carried out.

In order to provide reliable, sustainable and affordable power supply to all the consumers in the State, this Government has prepared a long term plan. It is proposed to increase the generation capacity by not only taking action for completion of ongoing thermal projects on war

footing but also by increasing the generation capacity from green resources of energy such as solar and wind. As per the principles of the climate change agenda all efforts will be taken to increase the share of Renewable Energy (RE) in the total energy mix of the State by resolving all the challenges including difficulties related to its integration to the Electricity Grid.

ENERGY DEPARTMENT

Electricity is essential for all areas of our life and is one of the most critical input source for economic development and also one of the key drivers for poverty alleviation as well. In order to meet the increasing demand of electricity, expansion of the transmission and distribution network is necessary, besides increasing the power generation capacity.

In order to provide quality power supply to all the sectors in the State, all steps are being taken to improve the efficiency of transmission and distribution system and to add new power projects to grid, besides enhancing performance of the existing thermal power plants.

The following organizations are under the administrative control of Energy Department:

I. Tamil Nadu Electricity Board which has been re-organized as,

   TNEB Limited (Holding company) with the following subsidiary companies

   a) Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and
   b) Tamil Nadu Transmission Corporation Limited (TANTRANSCO)

II. Tamil Nadu Energy Development Agency (TEDA)

III. Chief Electrical Inspectorate to Government (CEIG)

IV. Tamil Nadu Power Finance and Infrastructure Development Corporation Limited (TNPFC)

TNEB Limited

வாரி பெருக்கி வளம்படுத்து உற்றவை
ஆராய்வான் செய்க வினை. (512)

The one who has the ability to act is the one who can expand the avenues of income, multiply resources, explore and remove obstacles.

1.1 Introduction

As per the Electricity (Supply) Act, 1948 (Central Act 54 of 1948), Tamil Nadu Electricity Board was formed, which has been restructured as per Electricity Act 2003 (Central Act 36 of 2003) into TNEB Limited (holding company) and two subsidiary companies namely Tamil Nadu Generation and Distribution Corporation Limited and Tamil Nadu Transmission Corporation Limited. The main objective of Tamil Nadu Generation and Distribution Corporation Limited and Tamil Nadu Transmission Corporation Limited is to extend

quality supply of electricity to the consumers by efficient management of Generation, Transmission and Distribution.

The average power demand of Tamil Nadu is around 15,000 MW and the summer peak demand is around 17,000 MW. The State's maximum demand of 16,846 MW was reached on 10.4.2021. The average daily State's consumption was 290-300 million units during 2020-21. Further, maximum daily consumption of 372.702 million units was reached on 09.04.2021.

Review Meeting of Energy Department Chaired by Hon'ble Chief Minister of Tamil Nadu

Hon'ble Chief Minister of Tamil Nadu reviewed the activities of Energy Department in Secretariat on 22.07.2021

1.2 Generation

1.2.1 Installed capacity as on 01.04.2021

Sl. No	Generation category	Capacity (MW)	Percentage in total installed capacity
I	**Conventional Energy sources**		
1.	Thermal Power Stations	4,320.00	13
2.	Gas Turbine Power Stations	516.08	2
	Total State Owned Thermal and Gas	4,836.08	
3.	Central Generating Stations (CGS) Share	6,558.00	20
4.	Private Power purchases		
	Independent Power Projects (IPP)	633.30	2
	Long Term Open Access (LTOA)	2,830.00	9
	Medium Term Open Access (MTOA)	550.00	2
	Total Private power purchases	4,013.30	
5.	Captive Power Projects *	812.09	2
Total Conventional energy sources and		**16,219.47**	**50**

Power Purchases			
II	**Renewable Energy Sources**		
1.	State Owned Hydro Stations		
	Non-Irrigation Hydro Power stations	1,030.65	
	Pumped Storage Power stations	400.00	
	Irrigation based Hydro Power Stations	891.25	
	Total State-Owned Hydro Power Stations	2,321.90	7
2.	Wind**	8,565.90	26
3.	Solar	4,511.30	14
4.	Bio-mass – combustion	265.59	1
5.	Co-Generation (Bagasse)	710.90	2
Total Renewable Energy Sources		**16,375.59**	**50**
	Grand Total	**32,595.06**	**100**

* Open access quantum approved to the Fossil fuel-based Captive/Third party generators for wheeling power through TANTRANSCO network to the Extra High Tension/High Tension consumers of TANGEDCO

** Excluding Wind Farm Generators (WEGs) connected to Central Transmission Utility (CTU) as on 01.04.2021, WEGs connected to Central Transmission Utility (CTU) network - 1,011.19 MW

1.2.2 Tamil Nadu Generation and Distribution Corporation Ltd. owned Power Stations

a) Thermal Power Station

In thermal power stations, Coal is used as main fuel and oil as secondary fuel. TANGEDCO currently owns 5 nos. of Thermal Power Stations viz., Mettur Thermal Power Station-I, North Chennai Thermal Power Station-I, Tuticorin Thermal Power Station, Mettur Thermal Power Station-II & North Chennai Thermal Power Station-II with total generation capacity of 4,320 MW. As 210 MW units of MTPS-I, NCTPS-I and TTPS are aged between 25 to 40 years, in order to improve the performance of the Thermal Power Stations, Renovation & Modernization works are being carried out in a phased manner. Efforts are being taken to run the plants owned by TANGEDCO to its full capacity by minimizing outages.

North Chennai Thermal Power Station – I (3 X 210 MW)

North Chennai Thermal Power Station – I located in Thiruvallur District is having three units of 210 MW with total installed capacity of 630 MW. The generation capacity of the above Power Station is depreciating continuously.

Average Plant Load Factor (PLF)

from 2006-07 to 2020-21

Year	Average % for the years 2006-11	Average % for the years 2011-16	Average % for the years 2016-21
Plant Load Factor	85.75%	81.68%	65.58%

North Chennai Thermal Power Station - I

North Chennai Thermal Power Station – II (2 X 600 MW):

North Chennai Thermal Power Station – II located in Thiruvallur District is having 2 Units of 600 MW with total installed capacity of 1200 MW.

Average Plant Load Factor (PLF) for the past seven years i.e. from 2014-15 to 2020-21

Year	Average % for the years 2014-16	Average % for the years 2016-21
Plant Load Factor	58%	54%

North Chennai Thermal Power Station – II

Mettur Thermal Power Station – I (4 X 210 MW):

Mettur Thermal Power Station – I located in Mettur Dam of Salem District is having 4 Units of 210 MW with total installed capacity of 840 MW.

Average Plant Load Factor (PLF)
from 2006-07 to 2020-21

Year	Average % for the years 2006-11	Average % for the years 2011-16	Average % for the years 2016-21
Plant Load Factor	86%	86%	67%

Mettur Thermal Power Station - I

Mettur Thermal Power Station – II (1 X 600 MW):

Mettur Thermal Power Station – II located in Mettur Dam of Salem District is having single unit of 600 MW.

Average Plant Load Factor (PLF) for the past seven years i.e. from 2014-15 to 2020-21

Year	Average % for the years 2014-2016	Average % for the years 2016-2021
Plant Load Factor	66%	50%

Mettur Thermal Power Station – II

Tuticorin Thermal Power Station (5 X 210 MW)

Tuticorin Thermal Power Station located in Tuticorin District is having 5 Units of 210 MW with total installed capacity of 1,050 MW.

Tuticorin Thermal Power Station

Average Plant Load Factor (PLF) from 2006-07 to 2020-21

Year	Average % for the years 2006-11	Average % for the years 2011-16	Average % for the years 2016-21
Plant Load Factor	82.99%	84.32%	57.67%

Plant Load Factor (PLF) indicates the percentage load capacity at which plant is operated. If the plants are not operated, the deficit power demand is met from purchase through exchanges and other expensive sources.

Combating Pollution in Thermal Power Stations

With an objective of complying with the revised environmental norms and to reduce emission of Sulphur oxides (Sox) in Flue gas, it is planned to install Flue Gas De-sulphurisation (FGD) plant in two Thermal Power Stations namely Mettur Thermal Power Station – II and North Chennai Thermal Power Station – II.

b) Hydro Power Station

Hydro power is a form of energy generated from water. It is one of the most cost-effective means of generating electricity besides being pollution free. It is also a flexible source of energy which can be effectively used to meet the peak

demand load and also for smooth integration of Renewable Energy (RE) sources to the grid.

The 47 numbers TANGEDCO's own Hydro power stations (107 machines with the total installed capacity of 2,321.90 MW) are functioning at Erode, Kadamparai, Kundah and Tirunelveli hydro generation circles.

Following is the break-up of Hydro Power Stations based upon water storage and usage:

i. Power houses (29 PHs) on Irrigation based reservoirs : 891.25 MW
ii. Power houses (17 PHs) on Non-Irrigation based reservoirs : 1,030.65 MW
iii. Hydro Power Plant with Pumped Storage facility (1 PH) : 400.00 MW

Mettur Dam Power House

Operation of Hydro power stations depends upon the annual rainfall, Reservoir storage capacity, irrigation demand and peak hour demand. Every year, Central Electricity Authority (CEA) fixes the target for hydro generation. For the year 2021-22, the hydro generation target set by CEA is 3,853.74 MU and the generation achieved by the TANGEDCO's hydro power stations up to July 2021 was 1,475.80 MU.

The performance of TANGEDCO's hydro power station for the past 15 years is summarized below:

Year	CEA Target in MU	Generation in MU	Plant Load Factor%	Plant Availability Factor %	Cost of Generation in Paise
2006-07	4250	6290.61	33	91.32	54.60
2007-08	4491	6455.16	34	91.68	60.22
2008-09	4600	5385.8	34	90.14	71.30
2009-10	4700	5640.33	29	89.76	76.95
2010-11	4935	5105.09	27	87.25	78.30
2011-12	4695	5350.69	28.98	90.80	28.42
2012-13	5061	2896.32	22.78	85.26	47.27
2013-14	4656	5098.68	25.02	85.84	29.98
2014-15	5061	5187.59	25.86	88.32	36.21
2015-16	4940	4641.15	24.35	83.29	43.18
2016-17	4901	2505.23	19.85	89.14	97.48
2017-18	4415	2674.53	21.03	89.45	88.01
2018-19	3561	5257.57	28.68	80.56	54.78
2019-20	3890	4780.37	24.72	79.84	68.16
2020-21	4040	5141.78	25.73	77.09	54.49

Maximum Annual Generation of 6,455.16 MU was achieved during the year 2007-2008. The Minimum Annual Generation was 2,505.23 MU and 2,674.53 MU during the year 2016-17 and 2017-18 respectively.

Pumped-storage power plants:

Pumped-storage power plants are having reversible hydro electric facilities, where water is pumped uphill back into a reservoir. The force of the water flowing back down the hill is then harnessed to produce electricity in the same way as conventional hydro electric plants. Their ability to store electricity makes them an effective tool to overcome the intermittent nature of wind and solar power.

Pumped Storage Schemes are most preferred form of storage of energy and very essential for load balancing. The excess power available during off-peak hours (frequency range 50 HZ to

50.5 HZ) can be beneficially utilized for pumping water from the lower reservoir to upper reservoir.

Kadamparai Pumped Storage Power House (4x100 MW):

Kadamparai Power House is located in the Anaimalai Hills of the Pollachi Taluk in the Coimbatore District. This power station is being operated with Kadamparai dam as the upper reservoir and Upper Aliyar Dam as the lower reservoir. This is the first underground pumped Storage Scheme executed in India by the erstwhile Tamil Nadu Electricity Board having the biggest pumped Hydro storage capacity. This Power House is designed as Pumped Storage Hydel Station for adding valuable peaking capacity to the Tamil Nadu grid.

During peak hour, the water required for power generation flows from Kadamparai Dam and to Upper Aliyar Dam. During non- peak hour, the water in Upper Aliyar Dam is pumped back to

Kadamparai dam by pumping operation achieved through reversible pump turbines.

Kadamparai Power House

In the Kadamparai Power House, there are four Units of 100 MW capacity each. Unit-1 & 2 of Kadamparai Power House were under outage from 25.08.2020 & 08.02.2021 respectively and Unit-3 & 4 from April 2021. The defects have been rectified and units I, II & III were brought back to generation on 03.08.2021, 13.07.2021 & 15.07.2021 respectively.

Renovation, Modernization and Up-rating works (RMU) in Hydro Power Stations.

All the Hydro Power Plants are very old. The full load capacity could not be achieved in many stations due to ageing issue and other related mechanical defects and reduced water storage issues. In order to improve the generation capacity of Hydro stations, action has been initiated to undertake renovation, modernization and up-rating works (RMU) in all Hydro Power Stations. Currently, Renovation, Modernization and Up-rating (RMU) work are under progress at Moyar and Kodayar Hydro Power Plant.

Moyar Power House

Dam Rehabilitation and Improvement Project (DRIP)

There are about 76 nos. of hydraulic structures consisting of large & small dams, including water retaining structures (weir, barrages, etc) constructed, owned and operated by TANGEDCO for the purpose of generating power.

These hydraulic structures are located in Nilgiris, Coimbatore, Madurai, Erode, Theni,

Namakkal and Kanyakumari districts of Tamil Nadu.

Dam Rehabilitation and Improvement Project

In order to improve the safety and operational performance of dams for generating reliable hydro power in a sustained manner, the Rehabilitation and Improvement works are proposed to be carried out in 27 selected dams during the next five years, with World Bank funding, with the assistance of the Central Water

Commission and with the participation of the State Government.

Administrative sanction has been accorded for an amount of Rs.461 crore, for the implementation of Dam Rehabilitation and Improvement Project (DRIP) works for 27 dams owned by TANGEDCO with the funding assistance of the World Bank.

Accordingly, works have been initiated in 11 dams for a value of Rs.60 crore. The works in remaining dams will be taken up in a phased manner and completed within next 5 years period.

c) Gas Turbine Power Station

In Gas turbine power stations, Electricity is produced in the Generator driven by Gas turbines by using Natural Gas (LNG) as main fuel and oil as secondary fuel for producing Gas at required temperature and pressure.

The Gas Turbine Power Stations of TANGEDCO are generating power as per the

availability of natural gas being supplied by M/s. Gas Authority of India Ltd. (**M/s. GAIL**).

Valuthur Gas Turbine Power Station:

It is a milestone for TANGEDCO in power generation and holds the record of power generation higher than the target fixed by Central Electricity Authority (CEA) and at a very less cost when compared with thermal plants.

Valuthur Gas Turbine Power Station–Phase I

This power station was commissioned with installed capacity of 95 MW and the Maximum Plant Load Factor (PLF) achieved was 87%. The same has been reducing during the subsequent years due to repair and maintenance issues. Further, the unit was under outage from 23.11.2020 and after carrying out the rectification works, the plant was put back into service.

Valuthur Gas Turbine Power Station Phase I

Valuthur Gas Turbine Power Station-Phase II

This power station was commissioned during 2008 with an installed capacity of 92.2 MW. Plant Load Factor (PLF) has fluctuated between 75% and 35%. In order to improve the load factor, major inspection & maintenance works has been proposed. Action has been initiated to repair the

unit in consultation with the original equipment manufacturer.

Kuttalam Gas Turbine Power Station:

It was commissioned with installed capacity of 101 MW. Now, the plant load factor has reduced to 43% due to less allocation of gas by M/s. Gas Authority of India Ltd. (M/s. GAIL). The gas allocated is 2,03,000 Standard Cubic Meters Per Day (**SCMD**) as against the agreed quantity of 4,50,000 SCMD. Action has been taken for allocation of additional quantity of natural gas from M/s. Oil Natural Gas Corporation's Madanam gas field. As a result, the quantity of Natural Gas supply is increasing step by step and has reached 2,44,688 SCMD as on 04.08.2021. This will improve power generation and reduce the variable cost in future.

Kuttalam Gas Turbine Power Station

Thirumakottai Gas Turbine Power Station [T(K) GTPS]:

It was commissioned with an installed capacity of 107.88 MW during the year 2001. Due to reduced natural gas supply of around 1,49,101 SCMD per day against the agreed quantity of 4,50,000 SCMD due to progressive depletion of yield from gas wells of M/s. GAIL, PLF has reduced step by step to 22%.

M/s. Indian Oil Corporation Limited (M/s. IOCL) are laying Re-gasified Liquefied Natural Gas (R-LNG) pipelines from Ennore to Tuticorin. In order to make the shortfall of the natural gas to Thirumakottai Gas Turbine Power Station, TANGEDCO is considering an option to address M/s. Indian Oil Corporation Limited (M/s. IOCL) to supply the R-LNG to this plant based upon the generation cost benefit analysis.

Thirumakottai Gas Turbine Power Station

Basin Bridge Gas Turbine Power Station:

It was commissioned with an installed capacity of 120 MW (4x30 MW). As the cost of fuel used is high, the cost of generation works out to Rs.15.72 per KWhr. Hence, the plant is being operated only during emergency situation. The possibility of converting the fuel from Naphtha to Re-gasified Liquefied Natural Gas will be considered so as to run the plant with lesser variable cost.

1.2.3 Allocation of Power from Central Generating Stations

To meet the demand and to maintain reliable supply, long term power purchase agreements have been executed by TANGEDCO based on the allocation of share of power by Central Generating Stations by Ministry of Power.

Sl. No	Central Generating Stations	Share in MW
1	NTPC Ramagundam Stage I & II	524
2	NTPC Ramagundam Stage III	131
3	Talcher STPP Stage II	496
4	Simhadri Stage II	224
5	Kudgi Units - I, II & III	346
6	NTECL - Vallur	1064
7	NLC TS-II Stage – I	188
8	NLC TS-II Stage – II	281
9	NLC TPS Expansion - I	226
10	NLC TPS Expansion - II	270
11	New Neyveli TPP	655
12	NTPL – Tuticorin	411
13	MAPS	331
14	KAPS – Units I & II	119
15	KAPS – Units III & IV	105
16	KKNPP – Unit I	589
17	KKNPP – Unit II	563
18	Eastern Region	35
	TOTAL	**6,558**

1.2.4 Power Purchase from Private Generators and from Power Exchanges

The conventional power generation in real time gets reduced due to various factors such as availability of coal, water, gas and unforeseen unit tripping due to technical issues. The day-ahead Renewable Energy forecast and demand forecast projection is subjected to deviation at times due to sudden variation in weather conditions. Hence, power purchase from private generators and power exchanges is resorted to bridge the gap between generation and shortfall in demand in real time operation.

Central Electricity Regulatory Commission (CERC) has fixed the deviation limit for Tamil Nadu for the power drawn from the Central grid. Any deviation beyond the limit will attract penalty. Since, Tamil Nadu is having more Renewable Energy (wind and solar) power in the grid, any sudden variation in the Renewable

Energy power will lead to over drawl / under drawl from the central grid for which penalty has to be paid.

In order to balance the grid in real time operation as and when sudden rise / fall occurring in Renewable Energy generation and to manage the Grid in peak hours, a greater number of balancing sources such as Pumped storage Hydel power plants and Gas power plants need to be established. TANGEDCO is working to increase the capacity of balancing generating reserves.

Intra-State Deviation Settlement Mechanism for Grid discipline

In order to bring grid discipline to ensure grid stability and security towards the goal of uninterrupted power supply, all generators have been brought into the ambit of a set of Regulations for Deviation Settlement Mechanism and Related Matters formulated by the Hon'ble

Tamil Nadu Electricity Regulatory Commission in March 2019.

As per these Regulations, all Generators (both State owned and Private generators including Renewable Energy Generators) will have to forecast and schedule the power to be generated on day ahead basis in order to ensure effective grid operation through effective power planning. In case of any deviation from the schedule, the Deviation Settlement Mechanism (DSM) will be enforced and the DSM charges will be indicated which have to be paid by the respective generators to the common DSM state pool account. In case of actual power generated is more than the schedule furnished, the charges will be payable for the difference in generation to the generator from the common DSM state pool account. The DSM state pool account will be maintained by the State Load Dispatch Centre (SLDC).

The Mock trial for implementation in respect of conventional generators is under process. With respect to Renewable energy generators, the exercise will commence shortly.

The entire implementation process of the DSM will be carried out through a software mechanism named SAMAST (Scheduling Accounting Metering and Settlement of Transaction in Electricity) that has been initiated by the Ministry of Power, Government of India.

a) Independent Power Projects (IPPs)

Independent Power Projects (IPPs) paved the way for Private Power participation in Power Sector through MoU route. IPPs are selling their entire power generated to TANGEDCO, for which the payments are being made as per the Power Purchase Agreement. The three Power Purchase Agreements which are in vogue at present are as follows:

i) TAQA Neyveli Power Company (P) Limited (formerly ST-CMS Power Company):

M/s ST-CMS, a 250 MW Lignite based thermal power plant had signed the Memorandum of Understanding **(MoU)** on 31.08.1992 and a power purchase agreement on 20.11.1996 for 30 years and achieved its Commercial Operation on 15.12.2002. Later in 2013, ST-CMS was taken over by M/s. TAQA, owned by Abu Dhabhi Government. M/s. TAQA filed a petition before Hon'ble Tamil Nadu Electricity Regulatory Commission (TNERC) seeking in-principle approval for installation of Flue Gas Desulphurisation plant to comply with the new environmental norms of Government of India under change in law provision of PPA.

ii) Pillai Perumal Nallur (PPN) Power Company (P) Limited:

M/s. PPN signed a Memorandum of Understanding **(MoU)** on 09.12.1992 for

establishing a 330.5 MW Natural Gas or Naphtha based power plant. Due to shortage in supply of natural gas, the plant was operated with 100% Naphtha upto 2016. The Fuel Supply Agreement for supply of Naphtha expired on 25.04.2021.

iii) SEPC Power (P) Ltd (under trial run):

M/s. Tamil Nadu Petro Products Limited signed an Addendum #3 in supplementary to power purchase agreement (PPA) with TANGEDCO based on various orders of Hon'ble Tamil Nadu Electricity Regulation Commission (TNERC) and negotiation meeting held on 02.09.2020. Addendum #3 to PPA and amended Coal Supply and Transport Agreement were submitted for the approval of Hon'ble Tamil Nadu Electricity Regulation Commission's (TNERC). The generating plant is under the testing stage.

b) Long Term Power Purchase:

TANGEDCO has executed 11 long term Power Purchase Agreements (PPA) for Procurement of 2,830 MW RTC (Round the clock) power which expires in 2028. Out of which 1,658 MW of power is received from Inter-State generators and 1,172 MW from Intra–state generators. At present, there is no proposal for purchasing Power under Long Term Power Purchase.

S. No	Name of Seller M/s.	Capacity in MW
1	Dhariwal Infrastructure Ltd, Maharashtra	100
2	BALCO - I, Chhattisgarh	100
3	BALCO - II, Chhattisgarh	100
4	PTC India Ltd., Jharkhand	100
5	Jindal Power Ltd, Chhattisgarh	400
6	KSK Mahanadi Company Pvt. Ltd, Chhattisgarh	500
7	DB Power Ltd., Chhattisgarh	208

8	GMR Energy Trading Ltd., Maharashtra	150
9	IL&FS Tamil Nadu Power Company Ltd., Cuddalore	540
10	Coastal Energen Pvt. Ltd., Tuticorin	558
11	OPG Power Gen. Pvt. Ltd., Gummidipoondi	74
	Total	**2,830**

c) Medium Term Power Purchase

Medium term power purchase agreements are executed for a period of 1 year to 7 years.

Under Pilot Scheme I, TANGEDCO executed Power Supply Agreement with M/s.PTC India Ltd. for supply of 550 MW RTC power (24 hours) on 26.10.2018 at the rate of Rs.4.24 per unit. Supply commenced on 01.04.2019 and expires on 31.03.2022.

1.2.5 Swap power arrangement

Under power swap arrangement, two State power utilities enter into agreement to exchange

power between them without any monetary consideration.

TANGEDCO supplies surplus power to other utilities during the wind season (June to September) and receives back the supplied power during next summer season (February to May) under swap power arrangement.

During this wind season, TANGEDCO has tied up swap power arrangement with BSES Yamuna Power Ltd., (BYPL) and supplies the surplus power. TANGEDCO will receive the supplied power during upcoming summer months.

1.2.6 Renewable Energy Sources:

a) Wind Energy

In Tamil Nadu, Wind and Solar are the major sources of Renewable Energy. So far, 8,569.90 MW of Wind Energy Generators (WEGs) have been installed as on 30.06.2021. During 2021-2022, 3,939 Million Units of wind energy was generated up to 30.06.2021. Peak power

generation was 5,129 MW by wind energy, while maximum production of more than 100 Million Units in a single day has been achieved on many occasions. TANGEDCO owns aged WEGs with capacity of 17.465 MW and have programmed to replace these old Wind Energy machines by new ones.

Out of 9,799 WEGs with capacity of 8,569.90 MW, 7,176 WEGs with a capacity of 6,173.39 MW are for Captive use and 2,397 WEGs with a capacity of 2,145.67 MW are for sale to TANGEDCO and 226 WEGs with a capacity of 250.835 MW are for Third Party sale.

b) Solar Energy:

Tamil Nadu has significant solar power installed capacity. The total installed capacity is 4,511.30 MW comprising of 4,177.761 MW capacity Solar Power Plants under Ground Mounted category and 333.539 MW Solar Power Plants under Roof Top category.

A Peak Generation of 3,152.2 MW Solar Power has been reached so far. In terms of energy, maximum of 22.80 Million Units have been generated in a single day.

The total Generation of Solar Power Plants up to the year 2020-2021 is 20,252 million units and during the year 2021-2022 up to 30.06.2021 a total of 1,783 Million Units have been generated.

Under Ground Mounted category, there are 356 live Solar Generators with a plant capacity of 4,177.761 MW, out of which 185 Generators with a capacity of 565.3 MW are under Captive use and 115 Generators with a capacity of 3,449.852 MW are under Sale to TANGEDCO and 56 Generators with a capacity of 162.609 MW are under Third Party sale category.

The State grid is facing issues due to infirm nature of Renewable Energy. Environment changes such as sudden variations in the Wind

speed, cloud formation etc., affect the Wind and Solar Power generation respectively and cause a sudden dip in the generation. In order to overcome the above difficulty, it has been programmed to establish additional Gas, Battery Storage System and Pumped storage hydro Power stations. The State is planning to maximize its potential in pumped storage capacity to harness the Renewable Energy power to its maximum.

Battery Storage System

It is proposed by TANGEDCO to install 3 MW Battery Storage System with 1 MW Solar Power Plant at Kariyapatti Substation in Virudhunagar District as a pilot project. Speedy action will be taken for the implementation of the same.

Installation of Meter at Substations

In some of solar plants, the energy meters were installed at plant side. Thus, the loss of energy from plant to substation was being borne

by TANGEDCO. TANGEDCO has initiated action to shift meters of Solar power plants from plants to the Substation end.

Renewable Purchase Obligations

For the current year, Ministry of New and Renewable Energy (MNRE) has fixed the RPO targets as 10.5% each for solar and non - solar category. In order to achieve Solar RPO targets, so far 4,558 MW of solar installed capacity has been achieved against the requirement of 7,126 MW considering the RPO at 10.5% as on 30.06.2021. It is programmed to further increase the Solar Generation capacity in Tamil Nadu.

KUSUM SCHEME

In order to increase the installed capacity share of electric power from non-fossil fuel sources and for the benefit of farmers a pilot project for Solarization in Villupuram Region has been taken up. For this project, 22 substations were selected and 5 substations have been

finalized for establishment of solar power plants of 50 MW capacity in co-ordination with Solar Energy Corporation of India Ltd. (SECI).

c) Co-generation Plants in Co-operative and Public Sector Sugar Mills:

TANGEDCO has taken up establishment of 12 Nos. Co-generation plants comprising of 10 Nos. Co-operative and 2 Nos. Public Sector sugar mills, along with sugar mill modernization in Tamil Nadu. The total cost of the Project is Rs.1,241.15 crore. Out of the total projected capacity of 183 MW from this project, 120.11 MW could be connected to State Grid**.**

The 12 projects were sanctioned during 2008 and the implementation commenced during 2010. The total project cost is Rs.1241.15 crore (excluding IDC) and the expenditure incurred so far, is Rs.1,161.89 crore.

Description	Total (in nos.)	Capacity (in MW)
Co-generation Projects	12	183 MW
Completed Projects	5	81 MW commissioned
Delayed Projects	7	102 MW to be commissioned
Expected commissioning		
Dharmapuri Co-generation Project	September 2021	12 MW
Kallakurichi –II Co-generation Project	December 2021	15 MW

Out of the 12 Cogeneration projects sanctioned, 7 plants with Cogeneration capacity of 102 MW are to be commissioned in near future.

1.2.6 Renewable Energy Management Centre

Tamil Nadu is Renewable Energy rich State. The installed capacity of Wind energy is 8,565.90 MW. Further, the installed capacity of solar power Solar Power Plants under Ground Mounted category is 4,177.761 MW and Solar

Power Plants under Roof Top category is 333.539 MW. In order to integrate more Renewable Energy to the Grid, a Renewable Energy Management Centre (REMC) has been formed in State Load Dispatch Centre (SLDC). The forecasting of Wind and Solar power is being carried out at this centre. The forecasting of generation from the wind and solar is done on Day ahead basis.

The data obtained from the meters in the wind pooling substations and solar plants are presently being used to arrive at the forecast data. The difference between the actual generation and forecast data varies by about 10% every day. Efforts are being taken to improve the forecasting by improving communication network. This results in better absorption of renewable power.

1.2.7 Coal and Logistics:

Tamil Nadu Generation and Distribution Corporation procures coal from Mahanadhi Coalfields Ltd (MCL) and Singareni Collieries Company Limited (SCCL) for the existing Thermal Power Stations with capacity 4,320 MW. Coal is transported from the collieries of Mahanadhi Coalfields Ltd (MCL) / Talcher & IB Valley through railway rakes to load ports of Paradip and Vizag. Coal is loaded into ships and transported from load ports to discharge ports of Kamarajar Port (Ennore), Karaikal and V.O.Chidhambaranar Port (Tuticorin) through sea.

From the discharge port of Ennore, coal is unloaded from ships and transported to NCTPS I & II through conveyor system. Further, to meet the coal requirement of Mettur Thermal Power Stations I & II, coal is loaded into wagons from North Chennai Thermal Power Station I and transported to Mettur. From the discharge port of

Tuticorin, coal is transported to Tuticorin Thermal Power Station through Conveyor system.

Coal required for Mettur Thermal Power Station I & II is also transported from Singareni Collieries Company Limited **(SCCL)** directly through Railway wagons.

Action plan to solve shortage in coal supply:

As there has been continued shortfall in coal supply from the Indian coal companies in the previous years, various representations have been made to the Ministry of Coal and Ministry of Power, requesting them to instruct M/s. Coal India Limited for arranging to supply coal as per the agreed quantities to sustain generation at thermal power stations of TANGEDCO.

In future, 25 lakhs tonnes per annum of coal is proposed to be purchased additionally from Singareni Collieries Company Limited (SCCL) through Fuel Supply Agreement (FSA).

Imported coal

As per the guidelines of Ministry of Power, TANGEDCO was procuring imported coal on a regular basis through Public Sector Utilities (PSUs) like MMTC (Minerals and Metals Trading Corporation) since 2004-05. Imported coal was procured by inviting global tenders. Based on the advice of Government of India, no order was placed for imported coal during the year 2016-17. However, in order to meet the shortfall in the supply of domestic coal, the procurement of imported coal was recommenced during the year 2017-18 onwards through global tenders by following e-tender cum e reverse auction method.

Government of India issued guidelines during 2020, to reduce the use of imported coal. In the above guidelines, it has been stated that a stock of 750 lakhs tonnes of domestic coal is available to compensate the import of coal and

hence, it has been advised to purchase the domestic coals from M/s. Coal India Limited (CIL).

Coal Unloading at Tuticorin:

Coal requirement of TTPS is met through unloading of coal at TANGEDCO's dedicated Coal Jetty–1 and Coal Jetty-2 of V.O.Chidambaranar Port (VOCPT), Tuticorin. At both the berths, vessels with carrying capacity of only about 55,000 Tonnes coal can be berthed. As per the direction of Ministry of Shipping, Memorandum of Understanding (MOU) was signed between VOCPT and TANGEDCO for capacity Up-gradation of Coal jetty-1 to enable berthing of higher capacity vessels.

Works for providing new shore unloaders and conveyor are being carried out by TANGEDCO and are expected to be completed within a year. After commissioning of the new Coal jetty-1 berth, higher capacity vessels carrying upto 70,000 Tonnes can be handled at the coal jetty

resulting to handle a capacity of 50,40,000 Tonnes of coal per annum.

Shipping of Coal through Sea Route:

Coal is transported by sea route from the load ports of Paradip and Vizag to the discharge ports at Ennore, Karaikal and Tuticorin. Since 1985, M/s. Poompuhar Shipping Corporation Ltd. was chartering (hiring) vessels on behalf of TANGEDCO.

The agreement with M/s. Poompuhar Shipping Corporation Ltd. for transportation of coal expired on 31.03.2021. Hence, TANGEDCO has chartered 7 special vessels for the coastal movement of coal to TANGEDCO's Thermal Power Stations.

By taking over chartering of vessels directly, saving has been achieved by the way of reduction in administrative charges, payment of GST and charter hire rates as a result of direct payments

to the vessel owners. The total saving achieved is approximately Rs.157 crore.

1.2.8 Chandrabila coal block:

The Ministry of Coal allocated Chandrabila coal block in Odisha to Tamil Nadu Generation and Distribution Corporation Ltd on 24.02.2016. TANGEDCO signed a Coal Block Development and Production Agreement with Ministry of Coal on 30.03.2016. Out of the total mine area of 9.32 sq.kms., 3.64 sq.kms. falls under Forest Area. At the time of allotment of the block to TANGEDCO, 73 deep bore holes were drilled for study in non-forest area and clearance is expected for drilling 16 deep bore holes in the forest area from the Ministry of Environment and Forest & Climate Change.

As per the agreement, the coal production has to be commenced in 66 months, i.e., by 30.09.2021. But the coal block development could not be commenced as the clearance for detailed

exploration in the forest area has not yet been given by the Ministry of Environment and Forest & Climate Change, though the Odisha Government had recommended for giving clearance for the same in 2018.

M/s. a'XYKno Capital Services Limited, Nagpur, has been appointed as consultant in selection of Mine Developer and Operator (MDO) to develop and operate the Chandrabila Coal Block, on allocation of coal block. As per the advice of the consultant the Ministry of Coal has been requested to allot additional land for dumping overburden as the area within the block would not be adequate. The Ministry of Coal constituted a sub-committee to study the requirement and allotted an additional land to an extent of 2.05 sq.kms. as per the revised map of the block.

TANGEDCO floated a tender for selection of Mine Developer and Operator to develop the Chandrabila coal block and to mine 376 million Tonnes of coal at the rate of 10 million Tonnes per annum on 29.11.2019. Only one bidder participated in the tender. The techno-commercial bid was opened in May-2020, but the tender was lodged for want of competitive bids. Subsequently the tender conditions were modified to get more competitive bids and the tender was floated again on 30.12.2020. However, despite many extensions of the due date of submission as per the request of the bidders, no bids have been received till date. Ministry of Coal (MoC) is likely to allocate a set of coal blocks through auction. Hence, the cost benefit analysis for developing the Chandrabila coal block and any other block to be auctioned by the MoC, has to be studied in detail before taking further action.

TANGEDCO is pursuing with the Ministry of Environment and Forest & Climate Change (MoEF & CC) for issuing clearance and Ministry of Coal has also requested MoEF & CC. The Ministry of Environment and Forest & Climate Change has requested specific recommendation from its Regional Office at Bhubaneswar, Odisha.

Long Term coal linkage and Bridge Coal linkage:

TANGEDCO had requested for Long Term Coal Linkage for the North Chennai Thermal Power Project-Stage III (1 x 800 MW) and Uppur Super Critical Thermal Power Project (2 x 800 MW). The Standing Linkage Committee of Ministry of Coal has recommended for grant of Long Term Coal Linkage to an extent of 5.913 Million Tonnes per annum from M/s. Singareni Collieries Company Ltd. (SCCL). Draft Coal Supply Agreement sent by M/s. Singareni Collieries Company Ltd. has been scrutinized and sent back

to them after proposing certain modifications. The agreement will be executed shortly through mutual concurrence.

Till adequate coal is produced in the Chandrabila Coal block, TANGEDCO has requested for Bridge Linkage of Coal (short term coal linkage) for the Ennore SEZ Thermal Power Project (2 x 660 MW), ETPS Expansion Thermal Power Project (1 x 660 MW) and Udangudi Thermal Power Project stage-I (2 x 660 MW) and the Standing Linkage Committee of Ministry of Coal has recommended for grant of Bridge Linkage from M/s. Singareni Collieries Company Ltd.

Need for import of coal:

The Steam Generators of the upcoming Super Critical thermal power projects are designed for operation with coal having maximum ash content of 26.5%. Hence, it is essential to import coal with low ash content and blend it with

domestic coal for operating these power plants. For the operation of the North Chennai Thermal Power Project – Stage III, it is proposed to procure imported coal to an extent of about One Million Tonnes per annum through long term coal procurement.

1.3 GENERATION PROJECTS

In order to bridge the gap between supply and demand, it is planned to increase generation capacity by State sectors.

Sl. No.	Generation Projects with Capacity and Announced Date	DPR Value Rs. in crore	Value of award in crore	Expenditure so far incurred in crore	Scheduled Date of Completion	Expected Date of Completion
1	NCTPP Stage III 1 x 800MW 26.10.2010	8,723	6,317.29	5,163.32	July 2019	2022-23
2	Ennore SEZ 2 x 660 MW 11.08.2010	9,800	7,814	5,448.59	May 2019	2023-24
3	Udangudi Stage I – 2x660MW (1320) 15.10.2007	13,077	9,752	3,154.14	June 2021	2023-24
4	ETPS Expansion Thermal Power Project (1 x 660MW) 30.03.2012	6,380	5,421	792.926	June 2018	2026-27

5	Uppur Thermal Power Project (2x800MW) 24.10.2011	12,778	10,566	3125	June 2021	2026-27
6	Kundah HEP-4x125MW, (500 MW) 28.06.2007	1,831	2,424.09	370.855	May 2023	2023-24
7	Kollimalai HEP 1X20 MW 04.09.1995	339	307.19	136.48	April 2021	2023-24

Ongoing Thermal Power Projects

1. North Chennai Thermal Power Project Stage-Stage- III(1x800MW)

This project was announced on 26.10.2010 and the work contract has been awarded in three packages (1) Boiler Turbine and Generator (BTG) to M/s Bharat Heavy Electricals Limited (BHEL) (2) Balance of Plant (BOP) to M/s. BGR Energy Systems

Limited (BGRESL) and (3) Flue Gas Desulphurization (FGD) to M/s. BHEL.

The estimated Project cost is Rs.8,723 crore including Interest During Construction(**IDC**).

NCTPS STAGE III PROJECT 1x800MW

2. Ennore SEZ Thermal Power Project (2 x 660 MW)

This project was announced on 11.08.2010. Engineering Procurement Cum debt finance contract was awarded to M/s. BHEL at a cost of Rs.7,814 crore including IDC. Packages of External Coal Handling Plant and shore unloaders were awarded to M/s. Chennai Radha Engineering Works Pvt. Limited (CREW) & M/s. FLSmidth Pvt. Ltd.

3. Udangudi Thermal Power Project – Stage I (2x 660 MW)

This project was announced on 15.10.2007 and the estimated Project cost was Rs.13,077 crore including IDC as per DPR. The Project was awarded in two packages namely Boiler, Turbine and Generator (BTG) and Balance of Plant (BOP) to M/s. BHEL. Similarly, additional order for Boiler Modification and installation of two numbers of bay for 400 kV feeder in Gas Insulated Switch yard were awarded to M/s. BHEL. For unloading the coal from

ship to the plant site, Captive Coal Jetty has been awarded to M/s. ITD Cementation India Ltd.,

4. Uppur Supercritical Thermal Power Project (2X800 MW)

The total project cost including Interest During Construction as per DPR is Rs. 12,778 crore. The project was awarded in three packages for a total awarded value of Rs.10,566 crore.

Boiler, Turbine & Generator (BTG) Package was awarded to M/s. BHEL. Balance of Plant (BOP) package was awarded to M/s. Reliance and the same was short closed due to huge price escalation sought by M/s. Reliance. Sea water intake and outfall system package was awarded to M/s. L&T. So far, an expenditure of Rs.3,125 crore has been made to this project.

Power house and ESP Structure erection works

Sea water Intake and Outfall pipe approach Bridge construction

The National Green Tribunal Southern Zone, Chennai (NGT) in the judgement on public case, directed TANGEDCO to suspend the work for six months period on 17.03.2021. Based on the above, the project works have been suspended from 18.03.2021.

Subsequently, based on the NGT Judgement and land litigation, TANGEDCO Board accorded approval on 29.04.2021 to shift the existing 2x800 MW Uppur STPP to Udangudi site as 2x800 MW Udangudi Stage-II and consider Uppur as a fresh project once all the legal issues raised before the NGT order are settled.

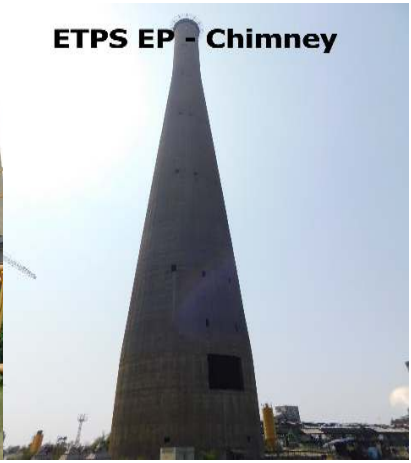
In the meantime, the order of the National Green Tribunal has been stayed by the Supreme Court on 01.07.2021. Hence, it is proposed to re-examine shifting of the project to Udangudi by tackling the issues relating to land acquisition and local agitation.

5. ETPS Expansion Thermal Power Project (1 x 660 MW)

The total revised project cost is Rs. 6,380 crore with Interest During Construction (IDC). Letter of intent (LOI) for EPC contract was issued to M/s. LANCO Infra Tech Ltd (M/s. LITL) for a value of Rs.3,921.55 crore. Later, the contract to

M/s. LITL was terminated due to poor performance and Corporate Insolvency Resolution Process initiated on the contractor by IDBI in Honorable National Company Law Tribunal (NCLT), Hyderabad under Insolvency and Bankruptcy Code (IBC) 2016.

Letter of award (LOA) was issued to M/s. BGRESL, Chennai for executing the balance works on 'as is where is basis' condition for a value of Rs.4,442.75 crore.



An expenditure of Rs.792.926 crore has been made so far to this project. TANGEDCO had earlier resolved to shelve the project. But, considering the demand in future, it is proposed to re-examine the need for this project.

Ongoing Hydro-Electric Power Projects

1. Kundah Pumped Storage Hydro Electric Project (4x125MW) in Niligiris District

Kundah Pumped Storage Hydro-Electric Project (4x125MW) in Nilgiris District was announced on 28.06.2007, to meet the peak

demand, to facilitate flexible operation of the state Grid and to meet the challenge of integration of Renewable Energy (RE) to the State Grid.

The existing TANGEDCO's 'Porthimund' and 'Avalanche – Emerald' reservoirs in Nilgiris district will be utilised as the 'Upper' and 'Lower' reservoirs respectively for this project. An underground power house is proposed to house 4 units of 125 MW each. The project is being developed in three phases. The estimated cost of the project was Rs.1,831.29 crore including IDC as per DPR and the same is expected to increase to approximately to Rs.3,000 crore.

The Project has been awarded in five packages for a total value of Rs.2,424.09 crore. Engineering, Procurement and Construction package I & II of Phase I (Civil and Mechanical works) has been awarded to M/s. Patel Engineering Limited, Mumbai. Electrical & Mechanical works for Phase – I of Package III, Phase-II and Phase -III

has been awarded to M/s. Megha Engineering & Infrastructure Ltd, Hyderabad.

2. Kollimalai Hydro-Electric Project 1x20 MW

Kollimalai Hydro Electric Project (1x20 MW) was proposed to be established at a cost of Rs.338.79 crore on 04.09.1995. The project envisages construction of Five Number of diversion Weirs / Fore bay, Power Tunnel, penstock in Kollimalai Hill ranges and establishment of Power House of 1x20MW capacity in Puliancholai Village, Namakkal District. The project works have been awarded to M/s. K.Rajagopalan & Co, (Leader of Consortium)-SSIPL-GMW-HUNAN ALLONWARD Consortium, for an amount of Rs.307.19 crore (including GST). Site was handed over to the Consortium on 30.10.2016 and the duration of the project is 54 months. Hence, this project should have been completed on 29.04.2021.

Kollimalai HEP (1x20 MW)

The Physical & Financial progress of the project is 29.42% and 25.58% respectively. Extension of Time for a further period of 25 months is under process to obtain approval.

Action is being taken to speed up the project and to commence generation.

Ennore Replacement Thermal Power Project (1x660MW)

This project has been proposed in place of the retired Ennore Thermal Power Station which was decommissioned on 31.3.2017. Due to the changed energy scenario, it is now proposed to setup a Gas Engine Power Station.

1.4 TRANSMISSION

In order to meet the increasing power demand of the state and to evacuate the power from the existing and upcoming power plants, new transmission system is being developed by Tamil Nadu Transmission Corporation Limited. Further the existing transmission system in the state has been consistently strengthened and upgraded to meet power demand requirements.

Development of transmission network across the state are being carried out by establishing adequate new 110 kV, 230 kV and 400 kV substations, upgradation of existing 33 kV and 110 kV substations into 110 kV substations and 230 kV substations respectively, building digital substations and Gas Insulated Substations (GIS). The above works are being carried out to take care of various factors such as urban and rural area load growth, clusters of consumers of

linear & non linear loads and renewable energy integration into the Grid.

765 kV Network

The high capacity transmission system facilitates transfer of bulk power to the load centres with minimum power loss and requires minimum transmission circuits thereby achieving high efficiency in transmission system. The development of 765 kV transmission system in Tamil Nadu will enhance the reliability and overall performance of power system in the State.

Speedy action is being taken for establishment of four numbers 765 kV substations in Tamil Nadu at North Chennai, Ariyalur, Virudhunagar and Coimbatore.

400 kV Network:

To improve the Greater Chennai Transmission Network, 6 nos. of 400 kV Substations have been Planned. To evacuate power to be generated from Gummidipoondi and

North Chennai area, 400 kV substations have been planned to be established at Thervoikandigai and Pulianthope (GIS).

In order to strengthen the Chennai City Network, 400kV GIS substations at Guindy, Korattur and Taramani have been planned. Further, action is being taken to acquire the land for establishment of 400 kV GIS substation at Koyambedu.

Speedy action is being taken to commission the above 6 numbers 400 kV substations.

For system strengthening and for power evacuation from the generating stations in the state, five 400 kV substations have been planned to be established at Vellalaviduthi, Edayarpalayam,Ottapidaram, Samugarengapuram and Parali. Tender is to be floated for establishment of 400 kV substation at Samugarengapuram.

Speedy action is being taken to commission the above 5 numbers 400 kV Substations.

230 kV Network

In order to strengthen the Greater Chennai Network, 11 nos. of 230 kV substations have been planned to be established at Tamil Nadu Generation and Distribution corporation Head Quarters (GIS), Mambalam (GIS), Thiruvanmiyur (GIS), Ennore (GIS), Ganesh Nagar (GIS), Panjetty (GIS), Avadi, Maraimalainagar, K.K.Nagar (GIS), Pallavaram(GIS) and Mambakkam.

Speedy action is being taken up to commission the above 11 numbers 230 kV substations.

It has been proposed to establish 17 nos. of 230kV substations throughout the state for system strengthening and flexibility of operation, other than the schemes for Greater Chennai.

Speedy action is being taken to commission the above 17 numbers 230 kV Substations.

Externally Aided Projects

Projects funded by Japan International Cooperation Agency (JICA)

For establishing 5 nos. of 400 kV substations and 12 nos. of 230 kV substations along with associated transmission lines has been planned at a total scheme cost of Rs.5,000 crore and funding assistance amounting to Rs.3,572.93 crore has been sanctioned under the Official Development Assistance (ODA) Loan of JICA.

The works under the scheme have been sanctioned under 35 Packages, out of which 11 packages amounting Rs. 1,078.26 crore were excluded from funding assistance through JICA. To utilise the amount of excluded packages, additional works for 30 packages at a cost of Rs.1,168.30 crore have been approved by JICA.

Projects funded by KfW (German Development Bank), Germany

Ministry of New and Renewable Energy (MNRE) of Union Government of India has recommended assistance of Rs. 1,462.69 crore for creation of portion of the transmission network infrastructure to Ministry of Finance of Union Government of India. After implementation of GST, the Project cost was revised to Rs. 2,049.392 crore.

The Scheme is being implemented with the financial assistance of Rs.538.91 crore as Grant under National Clean Energy Fund (NCEF), a soft Loan of 76 million Euro from KfW German funding under Indo German bilateral cooperation and the balance as equity by TANTRANSCO.

Schemes under Chennai – Kanyakumari Industrial Corridor Project funded by Asian Development Bank (ADB)

In order to evacuate the electricity from new power projects including renewable energy projects in southern districts and to strengthen the 765 kV and 400 kV transmission connectivity between Northern and Southern ends of the proposed Chennai Kanyakumari Industrial Corridor, it is proposed to establish Virudhunagar 765 kV SS and Ottapidaram 400 kV SS along with the associated lines, at a total cost of Rs 4,332.57 crore with funding assistance from Asian Development Bank (ADB). Asian Development Bank (ADB) loan funding was sanctioned for an amount of 451 million USD for this project. Government of Tamil Nadu has approved to support this project with funding of Rs 1,000 crore.

Schemes proposed under Green Energy Corridor Phase II

For availing MNRE Grant under Green Energy Corridor Phase – II, schemes comprising 1 no. 400 kV substation at Samugarengapuram in Tirunelveli district, 3 nos. 230 kV substations at Muppandal in Kanyakumari district, Poolavady and Kongalnagaram in Tiruppur district and 400 kV DC line from Kamudhi to Thappagundu at a total cost of Rs. 1,609 crore have been sent to Central Electricity Authority (CEA) and Ministry of New and Renewable Energy (MNRE) for approval. CEA has approved the scheme for an amount of Rs. 1,355.14 crore. Cabinet Committee of Economic Affairs / DEA approval is to be obtained.

Major Issues

Due to delay in acquisition of land, commissioning of EHT substations are getting delayed. In respect of EHT lines, the delay is mainly due to Right of Way issues, objection by

land owners and obtaining stay through court, delay in obtaining statutory clearances from Railways, NHAI, Forest department etc.

TANTRANSCO is paying crop compensation based on the rates assessed by revenue authorities for various types of crops damaged and various types of trees removed, which are essentially required to have adequate vertical and horizontal clearances as prescribed by the Central Electricity Authority. Land compensation as per G.O.No.86, dt.30.10.2019 is being paid as 100% for tower base area and 20% for line corridor as per guideline value. TANTRANSCO is facing a Right of Way problems in many districts. However, all efforts are being taken to obtain the clearances early and commission the lines at the earliest.

Emergency Restoration System (ERS)

Natural calamities, such as flood and cyclone cause extensive damages to transmission

networks, which in turn cause damages to major interconnecting transmission networks and substations. For immediate and temporary restoration of the damaged transmission network, it is proposed to procure two sets of ERS suitable for establishment of 765 kV lines.

Reliable Communication scheme:

Existing Fibre optic network

At present Tamil Nadu Transmission Corporation Limited is having about 5,000 kms optical fibre network with 12/24 core fibre in various routes in the state.

This network is not adequate to retrieve data from all the substations across the state. As 50% of the above fibre quantity has served more than 10 years, frequent damage/defect is being observed. In order to establish connectivity with substations across the state, TANTRANSCO is using the fibres of M/s. PGCIL and BSNL on

mutual sharing basis. Most of the fibre optic links are not having redundant path.

In order to overcome the above shortfalls, to avail the various advantages of the fibre technology such as quick data transfer, reliability of data and facility for bulk data transfer, the reliable communication scheme has been programmed and works are under progress.

1.5 Distribution

The Distribution network consists of High Tension network along with low voltage lines to connect all categories of consumers. The Distribution wing plays a vital role on day-to-day functioning of power distribution. The distribution network consists of 33/11 kV substations, 11 kV feeders, Distribution Transformers, low tension lines and cables.

The supply to the 33 kV substations are fed by 33kV High Tension lines comprising of 1,029 kms underground cables and 7,691 kms overhead lines. After voltage step down in 33 kV substations it is distributed through 4,082 kms of underground cables and 1,73,183 kms of overhead lines.

Category wise total number of consumers as on 01.04.2021

Category	Total Number (in lakhs)	Percentage	Energy Consumption in MU during 2020-21	Percentage
HT services	0.1 (10,030 Nos)	0.03	27,917	29.91
LT Services				
Domestic	227.53	71.92	32,714	35.05
Commercial	35.37	11.18	6,738	7.22
Industries	7.38	2.33	8,384	8.98
Agriculture	21.81	6.89	13,956 *	14.95
Huts	9.89	3.13	393 *	0.42
Others	14.30	4.52	3,242	3.5
TOTAL	**316.38**		**93,344**	

* -Provisional


தமிழ்நாடு மின் உற்பத்தி மற்றும் பகிர்மான கழகம்
மாண்புமிகு தமிழ்நாடு முதலமைச்சர்
திரு. மு.க. ஸ்டாலின் அவர்கள்
ஆணைக்கிணங்க
மின் விநியோகம் மற்றும் பராமரிப்பு பணிகள் குறித்த
ஆய்வுக்கூட்டம்

Chennai Region - Review Meeting

Chennai Region - Review Meeting

Madurai Region - Review Meeting

Review meeting held on 02.07.2021 by Hon’ ble Minister for Electricity, Prohibition and Excise on Distribution and maintenance works at Madha Maaligai, KTC Nagar, Palayankottai Tk.,Tirunelveli District.

Review meeting held on 02.07.2021 by Hon’ ble Minister for Electricity, Prohibition and Excise on Distribution and maintenance works at Anandhaa Thirumana Mahal, Villupuram, Villupuram District.

Schemes for Augmentation, Upgradation and Strengthening of Distribution network:

Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

The Ministry of Power introduced a Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for network strengthening in rural areas by executing, New / Augmentation of substations, rural feeders segregation, Replacement of Electro Mechanical meters by Static meters and Rural House Holds electrification at a sanctioned project cost of **Rs.924.12 crore.** The funding pattern is 60% grant, 30% loan and 10% utility contribution.

Integrated Power Development Scheme (IPDS)

The Ministry of Power introduced Integrated Power Development Scheme for Urban area network strengthening with the objectives of 24x7 power supply for all, AT & C loss reduction

and Electrification of all urban household by executing, New / Augmentation of 33/11 kV substations, erection of Distribution Transformer and High Tension/ Low tension lines, laying of underground cables and installation of Capacitor bank in 521 Towns in 37 circles at a sanctioned project cost of Rs.1,695.86 crore.

Under this scheme, establishment of 7 numbers of fully automated 33/11 kV Gas Insulated Substations in Chennai viz., Kannammapet SS, Damodharan Street SS, Millers Road SS, Corporation Colony SS, Kodambakkam SS, Vadapalani SS & Anakaputhur at an estimated total cost of Rs.188.59 crore have been sanctioned. Works are under progress.

Conversion of existing Overhead (OH) lines into Underground (UG) Cables

The conversion of existing High Tension and Low-Tension overhead lines into underground

cables will help avoiding accidents due to snapping of conductors, hindrance to traffic movement and close proximity to buildings to avoid theft of energy.

Chennai:

Chennai is the Capital of Tamil Nadu with a peak demand of 3,738 MW. In order to prevent occurrence of accidents and to have secured network, conversion of over head line (OH) to underground cable (UG) have been taken up in the Chennai city and extended areas. The works are being taken up in 5 Divisions namely Perambur, Tambaram, Avadi, Adayar & IT Corridor for an estimated cost of Rs. 993.32 crore covering 3,506.53 km of UG cable and 39,766 Nos. pillar boxes. The loan assistance has been obtained from Power Finance Corporation (PFC). Works are expected to be completed in Avadi, Adayar & IT Corridor at the earliest.

Delta districts

Delta districts of Thiruvarur, Nagapattinam, Thanjavur, Cuddalore, Villupuram and Coastal Ramnad district, face damages due to the cyclone/ storm/ heavy rains. During the above natural calamities, TANGEDCO networks get affected due to snapping of conductors, uprooting of poles and towers thereby causing total network collapse.

In order to eliminate the repeated occurrence of the network damage, it is proposed to have a cyclone resilient network by conversion of Overhead (OH) source lines into Underground (UG) cables. Initially it is proposed to convert 219 kms of 33 kV overhead lines covering 15 Nos. feeders feeding to 33 kV substations into underground cables for an amount of Rs.210 crore by availing loan from REC.

Conversion of existing Distribution Transformer (DT) structures to Ring Main Units (RMUs)

The present conventional Distribution Transformer structure contributes to more breakdown and cause interruption to the feeding area due to Insulator flash over, Jumper cut, bus fault, fault in AB switch etc., All the outdoor structure are to be frequently maintained which requires scheduled outages and in turn causes interruption of supply to consumers.

In order to ensure maintenance free HT network and to reduce the downtime of supply interruption, it has been proposed to replace the existing DT structures into Ring Main Unit (RMU) in Chennai city and its suburban areas at an estimated cost of Rs.1,819 crore. In the first phase, works are under progress for erection of

5,692 Nos. of RMUs. Action will be initiated to complete the works at the earliest.

Development of infrastructure for the better operation of distribution

Apart from this, to develop the infrastructure for the betterment of distribution network to provide quality uninterrupted power supply in the entire network as well as to reduce the AT&C losses, TANGEDCO has proposed 59 schemes of New / Upgradation of 33/11 kV SS and Augmentation (additional / enhancement of power transformer) of 44 numbers of existing 33/11 kV substations.

DETAILS OF 6 DISTRIBUTION TRANSFORMERS WITH RING MAIN UNITS OPERATED BY

HON'BLE CHIEF MINISTER OF TAMIL NADU THIRU.M.K.STALIN

IN KOLATHUR CONSTITUENCY

- LOCO SHED GANDHI NAGAR
- G.K.M. COLONY 25th STREET
- G.K.M. COLONY 30th STREET
- V.V. NAGAR 2nd STREET
- POOMBHUKAR NAGAR 1st STREET
- UNITED COLONY 2nd STREET

Poompuhar Nagar I Main Road

V.V. Nagar 2nd Street

G.K.M. Colony 30th Street

G.K.M. Colony 25th Street

LOCO SHED, GANDHI NAGAR

UNITED COLONY 2ND STREET

RING MAIN UNIT ARRANGEMENTS IN CHENNAI CITY

NEELANKARAI
INDIRA NAGAR

BEFORE

AFTER

BEFORE

AFTER

NEELANKARAI
INDIRA NAGAR

RING MAIN UNIT ARRANGEMENTS

NEELANKARAI INDIRA NAGAR

BEFORE

AFTER

BEFORE

AFTER

GUINDY

It is proposed to replace 253 kms of 33 kV source lines to the substation by UG cables in Coastal areas of Tamil Nadu at an estimated cost of Rs. 268 crore, so that there will not be major network damage during cyclone/ storm.

It is proposed to execute the scheme by availing 70% loan from Asian Development Bank (ADB) and the remaining 30% amount shall be met out from TANGEDCO funds.

Agricultural Service Connections

Details of Agriculture service connections				
Year		Service Effected		
S.No	**Scheme**	**2006-11**	**2011-16**	**2016-21**
1	Normal category	1,05,857	34,499	40,935
2	Tatkal Scheme	-	-	80,888
3	Revised Self Finance Scheme Rs.10,000/-	12,705	1,564	920

4	Revised Self Finance Scheme Rs.25,000/-	52,986	11,465	4,069
5	Revised Self Finance Scheme Rs.50,000/-	34,189	18,596	6,397
6	Government Scheme and Thadco	573	79	5,365
8	Jeevandhara SC/ST	1,403	258	9
9	Jeevandhara non-SC/ST	2,197	131	9
10	2 Lakhs	-	16,395	-
	Total	**2,09,910**	**82,987**	**1,38,592**

Energy charges are paid as subsidy by Government of Tamil Nadu for all the agriculture services every year at a flat rate of Rs.2,875 per HP per year (as per the rate approved by Hon'ble TNERC at present) as meters have not been provided in agriculture category.

The subsidy towards agriculture services received for the year 2020-21 is Rs. 4,275.86 crore.

Agricultural service connections are being effected under various schemes as per the registration priority as follows:

- **Normal scheme** – Free scheme
- **Govt. schemes** – It includes:
  - ✓ Tamil Nadu Adi Dravidar Housing and Development Corporation Limited (TAHDCO) scheme applicable for Scheduled Caste / Scheduled Tribe farmers – payment scheme
  - ✓ One-time special priority to Members of Parliament (MPs) and Members of Legislative Assembly (MLAs).
  - ✓ Government of Tamil Nadu special priority scheme 350 nos applicable for Ex-servicemen, serving soldier, physically challenged, Scheduled Tribe,

Paramilitary and Ex-Paramilitary, Inter-caste marriage, Widow & physically challenged.

- ✓ Any new schemes announced by Government

- **Revised self-Financing schemes(RSFS)**:
  a. RSFS Rs. 10,000 scheme – Under this scheme, the applications registered under Normal category are released as per oldest registration priority. As and when the scheme is announced, the willing applicant has to pay Rs. 10,000, if the estimated cost of effecting agriculture connection is less than Rs. 50,000. If the estimate cost is more than Rs. 50,000 the applicant has to pay actual estimated cost.
  b. RSFS Rs. 25,000 scheme – Under this scheme, the normal category registered applicant has to register his willingness

by paying initial estimate charges of Rs.500. On his turn, the applicant has to pay Rs. 25,000, if the estimated cost of effecting agriculture connection is less than Rs. 50,000. If the estimate cost is more than Rs. 50,000 the applicant has to pay actual estimated cost.

c. RSFS Rs. 50,000 scheme – Under this scheme, the normal category registered applicant has to register his willingness by paying initial estimate charges of Rs.500. On his turn, the applicant has to pay Rs. 50,000, if the estimated cost of effecting agriculture connection is less than Rs. 50,000. If the estimate cost is more than Rs. 50,000 the applicant has to pay actual estimated cost.
d. All the above three schemes are having separate priority.

e. If the applicant opts out of the above three schemes, then his application will be considered under Normal category.

As on 31.3.2021, there are 4,52,777 pending applications under various categories.

IT Initiatives

a. **Mobile App for Assessors for meter data downloading and automatic billing**

A new application is being developed for faster reading of the meter with optical reader cable. This will facilitate quicker assessment and remove manual errors and thereby avoiding excess bills.

b. **Single Mobile app for Payment, Complaints & Self-assessment**

Presently mobile app for payments is under usage by Consumers. It has been planned to upgrade this mobile app so as to register all complaints from consumers and also for self-assessment. This will make

consumers fully satisfied as all their issues are brought under single app. The Consumers can raise any type of complaint including Power failure, Voltage fluctuation, Meter / Billing related issues and also New Service-related issues. The consumer can monitor the progress / status of their complaints through this app.

This app will also facilitate consumers to scan their meter and send the reading to Billing server automatically thereby avoiding manual reading by Assessor and also consumer will be completely satisfied as he has taken his own reading and there will be no possibility of any doubts. Once on furnishing the details the billing will be immediately done and consumer can pay online using the same mobile app.

c. Artificial Intelligence based software tool for forecasting the demand.

i. In TANGEDCO Demand Forecasting mechanism for the entire State is being practiced in State Load Despatch Centre (SLDC) with available software tools. The key factor used in the existing forecasting system is Weather forecasting. The weather forecasting recorded in various zones is taken up for working out the Demand forecast. The accuracy of actual demand and forecasting demand varies. The gap in the accuracy has to be minimized.

ii. In order to achieve the maximum accuracy between actual demand and forecasted demand, a software tool with Artificial Intelligence technology and with one or more demand forecasting model is being

necessitated and the same will be developed.

iii. With the help of the above new tool, it is proposed to enhance the existing Demand forecasting system so as to minimize the variation factor between Forecast and actual demand.

Revamped Reformed Based Result Linked Distribution Sector Scheme

Government of India has announced the Reforms Based and Results-Linked Distribution Scheme proposed by Ministry of Power with the following objectives:

- Improve the quality, reliability and affordability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector.
- Reduce the AT&C losses to the level of 12-15%
- Reduce the ACS – ARR gap to zero.

The action plan for performance improvement should be got approved by the State Cabinet. The list of works includes Consumer and System Metering, Distribution infrastructure strengthening works for loss reduction & modernization and Reform initiatives.

In order to achieve the objectives, the following works are to be taken up:

1. All 11 kV / 22 kV Feeder Meters to be made communicable and integrated with the AMI system
2. Distribution Strengthening works such as
    a. Establishment of New/Augmentation of 33/11 kV and 110/22 kV Substations
    b. Replacement of old/frayed conductors
    c. Bifurcation of overloaded feeders
    d. Segregation of Agriculture Loads from predominant agriculture feeders for Solarisation.

e. Providing of additional distribution transformers in the feeders to avoid overloading and low voltage.
f. Providing Aerial Bunched Cables in thickly vegetated areas.

The total outlay of the scheme at National level is Rs. 3,03,758 crore. The scheme component consists of allocation of 15 % of the grants towards consumer metering (Rs.900/Meter) and 60% of the grant funds towards Distribution strengthening works.

TANGEDCO is preparing DPR for submission to Ministry of Power for availing grants under the scheme.

Energy Conservation & DSM Measures by TANGEDCO

1. The installation of Capacitors in 4.20 lakh Agricultural services in urban feeders included in the Demand Side Management (DSM) action Plan, Installation of Solar Roof

Top Power Plants (SRTPP) in TANGEDCO & TANTRANSCO buildings and Sale of LED lights and Energy Efficient fans under UJALA scheme are under process.

2. **Electric Vehicle:** TANGEDCO has been appointed as **State Nodal Agency (SNA)** for installation of Public Charging Stations (PCS) across the State for Electric Vehicles (EV) and activities to expand charging infrastructures are under progress.
3. **Activities of TANGEDCO as State Designated Agency (TNSDA):**

- Installation of retrofitting of Electrical appliances in two Model Villages, 127 Government Schools and 5 Hospitals are under progress.
- The Draft Energy Conservation Building Code Rules, 2021 for Tamil Nadu has been submitted to Government of Tamil Nadu for its Notification.

- **Perform, Achieve and Trade (PAT) scheme:** 89 industries identified by Bureau of Energy Efficiency (BEE) under various cycles are under monitoring and verification.
- Funding of research projects on Energy Efficiency, Skill development, conducting seminars and Training programmes, School Capacity Building Program are under process.
- Conducting of inspection and monitoring various schemes of BEE by Inspecting Officers appointed are under progress.
- For Funding of retrofitting of energy efficient appliances from the **State Energy Conservation Fund,** proposal from Anna University is under scrutiny.

Mass Maintenance Program undertaken to maintain Uninterrupted power supply

In Tamil Nadu, routine maintenance works were not carried out for the past 9 months from

August 2020 due to various reasons, and as a result, frequent power interruptions occurred in some parts of the State. Power interruptions were experienced due to tree branches proximity to lines, due to birds, swaying of electric lines due to wind and rubbing each other, low sag lines due to leaned/damaged poles, weak/damaged insulators & pillar boxes etc. In addition to this, due to onset of summer from the month of April, the usage of electrical equipments such as Air Conditioner (AC) etc. has increased leading to overloading of the distribution transformers.

In order to overcome the above issues, based on the guidance of Hon'ble Chief Minister of Tamil Nadu, Mass Maintenance Program was carried out throughout the State for 10 days from 19.06.2021 to 28.06.2021 for a period of 2 to 3 hours per day without hindrance to the public.

In this program, the following necessary maintenance works were completed.

S. No.	Details of Maintenance work	Total Nos.
1	Tree branch cleared	2,37,150
2	Damaged poles replaced	4,411
3	Leaned poles rectified	6,895
4	Poles inserted to rectify the low-lying lines	3,165
5	Stay cut renewed (Providing pole support wire)	6,574
6	Weak / Damaged insulators replaced	12,449
7	Pillar boxes replaced	1,351
8	Sub Station Maintenance	917
	Total	**2,72,912**

Subsequent to the above mass maintenance program, supply interruptions have been reduced to a greatest extent. Now, there is no continuous supply interruption.

In continuation to this program, strenuous efforts are being taken to avoid supply interruption due to rain and seasonal changes. Power supply is shut down only during regular maintenance works in Sub stations and lines, after giving wide publicity to the public through media, and supply is restored immediately after completion of the maintenance works.

MASS MAINTENANCE PROGRAMME

MASS MAINTENANCE WORKS

TREE CLEARANCE

OMALUR

DINDIGUL

Tree branch clearance – In most of the places tree branches are nearby the feeders. In such places snapping of conductors and short circuit in lines occur due to falling of tree branches on lines and cause accidents. In such places tree branch clearance were carried out in order to avoid supply interruptions.

MADURAI - ALWAR NAGAR

DINDIGUL - PALANI

DAMAGED POLES

CUMBUM

THENI

Damaged poles gets damaged due to various reasons and are subject to break and fall which is dangerous. This may lead to supply interruptions and accidents due to snapping of conductor. To avoid such occurrences, replacement of damaged poles and aged conductors were carried out.

ANDIPATTY

BEFORE

THENI - KAMATCHIPURAM

6,895 RECTIFIED LEANED POLES

PERAMBALUR

VIRUDHUNAGAR - KARIAPATTY

Leaned poles - The leaned poles are under danger to fall down leading to low sagging of lines which may cause accidents. Hence rectification of leaned poles was carried out.

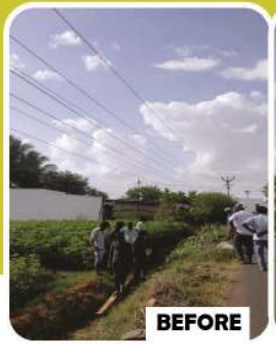
ANDIPATTY

AFTER

VIRUDHUNAGAR - KUNNUR

INSERTION OF POLE

PERAMBALUR



VIRUDHUNAGAR - KARIAPATTY

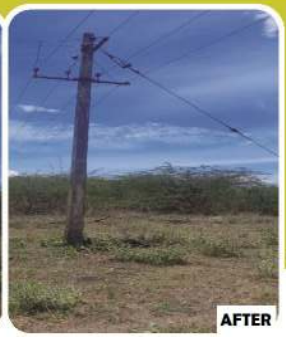
Insertion of additional poles to rectify low sagging of lines, at some places low sagging of lines occurs due to long span length. In such places heavy vehicles may come in contact with the lines which leads to supply interruption and also accidents. In such places additional poles were inserted to reduce the span length and hence to avoid sagging of lines.

ANDIPATTY

ERODE

STAY CUT RENEWAL

VIRUDHUNAGAR - VALAIAYAPATTY



VIRUDHUNAGAR - KUNNUR

Provision of stay wires: Poles without stay wires may fall which is dangerous. Further, due to leaning of poles supply interruptions may occur by snapping of conductors and may also lead to accidents. In order to avoid the same, the work of provision of stay wires has been carried out.

VIRUDHUNAGAR - KUNNUR

ERODE

WEAK-DAMAGED INSULATOR REPLACEMENT

THENI - KADADMALAIGUNDU

VIRUDHUNAGAR - KARIAPATTY

Replacement of weak/damaged insulators which leads to failure due to high temp/rain in order to burst out and failure of power supply.

VIRUDHUNAGAR - BANTHALKUDI

VIRUDHUNAGAR - VALAIAPATTY

TRANSFORMER STRUCTURE MAINTENANCE

VIRUDHUNAGAR -
MUTHURAMALINGAPURAM

VIRUDHUNAGAR -
MAMSAPURAM

Replacement of fuses, repair on damaged pillar due to corrosion and painting to avoid rusting. Refitting of clamps and bolt nuts were carried out.

VIRUDHUNAGAR

BEFORE

AFTER

THENI - DEVATHANAPATTY

MAINTENANCE OF SUB STATIONS

THENI - DEVARAM

THENI - UTTHAMAPALAYAM

SUB STATIONS: MAINTENANCE OF POWER TRANSFOREMERS, BREAKERS, ISOLATORS AND CHECKING OF POWER TRANSFORMER OIL LEVELS WERE CARRIED OUTI IN SUB STATIONS

THENI - MADHURAPURI

COIMBATORE - PEELAMEDU

Mass Improvement Program to resolve low voltage by erecting new Distribution Transformers

The domestic and commercial consumers are connecting additional loads in their service connections on their own and therefore, the connected loads to the Distribution Transformers are getting increased tremendously in some areas. Further, the consumers are using electrical equipments and appliances during morning and evening peak hours and therefore, the Distribution Transformers are getting overloaded in some areas. This leads to failure of the Distribution Transformers causing supply interruption.

In some areas, the electric lines are too lengthy, and also large number of consumers are supplied from the same line. This causes the tail end consumers to experience low voltage problems. Further, low voltage also occurs due to

unforeseen events happening in the electrical network. Due to these kind of low voltage problems, the consumers are experiencing more inconvenience when using their home appliances and equipments.

In order to overcome the above problems, in the first instance, the areas where Distribution Transformers are overloaded and areas where low voltage problem exists have been identified during the mass maintenance programme carried out throughout Tamil Nadu from 19.06.2021 to 28.06.2021.

In order to alleviate the inconveniences experienced in the areas with overloaded Distribution Transformers and low voltage problems, it has been proposed to erect 5,705 Nos. of additional Distribution Transformers to reduce overloading of Distribution Transformers and to erect 3,200 Nos. of additional Distribution Transformers totaling to 8,905 numbers to rectify

the low voltage problems at an estimated cost of Rs.625 crore, and works will be completed within 4 months.

Minnagam – Customer Care Centre:

"Minnagam" a New State Level Centralized Customer Care centre was inaugurated by **Hon'ble Chief Minister of Tamil Nadu on 20.06.2021**. Minnagam is a milestone in serving the consumers of TANGEDCO. This is a unique cell that works for continuous 24 hours throughout 365 days enabling the consumers to report all electricity related complaints.

Public can register their complaints by calling TANGEDCO's helpline Number **94987 94987** regarding doubts in electricity billing, new service connection details, defective meter replacement, damaged poles, low sag lines, damaged pillar boxes, Distribution transformers in dangerous condition, power failure, Low voltage, High voltage, broken/ fallen lines, sparks etc.

Measures are taken to monitor and address all complaints

Through the helpline number, consumer can lodge complaints from anywhere. These complaints are forwarded to the concerned officials and monitored till action is taken.

At this Customer Care centre**,** 2,00,177 complaints have been received. Out of these, action has been taken immediately for 1,86,219 complaints and action is being taken for the balance 13,958 complaints. 93.03% of the complaints received have been resolved.


தமிழ்நாடு மின்சார வாரியம்
தமிழ்நாடு மின் உற்பத்தி மற்றும் மின் பகிர்மான கழகம்
தமிழ்நாடு மின் தொடரமைப்பு கழக நிறுவனம்
மின்னகம்
மின் நுகர்வோர் சேவை மையம்
தொடர்பு கொள்ளவேண்டிய தொலைபேசி எண்
94987 94987

மின்னகம்
மின் நுகர்வோர் சேவை மையம்
தொடர்பு கொள்ளவேண்டிய தொலைபேசி எண்
94987 94987

1.6 Human Resource Management

Re-Organization of Distribution Offices

In order to redress the administrative issues, and balance the work load among the TNEB section offices, the Division and Section offices of TNEB will be reorganised in such a way that, one Electricity Distribution Region will cover 3 or 4 districts and one Electricity Distribution Circle will be completely covered under one district.

1.7 Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs) set long-term goals to achieve stability by promoting natural catalysis in key areas of development, including education, health, employment, infrastructure, energy and the environment.

The year 2021 is the sixth anniversary of the adoption of Sustainable Development Goals (SDGs) by 193 countries at the UN General Assembly. The SDGs, constituted through an

unprecedented consultative process, have 17 goals and 169 related targets to be achieved by 2030.

In order to monitor the performance of all the Departments, a dashboard has been designed by the State Development Policy Council (**tnsdg@tn.gov.in**).

1.8 Finance

TANGEDCO

a) The details of the revenue account for the past ten years are as below:

(Rs. in crore)

Financial Years	Revenue Receipts	Revenue Expenditure	Revenue Gap
2011 - 12	22,898.38	36,219.72	-13,321.34
2012 - 13	31,467.59	43146.66	-11,679.07
2013 - 14	34,912.76	48,897.79	-13,985.03
2014 - 15	42,507.09	55,263.69	-12,756.60
2015 - 16	49,705.39	55,492.20	-5,786.81
2016 - 17	56,012.12	60,360.88	-4,348.76
2017 - 18	59,132.83	66,893.61	-7,760.78
2018 - 19	61,666.73	74,290.15	-12,623.42
2019 - 20	65,177.10	77,142.03	-11,964.93
2020 - 21	65,239.13	77,924.98	-12,685.85

b) Although the Government of Tamil Nadu has taken over a loan of Rs.22,815 crore through

the Uday scheme, the outstanding loan as on 31.3.2021 is Rs. 1,34,119.94 crore.

c) There is a wide gap between the Average Rate of Realization (ARR) and Average Cost of Supply (ACS) and are detailed below:

(Rs. per unit)

Years	Average Rate of Realisation	Average Cost of Supply	Revenue Gap
2011 - 12	3.38	5.83	-2.45
2012 - 13	4.87	7.07	-2.20
2013 - 14	4.57	6.86	-2.30
2014 - 15	5.12	7.18	-2.06
2015 - 16	5.90	6.88	-0.99
2016 - 17	6.35	7.28	-0.93
2017 - 18	6.23	8.01	-1.78
2018 - 19	6.04	8.29	-2.26
2019 - 20	6.35	8.49	-2.14
2020 - 21	6.69	9.06	-2.35

d) TNEB has incurred continuous losses due to increase in fuel cost, expenses towards purchase of power from private power producers at high cost, interest on loans, employees benefits, etc. Due to this loss, outstanding amount of Rs. 15,000/- crore is due to power generators and contractors.

e) In order to improve the financial position of TANGEDCO, it is proposed to take up measures such as installation of smart meters, restricting high-cost power purchase, savings in interest on loans, etc. so as to increase revenue and reduce the expenses.

f) In order to improve the billing and collection efficiency to a greater extent, steps will be taken to replace the defective meters, ensure 100% assessment (Smart Metering & Smart Grid), disconnect the defaulted services and control improper use of energy.

g) TANGEDCO has initiated negotiations with Financial Institutions such as REC, PFC, TNPFC, etc and Commercial Banks to reduce the interest rate to 9% on the existing outstanding loans, additional loans and interest rates on new loans. It is expected that, a reduction of 100 basis points in the interest rate on the existing outstanding loans will result in savings of about Rs.1,127 crore to TANGEDCO.

TANTRANSCO

a) TANTRANSCO has incurred losses for 7 years during the past 10 years. Due to this, the accumulated losses have increased to Rs.6,782.35 crore as on 31.3.2021. The estimated revenue loss for the current financial year 2021-22 is Rs 1,778.17 crore.

b) The year-wise Revenue account for the past 10 years is as follows:

(Rs. in crore)

Financial Years	Revenue Receipts	Revenue Expenditure	Revenue Gap
2011 - 12	1,744.85	1,744.85	0
2012 - 13	2,414.95	2,178.51	236.44
2013 - 14	2,877.11	1,569.07	1,308.04
2014 - 15	1,936.21	2,049.15	-112.94
2015 - 16	2,507.08	2,770.48	-263.40
2016 - 17	2,578.07	2,853.02	-274.94
2017 - 18	2,781.85	7,447.98	-4,666.14
2018 - 19	3,224.63	3,859.54	-634.91
2019 - 20	3,366.01	4,440.70	-1,074.48
2020 – 21 (Provisional)	3,223.01	4,523.00	-1,299.99

c) The outstanding loans as on 31.03.2021 is Rs.25,568.73 crore.

d) TANTRANSCO's total losses have increased due to increase in interest servicing repayment of

the capital and meeting revenue expenditure in absence of tariff revision and also, the outstanding bills has to be settled.

e) TANTRANSCO has incurred losses due to interest on loans taken for capital and revenue expenditures. This increased expenditure is still managed from the tariff rate revised during 2017, which has resulted in loss and liquidity deficit. Due to this, outstanding bills for an amount of about Rs.400 crore is pending to be settled to various suppliers and contractors.

f) In order to improve the financial position of TANTRANSCO, it has been planned to take up measures to reduce the interest rate on outstanding loans and to reduce controllable expenditure.

g) TANTRANSCO is negotiating with financial institutions such as HUDCO, REC, PFC in order to reduce the interest rate on the existing outstanding loans and new loans. It is

presumed that, even a reduction of 150 basis points in the interest rate on the existing outstanding loans, will result in savings of approximately Rs.265 crore per annum to TANTRANSCO.

2. Tamil Nadu Energy Development Agency (TEDA)

2.1 Introduction

The Government of Tamil Nadu is committed to mitigate the climate change effects by bringing out policies conducive to promote Renewable Energy (RE) generation in the State.

The Govt of Tamil Nadu has set up the Tamil Nadu Energy Development Agency (TEDA) in 1985 to promote the use of new and renewable energy sources and promote energy conservation activities in the state.

Apart from the above mentioned duties, TEDA also has the onus of creating awareness on the potential and prospects of renewable energy besides enhancing renewable energy contribution in the overall energy mix in the state grid. TEDA is also acting as a bridge between small RE consumers and RE integrators.

As the State Nodal Agency for execution of Renewable Energy (RE) projects and for coordination with the Ministry of New and Renewable Energy (MNRE), TEDA has directly facilitated implementation of RE projects with a cumulative capacity of 63 MW of medium and small level projects including 29 MW in domestic rooftop solar PV system and 17 MW of demonstration wind projects.

2.2 Climate Change Agenda and RE Power Growth

India is the third-largest global emitter of CO_2, despite low per capita CO_2 emissions. The carbon intensity of India's power sector in particular is well above the global average. India has a wide range of policies in place that aim to bring about a secure and sustainable energy future.

In order to address the climate change agenda, government of India is providing a big push to adopting a large share of renewable energy in the total energy mix. Accordingly, it has set a target of 175 GW of RE power additions by 2023 and 450 GW by 2030. As on 12.08.2021, India achieved 100 GW of total installed capacity of renewable energy which is quite creditable.

2.3 Renewable Energy Scenario in Tamil Nadu

Tamil Nadu is at the forefront of India's renewable energy (RE) transformation. The state has long been a leader in wind energy, accounting for 25% of India's total installed wind power generation capacity. Further, currently Tamil Nadu has total installed capacity of 37,715 MW of power, out of which renewable energy sources constitute 15,250 MW.

The state is blessed with various forms of renewable energy sources. The environment-friendly renewable energy sources are perennial in nature, available locally and quite suitable for decentralized applications.

Government of Tamil Nadu proposes to add about 20,000 MW of power from renewable energy sources by 2030. To achieve the above target, massive public awareness campaign will be launched besides promoting rooftop solar in a big way on all kindles of buildings.

Government is also considering solarisation of agriculture pumps and rural feeders in a sustained manner over a period of time. Tariff policies of the state will also be tuned in a way to make adoption of renewable energy attractive to the prosumers.

Another big opportunity in promoting RE power will be to establish RE based charging infrastructure for electric vehicles.

Variability and intermittent nature of RE power from solar and wind poses great challenge in maintaining grid stability and night time demand. These challenges can be addressed only through better predictability of RE sources, upgradation of thermal power plants to super critical category, adding more pumped hydro power capacity and gas based power plants and planning decentralized RE generation and micro-grids. Government will also focus on creating battery based energy storage infrastructure, since adoption of RE power in grid which is currently at 17% of the total energy generated is bound to go up substantially.

This will require a comprehensive energy policy in place to prioritize energy mix as per the goal of the state to reduce carbon emission levels and to fix appropriate pricing for the power to the

consumer which is affordable and at the same time sustainable for power utilities.

2.4 Major on-going projects

2.4.1 Solar Energy Producing Farmers under PM-KUSUM (Component C) scheme

The solar energy producing farmers scheme under the PM-KUSUM Component C for solarizing 20,000 nos. of grid connected agriculture pumps will be implemented effectively. Under this scheme, the farmer will be treated as RESCO operator so as to realize revenue from the entire units generated by him through solar panels at the rate of tariff fixed by Tamil Nadu Electricity Regulatory Commission besides getting incentive at the rate fixed by Tamil Nadu Electricity Regulatory Commission for the net energy exported by him to the grid after deducting self-consumption in the future. Under the scheme,

Central Financial Assistance of 30% of the capital cost of the unit or the benchmark cost announced by the MNRE, whichever is lower, and another 30% as State Financial Assistance will be provided to the willing farmers for solar plant capacity up to 11 kW.The balance 40% of the plant cost has to be borne by the farmer.

2.4.2 Solar village:

TEDA is implementing a solar village project at Irumbai village in Vanoor taluk of Villupuram district to demonstrate the concept of sustainable energy secured rural habitation with net zero carbon emission. A SPV plant of 170 kW will be installed to supply solar power to the households in the hamlet during daytime along with feeding excess solar power to the grid to make up for the night time demand so as to ensure net zero gap of import and export of energy by the hamlet. The project is being implemented through TANII fund support at a project cost of Rs. 2.00 crores.

2.4.3 Tamil Nadu Renewable Energy Park (P) Ltd., (TREP):

Tamil Nadu Renewable Energy Park (P) Ltd., (TREP) was incorporated as a subsidiary company of Tamil Nadu Energy Development Agency on 19-03-2021 to carryout business of generation and aggregation of renewable energy and supply to captive consumers through Joint Venture model.

Currently TREP has entered into a joint venture with Solar Energy Corporation of India (SECI) and Chennai Metro Rail Limited (CMRL) to install 20 MW wind-solar hybrid plant with battery energy storage system (BESS) to cater the part energy needs of CMRL. Land owned by TEDA to an extent of 75 acres will act as its equity contribution while CMRL and SECI will contribute to the entire cost of the project as per their share in the JV agreement. The power so produced from this

project will be sold to CMRL at a price mutually agreed between the JV partners and profits earned will be distributed as per equity of each partner in the JV. The equity pattern of the JV is as follows.

1. TREP – 2% (approx.)
2. CMRL – 26 %(approx.)
3. SECI – 72%(approx.)

2.4.4 Solar rooftop program for domestic consumers (GCRTS Phase-II)

TEDA has been nominated as implementing agency for phase-II of grid connected rooftop solar programme of MNRE. Under the programme domestic consumers can install grid connected solar photovoltaic system up to the capacity of their connected load. The consumer will be eligible for Central Financial Assistance (CFA) of 40% of the cost of the system or the benchmark cost whichever is lower as announced by the MNRE every year up to 3 kW capacity.

2.4.5 Promotion of Energy Efficiency and Renewable Systems for MSME(PEERS)

TEDA will promote and implement a sustainable energy focused integrated scheme for MSME sector to reduce the use of fossil fuel and conventional energy consumption in the MSME sector by conducting energy audit in association with Micro, Small and Medium Enterprises.

3. ELECTRICAL INSPECTORATE

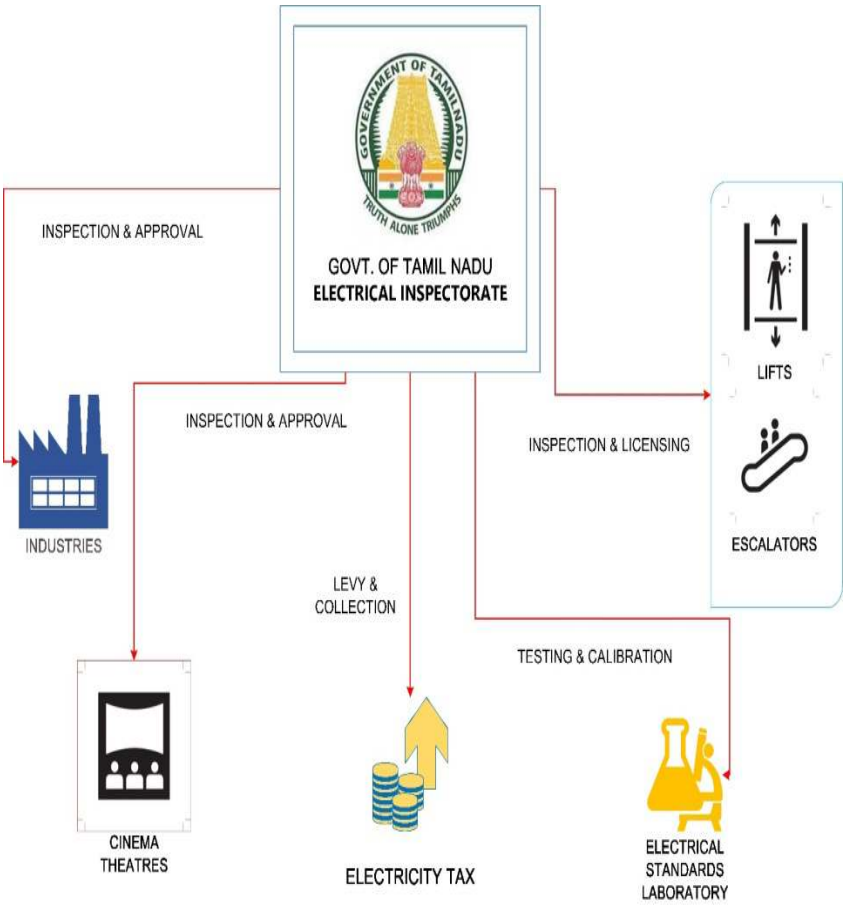
3.1 INTRODUCTION

The national laws on Electricity and Bureau of Indian Standards (BIS) provide protection of person and property from the risk, incident to the supply and use of electricity. The Electrical Inspectorate is thoroughly conversant with the legal requirements of electrical safety and is committed to ensure that all electrical installations are safe by assessment of electrical risks in the installation and by ensuring that the safety measures are in place. This Department is one of the oldest Government departments serving the Public since the Indian Electricity Act, 1910 came in to effect.

The Department also administers and enforces the safety provisions relating to lifts and escalators, electrical and fire safety in cinema halls and electricity tax levy & collection under

various provisions of State Laws.

3.2 SERVICES RENDERED BY ELECTRICAL INSPECTORATE



3.3 STATUTORY FUNCTIONS, ROLES & RESPONSIBILITIES

3.3.1 Electrical Installations

The Central Electricity Authority (Measures relating to Safety & Electric Supply) Regulations, 2010 is a national legislation under which responsibilities are placed upon supplier & consumer of electricity, generating companies, Electrical Inspector, etc., to implement safety measures in the design, erection, operation, and maintenance of an electrical installation. The Electrical Inspectorate inspects and certifies all electrical installations receiving HT supply, power plants, generators, and multi-storied buildings to ensure compliance of these regulations and also conducts periodical inspections.

The Department also performs technical investigations / evaluations of electrical accidents and suggests remedial measures/

recommendations to avoid such incidents in future.

The Electrical Inspectorate also inspects and certifies temporary electrical installations put up in connection with the visit of VVIP's namely the Hon'ble President, Hon'ble Vice President, Hon'ble Prime Minister, Hon'ble Governor, Hon'ble Chief Minister and other public functions where large number of people are likely to assemble to ensure electrical safety.

3.3.2 Cinema Installations

The Tamil Nadu Cinemas (Regulation) Act, 1955 and Rules, 1957 provide enough provisions to ensure electrical and fire safety in Cinema Theatres, besides other regulatory mechanisms. Under these Rules, the Department carries out the following duties to ensure safety to the Cinemagoer:

a) Issue of Drawing Approval for electrical installations within the premises
b) Inspection and Issue of Electrical Certificate for all Cinema Theatres
c) Annual Inspection of Cinemas

3.3.3 Lifts and Escalators

The Government of Tamil Nadu enacted the Lift laws in 1997 to regulate the erection, maintenance and safe working of Lifts. Subsequently, by an Amendment Act in 2017, the Escalators were also included.

Under these Act and Rules, the Department carries out the following activities.

a) Issue of Erection Permission for Lifts & Escalators
b) Inspection and Issue of Licenses for commencement of the working of Lifts and Escalators.
c) Periodical Inspection & Renewal of Licenses for safe working of the Lifts and Escalators.

d) Issue of Authorization to the Companies carrying out erection, maintenance, inspection and testing of Lifts and Escalators.

3.3.4 Electricity Tax

The Tamil Nadu Tax on Consumption or Sale of Electricity Act, 2003 (Tamil Nadu Act No.12 of 2003) was enacted in 2003 to consolidate and rationalise the laws relating to the levy of tax on consumption or sale of electricity in the State of Tamil Nadu, repealing the Tamil Nadu Electricity Duty Act, 1939 and the Tamil Nadu Electricity (Taxation on Consumption) Act, 1962. The Act came in to force with effect from 16th June, 2003.

3.3.4.a The Government has notified following rates of electricity taxes for sale or consumption of electricity:

S. No.	Category	Rate of Tax	Tax Collected by
1	Electricity sold by Licencee (TANGEDCO/Independent Power Plants / Trader) to consumers	5% on the Consumption Charge	TANGEDCO
2	Electricity Sold by Captive Generating Plants to Consumers	5% on the Consumption Charge	Electrical Inspectorate
3	Consumption of Electricity from Captive Generating Plants including standby Generators (DG sets) for Own Use	10 paise per unit of electricity consumed	TANGEDCO

3.3.4.b. The following are exempted from levy of electricity tax:

1) Electricity sold to Government, Local Authority, and Railways.
2) Electricity sold for agricultural purposes and hut service connections.
3) Electricity sold to Domestic consumers by Licencee (TANGEDCO).
4) Electricity sold to the TANGEDCO.
5) Exemptions granted under Special Economic Zone Policy, Industrial Policy, Solar Policy and Electric Vehicle Policy.

3.3.5 Government Electrical Standards Laboratory:

The Government Electrical Standards Lab is one among the prestigious and old labs of India. It is attached to the Office of the Chief Electrical Inspector to Government catering the calibration and testing needs of consumers, suppliers,

generating companies and electrical contractors. The laboratory also receives energy meters and other electrical instruments from various State Electricity Boards in our country for calibrating their accuracy.

To enhance the testing facility of Government Electrical Standards Laboratory (GESL) to International Standards, Government has allocated Rs. 1.42 crores for purchase of precision calibration equipment during 2020-2021. All the equipment were procured, installed and commissioned. Further, the Government has sanctioned Rs. 10 lakhs to obtain NABL accreditation for the lab and the same is under process.

3.3.6 Electrical Licensing Board

As per regulation 29 of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 all the electrical installation works can only be carried out by the

licensed contractors and workmen. The Electrical Licensing board under the Electrical Inspectorate has been designated as competent authority to issue license to the electrical contractors and to grant certificate of competency to wiremen and supervisors in order to ensure that all the electrical works are handled by licensed contractors and certified personnel. The electrical contractor's licenses are classified as ESA, EA, ESB and EB grade depending upon the competency in handling voltage level.

3.4 PERFORMANCE

3.4.1 The performance of the Department for the year 2020-2021 is as follows:

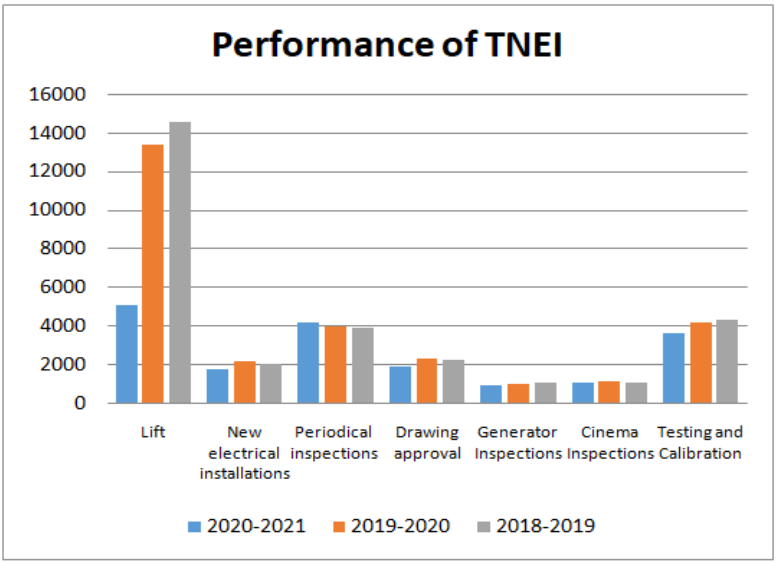
Sl. No	Services Rendered by this Department (TNEI)	2020-2021
(a)	Lifts	
	(i) Issue of licences for new lifts	1938
	(ii) Renewal of licences for the existing lifts	3171

(b)	Issue of permission for electrical installations under Regulation 43	1703
(c)	Statutory Periodical inspections of High Tension installations under Regulation 30	4178
(d)	Scrutiny of drawing proposals for the new Electrical Installations and additions/Alterations of equipment in the existing installations	1918
(e)	Issue of permission for generating units under Regulation 32	934
(f)	Issue of permission for Multi Storeyed Buildings under Regulation 36	86
(g)	Cinema Theatres	
	(i) Existing cinema theatres	1102
	(ii) Certification of Electrical Fitness to new cinema buildings	16
	(iii) Renewal of certification of Electrical Fitness to existing cinema buildings	320
(h)	Testing and calibrations of electrical meters	3649

3.4.2 Number of Electrical Contractor Licenses and Competency Certificates issued up to May 2021.

1.	Electrical Contractor License	27,242
2.	Certificate of Competency to Wireman and Supervisor	2,32,774

3.4.3 Bar Chart – Performance of TNEI



3.4.4 Revenue

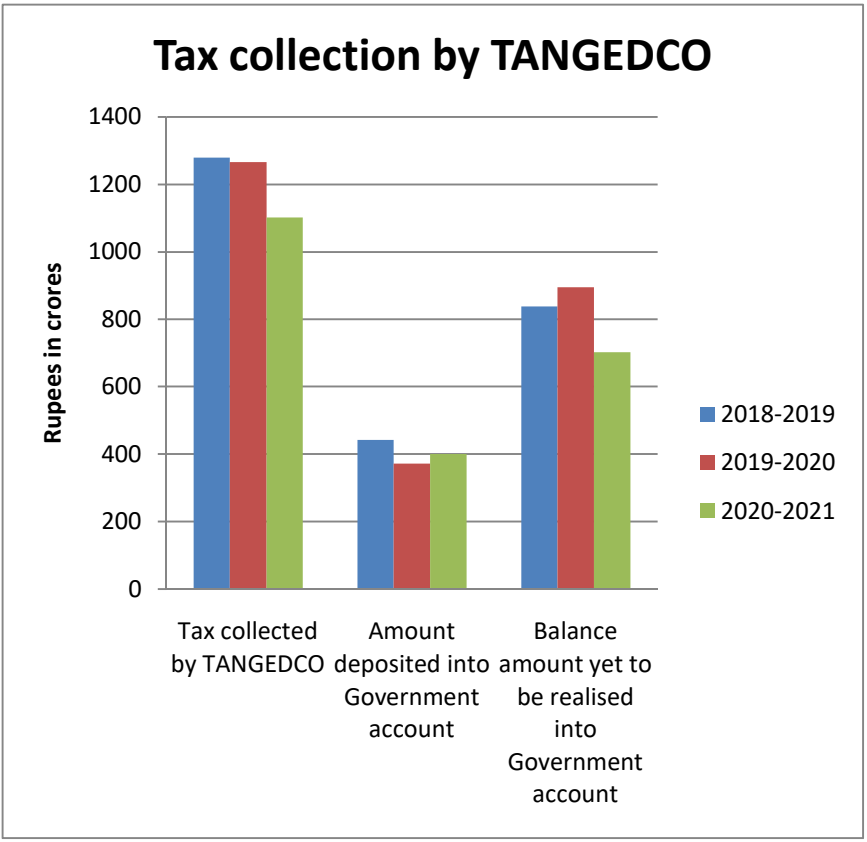
I.**Tax Collected by Electrical Inspectorate:**

Tax Collected by Electrical Inspectorate	**2018-19 (Rupees in Crores)**	**2019-20 (Rupees in Crores)**	**2020-21 (Rupees in Crores)**
Registration	0.1695	0.18	0.18
Electricity Consumption Tax	66.68	56.25	55.57
Sales Tax	9.89	4.89	6.63
Interest	1.22	1.61	1.39
Total	77.97	62.93	63.76

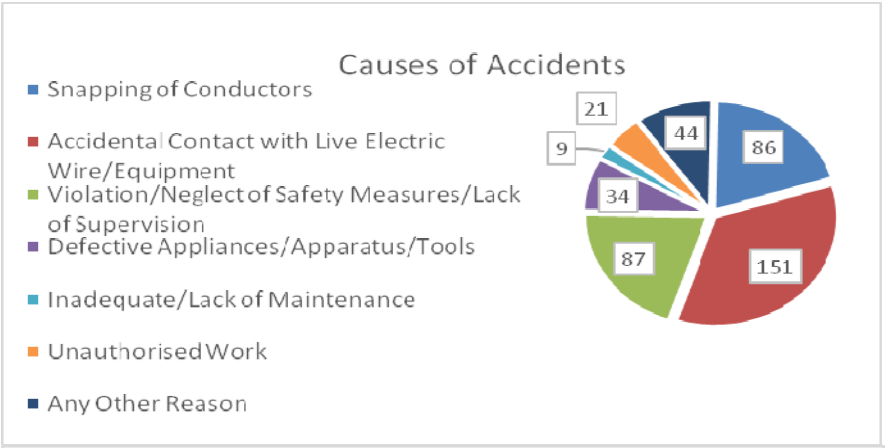
II.**Tax collected by TANGEDCO Limited:**

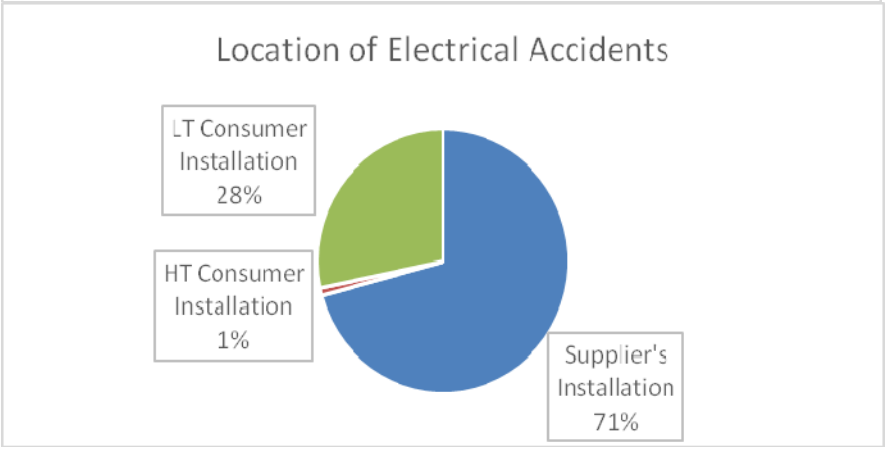
Tax collected by TANGEDCO Ltd	**Total amount collected (Rupees in Crores)**	**Amount deposited into Government account (Rupees in Crores)**	**Balance amount yet to be realised into Government account (Rupees in Crores)**
2018-2019	1279.29	441.54	837.75
2019-2020	1266.04	372.00	894.04
2020-2021	1102.09	400.00	702.09

** Reduction in tax collection during 2019-2020, 2020-2021 was due to COVID lockdown & consequent reduced economic activity.


Tax collection by TANGEDCO
Rupees in crores
1400
1200
1000
800
600
400
200
0
Tax collected by TANGEDCO
Amount deposited into Government account
Balance amount yet to be realised into Government account
2018-2019
2019-2020
2020-2021

3.4.5 Analysis of Electrical Accidents which occurred during 2020-21





3.5 E-GOVERNANCE

The URL of the web Portal of Electrical Inspectorate is https://www.tnei.tn.gov.in The Portal is frequently updated and contains all necessary information targeted at all category of users. The website hosts additional information which are to be voluntarily disclosed under the Right to Information Act, 2005. All the offices of this department are provided with internet connectivity with necessary ICT infrastructure for online delivery of various services of the Department.

"Online Lift and Escalator License Management" system is under implementation in this department since 2017. It enables an applicant seeking grant of new licence and renewal of licence for lift and escalators to apply online, monitor the status of his/her application and receive licence online seamlessly.

Service Rendered Online from August 2017	Nos.
1. No. of licenses issued for new Lifts	7323
2. No. of licenses renewed for lifts	25587
3. No. of licenses issued for new escalators	95

"Online Filing of Returns of Electricity Tax" has also been implemented throughout the State of Tamil Nadu.

Service Rendered Online from August 2017	Nos.
1. No. of requests for New Generator Registrations	5129
2. No. of requests for re-registration of Generator	199
3. No. of requests for tax filing	7384

3.6 EASE OF DOING BUSINESS & BUSINESS REFORMS ACTION PLAN

As part of investor friendly - ease of doing business reforms, already three of the services of this department are launched as end-to-end e-service delivery through single window portal, namely i) Drawing Approval ii) Safety Certificate

iii) Registration of Generators in Phase -1. The services relating to i) Permission to erect the Lift, ii) Licence for commencement of working of Lift & iii) Renewal of Licence for safe working of the Lift are planned to be launched in phase -2 shortly.

Under the Business Reform Action Plan for the year 2020, identification of archaic laws, simplification of forms, online payment, increasing the periodicity of inspections, identification of services for complete e-service delivery, etc., are being implemented in a phased manner.

3.7 FUTURE SCENARIO

The Electrical Inspectorate will re-evaluate its functions and responsibilities with regard to the progressive and transformational reforms brought out by the Government. The department will develop & deploy effective & transparent e-services and ensure usage of the deployed e-services within the time frame and in a manner that benefits the Public.

4. Tamil Nadu Power Finance and Infrastructure Development Corporation Limited (TNPFC)

4.1 Introduction

The Tamil Nadu Power Finance and Infrastructure Development Corporation Ltd., (TNPFIDCL) was incorporated in 1991 as a wholly owned State Public Sector undertaking and registered as a Non-Banking Finance Company (Deposit). The company's Paid-up Capital is Rs.3767 Cr as on 31.03.2021. The company mobilizes funds primarily through public deposits and has been funding Infrastructure projects undertaken by TANGEDCO. At present, the Company's total loan exposure is Rs.39,984.78 Cr as on 31.03.2021.

4.2 Financial Performance:

The sound financial and professional management of the Company has led it to continue as a profit-making Company since its inception. The total revenue of this Company

during the financial year 2020-2021 was Rs.3,876.11 Crores *(Provisional)*. The company has earned a Net profit after tax of Rs.720.93 crores (provisional) during the financial year 2020-21. In order to conserve Profit for maintaining Capital to Risk Weighted Assets Ratio (CRAR) as the exemption granted to Government companies in this regard has been withdrawn by RBI, the dividend has not been declared for the year 2019-20 and 2020-21.

4.3 Exposure to TANGEDCO:

Since inception, the total financial assistance provided to TANGEDCO for generation of power and taking up related projects by way of long-term and short-term loans up to 31.03.21 is Rs.1,56290.30 Cr. The net loan outstanding from TANGEDCO is Rs.39,984.79 Cr as on 31.03.2021.

4.4 Fixed Deposits:

The Fixed deposits are mobilized from public, Institution, Government departments and the State Government Schemes such as cash incentive scheme, Bread-winning schemes, Chief Minister's Girl Child Protection Scheme, Oru Kala Pooja Scheme and Covid 19 Scheme. The company offers on an average of 200 basis points more than the interest rates offered by the public sector banks. Even at time of pandemic situation, the steady growth of deposits was possible due to focused policies and attractive interest rate on

term deposits during the financial year 2020-21. TNPFIDCL offers an attractive interest rate of 7.00% on term deposits for one year, 7.25% for deposits for 2 years, 7.75% for deposits for 3 years and 4 years and 8% with tenure up to 5 years. The Company offers an additional interest of 0.25% p.a. for one year and two year and 0.50% p.a. for 3 to 5 year term deposits for senior citizens of 58 years and above. This Corporation has mobilized the deposits of Rs.34,451.83 crores as on 31.03.2021 (previous year 2019-20 is Rs.30,681.55 crores).

4.5 Software Upgradation:

During the financial year 2020-21, TNPFC has upgraded the Core banking Financial Service Software application in line with the RBI's IT Policy Framework and Directives. After introduction of the state of art platform, TNPFC is offering 24 hours a day and 7 days a week

transaction for its depositors through digital web portal and mobile app.

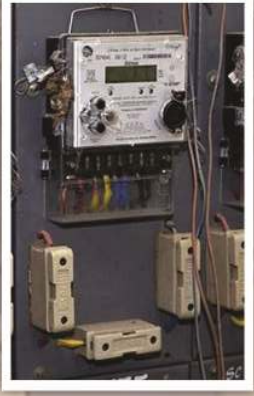
Further, TNPFC has established a Customer Support Desk with the new age digital tools for depositor's service request namely E-mail with fresh desk ticketing system, WhatsApp, video call – KYC update, Interactive Voice Response (IVR) which have paved the way for better Customer service.

V SENTHILBALAJI

Minister for Electricity, Prohibition and Excise

Meeting with Electricity Board officials through Video conferencing on steps taken to maintain uninterrupted supply during Covid-19.

Relaxation and time extension to the consumers of TNEB to pay Electricity bill Charges



As per instruction of Hon'ble Chief Minister of Tamil Nadu, HT supply was extended to Karur Government Medical College from Balambalpuram Sub-Station. As the above HT feeder feeds different consumer there will be possibility for frequent power supply interruption. In order to ensure 24 x 7 un interrupted power supply , a new HT line from S.vellalapatty 33/11 KV Sub-Station for a distance of 3.2 kms was erected at a cost of Rs.1.5 Crore and inaugurated

As per announcement of Hon'ble Chief Minister of Tamil Nadu, new Medical Health Insurance Scheme for Electricity Board Employees.

Insurance scheme for Electricity Board Employees - for medical treatment upto Rs.10 Lakhs.

Tamil Nadu State Government announced the Implementation of new health insurance Scheme for Electricity Board officers and employees. Based on the above, new health insurance Scheme will be extended upto 30th July 2025 and for this scheme a monthly subscription of Rs.300 would be recovered from Electricity Board employees. As per new health insurance Scheme,Electricity Board officers , Employees and their family members shall avail assistance upto the limit of Rupees Five Lakh per yearfor treatment of 203 types of diseases at 1169 hospitals.

1. In Salem, due to Covid -19, 2nd wave, in all hospitals, full capacity of oxygen supply was crossed, hence people suffered for beds with oxygen facility Covid care Centre.

2. Hence to handle this critical situation, our honourable EB Minister has inspected the Salem Steel Plant and decided to establish new temporarily Covid care Centre with Oxygen supply.

3. So, Supply has been extended within a day to new Covid Centre at an load 800 KVA on 18.05.2021 ,by erecting 4 electricity Pole, 2x500 KVA Distribution Transformers at an estimated cost of Rs.38,33,960/-

4. Also, for the additionally inaugurated 2nd Covid Care Centre, extension work were carried out within 2 days for Estimate Cost of Rs. 34,77,320/- and supply was effected on 05.06.2021,.

5. On all the above covid centres, Officers, workers are on duty for 24 hours on shift basis to provide un-interrupted power supply.

Extension of electricity supply to Corona treatment Centre in Salem Steel Plant for oxygen generation.

In Govt. Medical College at Perundurai ,Erode District, now serving as Covid 19 treatment hospital, additional 250 Nos beds with oxygen supply has been established due to increase in spreading of Corona disease.

LT supply has been extended on war foot basis within 14 hours by erecting 2 nos, 250KVA Distribution Transformers, 5 Nos electric poles near the two temporary sheds on 24.05.2021. For this work ,the estimated cost of Rs.3,99,170/- has been collected from the Disaster management fund of the District Collector / Erode on 10.06.2021.

Tamil Nadu Generation and Distribution company Ltd officers and employees one day's salary of Rs. 10,58,84,597/- and contribution of Rs.31,00,001/- by Tamil Nadu Electricity Board Engineers Association totally a cheque for Rs. 10,89,84,598/- towards COVID - 19 Relief Fund has been handed over to the Hon'ble Chief Minister of Tamil Nadu, towards COVID - 19 Relief Fund at Secretariat.

Thiru V.Sridharan, President, Tamil Nadu Electricity Pensioners Association met Hon'ble Chief Minister of Tamil Nadu in the Secretariat and handed over the cheque for Rs 30,50,000/- towards Tamil Nadu Chief Minister's Relief Fund.