

TAMILNADU POWER DISTRIBUTION CORPORATION LIMITED
ABSTRACT

Electricity – Tirunelveli Region – Tirunelveli EDC - Establishment of 33/11 kV SS with 1x8 MVA power transformer at Vellakoil – Administrative approval - Accorded.

TECHNICAL BRANCH

(Per). MD TNPDC Proceedings No: 70

Dated: 28.08.2026

Parabhava Varudam

Aavani : 11

Thiruvalluvar Aandu 2057

READ: Chairman cum Managing Director's approval dated: 25.08.2026.

PROCEEDINGS:

1. The Tamilnadu Power Distribution Corporation Ltd. hereby approves the proposal for establishment of 33/11 kV SS with 1x8 MVA power transformer at Vellakoil in Tirunelveli EDC of Tirunelveli Region at an estimated cost of Rs.2319.85 lakhs Gross and Nett subject to transfer of Thatchanallur 33 kV SS from Thalayuthu 110 kV SS to the existing Rastha 110 kV SS. The detailed estimates and report are annexed to these proceedings.
2. The expenditure is chargeable to TNPDC - Funds - Capital Expenditure - Tirunelveli EDC – A/c code no. 1020300.
3. By virtue of the provisions contained in sub-section (2) (a) of section 185 of the Electricity Act, 2003, the TNPDC being the Licensee and successor entity of Tamil Nadu Electricity Board will exercise the powers of the Telegraph Authority under the provisions of section 164 of the Electricity Act, 2003, which have already been conferred upon the Board under section 51 of the Indian Electricity Act, 1910.
4. The work is to be taken up after ensuring budget provision.

// BY ORDER OF THE CMD //

J.PUSHPALATHA
CHIEF ENGINEER / PLANNING & RC

Encl: Report and detailed estimate.

To
The Chief Engineer/ Distribution / Tirunelveli Region.

(Per.) MD TNPDCI Proceedings No:70 dt.28.08.2026

Copy to:

The Director/Distribution/TNPDCI/Chennai-2

The Director/Finance/ TNPDCI / Chennai - 2

The Chief Engineer/ Material Management / Chennai -2

The Superintending Engineer/ Tirunelveli EDC

The Superintending Engineer / RE & I(D) / Chennai -2

The Company Secretary/TNPDCI/Chennai -2

The Resident Audit Officer (AGO'S Unit) / Chennai -2

B.P. Section (Administrative Branch)

Stock to file

//FORWARDED BY ORDER//


29.08.2026

EXECUTIVE ENGINEER/MASTER PLAN I

(Per.) MD TNPDC Proceedings No: 70 dt. 28.08.2026

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages proposal for establishment of 33/11 kV SS with 1x8 MVA power transformers at Vellakoil in Tirunelveli EDC of Tirunelveli Region at an estimated cost of Rs.2319.85 lakhs Gross and Nett subject to transfer of Thatchanallur 33 kV SS from Thalayuthu 110 kV SS to the existing Rastha 110 kV SS.

Need:

At present, Vellakoil, Vannarpettai and its surrounding areas are being fed by Kokkirakulam 33/11 kV SS and Thatchanallur 33/11 kV SS. The details of the substations and feeders feeding the above area are detailed below;

Kokkirakulam 33/11 kV SS is having 2x8 MVA power transformers. The peak reached on this SS is 13.53 MVA which is loaded to 84.56% of its capacity. The load growth in this SS is 2.5%. The details of the feeders feeding a portion of the above area are furnished below:

Sl. No	Name of the feeder (#)	C.L. in MVA	Length in kms.	Peak in MVA	Voltage regulation	Line loss in LU
1	11 kV Bye-pass #	11.501	3.19	5.86	5.83%	2.85
2	11 kV Vannarpettai #	6.667	1.72	3.422	2.13%	1.29

Thatchanallur 33/11 kV SS is having 1x8+1x5 MVA power transformers. The sustained peak reached at this SS is 10.28 MVA which is loaded to 79.08% of its capacity. The load growth in this SS is more than 10%. The details of the feeder feeding the remaining portion of the above area is furnished below:

Sl. No	Name of the feeder (#)	C.L. in MVA	Length in kms	Peak in MVA	Volt. Regn	Line loss in LU
1	11 kV Manimoortheswaram #	3.738	2.27	3.673	4.46%	0.42

It may be seen that the existing 11 kV Bye-pass feeder fed of Kokkirakulam 33 kV SS is overloaded and that of 11 kV Vannarapettai feeder & 11 kV Manimoortheswaram feeder are loaded more than 70% of its capacity.

Vannarpettai area is the fast developing commercial area in Tirunelveli which is being fed by the existing 11 kV Bypass feeder feeding more no. of HT/LTCT services of Hospitals, Engineering College, Banks, Hotels, Sewage Booster station, textile/jewellery showrooms, Malls, Circuit House, District Collectrate etc. The above feeder feeds

11 Nos. HT services, 30 Nos. of LTCT services besides 827 Nos. LT Commercial and 2380 Nos. domestic service connections and is overloaded.

Further, HT new/additional loads of about 5.2 MVA is expected in near future in Vellakoil area and the same could not be fed from the existing feeders feeding the area, as they are already loaded to its capacity.

Bifurcation of loads of the existing 11 kV Bye-pass feeder and 11 kV Vannarpettai feeder to form new feeders are not feasible, due to space constraint for extension of new 11 kV feeder bays at Kokkirakulam 33 kV SS.

Load transfer from Kokkirakulam 33 kV SS to the nearby Samathanapuram 33 kV SS & Thatchanallur 33 kV SS are not feasible as the existing power transformers at the above nearby SS are loaded to 90% & 79% of their capacity.

Likewise, transfer of load from Thatchanallur 33 kV SS to the nearby Kokkirakulam 33 kV SS & Samathanapuram 33 kV SS are not feasible as the existing power transformers at the above nearby SS are loaded to 82.5% & 90% of their capacity.

Hence, in order to give load relief to existing substations & feeders, improve the voltage regulation of the feeders, to reduce line loss and to accommodate future load growth in and around Vellakoil, it becomes necessary to establish a new 33/11 kV SS at Vellakoil.

REDUCTION IN LINE LOSS:

On establishment of proposed 33/11 kV SS, the feeder regulation details and load to be retained in the existing feeders post the establishment of proposed SS are detailed below:

Sl. No	Name of the feeder (#)	CL in (KVA)	Length in kms.	VR %	Line loss in LU
1	11 kV Kokkirakulam - Bypass #	7486	2.02	2.91	0.94
2	11 kV Kokkirakulam - Vannarpettai #	5667	1.72	1.72	0.87
3	11 kV Thatchanallur - Manimoortheswaram #	2638	3.06	4.41	0.19

On establishment of proposed Vellakoil 33/11 kV SS, the savings in line loss will be 2.094 LU per annum and yield a revenue of Rs.21.80 lakhs per annum.

ADEQUACY OF POWER TRANSFORMER CAPACITY:

A connected load of about 6.115 MVA is proposed to be transferred (5.015 MVA from Kokkirakulam 33 kV SS & 1.1 MVA from Thatchanallur 33 kV SS) to the proposed 33/11 kV SS. Hence, an anticipated peak of 4.08 MVA will be incident on the proposed SS. Hence, it is proposed to install 1x8 MVA, 33/11 kV power transformer at the proposed Vellakoil 33/11 kV SS.

ADEQUACY OF TRANSMISSION SYSTEM:

The 33 kV Source is proposed to be extended from the existing Thalaiyuthu 110/33-11 kV SS with 1x25 MVA, 110/33 kV Power Transformers. In order to give load relief to Thalaiyuthu 110 kV SS, the existing Kokkirakulam 33/11 kV SS which was being fed from Thalaiyuthu 110 kV SS has been transferred to Melapalayam 110 kV SS by erecting new 33 kV link line. Accordingly, adequacy of Source SS and Source feeder (after transfer of Kokkirakulam 33 kV SS to Melapalayam 110 kV SS) are discussed below.

Details of the Source SS:

a.	Name of the substation	Thalaiyuthu 110/33-11 kV SS
b.	110/33 kV Power Transformer capacity	1x25 MVA
c.	Present loading in MVA	8.6 MVA
d.	Proposed addition in MVA	Sd. enh at Thatchanallur 33 kV SS: 3 MVA Now proposed SS: 8 MVA Total: 11 MVA
e.	Anticipated peak in MVA	19.6 MVA
f.	Whether power transformer capacity of the source SS is adequate: Adequate.	

Details of the Source feeder:

a.	Name of the feeder	33 kV Thalaiyuthu – Kokkirakulam #
b.	Size/Loading capacity of the conductor	Dog – 17.78 MVA Raccoon – 14 MVA
c.	Present loading in MVA	8.6 MVA
d.	Proposed addition in MVA	Sd. enh at Thatchanallur 33 kV SS: 3 MVA Now proposed SS: 8 MVA Total: 11 MVA
e.	Anticipated peak in MVA	19.6 MVA

f.	Whether the conductor is adequate: Not adequate. However, in order to avoid overloading, it has been proposed to transfer the existing Thatchanallur 33 kV SS which is being presently fed from the above feeder to the existing Rastha 110 kV SS and provision towards 33 kV link line has been made in this proposal.
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DETAILS OF WORK:

- Establishment of 33/11 kV SS at Vellakoil with 1x8 MVA power transformer with associated equipments.
- Erection of 33 kV line with Dog Conductor from the existing Rastha 110 kV SS to the existing Thatchanallur 33/11 kV SS for a distance of 13.22 kms.
- Erection of 33 kV line with Dog Conductor (double circuit) from tapping location of existing 33 kV Thalaisyuthu – Kokkirakulam feeder to the proposed SS (LILO) for a distance of 1.0 kms.
- As 33 kV bay extension at Rastha 110 kV SS is under TANTRANSCO scope, the Chief Engineer/Transmission will be requested to make necessary arrangement for provision of 33 kV bay extension at Rastha 110 kV SS, so as to feed Thatchanallur 33 kV SS.

LAND AVAILABILITY:

Private land to an extent of 1.5 acres at Vellakoil village of Tirunelveli District has been acquired for establishing the proposed substation. The above land is found suitable for establishing the proposed SS.


29.08.2026

Executive Engineer/Master Plan 1

DETAILED ESTIMATE FOR ESTABLISHMENT OF 33/11 kV SS AT VELLAKOIL WITH 1x8 MVA POWER TRANSFORMER IN TIRUNELVELI EDC

Part I: Cost of new asset

SL.NO	DESCRIPTION	QTY	RATE	PER	Rs. In Lakhs	
					AMOUNT	TOTAL
I	CIVIL WORKS					
1	Land Cost (actuals)				1603.930	
2	Civil works such as construction of control room with lighting, cable duct, road, fencing & gate, culvert, yard filling, retaining wall, borewell & water works, watering arrangement for earth pits, power transformer plinth, provision for sand drums & sand, supply of furnitures, T & P etc. (inclusive of contingencies, labour, administrative expenses, all statutory levies etc.)			LS	175.000	
3	Total				1778.930	1778.93
II	Electrical Works					
1	33 kV AB Switch	3 Nos	0.466	E	1.398	
2	33 kV SF6/VCB Breaker	1 No	2.930	E	2.930	
3	33 kV CTs	3 Nos	0.308	E	0.924	
4	33 kV PTs	3 Nos	0.336	E	1.008	
5	33 kV LAS stn. Type	3 Nos	0.038	E	0.114	
6	11 kV Breaker (1 LV+ 2 fdrs)	3 Nos	1.626	E	4.878	
7	11 kV CTS	9 Nos	0.250	E	2.250	
8	11 kV AB Switch	6 Nos	0.236	E	1.416	
9	11 kV Bus PT	3 Nos	0.511	S	1.533	
10	11 kV LAS stn. Type	3 Nos	0.018	E	0.054	
11	11 kV LAS distn. Type	6 Nos	0.008	E	0.048	
12	Earthing painting and Yard lighting			LS	10.000	
13	Control cable			LS	10.000	
14	110 V Battery with 2 charger	1 set	8.707	set	8.707	
15	100 kVA, 11 kV/433 V Stn. Tr.	1 No	4.737	set	4.737	
16	Fire fighting equipments				3.000	
17	P&T Phone				0.100	
18	Scientific instruments				5.000	
19	C&R panel			LS	15.000	
20	DC panel	1 No	0.98	E	0.980	
21	AC panel	1 No	1.028	E	1.028	
22	110 V DC Annunciator Panel	1 No.	1.145	E	1.145	
23	SCADA			LS	20.000	
24	Sub Total				96.250	
25	Contingencies @ 1%				0.963	
26	Total for materials				97.213	
27	Labour and Transport charges @ 15%				14.582	
28	GST on labour & transport @ 18%				2.625	
29	Total for material and labour				114.419	
30	8 MVA, 33/11 kV Pr. Tr. with OLTC	1 No	88.374	E	88.374	
31	Labour and transport including GST	1 Loc	8.000	Loc	8.000	
32	Earthing	1 Loc	0.500	Loc	0.500	
33	Subtotal				211.293	
34	Estt & Sup. Charges 15%				31.694	
35	Subtotal				242.987	
36	Plinth for breakers				10.000	
37	33 kV Structure	4 Nos.	2.500	E	38.090	
38	11 kV Structure	1 set	38.090	set	33.791	
39	11 kV Link line with 7/4.09 ACSR	1 set	33.791	set	18.400	
40	11 kV capacitor bank 2.4 MVAR	2.3 kms.	8.000	km	27.008	
41	33 kV line with Dog conductor	1 Set	27.008	set	170.640	
42	Subtotal	14.22 kms.	12.000	Loc	297.93	
43	Total Gross & Nett.				297.93	2319.85


 29.08.2026
 Executive Engineer/Master Plan I

