ENERGY DEPARTMENT

POLICY NOTE

2018-2019

DEMAND NO.14

Thiru. P.Thangamani
Minister for Electricity, Prohibition and Excise

INDEX

ENERGY DEPARTMENT

பொருள்கருவி காலம் வினைஇடனோடு ஐந்தும்
இருள்தீர எண்ணிச் செயல். (குறள் – 675)

(Do an act after a due consideration of
money, means, time, execution and place.)

Introduction

Energy is the most important component of economic infrastructure. Secure, reliable, affordable and clean energy is fundamental to economic growth and development of the State. The power sector of Tamil Nadu being one of the most diversified sectors in the country is undergoing a significant change that has redefined the industry outlook. Sustained economic growth continues to drive electricity demand in the State.

Energy and sustainability had become an important aspect and current issue around the

globe. A modern energy policy needs to be considered based on the social, economic and environmental dimensions of energy use in tandem. The Energy Policy of the State addresses all three of these dimensions viz., Energy Security, Economic Growth and Environmental Protection. Vision 2023 document of Tamil Nadu ("Vision 2023") sets the plan for infrastructure development for the State to reach the desired outcome by 2023.

Electricity demand in the State has increased continuously and is expected to rise further in the years to come. In order to meet the increasing demand of electricity in the State, huge addition to the installed generating capacity and equivalent development of transmission infrastructure has been programmed.

Due to the dynamic and vigorous efforts of **the late Hon'ble Chief Minister Amma,** the State has already attained a status of 'Power for all' with 24x7 power to all categories of consumers by lifting all Restrictions & Control (R&C) measures from June 2015.

A massive addition of power to the tune of **13,287 MW** has been added to the grid since 2011 upto 31.03.2018 by commissioning of new power stations in State and Central sectors, through medium and long term power purchase agreements and through renewable energy.

On the Green Energy initiative, Tamil Nadu is a leader in Renewable Energy sector among all States and has a total installed capacity of **11,113 MW as on 31.03.18** against 10,480MW on 31.05.2017.

The State has harnessed around **13,000 million units of wind energy and 2,905 million units of solar energy** during 2017-18. By way of harnessing the Green Energy, the State has reduced use of hard coal and thus **reduced about 5,406 Million Tonnes of Carbon emission.**

The Government has a vision to increase the share of clean energy through immense drive in developing the renewable energy sector by implementing various favorable policy decisions.

The present average power demand of Tamil Nadu is about 14,800 MW to 15,300 MW and the maximum demand met was **15,440 MW on 27.04.2018. Chennai** alone has met an all time high demand of **3,386MW on 08.05.2018.**

The Southern Regional Power Committee of the Central Electricity Authority (CEA) in its draft Load Generation Balance Report (LGBR) have stated that as in previous years Tamil Nadu will continue to be a power surplus State in the year 2018-19 also with a energy surplus of 15,116 Million Units and with a peak power surplus of 2,235 MW.

The rating of TANGEDCO which was **'C+'** during FY 2014-15 has been rated as **'B'** for FY 2017-18 in the State Distribution Utilities Annual Integrated Rating published by the Ministry of Power, Government of India, because of the financial turnaround and other proactive measures initiated by TANGEDCO. All efforts are being taken to improve the rating in this financial year.

Due to the tireless efforts of **late Hon'ble Chief Minister Amma,** there has been a

tremendous development in infrastructure that transformed Tamil Nadu into a power surplus State. Energy being the base for all other developments of the State, this Government has taken all necessary steps to sustain the progress in the energy sector and move towards green energy thus reducing the carbon footprint with social responsibility.

The following organizations are under the Administrative Control of Energy Department:

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

i. TNEB Limited

ii Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)

iii Tamil Nadu Transmission Corporation Limited (TANTRANSCO) and

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

Tamil Nadu Generation and Distribution Corporation Limited and

Tamil Nadu Transmission Corporation Limited

Tamil Nadu Electricity Board (TNEB) was restructured on 01.11.2010 into TNEB Limited; Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and Tamil Nadu Transmission Corporation Limited (TANTRANSCO).

Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) is responsible for power generation and distribution. Tamil Nadu Transmission Corporation Limited (TANTRANSCO) is responsible for transmission of power. The electricity network has been extended to all villages and towns throughout

the State and all the villages in the State have already been 100% electrified.

1.1 Transformation

Tamil Nadu has added **13,287 MW** to the State grid from the year 2011 to 31.03.2018, thus making the State not only self-sufficient but also a power surplus State.

The visionary and tireless efforts **of the late Hon'ble Chief Minister Amma** has transformed the energy sector and the restriction and control measures which was in force was totally withdrawn from 05.06.2015, making Tamil Nadu gleaming.

The present average power demand of Tamil Nadu is about 14,800 MW to 15,300 MW and all time high maximum demand of **15,440 MW was met on 27.04.2018.**

The daily average State consumption has increased from 200 MU during 2011 to 330 MU

in 2018 and the maximum consumption met was **355.733 MU on 27.04.2018.**

Tamil Nadu has witnessed surplus power in the financial year 2017-18 also and has continued to move forward with adequate plans for surplus power in the forthcoming years.

To evacuate the additional power generation and to provide quality and reliable supply, there had been a significant transmission infrastructure addition.

From the year 2011, 402 Nos. substations have been commissioned and 11,714 circuit kms of Extra High Tension (EHT) lines have been energized. Further in the Distribution front, 23,107 kms of High Tension (HT) lines and 71,564 kms of Low Tension (LT) lines and 89,528 Distribution transformers have been energized. Also, 62.55 lakhs new service connections have been effected under various categories.

The Government of Tamil Nadu has taken over the TANGEDCO's loans to the tune of Rs.22,815 crores, subsequent to TANGEDCO joining the Ujwal DISCOM Assurance Yojana (UDAY) scheme initiated by the Government of India. This will save interest of Rs.2,882 crores per annum and Rs.2,282 crores per annum towards principal repayment.

Government of Tamil Nadu has also provided Government Guarantee for Rs.7,605 Crores to TANGEDCO for mobilization of funds through issue of bonds for repayment of debts.

The dynamic power purchase policies and large additions to installed capacity, enabled TANGEDCO to discontinue procurement of costly power based on Naptha and Low Sulphur Heavy Stock (LSHS) fuels. Also, TANGEDCO is able to avail cheaper power from power exchange due

to the synchronization of Southern grid with NEW (North, North East, East and West) grid.

Further, due to the various steps taken in strengthening of infrastructure, the AT & C losses which were 17.11% during 2011-12 has reduced to 14.04% (provisional) in 2017-18 resulting in a revenue of **Rs. 2,250 crores per annum** which would have been lost due to technical losses.

Furthermore, reduction in expenditure to the tune of **Rs.586 crores** was achieved due to efficient Coal Management, Import substitution and procurement of Import coal by e-tender with e-reverse auction for the first time. This saving was achieved in spite of an **additional expenditure of Rs.835 crores** due to increase in clean energy cess & increase in railway loading charges and also increase in coal cost

(9%), railway tariff, port charges etc., by Government of India.

On implementation of revenue augmentation and cost control measures, the losses of TANGEDCO which was Rs.13,985 crores during 2013-14 has been reduced to Rs.2,975 crores (provisional) in the financial year of 2017-18. All necessary proactive steps are being taken to achieve break even shortly.

Also, the gap between Average Rate of Realisation (ARR) and Average Cost of Supply (ACS) has been reduced from Rs.2.16 per unit during 2010-11 to Rs.0.33 (33 paise) per unit in 2017-18, and all efforts are being taken to bridge the gap.

1.2 Efforts taken by TANGEDCO and TANTRANSCO during Cyclone Ockhi

i. Severe Cyclonic Storm Ockhi originated from an area of disturbed weather near Sri Lanka on 29th November 2017 struck the coastal areas of Kanyakumari, Tirunelveli & Tuticorin districts with heavy rains and wind causing havoc and destruction in the Southernmost districts of Tamil Nadu. Several electrical infrastructures comprising of EHT, HT & LT lines, HT & LT Poles, Distribution Transformer etc were extensively damaged.

ii. On the Transmission side, Eleven (11) 110 kV substations were switched off due to snapping of 110 kV lines to a length of around 173 kms on account of tree falling on these lines.

iii. On the Distribution side, around 15,858 HT/LT Poles, 95 Distribution transformer structures and around 1,058 kms High Tension and Low Tension lines got severely damaged in Kanyakumari, Tirunelveli, Tuticorin, Nilgiris, Dindigul and other districts too. Among the southern districts, Kanyakumari was the worst affected. The total damages to TNEB was assessed to be around Rs.238.31 Crores.

iv. As damages were huge, officers and staff from other districts were deputed to Kanyakumari for carrying out restoration works round the clock. Teams were formed under 28 Chief Engineers/ Superintending Engineers of other regions and Headquarters comprising of 250 officers and 10,000 workmen

deputed from other Districts to carry out restoration works on war footing.

v. In addition to the materials on hand which have been stocked as a precautionary measure, materials from other districts were also diverted immediately for the restoration works.

vi. Due to the tireless efforts of the Officers and staff of TNEB, all the eleven 110 kV substations and four 33/11 kV substations in Kanyakumari District were normalised within two days after attending to breakdown in transmission lines.

vii. Restoration works in Kanyakumari was not easy due to unfavorable terrains, narrow streets and due to falling of huge number of trees. Tree cutting was carried

out day and night by employing 300 staff with 50 power saw machines for almost 10 days to clear the trees fallen on the Electrical lines and equipments. Inspite of all odds, works were carried out day and night without any slackness.

viii. At the first instant, within a day, supply was restored to all essential services including General hospitals and Collectorate. The dedicated hard work of the TNEB staff ensured restoration of Power supply within three days in all the four Municipalities and within seven days in all 55 Town Panchayats and to the entire district within 10 days.

CONCERTED EFFORTS OF TNEB STAFF DURING CYCLONE OCKHI

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1.3 Vision

The State Government's proactive steps in the energy sector envisages providing adequate energy of desired quality to users in a sustainable manner and at reasonable costs.

Without resting on the achievements of the past, this Government has an optimistic vision for future as well. This Government has taken all necessary steps to meet the future power demand in the way of addition of 2,500 MW of hydel power projects and 13,000 MW of thermal power projects in the forthcoming years in addition to the capacity building in the renewable energy sector.

1.4 Generation

1.4.1 Demand and supply

The present average power demand of Tamil Nadu is about 14,800 MW to 15,300 MW and the maximum demand met was 15,440 MW

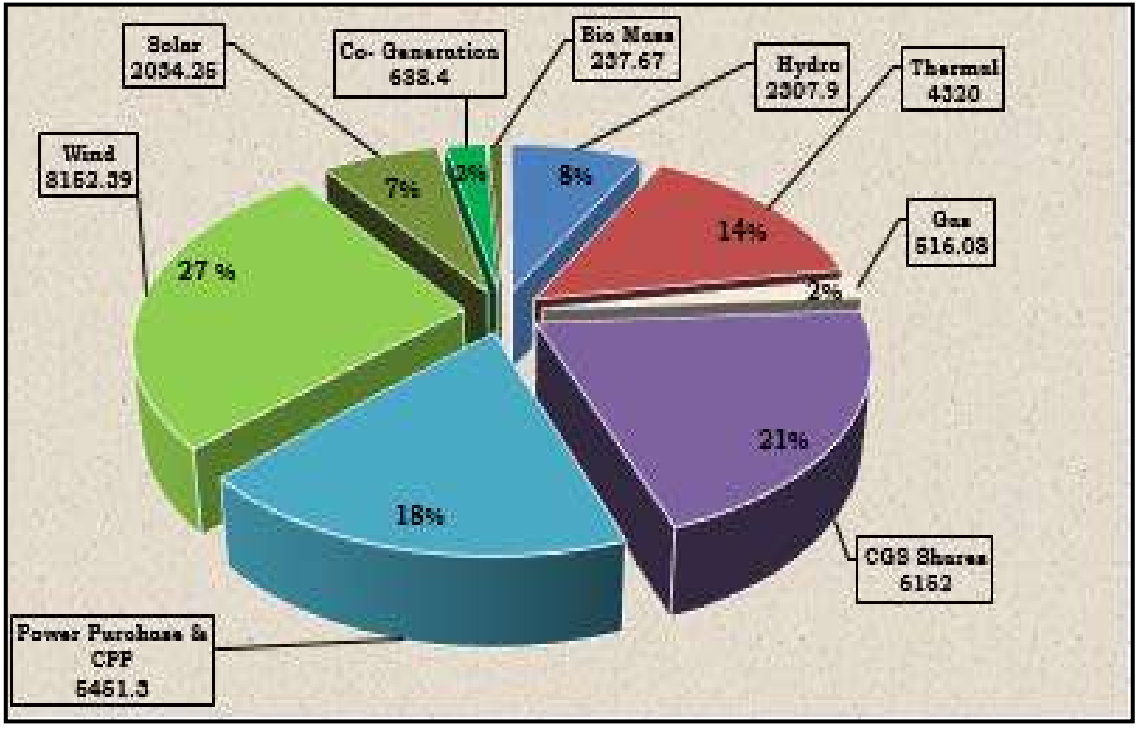
on 27.04.2018. Further, Chennai met an all time high demand of 3,386 MW on 08.05.2018.

The daily average State consumption has increased from 200 MU during 2011 to 330 million units in 2018 as on date and the maximum consumption was 355.733 MU on 27.04.2018.

Installed capacity as on 31.03.2018

Sl No	Category	Capacity in MW
I	**Conventional energy sources**	
1	Hydro	2,307.90
2	Thermal	4,320.00
3	Gas	516.08
4	Central Generating Stations	6152.00
5	Power purchases	
	Independent Power Projects (IPP)	746.50
	Long Term Open Access (LTOA)	3,330.00
	Medium Term Open Access (MTOA)	300.00
	Total power purchases	**4,376.50**
6	Captive Power Projects (CPPs)	1074.80*
	Total conventional	**18,747.28**
II	**Renewable energy sources**	
1	Wind	8,152.39
2	Solar	2,034.25
3	Biomass – Combustion	237.67
4	Co-generation	688.40
	Total non- conventional	**11,112.71**
	Grand total	**29,859.99**

***** These CPP though not supplying to TANGEDCO, they supply through open access to private consumers.



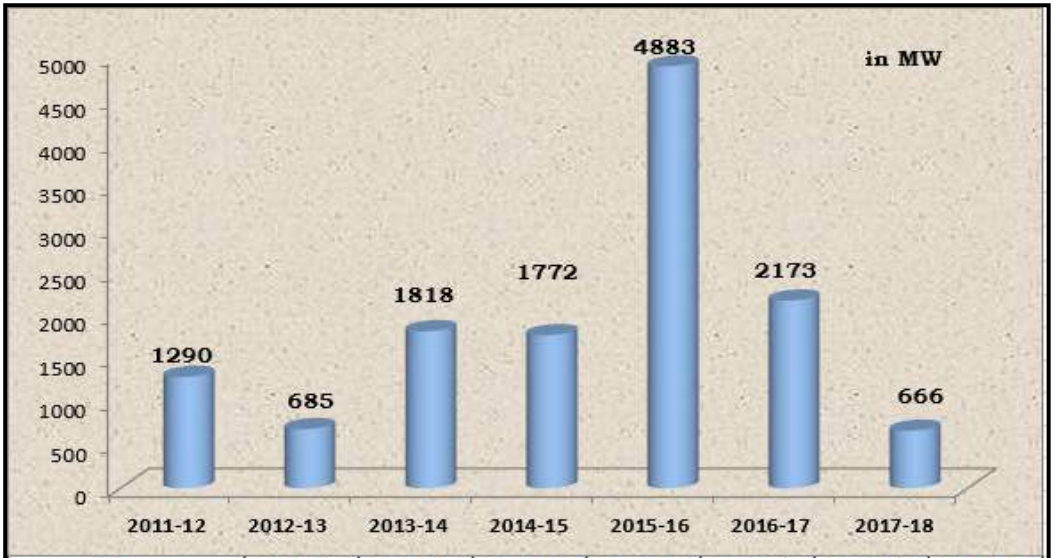
Installed capacity as on 31.03.2018 in MW

1.4.2 Capacity added from the year 2011-12

Yearwise Capacity Addition from 2011-12 as on 31.03.18			
Year	**Projects**	**Capacity in MW**	**Commissioning date**
2011-12	Bhavani Kattalai Barrage II	30	29.11.11
	Periyar –Vaigai Small HEP II	2.5	30.01.12
	Simhadri stage II Unit 1 (CGS Share)	99.5	16.09.11
	Periyar PH RMU Unit 1(35MWto42MW)	7	14.07.11
	TOTAL	**139**	
2012-13	Simhadri stage II Unit 2(CGS Share)	99.5	30.09.12
	TANGEDCO -NTPC JV Unit 1 (Vallur)	359	29.11.12
	Periyar PH RMU Unit 2 (35MW to 42MW)	7	11.09.12
	Bhavani Barrage II	10	26.10.12
	TOTAL	**475.5**	
2013-14	TANGEDCO -NTPC JV Unit 2 (Vallur)	359	25.08.13
	Mettur Thermal Power Station - Stage III	600	12.10.13

Year	Projects	Capacity in MW	Commissioning date
	North Chennai Thermal Power Station Stage II Unit 1	600	20.03.14
	Periyar PH RMU Unit 3 (35MW to 42MW)	7	08.01.14
	Bhavani Kattalai Barrage III (2x15MW)	30	16.10.13
	Periyar –Vaigai Small HEP III (2x2MW)	4	Unit 1-11.09.13 Unit 2- 09.10.13
	TOTAL	**1600**	
2014-15	NCTPS Stage II Unit 2	600	08.05.14
	Kudankulam Unit 1	563	31.12.14
	TANGEDCO -NTPC JV Unit 3 (Vallur)	358	26.02.15
	TOTAL	**1521**	
2015-16	Neyveli TS 2 Expansion (2x250 MW)	271	Unit-2 22.04.15 Unit-1 05.07.15
	TANGEDCO -NLC JV Tuticorin (2x500 MW)	439	Unit-1 18.06.15 Unit-2 29.08.15
	Bhavani Barrage 1	10	Unit-1 29.05.15 Unit -2 02.07.15
	Periyar Vaigai Small HEP–IV (2x1.25 MW)	2.5	Unit-1 01.03.16 Unit-2 29.02.16

Year	Projects	Capacity in MW	Commissioning date
	Periyar PH RMU - Unit 4(35to42 MW)	7	23.03.2016
	TOTAL	**729.5**	
2016-17	Changes in the Unallocated shares	**36**	
	Kudankulam Unit 2	**562.5**	31.03.2017
	Total	**598.5**	
2017-18	Changes in the Unallocated shares	-97.5	
	Kudgi Stage I (Unit I, Unit 2)	212	
	Total	**114.5**	
	GRAND TOTAL (From 2011-12 to 2017-18)	**5178**	
	Long Term Open Access (LTOA)	3,330	
	Medium Term Open Access (MTOA)	300	
	Grand Total with Power Purchase	8808	
	Renewable Energy as on 31.03.18	**4479.36**	
	Grand Total (with power purchases and Renewable Energy)	**13,287.36**	



Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Capacity added (MW)	1290	685	1818	1772	4883	2173	666

Capacity addition since 2011 including Renewable Energy

1.4.3 GREEN ENERGY

Solar power

Tamil Nadu has a total solar installed capacity of **2034 MW** as on 31.03.2018. Considerable quantum of solar generation is being realised during day time at an average of around 800 MW to 1,200 MW.

The State has harnessed around **2,905 million units** of solar energy during 2017-18. Further, an all-time high generation of 1652 MW and all time maximum energy of 11.506 Million Units has been harnessed from solar generators on 05.03.2018 and 06.03.2018 respectively.

During 2016-17, it was proposed to increase the solar power installed capacity by 5,000 MW in a phased manner.

In this regard, in addition to the already added solar power, TANGEDCO has signed power purchase agreements (PPAs) with M/s. NLC for 500MW and with M/s. NHPC for 50 MW.

Further, PPAs have been executed with 18 developers for 1500MW through tendering. Also, approval of the Hon'ble TNERC has been obtained for procurement of 1500MW through tender in a phased manner.

Apart from this, TANGEDCO is also establishing a 500MW Solar Park at Kadaladi, Ramnad District on its own.

1. Wind Power

Tamil Nadu is a pioneer in promoting the wind energy in the country. With an

installed capacity of **8152 MW** as on 31.03.2018 Tamil Nadu has the highest wind power capacity in the country and contributes to about 24 % of the country's total wind installed capacity.

The State has harnessed around **13,000 million units** of wind energy during 2017-18, the highest so far. Further, an all-time high generation of 5,095.6 MW on 27.07.2017 and the all time maximum energy of 102.58 MU on 04.08.2017 has been harnessed from wind generators.

During 2017-18 it was proposed to increase the wind installed capacity by 4,500 MW in a phased manner.

In this regard, in addition to the already added wind power TANGEDCO has signed PPAs for 450 MW. Further, approval

of the Hon'ble TNERC has been obtained for procurement of 1,500MW through tender in a phased manner. Apart from this, connectivity with Power Grid Corporation of India Limited (PGCIL), (Central Transmission Utility(CTU)) for around 800MW of the wind projects in Tamil Nadu are under process.

2. Co-generation projects

TANGEDCO has taken up establishment of **12 co-generation plants** with a total capacity of **183 MW** in co-operative and public sector sugar mills along with sugar mill modernization in Tamil Nadu at a total cost of **Rs. 1,241.15 crores.**

In this regard, 18 MW capacity co-gen project at Chengalrayan Co-op. Sugar Mills Ltd., Villupuram District,

15 MW capacity co-gen project at Vellore and 15 MW capacity co-gen project at Cheyyar were commissioned on 17.02.2016, 19.01.2017 and 31.10.2017 respectively.

Further, Arignar Anna(15 MW) and Perambalur (18 MW) are programmed to be commissioned during August 2018. Balance 7 Nos. Co-gen projects are likely to be commissioned on or before December 2018.

1.4.4 Projects

1.4.4.1 Ongoing projects

Sl. No	Projects	Capacity in MW	Value in Rs. (Crores)
1	ETPS Expansion Thermal Power Project (1 x 660 MW)	660	5,421
2	Ennore SEZ Thermal Power Project (2 x 660 MW)	1320	9,800
3	North Chennai Thermal Power Station Stage-III (1x800 MW)	800	6,376
4	Uppur Thermal Power Project(2 x 800 MW)	1600	12,778
5	Udangudi Thermal Power Project Stage I (2x660MW)	1320	10615
6	Kundah pumped storage hydro-electric project (4x125MW)	500	1831.29
	TOTAL	**6200**	**46,821**

1. ETPS Expansion TPP (1 x 660 MW)

The total project cost is **Rs. 5,421 crores** including Interest during construction (IDC). Letter of Intent (LOI) for Engineering, Procurement and Construction (EPC) contract had been issued on 27.02.2014. to M/s. LANCO Infra Tech Ltd. Turbine Generator raft concreting, Chimney shell and Racker columns in Natural Draught Cooling Tower (NDCT) completed.

M/s. IDBI, the Bankers for the EPC Contractor have initiated Corporate Insolvency Resolution process against the Contractor in National Company Law Tribunal (NCLT), Hyderabad under Insolvency and Bankruptcy Code (IBC) 2016 on 07.08.2017 to resolve huge outstanding debts.

Under these circumstances work in the project has been stalled from August 2017 and the committee of creditors have appointed a Resolution Professional to manage the functions of the company. Since there was no progress in the project activities, Termination notice was issued to the EPC Contractor on 09.04.2018. The Security cum Performance Bank guarantee has been invoked from the respective Banks and amount realised by TANGEDCO.

The balance work in the project which is yet to be completed is being ascertained and will be completed through a new EPC Contractor, by floating of fresh open tender, shortly.

The project is expected to be commissioned during 2020-21.

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

The total project cost including IDC is **Rs.9,800 crores**. LOI for EPC cum debt finance contract has been issued to M/s. BHEL on 27.09.2014.

Work was temporarily suspended from 07.09.15 due to a writ petition filed by one of the bidders in the Hon'ble High Court of Madras. On appeal to Hon'ble Supreme Court by TANGEDCO and after receipt of order dated 18.10.16 in favour of TANGEDCO from Hon'ble Supreme Court, EPC work was resumed from 19.10.16.

Piling works, Boiler & ESP structural erection works for Unit 1, Structural Fabrication and other Civil works are under progress. The project is expected to be commissioned during 2019- 20.

Ennore SEZ Project – Boiler and ESP structural works

3. North Chennai Thermal Power Station Stage-III (1 x 800 MW)

The total project cost including IDC is **Rs.6,376 Crores**. LOI have been issued for Boiler, Turbine and Generator (BTG) package to M/s BHEL on 29.01.2016 and Balance of Plant (BOP) package on 28.10.2016 to M/s BGRESL on EPC basis. TG civil works, Boiler, Electro Static Precipitator (ESP) and Power House Structural erection works, Chimney shell construction, NDCT Raft and Racker column concreting and other civil works are under progress.

The project is expected to be commissioned during 2019-20.

NCTPP Stage III – Power House Building Structural Works

NCTPP Stage III – Chimney (117.3m) and 230kV GIS Building Works

4. Uppur Thermal Power Project(2x 800 MW)

The total project cost including IDC is **Rs. 12,778 crores**. LOI has been issued for BTG to M/s BHEL on 27.02.2016, BOP to M/s Reliance Infrastructure Ltd on 21.02.2018 and Sea water intake and outfall system to M/s. L&T Ltd on 08.05.2018 on EPC basis.

Around 70 acres of land have been handed over to M/s. BHEL for BTG package. Around 552 acres of land have been handed over to M/s. Reliance Infrastructure Ltd for BOP package. Balance Patta land to an extent of around 360 acres is under litigation which are yet to be handed over to the BTG/BOP Contractors.

Writ petitions challenging the Land Acquisition Act have been filed by a few land owners of the project site. The High Court of

Madras has granted an interim order stating that the status quo of possession of land may be maintained. Cases are being heard.

Another petition has been filed by Anaithu Vivasayikal Paathukapu Nalasangam in the High Court of Madras in December 2017, stating that few areas of the project site are obstructing the surplus water flow from nearby tanks. These cases are also being heard.

The Consent to Establish the project has been issued by Tamil Nadu Pollution Control Board (TNPCB) on 22.08.2017. Survey, Geo-technical investigation & test piling works are under progress.

The project is expected to be commissioned during 2021-22.

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

The total project cost including IDC is **Rs.10,615 Crore**s. The Hon'ble High Court, Madras issued an interim order dated 30.10.2015 in the stay petition permitting TANGEDCO to proceed with processing of the tender but withholding the award of tender till further orders. The judgment was finally issued in favour of TANGEDCO vide judgment dated 07.12.2017.

LOI was issued to M/s.BHEL for Design, Engineering, Manufacture, Supply, erection, testing and commissioning of complete thermal power project, on EPC basis on 07.12.2017. The required land has been handed over to the contractor on 15.12.2017. **The Hon'ble Chief Minister of Tamil Nadu has inaugurated the**

project work on 29.01.2018. Survey & Geo-technical investigation works are under progress.

Work for establishment of Captive Coal Jetty has been awarded to M/s. ITD Cementation India Limited on 13.02.2018 and required land has been handed over to the contractor on 20.02.2018. Survey & Geo- technical investigation & Test piling works in respect of Captive Coal Jetty are under progress.

The project is expected to be commissioned during 2021-22.

Unveiling the foundation stone for 2x660 MW Udangudi super critical thermal Power project Stage I on 29.01.2018 by Hon'ble Chief Minister of Tamil Nadu

6. Kundah pumped storage hydro-electric project- (4x125MW)

The total project cost including Interest during construction is **Rs.1831.29 crores**.

All the statutory clearances required for the project have been obtained. This project is proposed to be executed in 3 phases. Execution of certain works such as Access Tunnel, cable cum ventilation Tunnel and Approach roads have been completed.

The EPC contract has been issued to M/s.Patel Engineering on 15.02.2018 for Package I & II of Phase I relating to Civil and Hydro Mechanical works. Survey works are under progress. The Package-III of Phase-I, Phase II & Phase III relating to Electro Mechanical works (E&M) will be awarded shortly. **The Hon'ble Chief Minister of Tamil Nadu has inaugurated the Project work on 18.05.2018.**This Project is expected to be commissioned during 2021-22.

The Hon'ble Chief Minister of Tamil Nadu has inaugurated the Kundah pumped storage hydro-electric project (4x125MW) works –on 18.05.2018.

1.4.4.2 New Projects

Sl. No	Projects	Capacity in MW	Value in Rs. Crores
1	Ennore Replacement Thermal Power Project (1x660 MW)	660	5,400
2	Udangudi Expansion Project Stage II (2x660MW)	1,320	8,745
3	Udangudi Expansion Project Stage III (2x660MW)	1,320	8,745
4	Sillahalla Pumped Storage HEP (8x250 MW in 2 Stages)	2,000	7,000
5	Kadaladi Thermal Power Project (5x800 MW)	4,000	24,000
6.	Cheyyur Ultra Mega Power Project(4000 MW (5 x 800 MW) ; Total estimate : Rs. 25,970 crores)	1,600	-
7.	Kadaladi Ultra Mega Solar Photo Voltaic Power Park Project (500 MW)	500	2350
	TOTAL	**11,400**	

1. Ennore Replacement Thermal Power Project (1 x 660 MW)

The total project cost including IDC is **Rs.5,400 crores.** This project has been proposed in place of the Ennore Thermal Power Station which has been decommissioned on 31.03.2017.

Terms of Reference (ToR) for the project has been issued by Ministry of Environment, Forests and Climate Change (MoEF & CC) New Delhi on 25.07.2014. The Expert Appraisal Committee meeting of MoEF & Climate change was held on 30.08.2017 and the committee considered the project proposal but stated that a Sub-Committee may be sent to visit the project site to ascertain the Environmental conditions. The committee on visit, directed to furnish certain documents related to

Environmental conditions, for which a consultant is being fixed by TANGEDCO.

DPR for the new Replacement project received from consultant on 21.07.17. Purchase order has been issued on 21.08.2017 for engaging the consultants for preparation of Asset valuation report of old ETPS. Draft valuation report of old ETPS has been received from the consultant on 27.03.2018 and is under scrutiny.

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

The total project cost including IDC is **Rs.8,745 crores**. Land acquisition and various other related activities are under progress. MoEF & CC, Government of India has directed TANGEDCO to approach the Ministry after awarding the work of Udangudi Stage I, for considering the issue of Terms of Reference

(ToR) for Stages II & III. The Ministry will be approached shortly.

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

The total project cost including IDC is **Rs.8,745 crores**. Land acquisition and various other related activities are under progress. MoEF & CC, Government of India has directed TANGEDCO to approach the Ministry after awarding the work of Udangudi Stage I, for considering the issue of Terms of Reference (ToR) for Stages II & III. The Ministry will be approached shortly.

3. Sillahalla Pumped Storage Hydro Electric Project (2,000 MW-8x250 MW in 2 Stages of 4x250 MW each)

Preparation of DPR, conducting all geo-technical investigation works, Environment Impact Assessment (EIA) study, getting all

necessary clearances from Ministry of Environment Forest & Climate Change and Central Electricity Authority, New Delhi for the Sillahalla PSHEP Stage –I (4x250MW) are also to be taken up. For which tender Specification for engaging consultancy services towards preparation of DPR etc., for the stage I of this project is under process.

Preliminary works such as drilling exploratory boreholes & conducting Seismic refraction survey at Sillahalla dam site and conducting detailed survey in water conductor system area have been completed. Survey works for Lower reservoir & for Water conductor system, alignment of Stage I of the project have been completed. Stage II (1000MW) of this project will be taken up after completion and commissioning of Stage I (1000MW).

5. Kadaladi Thermal Power Project, Ramanathapuram (5x800 MW)

The total project cost is **Rs.24,000 crores**. The MoEF & CC, in its Expert Appraisal Committee meeting has directed TANGEDCO to explore 3 new sites, as the sites already proposed fall within the buffer zone of Gulf of Mannar Biosphere Reserve Area. It is proposed to shift the site suitably away from the buffer zone. Alternate sites are being identified.

6. Kadaladi Ultra Mega Solar Photo Voltaic Power Park Project (500 MW)

The total cost of the project including IDC is **Rs. 2,350 crores**. Approval from MNRE obtained on 08.12.2017 and approval from GoTN was issued, vide G.O.Ms. No. 70 dated 29.12.2017 for establishment of the project in Narippaiyur and nearby villages in 900 Hectares of land on EPC contract basis under State Sector. Coastal Regulatory Zone (CRZ) Report

received from Anna University on 30.01.2018. Purchase Order for award of Consultancy services for preparation of DPR, Pre-award and Post - contract services till commissioning of the plant has been issued on 07.04.2018.

The project is expected to be commissioned in 2019-20.

7. Cheyyur Ultra Mega Power Project (5 x 800 MW)

The total project cost including IDC is **Rs.25,970 crores**. This project is being developed by Government of India with private sector participation through Power Finance Corporation. Tamil Nadu will get 1600 MW power from the project as its share. Land acquisition is under process. The Ministry of Power has agreed to allot a coal block for this project. Ministry of Power has planned to upload the bidding documents shortly on

modifying the bidding documents incorporating 100% utilization of domestic coal, after which tender processing will be initiated.

1.4.5 Coal and Coal Block

a. Fuel Supply Agreements (FSAs) have been executed with Eastern Coalfields Limited (ECL) and Mahanadi Coalfields Limited (MCL) for a total quantity of 20.445 Million Tonnes per Annum (MTPA) in 2009, 2012 and 2013 for supply of Indian coal for all the thermal power plants of TANGEDCO.

b. Import of Coal

During May 2016, the Govt. of India desired to assess replacement of coal imports jointly with Ministry of Coal, Ministry of Power, Ministry of Railways and Power Utilities. Based on the advice of Govt. of India, Coal India Ltd (CIL) requested to stop

importing coal and substitute it with indigenous coal available from CIL sources.

Accordingly, the CIL, Ministry of Coal has proposed to substitute Import coal with high grade domestic coal. Subsequently, TANGEDCO has signed Side Agreement with ECL for a quantity of 2.50 MTPA.

Further, as directed by Coal India Limited under Import Substitution, TANGEDCO has signed FSA with Central Coalfields Ltd (CCL) for a quantity of 1.0 MTPA and with Western Coalfields Ltd (WCL) for a quantity of 0.50 MTPA, transferring 1.5 MTPA from FSA – 2009 of MCL.

However, the overall supply of Indian coal during the above period was only 64% and also the import substitution under the various agreements was only 6%. As no

fresh tenders were processed from February 2016 by TANGEDCO, and import coal received upto June 2017 was only against the purchase orders already placed during 2015-16, the stock of import coal also zeroed down by October 2017. This led to a very critical coal stock position of 1.7 days requirement only during October 2017.

In this regard, the Hon'ble Chief Minister of Tamil Nadu and the Hon'ble Minister for Electricity addressed to Hon'ble Minister of Coal to supply minimum of 72,000 Metric Tonnes of coal on a daily basis through 20 rakes to meet out the daily requirement. Inspite of all efforts, required quantity of domestic coal could not be realized.

At this juncture, in order to protect the interest of the State and to operate the State Thermal Power Stations to satisfy the Energy Demand of the State, after duly intimating the exigency of the situation from Govt. of Tamil Nadu to Govt. of India, purchase order has been placed during October 2017 for procurement of import coal, through e-tender with e-reverse auction and the supply is under progress.

c. Savings achieved

TANGEDCO for the first time processed the procurement of Import coal (20 Lakh Tonnes) by e-tender with e-reverse auction. The tender was finalized with a competitive C&F (Cost of coal & Freight) price which is much lesser than the international market price and Purchase Order was placed for

20LT of imported coal on 11.01.2018. This will lead to reduction in expenditure.

Furthermore, reduction in expenditure to the tune of **Rs.586 crores** was achieved due to efficient Coal Management, Import substitution and procurement of Import coal by e-tender with e-reverse auction for the first time. This saving was achieved in spite of an **additional expenditure of Rs.835 crores** due to increase in Clean Energy Cess & increase in railway loading charges and also increase in coal cost (9%), railway tariff, port charges etc., by Government of India.

1.4.6 Chandrabila coal block

The Ministry of Coal has allocated Chandrabila coal block in Odisha with reserve capacity of 896 Million Tonnes to Tamil Nadu

Generation and Distribution Corporation Ltd on 24.02.16.

TANGEDCO has signed Coal Block Development and Production Agreement with Ministry of Coal on 30.03.16 for the development of Chandrabila coal block.

A consultant has been appointed for preparation of bid specification for selection of Mine Developer and operator (MDO) and offering consultancy service till selection of MDO.

Long Term Coal Linkage

TANGEDCO has applied to Ministry of Power for grant of Long Term Coal Linkage (LTCL) for the four projects under construction viz, ETPS Expansion (1X660MW), NCTPS Stage-III (1X800MW), Ennore SEZ (2X660MW) and Uppur TPP (2X800MW) (Totaling 4380 MW).

The LTCL applications are being processed by Ministry of Power (MoP).

In addition, long term coal linkage for Udangudi Stage-I (2X660MW) Thermal Power Projects is being requested from Ministry of Power.

Further, Ministry of Coal has been addressed to allocate Mandakani-A and Utkal-C coal block located in the State of Odissa to meet out the coal requirement for the upcoming Thermal Projects.

1.4.7 Long Term Power Purchases

Tamil Nadu Generation and Distribution Corporation Limited had executed 11 long term Power Purchase Agreements for procurement of 3330 MW power for fifteen years from 2014.

Out of 3,330 MW, 2158 MW is from inter-state generators and 1,172 MW from intra-state generators. Out of 2,158 MW, from inter-state generators, 1,658 MW is being received. In case of intra-state generators, the entire 1,172 MW is being received.

1.5 Transmission

TANTRANSCO has planned to develop transmission infrastructure to effectively evacuate power from the existing and new power generating stations. The existing capacity of intra-state transmission system is enhanced year by year to match the capacity addition in generation and to meet the increasing demand.

Substations and EHT lines in the existing network as on 31.03.2018

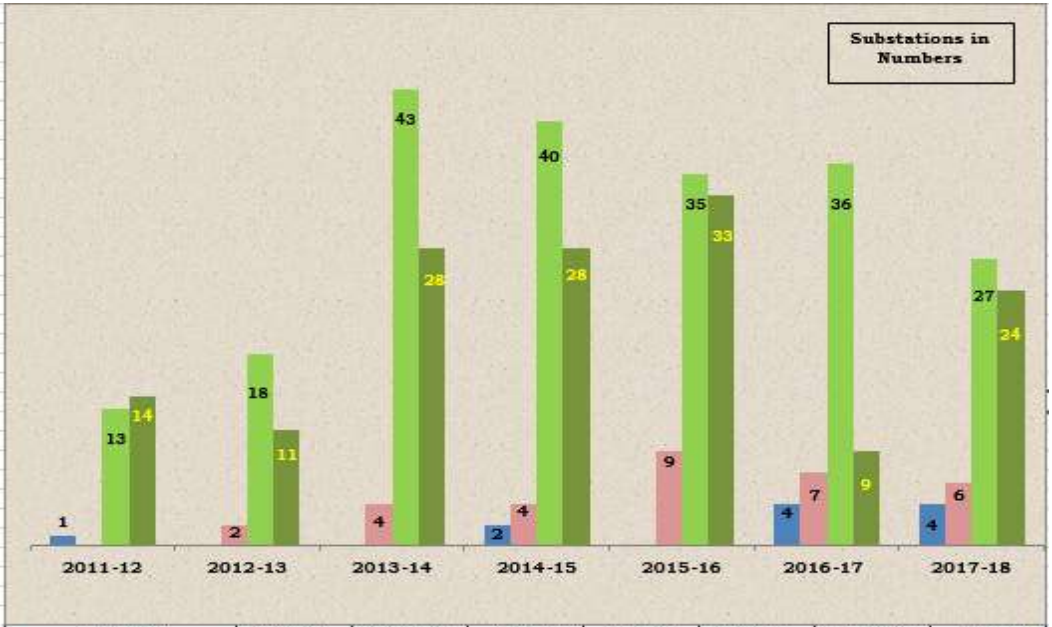
S.No	Rating	Number of substations/ EHT lines
1	765 kV	4 * (PGCIL SS)
2	400 kV	24 **
3	230 kV	100
4	110 kV	857
5	66 kV	5
6	33 kV	602
	Total	**1592**
	EHT lines	33,526.140 circuit kms

(Note *3 substations initially charged at 400 kV level, **10 nos. are PGCIL SS)

Number of substations commissioned and EHT lines energized since 2011

S.No	Year	Number of substations commissioned	EHT lines Energised in circuit kms
1	2011-12	28	691.072
2	2012-13	31	1268.05
3	2013-14	75	1436.391
4	2014-15	74	2634.147
5	2015-16	77	1987.679
6.	2016-17	56	1487.437
7	2017-18	61	2208.951
	Total	**402**	**11713.727**

Number of substations commissioned from 2011 to 31.03.2018



Capacity	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
400kV	1	0	0	2	0	4	4
230kV	0	2	4	4	9	7	6
110kV	13	18	43	40	35	36	27
33kV	14	11	28	28	33	9	24
Total	28	31	75	74	77	56	61

1.5.1 Adoption of New Technology

1. Tamil Nadu's first digital substation

The first digital substation adopting digital technology in the communication network between Control and Relay (C&R) Panels and yard equipments, for reducing the time for rectification of fault and early restoration of supply has been proposed at Selvapuram in Coimbatore district with a scheme cost of Rs.65 crores. Tender has been opened and is under scrutiny. The substation is expected to be commissioned by 2019-20.

2. HIGH TEMPERATURE LOW SAG (HTLS) conductor

TANTRNSCO has proposed to replace the existing conductor using new technology conductor of High Temperature Low Sag (HTLS)

to improve the current carrying capacity of existing 2 nos. 230kV EHT Lines and 8 nos. 110kV lines covering a total length of 393 ckt. Kms at an estimated cost of Rs. 224 crores, to meet out the increasing demand.

1.5.2 Intra state transmission system

During 2017-18, **4 nos.** 400 kV substations at Manali, Sholinganallur, Rasipalayam and Anakadavu and **6 nos.** 230 kV substations at R.A.Puram, Valayapatty, Kumbakonam, Mondipatty, Jambunathapuram and Savasapuram have been commissioned. Also 3rd Source has been provided to Koyambedu 230 kV AIS SS from Alamathy 400 kV SS. Commissioning of Manali and Sholinganallur 400 kV substations and Alamathy – Koyambedu 230 kV line has strengthened Chennai Transmission network and greatly improved operational flexibilities.

Jammunathapuram 230/110kV substation –
Tiruchirapalli District

Inauguration of Kasipallayam 110/22kV SS along with 44 substations in 21 districts through video conferencing on 20.04.2018 by Hon'ble Chief Minister of Tamil Nadu

1.5.3 Schemes under progress

1. 765 KV substations:

Among all State transmission utilities in India, TANTRANSCO is the first utility to erect a 765kV network on its own.

TANTRANSCO has proposed a 765 kV network comprising **4 nos.** 765 kV substations along with their associate Transmission lines for transfer of bulk power from Generating stations and for transferring of inter-state power with downstream connectivity for effective evacuation of generated power.

Works are under progress for Ariyalur SS along with associated lines from Ariyalur to PGCIL Thiruvalam 765 kV SS and GIS Pooling Station at North Chennai along

with the associated 765 KV DC line from North Chennai to Ariyalur.

Tender is to be floated for establishment of Virudhunagar and land registration is under process for Coimbatore.

2. 400 kV substations

TANTRANSCO has proposed **4 nos.** 400 KV substations viz. Vellalaviduthi, Edayarpalayam, Ottapidaram and Samuga rengapuram for system strengthening and for power evacuation throughout the State. Tendering is under various stages.

3. 230 kV substations

TANTRANSCO has proposed 14 **nos.** 230 KV substations throughout the State other than Chennai, for system strengthening and flexibility of operation. Of these Savasapuram

SS has been commissioned and works are under progress for substations at Kancheepuram, Uddanapally, Neyveli, Karuppur, Samayanallur, Thirupathur and Sankarapuram. Tendering is under various stages for substations at Thuvakudy, Narimanam, Selvapuram Digital SS, Erode, K.Pudur (Gas Insulated Substation - GIS) and Poolavady.

1.5.4 Japan International Cooperation Agency (JICA) Assistance

Establishment of five 400kV substations and twelve 230 kV substations along with the associated transmission lines have been sanctioned at a total outlay of Rs.5,000 crores with the Official Development Assistance (ODA) Loan of JICA amounting to Rs.3,572.93 crores. Expected date of completion of JICA schemes are during 2020-21.

Out of the **5 nos. 400 kV substations**, 3 nos. 400 kV substations at Karamadai, Sholinganallur and Manali have been commissioned. Work under process for Guindy 400 kV GIS SS and Tender is under scrutiny for Korattur 400 kV GIS SS.

Out of **12 nos. 230 kV substations**, 8 nos. 230 kV substations at Alandur, Karuvalur, Echur(Purisai), Kinnimangalam, Ambattur III Main Road, R.A. Puram, Poyyur and Kumbakonam have been commissioned. Sub stations works have been completed for CMRL Central GIS SS and will be commissioned on completion of 230 kV cable works. Works are under progress in respect of Tiruppur, Shenbagapudhur and TNEB Head Quarters substations.

JICA scheme- Kinnimangalam 230/110kV substation – Madurai District

JICA scheme- Manali 400/230-110kV GIS SS - Tiruvallur District

1.5.5 Schemes funded by KfW (German Development Bank), Germany Funding

In order to evacuate the huge quantum of the Renewable Energy (RE), TANTRANSCO has taken up establishment of a vast network of high capacity transmission lines in the State at an estimated cost of Rs.6000 crores. Expected date of completion of KfW schemes are during 2018-19.

Ministry of New and Renewable Energy (MNRE) has recommended assistance for creation of the transmission network infrastructure for Rs.1593 crores to Tamil Nadu. Government of India has accorded approval for a grant of Rs.637.20 Crores (40%) under National Clean Energy

Fund (NCEF). Agreement with KfW was signed on 17.12.2014 between Government of India and KfW (German Development Bank) for a soft loan of Rs.637.20 crores (40%) from KfW German funding. The balance Rs.318.60 crores. (20%) is proposed as equity by TANTRANSCO.

The schemes under KfW funding have been taken up in five packages.

Package –I

Thennampatti 400 kV SS – Works are under progress and will be completed by July 2018.

Package –II

400 kV DC Line connecting Thennampatti – Kayathar 400kV SS

(48 kms) and 2 Nos. 400 kV bay provision at Kayathar – Works are under progress and will be completed by July 2018

Package –III

Works for 400 kV DC Line connecting Rasipalayam & Singarapet (Palavadi) (195 kms) and 2 Nos 400 kV bays at Palavadi SS are under progress and will be completed by September 2018.

Package –IV

230 kV Transmission lines in various regions of the State with a length of 608 kms have been proposed, of which a length of 55 kms have been commissioned. Balance works will be completed by September 2018.

Package V

Augmentation of 230/110 kV transformation capacity at existing six substations at Annupankulam, Cuddalore, Villupuram, Pudukottai, Thiruvannamalai and Sembatty – Auto Transformer capacity has been enhanced at Anuppankulam 230 kV SS from 100 MVA to 160 MVA on 23.02.18 and additional 160 MVA auto transformer commissioned at Pudukottai 230 KV SS on 25.02.2018. Balance works will be completed by September 2018.

1.5.6 Schemes proposed in Chennai area

Apart from the above, the following schemes are proposed for improving Chennai network.

1. 400 kV substations

In order to evacuate power generated in Gummidipoondi and North Chennai area, **3 nos.** 400 kV substations are proposed, one at Thervoikandigai which is charged at 230 kV level on 15.04.2016 and 400 kV line works are under progress and tendering is under various stages for Pulianthope (GIS) and Tharamani.

2. 230 kV substations

Further **8 Nos. 230** kV substations are proposed to be established at Chennai. Of which, works are under progress for Porur (GIS) and Thiruvanmiyur (GIS) and tendering is under various stages for Mambalam (GIS), Ganesh Nagar (GIS), Ennore (GIS), Avadi, Durainallur and Maraimalainagar.

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

Ministry of Power, Government of India has cleared the proposal for financial assistance of US$ 500 Million from Asian Development Bank (ADB), under Chennai – Kanyakumari Industrial Corridor Project, comprising of Virudhunagar 765 kV substation and Ottapidaram 400 kV substation with their associated lines for an estimated cost of Rs.4987 Crores. Bid documents for both the substations are under preparation in consultation with ADB.

1.5.8 Intra State Green Energy Corridor Schemes for evacuation of Renewable Energy:

i) A separate corridor with three new 400 kV substations at Thappagundu, Anakadavu and

Rasipalayam along with the associated 830 Kms of 400 kV lines to be connected to the existing Dharmapuri (Palavadi) 400 kV SS has been proposed. Rasipalayam & Rasipalayam – Palavady 400 kV DC line, Anakadavu & Rasipalayam – Anakadavu 400 kV DC line and Anakadavu – Thappagundu 400 KV DC line have been commissioned. Works are under progress for Thappagundu 400kV SS which is to commissioned during 2018-19.

ii) For evacuation of wind power, Kanarpatty 400 kV substation has been commissioned on 09.01.2017 with connectivity to Kayathar 400 kV substation and Tirunelveli (PGCIL) 400 kV substation at a cost of Rs.248 Crores.

Annakadu 400/ 230-110kV Substation – Tiruppur District

1.5.9 Schemes proposed for Intra-State Green Energy Corridor(Phase II)

Approval has been requested from Central Electricity Authority (CEA) and Ministry of New and Renewable Energy (MNRE) for establishment of 400 kV SS at Samugarengapuram, 3 nos. 230 kV substations at Poollavady, Muppandal and Kongalnagaram and 400 kV DC line from Kamudhi to Thappagundu for availing MNRE grant at a total cost of Rs. 1609 crores.

ABSTRACT OF SCHEMES AVAILABLE FOR EXECUTION DURING 2018-19

S. No.	Voltage Rating	Number of substations	Total Scheme cost in Rs crores
1	765 kV	4	10,810.57
2	400 kV	12	7,902.65
3	230 kV	30	3556.96
4	110 kV	138	1780.14
	Total	**184**	**24,050.32**

1.6 Distribution

Distribution is the most important link in the entire power sector value chain. As the only interface between utilities and consumers, it is the cash register for the entire sector. Lack of focus in this sector will result in poor operational and financial performance of the sector. Having realised this and the need of sector transformation, large endeavours have been taken to strengthen the Distribution infrastructure.

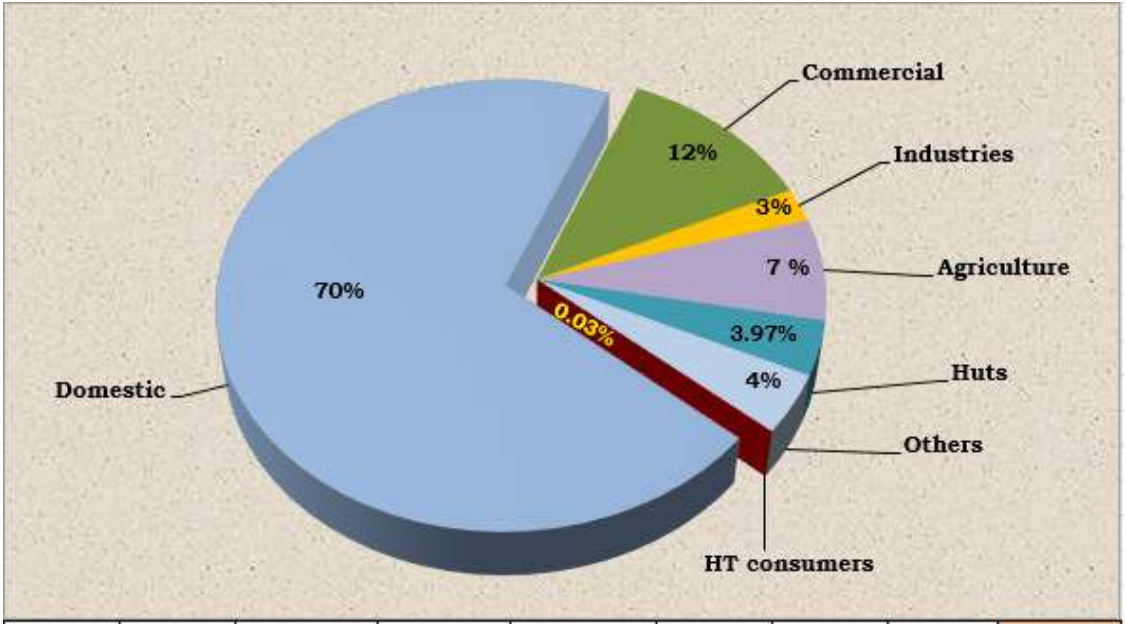
1.6.1 Salient Features

During the year 2017-18, **24 nos. 33 kV substations, 8,936 kms of LT lines, 2,894 kms of HT lines and 11,273 distribution transformers** have been energized. Further, new service connections have been effected to **7.94 lakhs** new consumers in the year 2017-18.

Category wise total number of consumers being served in the State by TANGEDCO as on **31.03.2018** is as follows:

Sl. No.	Category	Numbers in Lakhs	Number of new service connections effected	
		as on 31.03.2018	During 2017-18	Since 2011
	HT Services	0.093 (9299 Nos)	0.005 (516 nos)	0.028 (2844 nos)
	LT Services			
1	Domestic	201.82	5.20	42.93
2	Commercial	34.70	1.22	11.28
3	Industries	6.96	0.29	1.62
4	Agriculture	21.03	0.31	1.27
5	Huts	11.21	0.01	0.15
6	Others	12.28	0.91	5.27
	Total	**288.09**	**7.94**	**62.55**

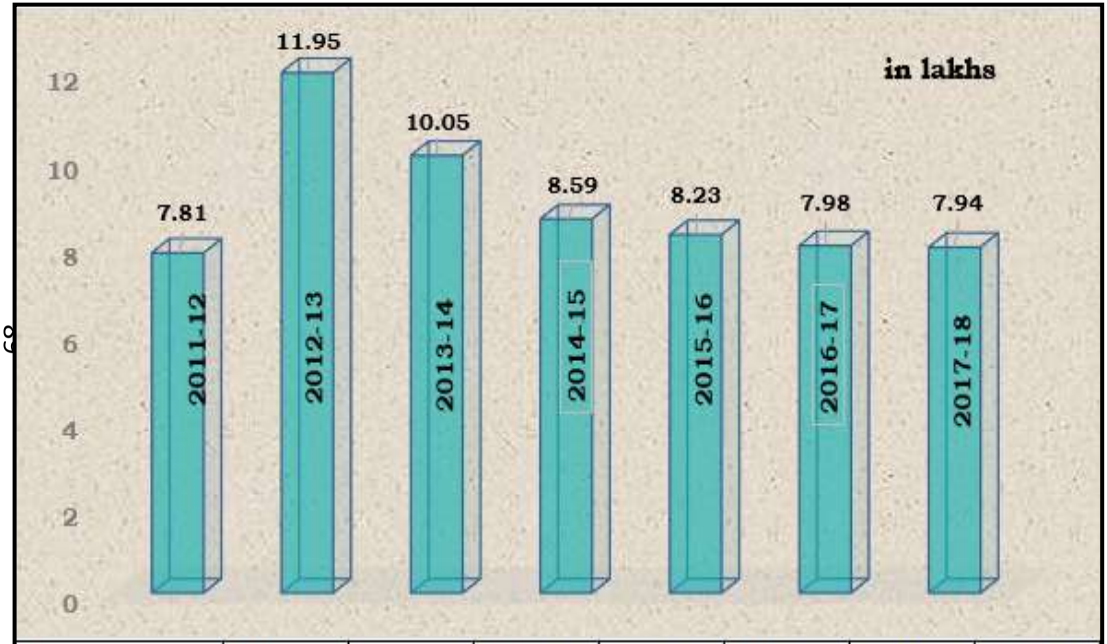
New service connections effected since 2011



Category	Domestic	Commercial	Industries	Agriculture	Huts	Others	HT services	Total
Total Number (in lakhs)	201.82	34.7	6.96	21.03	11.21	12.28	0.093 (9299 Nos)	288.09

Category wise total number of consumers as on 31.03.2018

New service connections effected since 2011 upto 31.03.2018



Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
New SC effected	7.81	11.95	10.05	8.59	8.23	7.98	7.94

1.6.2 Strengthening of Distribution network

TANGEDCO has taken various measures to strengthen the distribution infrastructure. Apart from augmenting the existing infrastructure to cater to the needs of the increasing demand, rectification & strengthening works are also being carried out to ensure uninterrupted, reliable and safe power to all.

Under improvement works, around 22,255 kms of aged conductors have been identified and replaced, around 1,60,951 damaged poles have been replaced and to ensure safety low sagging lines to a length of around 1,80,545 kms have been rectified and around 25,000 pillar boxes have been heightened in Chennai alone.

Greater Chennai Distribution network

Demand – Consumption of Greater Chennai			
	2016	**2017**	**2018** **(Expected)**
Peak Demand in MW	3101	3332	3580
Peak Day Consumption in MU	58.88	64.830	71.30
% Growth rate in Peak Demand		**7.5 %**	**7.5 %**
% Growth rate in Consumption		**9.3 %**	**10 %**

Works Carried out / under process for the past two years in Greater Chennai		
S. No	**Description**	**Works Carried Out**
1	Substation Commissioned	20 Nos.
2	33 kV Feeders Commissioned	35 Nos.
3	11 kV Feeders Commissioned	301 Nos.
4	Power Transformer capacity addition	646 MVA
5	Distribution Transformers	5256 Nos.
Ongoing Works in Greater Chennai		
1	Substation	**20 Nos.**
2	33 kV Feeders	20 Nos.

1.6.3 Effects of the augmentation of the Distribution Network in Greater Chennai

Due to the various steps taken for strengthening the Greater Chennai network, the number of Fuse off Calls (FoC) has been reduced during 2017-18 by 6% compared to 2016-17.

1.6.3.1 Schemes under execution in Greater Chennai

1. Cyclone resilient Greater Chennai

It is proposed to convert the overhead lines into underground cables in extended area of Chennai city covering Chennai Corporation and Chennai suburban area at a cost of **Rs.2,549 crores** funded by Power Finance Corporation.

Under this scheme, it has been proposed to convert 33,307.81 km of LT over head lines and 2004.89 km of HT over head

lines to underground cables. E-Tenders are to be floated for the turnkey project. The scheme is expected to be completed by 2020-21.

2. Conversion of existing Distribution Transformers structures to RMUs in Chennai suburban areas

To ensure the safety & prevent accidents and to reduce the downtime of supply interruption and to improve livability standard, it is proposed to replace the of existing 17,535 distribution transformer structures into Ring Main Unit (RMU) in Chennai suburban areas at an estimated cost of Rs.1,750 crores, funded by Rural Electrification Corporation(REC). Tender has been opened and is under scrutiny. Works are expected to be completed by 2019-20.

3. Replacement of Pillar Box to HRC (High Rupturing Capacity) 6 way Pillar Box in Chennai Region

In order to minimise power interruptions due to natural calamities, it is proposed to replace the existing 38,844 pillar boxes by High Rupturing Capacity (HRC) 6 way pillar boxes in Chennai region at an estimated amount of Rs.270 crores funded by Rural Electrification Corporation (REC). Tender has been opened and is under scrutiny. Works are expected to be completed by 2019-20.

1.6.4 Other Schemes

1. Conversion of overhead lines into underground cables under Coastal Disaster Risk Reduction Project (CDRRP)

- Conversion of the HT and LT overhead power lines into underground cables in cyclone prone coastal towns of

Cuddalore, Nagapattinam and Velankanni with funding assistance to the tune of Rs. 360 Crores (66.30 Million US$) from World Bank. Four packages are proposed for implementation on priority.

- Of which, Letter of Acceptance (LOA) has been issued on 07.02.18 to M/s.L&T, Chennai for Conversion of Over Headlines system into Under Ground cabling system in 22kV Alpettai, Suthukulam and Pentasia feeders in coastal Cuddalore Town.For the balance 3 packages tenders have been opened and under scrutiny.

2. Ujwal Discom Assurance Yojana (UDAY)

Tripartite agreement was signed amongst MoP/Govt. of India, Govt. of Tamil Nadu and TANGEDCO on 09.01.2017 for effective implementation of UDAY scheme in Tamil Nadu.

Objective: Reduce the AT&C loss of TANGEDCO to 13.5 % by FY 2018-19 from the baseline AT&C loss of 14.58 % for the FY 2015-16.

To achieve the targeted AT & C loss the following works are proposed:

1. HT Strengthening

Detailed project reports (DPRs) covering all the nine regions were approved for an amount of Rs.1,817 Crores for strengthening the existing HT network. The

works proposed consists of two categories as detailed herewith. Part I-works amounting to Rs.1,408 Cr. and Part II-works amounting to Rs.409 Cr. Procurement of materials are under progress for these works.

S.No	Description	Quantity
	Part I	
01	Erection of new 33/22/11 kV lines	2990 km
02	Replacement / Strengthening of existing 33/22/11 kV lines	18920 km
	Part II	
03	33/11 KV SS	51 Nos.
04	Power Transformers Augmentation	79 Nos.

2. DT metering for accurate energy accounting

3. Providing Smart meters for LT consumers

4. Segregation of Rural feeders

1.6.5 Schemes executed under the assistance of GoI

1. Strengthening of distribution network through Restructured- Accelearted Power Development and Reforms Programme (R-APDRP)

The scheme aims to provide quality and reliable power supply to the consumers and to bring down the AT&C losses below 15% in towns having population more than 30,000. The project is taken up in two parts i.e., Part-A and Part-B.

a. PART- A Schemes

Information Technology infrastructure

- The contract was awarded to the IT implementing Agency(ITIA), M/s. ITI Ltd. in consortium with M/s. Navayuga Infotech (NIT) Pvt. Ltd. on 14.10.2010 for implementation of IT infrastructure in 110 towns of Tamil Nadu at a total cost of Rs. 307.28 crores. Out of 110 towns, works are completed in 102 towns.

- **IT Implementation:** The ITIA has withdrawn their services from 21.02.2017 and filed various court cases against TANGEDCO. An order has been passed by the High court, Madras on 26.05.2017 referring the cases to the

Arbitral Tribunal for resolving the issues. At present the case is under Arbitration.

- **Supervisory Control and Data Acquisition (SCADA)**

  Supervisory Control and Data Acquisition (SCADA) / Distribution Management System (DMS) completed and commissioned in all the 7 towns viz. Chennai, Tiruppur, Trichy, Salem, Madurai Tirunelveli & Coimbatore at a total expenditure **of Rs. 139 crores. Among all the States in the country Tamil Nadu is the first State** to complete the scheme successfully, and put the system in service.

b. R-APDRP - PART-B Schemes

Strengthening of the distribution network in 88 towns under Part-B at a cost of Rs. 2841.21 Crores have been sanctioned. All works have been completed.

Strengthening works through REC Funding:

Strengthening of the distribution network for 100 towns were proposed under RAPDRP part B schemes. Out of which 15 towns were not considered as the losses was below 15% as pointed out by the Third party Agency verification. Though the losses are less than 15%, strengthening works are required to be

carried out considering the raise in demand.

The works for these 15 towns are being carried out at a cost of **Rs.754.13 crores** funded by M/s. Rural Electrification Corporation (REC). Works have been completed in 10 towns and works are in progress in the remaining 5 towns.

2. Integrated Power Development Scheme (IPDS)

Integrated Power Development Scheme (IPDS), funded by Ministry of Power, Government of India, is implemented in urban areas of all States, with the following objectives.

(i) 24x7 Power supply for all

(ii) AT&C Losses reduction

(iii) Electrification of all urban households

Sub transmission and Distribution system strengthening works in 522 towns having population above 5000 have been sanctioned at a project cost of Rs. 1695.86 Crores with MoP/GoI funding as follows:

Sl. No.	Type of Fund	Quantum of fund (in % of Total Project Cost)
1	Grant by MoP/GoI	60%
2	Lending from Financial Institutions (FIs)	30% (of which 50% will be given as Additional grant for successful achievement of milestones stipulated)
3	Utility own funds	10%

M/s. WAPCOS Ltd has been appointed as Project Management Agency (PMA) to assist TANGEDCO in implementing the scheme works.

E-Tenders for procurement of materials to the tune of Rs.1023 crores are under various stages of processing and the works are expected to be completed by 2019-20.

IPDS scheme- Makkinamkombai 33/11kV Substation along with Solar roof top- Erode District

3. Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

Government of India has launched Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for the rural areas with the following components:

a. Separation of agriculture and non-agriculture feeders (29 feeders).
b. Strengthening and augmentation of sub-transmission & distribution (ST&D).
c. Electrification of all rural households

Ministry of Power, Government of India has approved Rs.924.12 crores (including provision for PMA) under the above scheme.

M/s. WAPCOS Ltd has been appointed as Project Management Agency (PMA) to

assist TANGEDCO in implementing the scheme works.

E-Tenders for procurement of materials to the tune of Rs.635.39 crores are under various stages of processing and the works are expected to be completed by 2019-20.

DDUGJY scheme- Kullampallayam 33/11 kV substation- Erode Region

DDUGJY scheme- Melma 33/11 kV substation – Tiruvanamalai District

DDUGJY scheme- Vellakalnatham 33/11kV SS Vellore District

DDUGJY scheme- Kottaram 33/11 kV – Cuddalore District

1.6.6 Energy conservation measures

1. Prevention of Energy Theft

TANGEDCO has formed 43 teams (40+3 teams from 01.11.2016) of Ex-servicemen, 17 Enforcement Squads, 1 number Intelligence Wing and one flying squad for inspection and detection of theft of energy in Electricity Distribution Circles. The number of thefts detected and the amount levied towards provisional assessment and compounding charges are detailed below

S. No		2016-17		2017-18	
		No. of case of Power theft	Penal charges in crores	No. of case of Power theft	Penal charges in crores
1	Ex-Servicemen	9,542	17.61	10,586	18.66
2	Enforcement Squads	3,744	28.39	4,616	32.90
3	Intelligence wing	256	3.69	265	3.44

So far, 85,653 Nos. of theft of energy cases were detected by 40 teams of Ex-servicemen and provisional assessment and compounding charges amounting to Rs. 154.71 crores were levied upon the consumers.

The 3 teams of Ex-servicemen in 3 newly formed Electricity Distribution Circles viz., Krishangiri, Kallakurichi and Chennai South II, so far detected 1149

theft of energy cases and provisional assessment and compounding charges amounting to Rs.2.32 crores were levied since 01.11.2016.

2. Energy conservation measures

Awareness creation:

The "Energy Conservation Day and Week" is being celebrated every year during December 14-20. As a promotional measure, slogan on energy conservation "SAVE ELECTRICITY" is being sent as SMS to about 2.6 Crore consumers along with SMS on payment of current consumption (CC) charges.

Training wing of TANGEDCO emphasizes the need of energy conservation and also popularising the use of energy efficient lighting and star rated

equipments in all training programmes / workshops / seminars.

The program of energy conservation awareness to school students has been started throughout the State from October 2014. So far (upto March 2018) about 11.32 lakh students have been enlightened on energy conservation.

Seminar/ talk/ lecture on Energy Conservation for disseminating the knowledge and the latest technical knowhow is being taken up for central government sectors, micro/ small/ medium enterprises, private/ public sector, MNC companies and higher educational institutions.

3. Unnat Jyothi by Affordable LEDs to All (UJALA) scheme

TANGEDCO has permitted M/s. Energy Efficiency Services Limited (EESL) to sell 9 watt LED bulbs, 20 watt LED tube lights and 50 watt energy efficient 5-star rated fans at affordable price to the willing domestic consumers through independent kiosks all over Tamil Nadu.

On 22.03.2017, M/s. EESL had commenced the sale in Chennai Region (Phase I) through Distribution Agents (DAs). The above sale is in progress in 26 EDCs in the State. As on 31.03.2018, 16.29 lakh LED bulbs, 3.74 lakh LED tube lights and 72,528 BEE 5 star fans have been sold.

Apart from this as a part of Gram Swaraj Abhiyan programme, UJALA scheme was launched by **Hon'ble Minister for Electricity, Prohibition and Excise on 14.04.2018 in Chennai to sell subsidized** LED bulbs in 1477 identified villages across the State and about 5.96 lakh LED bulbs have been sold through this programme.

1.6.7 Consumer Friendly Measures

Implementation of New Schemes in TANGEDCO

TANGEDCO has implemented the following various new schemes in order to improve the customer oriented services.

- To ease the hassle of applying for a new service connection, **on-line filing of applications** has been launched on

05.08.2016 by **the late Hon'ble Chief Minister Amma.** Now, consumers can file the application for new service connection through on-line.

- **One day service connection scheme:** The **Hon'ble Minister for Electricity, Prohibition and Excise has inaugurated this scheme on 12.06.2017**. Under this scheme new LT Domestic and Commercial service connections (other than special and multi-storeyed buildings) falling under mere service connection category the electricity service connection will be effected **on the same day on receipt of application**. So far **2,79,405** numbers of service connections were effected under this scheme.

One day service connection scheme was inaugurated by the Hon'ble Minister for Electricity, Prohibition and Excise on 12.06.2017.

- **Minsara Nanban (Urja Mitra): The Hon'ble Minister for Electricity, Prohibition and Excise launched this consumer friendly scheme on 12.06.2017.** This app is a first of its kind which provides a central platform, web-portal (www.urjamitra. com) as well as mobile app to disseminate power outage information to rural/ urban power consumers through SMS/ push/ email notifications.

  By utilizing the Rural Electrification Corporation (REC) server, a message will be sent to all the registered mobile numbers in an area about the planned shutdown and feeder level unplanned outage in that area. So far, details for **2.24 crores** of TANGEDCO consumers have been uploaded.

TANGEDCO has the distinction of having the highest number of consumers updated in the Urja Mitra portal.

- On the Agriculture side, **a fast track (tatkal) scheme** for effecting **10,000 nos** free agriculture service connections within six months against a onetime payment for infrastructure development for willing farmers has been introduced with effect from **24.06.2017.** There is a tremendous response for this scheme. The farmers who have registered with TANGEDCO upto 06.09.2017 can submit their willingness and accordingly around 9,946 agriculture service connections have been effected under this scheme. Also, during the year2017-18, unlike in previous years 30,835 agricultural

service connections have been effected for benefit of the farmers.

- A scheme for effecting LT industrial service connections within 7 days up to a demand of **112 kilo watt** for both new and additional load has been launched with effect from 15.07.2017 and around **20,200 Nos** service connections have been effected under this scheme.

- Towards enhancement of **ease of doing business**, the Policy of 24x7 power to Industries / Developers with a demand of 10 MVA and above or with an investment of Rs.100 crores or more has also been launched with effect from 05.09.2017. Under this scheme the industries or developers who have signed Memorandum of Understanding (MoU) with TANGEDCO will get a dedicated feeder free, to extend

quality uninterrupted 24X7 power. If land is provided by developer, TANGEDCO will also establish a sub-station of appropriate voltage level. Under this scheme, MoU have been executed with M/s. Mahindra Industrial Park Limited, Chennai, in the presence of **Hon'ble Chief Minister of Tamil Nadu on 05.09.2017** and M/s GMR Krishnagiri SEZ Ltd., in the presence of **Hon'ble Minister for Electricity, Prohibition and Excise on 31.10.2017.**

- Multiple channels of collection of Current Consumption Charges viz., Net Banking, Debit/ Credit Cards through Payment Gateway, Mobile Banking, Mobile APP, Post office Collection, Bank Counter Collection, ATM Collection, Govt. e-seva centres, etc., has already been in place. Presently, **24% of the Consumers** are paying around

Rs. 500 Crores per month by making use of the above facilities. It has been targeted to achieve 50% under digital payment mode during this financial year.

- A mobile application for both Android and IOS operating systems have been launched by **the Hon'ble Minister for Electricity, Prohibition and Excise on 12.07.2017** for hassle free payment of Current Consumption Charges.

- Point of Sale (PoS) machines have been launched on 31.10.2017 by **the Hon'ble Minister for Electricity, Prohibition and Excise** to encourage payment of Electricity Charges by Low Tension (LT) consumers, through Debit/ Credit Cards at Collection Centres. This facility would be extended to all the 325 collection centres in Chennai and throughout the State in a phased manner.

Launching of Mobile Application by The Hon'ble Minister for Electricity, Prohibition and Excise on 12.07.2017

Launching of Point of Sale (PoS) machines by The Hon'ble Minister for Electricity, Prohibition and Excise on 31.10.2017

1.6.8 Call centres

Automatic computer based power failure redressal call centres are functioning at Chennai, Coimbatore, Madurai, Trichy, Erode, Tirunelveli, Nagercoil, Salem, Vellore, Kanchipuram, Karur and Tiruppur. Consumers can register their complaints by dialing 1912. The above facility will be extended to the entire districts of Tamil Nadu.

Also, a 24 hrs consumer redressal centre functions in the camp office of the Hon'ble Minister for Electricity, Prohibition and Excise to attend the grievances of the consumers. The general public can contact this centre through **044-24959525.**

1.6.9 Direct Recruitment

As per the **announcement of Hon'ble Minister of Electricity, Prohibition and**

Excise in Assembly for filling up of vacancies by Direct Recruitment, applications for 1,800 Technical Posts and 750 Non-Technical Posts were called for and candidates were selected by conducting a very transparent selection process.

Out of which, posting orders for 375 Nos. of Assistant Engineers and for 400 Nos. of other category posts such as Tester Chemical, Assistant Draughtsman, Typist, Steno-Typist and Junior Auditor have been issued.

Further, posting orders for 894 nos selected candidates for the post of Field Assistant (Trainee) by **the Hon'ble Chief Minister of Tamil Nadu on 29.01.2018.**

Also, posting orders were issued for the post of 100 Nos. Junior Assistant/ Administration and 250 Nos. Junior Assistant/ Accounts.

For the remaining 525 posts of Technical Assistant/ Electrical & Mechanical marks of the written exam have been published, interview process will be taken up on the outcome of the court cases.

1.6.10 Sustainable Development Goals (SDG):

In the UN summit held on 25-27th September 2015, "Transforming our world: the 2030 Agenda for Sustainable Development Goals" was adopted and India is a signatory. The SDG evolved cover 17 Goals and 169 targets which are to be achieved over a period of 15 years in the areas of socio economic and environmental dimensions. On the lines of UN declaration and GoI initiatives, the GoTN has also taken all actions to implement SDGs and its targets.

- A High Power Committee has been constituted under the Chairmanship of Chief Secretary with 8 working groups under the Chairmanship of Secretaries to Government in order to plan, implement, monitor and review the SDG in Tamil Nadu.

- The working group on "Innovation, Industrialisation and Sustainable Development" under the Chairmanship of the Principal Secretary to Government, Industries department is tasked with Goals pertaining to Energy.

SDG Goal:

Ensure access to affordable, reliable, sustainable and modern energy for all with Sub Goals of Access to affordable, reliable and modern energy services, Increase

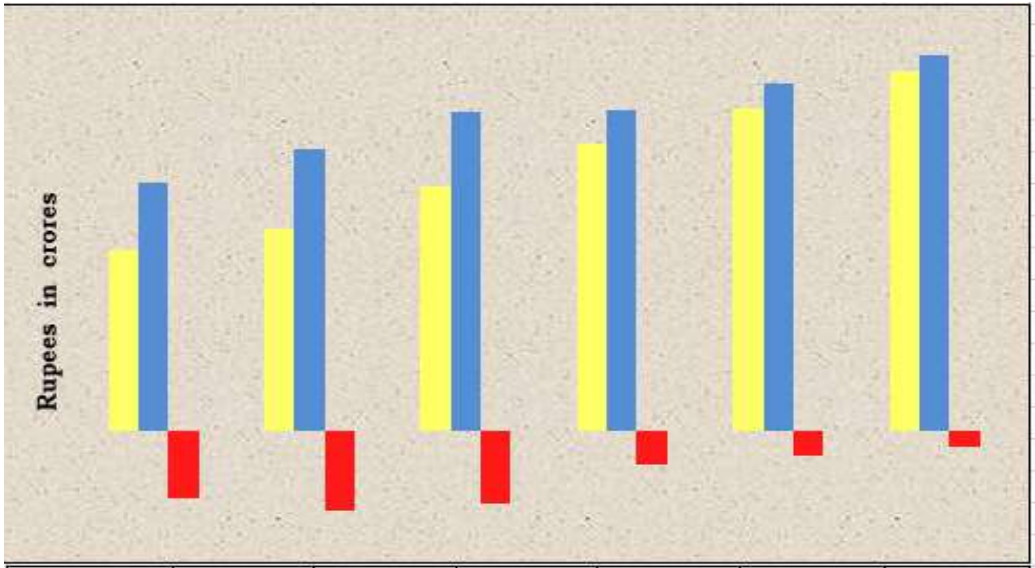
substantially the share of renewable energy mix and Double the rate of Energy Efficiency.

Indicators have been fixed for the above goals and action is being taken towards achieving these goals.

1.7 Finance

Financial Performance

a) Consequent to the implementation of revenue augmentation and cost control measures, the losses of TANGEDCO which was Rs.13,985 crores during 2013-14 has been reduced to Rs.2975 crores (provisional) in the financial year 2017-18. After a long gap it is expected that TANGEDCO will break even shortly.



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Revenue	31467.6	34912.76	42507.09	49705.39	56012.12	62309.31
Expenditure	43146.7	48897.79	55493.69	55492.20	60360.88	65283.91
Deficit	-11679.1	-13985.03	-12756.60	-5786.81	-4348.76	-2974.60

Revenue Expenditure and Losses

b) Due to above, the gap between Average Rate of Realisation (ARR) and Average Cost of Supply (ACS) has been reduced from Rs.2.16 per unit during 2010-11 to Rs.0.33 (33 paise) per unit in 2017-18. Efforts are being taken to bridge gas this gap.

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18(RE)
ARR	3.75	3.73	5.10	4.92	5.53	6.26	6.73	7.07
ACS	5.91	5.90	7.00	6.89	7.19	6.98	7.25	7.40
Gap between ARR & ACS	-2.16	-2.17	-1.89	-1.97	-1.66	-0.72	-0.52	-0.33

Average Rate of Realisation (ARR) and Average Cost of Supply (ACS) Gap

c) In order to improve the financial position of TANGEDCO, the Government of Tamil Nadu is continuously providing financial assistance in the form of Equity Share Capital, Tariff Subsidy, Grants under Financial Restructuring Plan and UDAY scheme, Loan assistance, etc.

d) During the last financial year 2016-17, the Government of Tamil Nadu has provided a financial assistance of Rs 13,856 crores in the various heads to TANGEDCO. Out of the provision, Tariff subsidy of Rs.8,132.47 crores and other assistances amounting to Rs.7258.02 crores towards Equity share capital, takeover of FRP Bonds, Interest on Bond under FRP, JICA loans etc., were released by Government of Tamil Nadu.

e) In addition to the above heads, the Government of Tamil Nadu have released to Tamil Nadu Electricity Board, a sum of Rs.350 crores towards Vardha Cyclone relief and Rs.400 crores as Ways and Means advance for meeting the expenditure incurred in connection with Vardha cyclone.

Financial Assistance from Government of Tamil Nadu

Sl. No	Financial Years	Financial Assistance	
		Tariff Subsidy	Other category
1	2006 - 2007	1330.10	175.00
2	2007 - 2008	1457.02	490.00
3	2008 - 2009	1831.61	1170.50
4	2009 - 2010	1672.17	100.00
5	2010 - 2011	1652.58	1335.13
	Total	**7943.48**	**3270.63**
6	2011 - 2012	2071.41	5841.94
7	2012 - 2013	4457.23	4784.77
8	2013 - 2014	4985.09	3394.22
9	2014 - 2015	6953.00	6886.50
10	2015 - 2016	6695.10	5695.62
	Total	**25161.83**	**26603.05**
11	2016-2017	8484.91	30823.02
12	2017-2018	7643.39	6319.02

f) The Government of Tamil Nadu has taken over TANGEDCO's loan of Rs.22,815 Crores under UDAY scheme through issue of special securities. The proceeds of GoTN Bonds were released to TANGEDCO and the high cost loans were settled during 2016-17. This will save interest of Rs.2,882 crores per annum and Rs.2,282 crores per annum towards principal repayment.

Government of Tamil Nadu has also provided Government Guarantee for Rs.7,605 Crores to TANGEDCO for mobilization of funds through issue of bonds for repayment of debts. Floating of tender for selection of Merchant Bankers is under process. TANGEDCO will save Rs.200 crores per annum on this account.

g) As per the UDAY, the GOTN is to provide Rs 4563 crores of grants during FY 2017-18 being conversion of 1/5th of interest free loan provided to TANGEDCO. Since GoTN has sanctioned the conversion for the year 2017-18 during Dec'17, the same was accounted as revenue grants. Further, Government of Tamil Nadu has given a government guarantee of Rs 12,668 crores to avail loans from Financial Institution / Banks for the financial year 2017-18 to TANGEDCO.

h) In addition to the above, the Government of Tamil Nadu have released a sum of Rs.217.44 Crores to TANGEDCO towards taking over of 5% losses incurred during 2016-17 under Uday Scheme. The Government of

Tamil Nadu has released a sum of Rs.77.33 Crores as a grant and Rs.20 Crores as Ways & Means Advance towards the restoration of the damaged Electricity Infrastructure during Ockhi Cyclone.

i) The Government of Tamil Nadu has sanctioned the following financial assistance to TANGEDCO in Budget Estimate 2018-19.

(Rs.in crores)

S.No	Assistances	BE2018-19
1	Tariff subsidy	7537.78
2	Equity Share Capital	-
3	Taking over future loss of TANGEDCO by State Government under UDAY Scheme	297.46
4	Transmission System Improvement Loans & Grants	931.21
5	Cyclone Resilient Electrical Network under Coastal Disaster Risk Reduction Project (CDRRP) Grants	195.00
6	Hydel Swing Subsidy	125.00
7	Conversion of GoTN Loans to TANGEDCO as Grants.	4563.00
8	GOTN's Ways and Means Advance	-
9	Allocation under TNIPP Phase-II expenditure	287.65
	Total	**13937.10**

From the above budget provision, the Government of Tamil Nadu so far released Rs.3039.69 crores to TANGEDCO as Tariff Subsidy.

II. TAMIL NADU ENERGY DEVELOPMENT AGENCY

Introduction

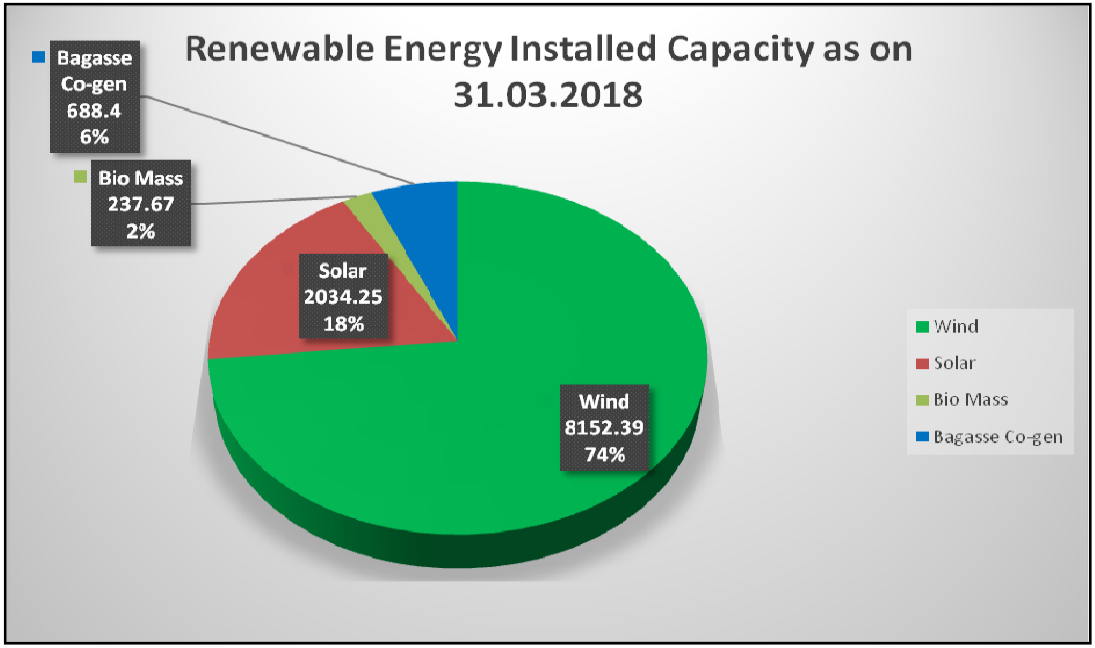
2.1 Tamil Nadu Energy Development Agency (TEDA), was set up by the Government of Tamil Nadu in 1985 in order to diffuse useful knowledge in the various fields of energy and thereby to deal with the problems caused on account of the rapid depletion of non-renewable resources and the increasing pollution caused by existing uses of energy. TEDA is actively engaged in promoting the use and propagation of new and renewable non-conventional energy sources in the State and acts as the Nodal Agency for the purpose of implementation of the projects thereof.

2.2 In 2012, the late Hon'ble Chief Minister Amma unveiled Tamil Nadu Vision 2023. The Vision for Tamil Nadu for 2023 is to become "India's most prosperous and progressive State with no poverty and where its people enjoy all the basic services of a modern society and live in harmonious engagement with the environment and with the rest of the world". Environmentally sustainable inclusive economic and human development is the basic premise of Vision 2023. Clean energy as an essential perquisite for such a sustainable development. Late Hon'ble Chief Minister Amma had therefore unveiled a futuristic Tamil Nadu Solar Energy Policy, 2012. The Policy captures the late Hon'ble Chief Minister Amma's vision of developing Tamil Nadu as a world leader in solar energy.

Like solar, wind too is a perennial source of green power. Vision 2023, therefore, envisages creation of incremental generation of 5000 MW of wind and 5000 MW of solar energy by 2023.

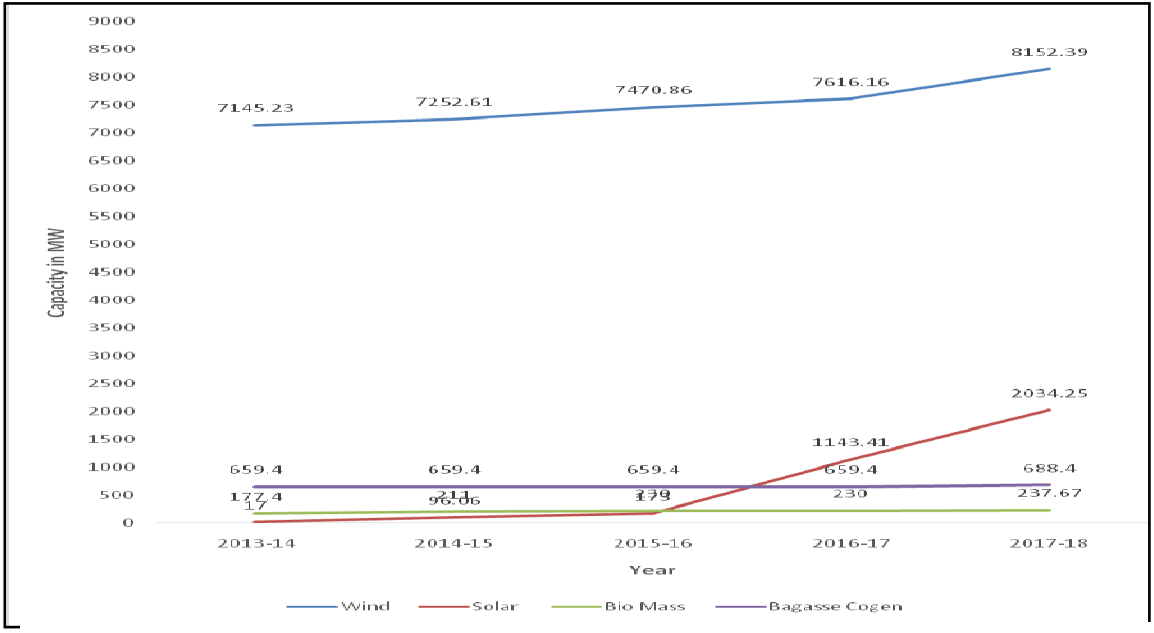
2.3 Tamil Nadu, India's Green Power House

TEDA has been tirelessly working to translate the late Hon'ble Chief Minister Amma's Vision 2023 into a reality. True to the Vision of the late Hon'ble Chief Minister Amma, Tamil Nadu has emerged as the undisputed leader in renewable energy in the country. As on 31.03.2018, the total renewable energy installed capacity is 11,113 MW, the highest in the country.



Source: TANGEDCO

Source: TANGEDCO



Renewable Energy Growth of Tamil Nadu from 2013-14 to 2017-18

2.4 Major Programmes and Projects

TEDA has been in the fore front of the national renewable energy initiative. On the directions of the Government, several innovative programmes have been conceived and implemented by TEDA.

2.5 Chief Minister's Solar Powered Green House Scheme (CMSPGHS):

Chief Minister's Solar Powered Green House Scheme (CMSPGHS), a unique and the country's largest solar rooftop scheme aimed at benefitting the Below Poverty Line (BPL) families living in the rural areas, was announced on 04.08.2011 in the revised budget for 2011-12 and has been under implementation since then. The CMSPGHS provides for a micro roof top solar system

of 50-100 Watts and 5 solar powered energy efficient lights in each house constructed under the scheme. TEDA was assigned the responsibility of installing the roof top solar systems and energy efficient lights in 60,000 houses every year. Since its launch in 2011-12 till 31.03.2018, TEDA has successfully solarised 2,74,526 houses. This has created cumulative installed capacity of 23.56 MW of solar roof top.

Chief Minister's Solar Powered Green House Scheme

2.6 Solar Powered Green House Scheme for the Weavers:

Pleased over the success of the pro-poor, environmentally sustainable Chief Minister's Solar Powered Green House Scheme (CMSPGHS), the late Honourable Chief Minister Amma had announced that in 2013-14, 10000 green houses, similar to CMSPGHS, will be constructed for weavers. In pursuance of the announcement, TEDA has energized 9,989 Weaver Houses up to 31.03.2018. This has created an installed capacity of 0.60 MW in the roof top segment.

2.7 Chief Minister's Solar Rooftop Capital Incentive Scheme:

The late Hon'ble Chief Minister Amma, in 2013-14 had, under Rule 110 of the State Assembly Rules, announced that either Generation Based Incentive (GBI) or capital subsidy of Rs.20,000/KW will be provided for 10,000 domestic consumers to install Solar Rooftop systems for generating solar power. The generated solar power from the Grid tied battery-less solar rooftop shall be consumed in the premises of the consumer and the excess power could be fed into the electricity grid of TANGEDCO. Under this scheme, the incentive of Rs.20,000/- could be availed of by consumers registered with TANGEDCO under tariff category LA1A as domestic consumers. Since the introduction of this

popular scheme in 2013-14, TEDA has issued sanction orders in favour of 8266 beneficiaries and 3425 solar rooftops have already been installed creating a cumulative installed capacity of 4.2 MW in the solar energy.

1KW Rooftop SPV Power Plant Installed at Perumbakkam, Chennai

2.8 Net Metering:

The Hon'ble Minister for Electricity, Prohibition and Excise, in 2012-13, had announced that TEDA will undertake pilot study on "net metering" or "grid feed-in". A bidirectional meter (Net Meter), which will replace the existing consumer meter (single phase or three phase as per requirement), will be used for commercial settlements. TEDA had undertaken the pilot study with the installation of Grid tied solar rooftops for a cumulative capacity of 48.5 KW of various capacities at 10 Government buildings at a cost of Rs.44.20 Lakhs with the provision of net meters. Subsequently, the net metering policy was announced by Tamil Nadu Electricity Regulatory Commission (TNERC) for the eligible consumers. Under this policy the categories of consumers covered under HT tariff II-A, HT tariff III,

LT tariff I-C, LT tariff II-A, LT tariff II-B(1), and LT tariff V, as specified in the Commission's retain tariff order in force, are considered to be the "Eligible Consumers" for the purpose of Net-metering. Both the existing and new Solar rooftop/Solar systems which comply with the TNERC order No.3 of 2013 dt. 13.11.2013, are eligible for Net-Metering.

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Solar PV System

2.9 Establishment of 50 MW Solar Park:

In the Budget Speech (2011-12), Government had reiterated its commitment towards green energy and proposed establishment of a 50 MW solar park by TEDA in PPP mode through competitive bidding process. A solar park is a concentrated zone of development of solar power generation projects and provides developers an area that is well constructed with proper infra structure, access to amenities and minimize the works for project implementation. TEDA has identified 250 acres of land in Kayathar, Thoothukudi District for establishment of the solar park at an estimated cost of Rs.250 Cr. and commenced the tendering process. TANGEDCO has agreed to purchase the

entire quantity of power generated at this park.

2.10 Establishment of 10MW Grid Connected Wind Solar Hybrid Power Plant:

The Hon'ble Minister for Electricity, Prohibition and Excise had announced in 2016-17 that to demonstrate the emerging wind-solar energy technology, TEDA will establish a 10 MW grid connected Wind Solar Hybrid Power Plant in Kayathar, Thoothukudi District at an estimated cost of Rs.60 Crores. The hybrid technology optimizes utilization of land and other resources to harvest maximum energy spread over all periods in a year. The peak generation of solar power and the peak generation of wind power happens at different times, thereby complementing

each other. Part of the infirmness of the two systems is overcome by the hybridization of solar and wind by co-locating them. TEDA has engaged National Institute of Wind Energy (NIWE) to prepare the Detailed Project Report (DPR). Steps have also been taken to constitute a Special Purpose Vehicle (SPV) under the Company's Act by the name Tamil Nadu Renewable Energy Park (TREP).

2.11 Solar Village

The Hon'ble Minister for Electricity, Prohibition and Excise had announced in 2015-16 that a pilot solar power project will be implemented in the Irumbai Village of Villupuram District at an estimated cost of Rs.2.06 crore. This project aims at generating solar power and implementing energy efficiency interventions to optimise

the power consumption of the village and to have a guaranteed power availability (24x7) in the village with zero power drawn from the grid. TEDA has carried out the basic survey, prepared the DPR, installed energy efficiency fans and other devices in 193 beneficiary houses. Tender has been floated for the installation of 170kW solar power plant.

2.12 Solar Technician Training:

The Hon'ble Minister for Electricity, Prohibition and Excise had, in 2016-17, announced that in order to generate employment and make available a trained technical work force for the solar energy sector, Solar Technician Training (Surya Sakthi Thiran Membattu Payirchi) will be imparted to 5000 persons at an estimated cost of Rs.13.5 crores. This training is

designed to equip the youth with employable skills. The pilot phase of the first batch of the training programme has already commenced.

2.13 Solar Irrigation Pumps to Farmers:

The Hon'ble Minister for Electricity, Prohibition and Excise had, in 2012-13, announced that subsidized Solar Pumps will be provided on pilot basis to the waitlisted applicants registered with Tamil Nadu Electricity Board (TNEB) for agriculture service connections. Under this scheme solar energized pumpsets to the farmers have been installed. Since 2013-14, upto 31.03.2018, 2295 nos. of 5 HP AC pumps have been energized with a subsidy of Rs.8076.80 lakhs.

2.14 Renewable Energy Systems

During 2011-12 to 2016-17, TEDA has facilitated installation of the following solar systems:

77 Solar power systems of 1 KW capacity each and 12 Nos. Solar Water Heating Systems of 1000 LPD capacity each in BC/MBC/DNC and Minority Welfare Hostels at a cost of Rs.136 Lakhs and 16.4 lakhs respectively.

(i) 10 KW at E.V.K. Sampath Maaligai, DPI, Chennai
(ii) 10 KW at Anna University , Guindy
(iii) 10 KW at Entrepreneurship Development Institute (EDI), Chennai
(iv) 10 KW at Egmore Child Hospital, Egmore
(v) 10 KW at Corporation School, Chennai
(vi) 10 KW at Anna Institute of Management , Chennai

(vii) 10 KW at Quaid- E-Millath Government College for Women, Chennai

(viii) 69 kW at the buildings of Transport department in various districts.

(ix) 330 kW at BDO/Panchayat Union offices in various districts of Tamil Nadu.

(x) 330kW at Puzhal Prison Complex at a total cost of Rs. 2.24 crores.

- Model Grid Tied Solar Roof Tops for a cumulative capacity of 48.5 KW of various capacities at 10 Government buildings at a cost of Rs.44.20 Lakhs.

- 5 kW solar power plant at Upgraded Primary Health Centres one each in Panavaram (Vellore District), Alanganallur (Madurai District), Kulumani (Trichy District).

- 5 HP solar pumps for supply of water to the public, one each at Velampatti

Panchayat of Dindigul District and Kaliyampatti Panchayat at Pudukottai District.

- Solar rooftops with a cumulative capacity of 178kW at the buildings of Tamil Nadu Pollution Control Board
- Concentrated Solar Thermal Systems with a total solar collector area of 4167 sq.mt.
- 5 cu.m Bio gas plant in Karumagoundanpalayam Village of Namakkal District.

PRISON 2 SUPERINTENDENT BLOCK (PUZHAL)

2.15 Publicity Awareness:

TEDA regularly conducts / participates in exhibitions, awareness campaigns across the State. It has its publicity Van displaying working models of renewable energy systems.

2.16 Accolades:

For its accomplishments, the TEDA has won several rewards and prizes

a. MNRE award for having installed the 2nd highest number of Solar home lighting systems across the country for the year 2015-16.

b. MNRE award for having installed the 3rd highest number of Solar Power Packs across the country for the year 2015-16.

c. ENERTIA Award 2016 for being the Top Investment and Infra Excellent State in 'Sustainable Energy and Power'.

d. Best Nodal Agency for Renewable Energy Award 2016

2.17 Major Initiatives 2017-18

2017-18 has proven to be the year of solar energy as 336.60 MW of solar installed capacity got added. During this year, solar rooftops for a cumulative capacity of 24.60 MW and utility power plants for a cumulative capacity of 312 MW have been installed. Highlights of this remarkable year are given below:

2.18 Deployment of Effective Energy Efficiency Measures:

The Hon'ble Chief Minister of Tamil Nadu had announced under Rule 110 of the State Assembly Rules that TEDA will enter into Memorandum of Understanding with Energy Efficiency Services Ltd. (EESL) expediting investment to the tune of Rs.11,000 crores over next three years facilitating deployment of effective energy efficiency measures in the State which in turn will instigate the growth of Renewable energy and reduction of fossil fuel consumption. This scheme will facilitate the supply of energy saving devices to Government Department, replacement of existing street light fixtures with energy efficiency street lighting systems in Municipalities and Panchayats, replacement

of inefficient pumps in public water works and sewage systems, replacement of inefficient appliances such as bulbs, tube lights, air conditioners, fans and pumps with energy efficient appliances and replacement of inefficient agricultural pump sets with BEE star rated pump sets. To achieve this objective, Government has decided to declare TEDA as "Procurement Agency" for renewable energy, under the relevant provisions of the Tamil Nadu Tender Transparency Act.

2.19 Establishment of Amma Green Gramam:

The Hon'ble Minister for Electricity, Prohibition and Excise had, in 2017-18, announced that TEDA will promote establishing of "AMMA GREEN GRAMAM", which, on an annual basis, will produce all

the electrical energy that it requires from locally available sustainable green energy sources. The Amma Green Gramam is basically aimed at attaining self sufficiency in energy demand, generate livelihood opportunities for the rural folks, reduce the dependency on fossil fuels, thereby minimizing the coal foot print, lower the prices for energy and bring in price stability and other societal impacts thereby the local residents can live in a pleasant environment. The project to promote 10 Amma Green Gramam at an estimated cost of Rs. 150.32 Cr. has already been approved by the State Level Steering Committee. The proposal is now under the evaluation of NABARD for availing the grant under the Green Climate Fund.

2.20 Establishment of 500MW Solar Park:

The Hon'ble Minister for Electricity, Prohibition and Excise had, in 2017-18, announced that TEDA will explore establishment of a 500 MW Solar Park through Private Sector in the State of Tamil Nadu, the first of its kind in the State. TEDA has now floated Expression of Interest (EoI) for the establishment of solar park with a cumulative capacity of 500 MW in Tamil Nadu. One of the interesting models in this scheme is the co-development model. The distinctive advantage of this model is that the farmers who lease their land can earn a stable annuity income plus retain the right to future capital gains on their land.

2.21 Sustainable Energy Training Initiative (SETI):

The Hon'ble Minister for Electricity, Prohibition and Excise had in 2017-18 announced that TEDA will launch a Sustainable Energy Training Initiative (SETI), an integrated training for internal and external stakeholders. SETI, an awareness creation and training programme will provide the necessary training in the socio economic, technical, educational and other dimensions of sustainable energy, information sharing on the renewable energy potential in the state and its utilization, roles and responsibilities of various Tamil Nadu Departments and Agencies and preparation of district wise sustainable energy action plans. TEDA has engaged TATA Energy and Research

Institute (TERI) to develop course content for the training.

2.22 TEDA Charter:

To identify the areas of work to cope up with the technology driven renewable energy sector in achieving the ambitious targets set by the State and Centre as well, and to make TEDA to be more relevant and to be prominent in the field of renewable energy, TEDA developed a 10 point Charter focused on actionable points.

(i) Assisting the Government in formulation of enabling contemporary Renewable Energy policies, programme and schemes and their implementation and monitoring

(ii) Act as State Nodal Agency for the implementation of New and

Renewable Energy Projects in the State and offer Single Window services to the stakeholders

(iii) Development of Infrastructure for Renewable Energy

(iv) Promote Manufacturing

(v) Propagation & Advocacy, (Publicity, Awareness, Exhibitions)

(vi) Prepare State Master plan for Renewable Energy and monitor its Implementation

(vii) Promote Energy Conservation and Efficiency

(viii) Promote Research & Development (Demonstration Projects)

(ix) Act as Think tank and offer Consultancy in the field of RE

(x) Human Resource Development and Capacity Building for internal external stakeholders

2.23 Tamil Nadu Renewable Energy Action Plan, 2023 (REAP):

TEDA had prepared a draft Tamil Nadu Renewable Energy Action Plan, 2023 aimed at addressing the renewable energy potential of Tamil Nadu and proposes a clear road map to meet targets of Tamil Nadu Vision 2023 and achieve a number of catalyzing projects such as (i) group net metering demo projects with Government Departments and educational institutions (ii) virtual net metering demo projects with flat owners in Chennai and one or two other cities in Tamil Nadu (iii) Solar energy projects at temples, airports, train and bus stations, health centers and hospitals

(iv) sustainable energy villages, cities (v) smart micro grid pilots (vi) energy storage solutions – lithium ion batteries that have the scope to prepare the State for leapfrogging into a sustainable energy future and submitted the same to Government.

2.24 An Awareness Expo on Sustainable Energy:

TEDA had participated in the 44th India Tourist and Industrial Fair, 2018 organized by Tamil Nadu Tourism Development Corporation in the Island Grounds and put up a pavilion with the concept of "**Sustainable Energy–a Tool for Development"** which attracted about 1,00,000 visitors. TEDA was awarded with the Second Prize by the Government of Tamil Nadu.

2.25 Financial Assistance available for Renewable Energy Schemes

(a) Central Financial Assistance is available for the following solar photovoltaic Systems from the Ministry of New and Renewable Energy.

Type	Category	Central Financial Assistance (CFA)(Rs.)
Lighting Systems (Rs/Wp)	LED (Home Lights System + Solar Lantern)	102
	Street Lights (Lead Acid battery)	
	Street Lights (LED+LiFePO4) battery	142.5
Power Packs (With battery bank @7.2 VAh/Wp) (Rs/Wp)	Up to 300Wp	60
	300Wp to 1kWp	40.5

Type	Category	Central Financial Assistance (CFA)(Rs.)
Solar Power Plants (Rs/Wp)	>1 kWp to 10 kWp (with battery bank @ 7.2 Vah/ Wp)	40.5
	>1 kWp to 10 kWp (with battery bank @ 3.6 VAh/Wp)	32.4
	>1 kWp to 10 kWp (with battery bank @ 1.2 VAh/Wp)	27
Solar Power Plants (Rs/Wp)	>10kWp to 100kWp (with battery bank @7.2 VAh/Wp)	36
	>10 kWp to 100 kWp (with battery bank @ 3.6 VAh/ Wp)	28.8
	>10 kWp to 100 kWp (with battery bank @ 1.2 VAh/Wp)	24
Street Lights through SPV (Rs/Wp)	Up to 100 kWp	60

Type	Category	Central Financial Assistance (CFA)(Rs.)
Solar Pumps (Rs/hp)	Up to 3 HP (DC)	36000
	>3 HP – 5 HP (DC)	28500
	>5 HP – 10HP (DC)	28500
	Upto 3 HP (AC)	30000
	>3 HP – 5 HP (AC)	25500
	>5 HP – 10 HP (AC)	25500
Grid Connected Rooftop Solar PV System (Rs/Wp)	Upto 10kWp	21
	>10-100 kWp	19.5
	>100-500 kWp	18

Residential, Institutional and Social Sectors are eligible to avail the above Central Financial Assistance.

(b) **Achievement Linked Incentives for Government Sectors and Central Financial Assistance for Private Sectors for Renewable Energy Schemes.**

Sl. No	Achievement vs Target allocation	Available incentive
1.	80% and above within the sanctioned period	Rs. 16250/- per kW
2.	Below 80% and above 50%(including 50%) within the sanctioned period	Rs.9750/- kW
3.	Below 50% and above 40% (including 40%) within the sanctioned period	Rs. 6500/- kW
4.	Below 40% within the sanctioned period	NIL

(c) **Solar Thermal Applications**

Sl. No.	Name of the Scheme	Available Financial Assistance/ Subsidy
1	Solar collector system for direct heating applications (NIC/CPC)	Rs.3600/ sq. m.
2	Concentrator with manual tracking	Rs.2100/ sq. m.
3	Concentrator with single axis tracking (including scheffler dishes)	Rs.4500/ sq. m.
4	Concentrator with single axis tracking (SCMR . ETC),	Rs.5400/ sq. m.
5	Concentrator with double axis tracking	Rs.6000/ sq. m.

(d) **Small Wind Energy and Hybrid Systems**

Sl. No.	**Name of the Scheme**	**Available Financial Assistance / Subsidy**
1.	Small Wind Energy & Hybrid Systems (Aero-generators/Wind-Solar Hybrid Systems)	Rs.1,00,000/- per kW (for community users only)

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III. ELECTRICAL INSPECTORATE DEPARTMENT

The Electrical Inspectorate is responsible for ensuring compliance of the safety provisions in electrical installations and has also been entrusted with licensing of Lifts, testing of electrical instruments, levying and collection of Electricity Tax and promoting energy conservation.

3.1 Services Rendered by the Department

The following services are rendered by this department at the State, Regional and District level offices:

i. Scrutiny of plan and design, inspection and approval for the High Voltage, Extra High Voltage electrical installations and Multistoried buildings observing the provision of Central

Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010.

ii. Calibration & Testing of electrical equipments and meters for correctness.

iii. Coordinating, regulating and enforcing the provisions of the Energy Conservation Act, 2001 (Central Act 52/2001) in the capacity of State Designated Agency for energy conservation.

iv. Levying and collection of tax on consumption as well as sale of electrical energy under the Tamil Nadu Tax on Consumption or Sale of Electricity Act, 2003.

v. Licensing of the lifts under the provisions of Tamil Nadu Lifts Act, 1997.

vi. Certification of electrical fitness to cinema buildings as per Tamil Nadu Cinema (Regulation) Rules, 1957.

vii. Licensing for Electrical Contractors and certification for qualified electrical personnel through the Tamil Nadu Electrical Licensing Board.

3.2 Performance & Revenue receipts

The performance of the Department during 2017-2018 from April 2017 to March 2018 is as follows:

Sl. No	Services Rendered by this department	Total Nos.
(a)	Lift	
	(i) Lift license issued (from November 1997 to March 2018)	27249
	(ii)Issue of licenses for new lifts in the year 2017-18	2565
	(ii) Renewal of licenses for the existing lifts	11553

Sl. No	Services Rendered by this department	Total Nos.
(b)	Issue of permission for energisation of new electrical installations	1774
(c)	Statutory inspections of High Tension installations	4198
(d)	Scrutiny of drawing proposals for the new Electrical Installations and additions/Alterations of equipment in the existing installations	1960
(e)	Cinema Theatres (i) Existing cinema theatres (ii) Certification of Electrical Fitness to new cinema buildings in the year 2017-18 (iii) Renewal of certification of Electrical Fitness to existing cinema buildings in the year 2017-18	 1080 21 373
(f)	Testing and calibrations of electrical meters	4540

The department mobilized Rs. 11.31/- crores revenue from its inspection, and other services and of

Rs.12.5 /- lakhs from the Testing and Calibration of meters. It collected Rs.12.63/- crores of electrical tax from various generators supplying electricity to consumers other than Tamil Nadu Electricity Generation and Distribution Company as on March 2018.

3.3 Testing and Calibration

In order to undertake testing and calibration of electrical equipments, meters and instruments, facilities are available at the Government Electrical Standards Laboratory attached to the Head Quarters office of the Electrical Inspectorate. The laboratory receives energy meters and other electrical instruments from various State Electricity Boards in our country for calibrating their accuracy.

3.4 Energy Conservation

(i) Energy Conservation Building Code (ECBC)

The Energy Conservation Building Code (ECBC) was launched by Ministry of Power, Government of India is a model document listing out mandatory requirement of energy efficiency in the building sector besides prescribing minimum energy efficiency standards for design and construction of commercial buildings. As per the powers conferred under clause 15(a) of the Energy Conservation Act, 2001 the Government of Tamil Nadu has constituted a technical committee for evolving technical guide lines for adoption of ECBC through local body and an Empowered committee to

advise and evolve policy decision for the implementation of the ECBC.

The Ministry of Power, Government of India has released ECBC 2017, an updated version of the earlier code. In order to adopt the updated code in the state, the draft TNECBC 2018 has been prepared with the help of technical consultants. The technical committee meeting was conducted on 27.03.2018 and Empowered committee meeting is proposed to be convened shortly. The draft TNECBC 2018 will be notified by the Government after the approval of empowered committee.

(ii) Waste Heat Recovery Policy for the State and Sector Specific Energy Savings Plan for the State

The Electrical Inspectorate has prepared Waste Heat Recovery Policy and sector specific energy savings plan for the State of Tamil Nadu to get the support of BEE under"Contribution to State Energy Conservation Fund (SECF).

3.5 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.

Issuance of Electrical Contractor License and Competency Certificate upto April 2018.

1.	Electrical Contractor License	25,981 Nos.
2.	Certificate of Competency to Wireman and Supervisor	2,21,720 Nos.

3.6 Improvement in service delivery of the Electrical Inspectorate

- The application "Online Lift License Management'' enables that applicant

seeking for grant of new lift license and renewal of existing lift license to apply through online and status of their each application can be monitored. The development of software through ELCOT for the online lift licensing system is completed. This will benefit the owners of the lifts at residential apartments, commercial complexes and office buildings.

- "Online Filing of Returns of Electricity Tax" enables the applicant to file the data required for collection of the Electricity taxes Online. It will improve the collection of electricity tax. The status of each application is intimated to applicant through e-mail and message. The development of software through ELCOT for the on line filing of returns of

electricity tax is also completed and this package will be implemented this year. Now "Online Lift License Management and Online Filing of Returns of Electricity Tax" has been implemented in all the divisional offices except Ambattur. The system will be implemented on or before December 2018 throughout the State of Tamil Nadu.

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IV. TAMIL NADU POWER FINANCE AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

The Tamil Nadu Power Finance and Infrastructure Development Corporation Limited (TNPFIDC) was incorporated on 27.6.1991 as a Non-Banking Finance Company to fund infrastructural projects undertaken by the Tamil Nadu Electricity Board. The Company mobilizes funds for lending to schemes relating to Generation, Transmission and Distribution infrastructure of TANGEDCO AND TANTRANSCO. TNPFIDC is classified as a Public Financial Institution by the Ministry of Company Affairs, Government of India. The authorized and paid-up share capital of the Company is Rs.90 crores.

4.1 Fixed Deposits:

TNPFIDC mobilize funds from individuals as well as Institutional investors. There is a steady increase in depositor base of the Company. This is perhaps the result of confidence of depositors reinforced by consistent profitability of the Company. During the year (from 1.4.2017 to 31.3.2018), the company mobilized a sum of Rs.6,822.57 crores as net deposits. The net deposits during the year (from 1.4.2017 to 31.3.2018) has grown at a growth rate of 38.33%. It has gone up from Rs.17,801.65 crores at the beginning of the year to Rs.24624.22 crores as on 31.3.2018. This includes deposits mobilized from public, Institutional deposits and the State Government Schemes. Out of the total deposits of Rs.24,624.22 crores, the contribution from the individual investors is Rs.5,220.80 crores and

the balance amount of Rs.19,403.42 crores is from Institutional investors and State Government Schemes.

4.2 Rate of Interest

TNPFIDC offers an interest rate of 7.50% for deposits for one year, 7.75% for deposits for 2 years and 8.25% for deposits with a tenure up to 5 years with effect from 16.5.2018. The Company offers an additional interest of 0.25% p.a. for 12 months & 24 months and 0.50% p.a. for 36, 48 & 60 months on deposit made by senior citizens, aged 58 years and above.

4.3 Deposits of the State Government Schemes:

The funds allotted for following Government Schemes are invested in TNPFIDCL.

i. **Cash Incentive Scheme:** Government in the

year 2011-12 vide G.O.Ms. No.141, School Education Department, dt.13.9.2011 ordered to implement a new "Special Incentive Scheme" for students in Government and Government – Aided Schools to prevent the school dropouts in 10^{th}, 11^{th} and 12^{th} standards. An incentive of Rs.1500/- per student for 10^{th} and 11^{th} standards and Rs.2000/- per student for 12^{th} standard is deposited by the Government in Tamil Nadu Power Finance Corporation. The School Education Department has deposited a sum of Rs.288.19 crores in the year 2017-18 to prevent dropout of students in the Schools. After appearing in class 12^{th} examination, the incentive along with interest is directly transferred to the bank account of the students.So far, cash incentives of Rs.1531.93 crores have been paid to 30,06,724 students.

ii. **Bread-winning Scheme:** Government vide G.O.Ms.No.195, School Education Department dt.27.11.2014, have enhanced the existing deposit amount from Rs.50,000/- to Rs.75,000/- per student under this Scheme to provide financial assistance to students studying from 1st standard to 12th standard in Government and Government – Aided Schools, whose bread-winning parent died or permanently incapacitated in an accident. A sum of Rs.41.50 crores has been deposited by the School Education Department from the year 2005 till 31.3.2018. So far, fixed deposit receipts to 7955 students have been issued for an amount of Rs.41.50 crores.

iii. **Chief Minister's Girl Child Protection Scheme:** Government vide G.O.Ms.No. 61, Social Welfare & Nutritious Meal Programme Department, dt.5.7.2013 have enhanced the

deposit amount from Rs.22,200/- to Rs.50,000/- per child under **"**One Girl Child Scheme**"** (Scheme-I) and a sum of Rs.15,200/- to Rs.25,000/- per child under "Two girl children Scheme" (Scheme II) in the name of the child. An incentive of Rs.1,800/- is given per child on completion of 5th year up to 18th year of deposit for her educational purposes. Under this scheme, a sum of Rs.1327.54 Crores has been deposited by the Social Welfare Department from the year 2001 till 31.3.2018.So far, Fixed Deposit Receipts have been issued to 8,23,026 girl children for an amount of Rs.1251.54 crores.

iv. **Oru Kala Pooja Scheme**: Government vide G.O. Ms. No.197, Tamil Development Hindu Religious and Information Department, dt.20.9.2011 have enhanced the existing deposit amount from Rs.25,000/- to

Rs.1,00,000/- towards "Oru Kala Pooja" scheme for performing daily pooja in the fund starved temples from the quarterly interest earned on such deposits in TNPFIDC. A sum of Rs.116.54 crores has been deposited in Tamil Nadu Power Finance and Infrastructure Development Corporation Ltd., to benefit 11,654 temples.

4.4 Financial Assistance to TANGEDCO:

TNPFIDC lends to TANGEDCO for financing their infrastructural projects. From inception till the year 2017-18 (31.3.2018), a total sum of Rs.79,160.39 crores has been sanctioned as gross financial assistance to TANGEDCO by way of hire purchase, lease and term loan. A record high amount of Rs.19,728.00 crores has been provided as financial assistance to TANGEDCO in the

financial year 2017-2018. The net loan outstanding from TANGEDCO as on 31.3.2018 is Rs.28,526.64 crores.

4.5 Financial Performance

TNPFIDC has the unique distinction of generating profit since its inception. The total revenue of this Company during the financial year 2017-18 is Rs.2,634.61 Crores(Provisional). The Corporation has earned a Net Profit of Rs.97.56 crores (after tax) (provisional) during the financial year 2017-18. Dividend of Rs.38.92 crores for the year 2016-17 was paid to the Government during the financial year 2017-18.

Thiru. P.Thangamani
Minister for Electricity,
Prohibition and Excise

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