

**TAMILNADU POWER DISTRIBUTION CORPORATION LIMITED  
ABSTRACT**

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

**TECHNICAL BRANCH**

(Per). MD TNPDC Proceedings No: 100

Dated: 11.09.2025

Visuvavasu Varudam

Avani 26

Thiruvalluvar Aandu 2056

**READ:** Chairman cum Managing Director's approval dated: 08.09.2025  
**PROCEEDINGS:**

1. The Tamil Nadu Power Distribution Corporation Limited hereby approves the proposal for establishment of 33/11 kV SS with 1x8 MVA power transformer at Kottur in Virudhunagar EDC of Tirunelveli Region at an estimated cost of Rs.715.33 lakhs Gross and Nett. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to "TANGEDCO – Capital Expenditure – Virudhunagar 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, TANGEDCO 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

Enclosure to (Per.) MD TNPDC Proceedings No 100 dt.11.09.2025

Copy to:

The Director/Distribution/TANGEDCO/Chennai-2

The Director/Finance/TANGEDCO/Chennai-2

The Chief Engineer/MM/Chennai-2

The Chief Engineer/Transmission/Chennai – 2

The Superintending Engineer/Virudhunagar EDC/Virudhunagar .

The Superintending Engineer/Transmission I /Chennai.

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

The Company Secretary/TANGEDCO/Chennai-2

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

B .P. Section (Administrative Branch)

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FORWARDED BY ORDER

 11/9/25  
EXECUTIVE ENGINEER/MASTER PLAN I  
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**REPORT TO ACCOMPANY THE ESTIMATE**

This proposal envisages establishment of 33/11 kV SS with 1x8 MVA power transformer at Kottur in Virudhunagar EDC of Tirunelveli Region at an estimated cost of Rs.715.33 lakhs Gross and Nett

**Need:**

Kottur and its surrounding areas are being fed by Appanaickenpatti 110/33/11 kV SS, Thulukkapatty 110/11 KV SS and Pandalgudi 33/11 KV SS. The details of the substations are furnished below:

At Appanaickenpatti 110/33/11 kV SS, 1x8 MVA, 33/11 kV power transformer is in service. The sustained peak on the above said power transformer is 5.85 MVA and the power transformers are loaded to 73.12% of its capacity. The load growth in this area is 4% per annum. The details of 11 KV feeder feeding a portion of Kottur and its surrounding areas are furnished below:

Sl. No	Name of the feeder (#)	Length in kms	CL in MVA	Peak in MVA	Voltage regn. %	Line loss in LU
1	11 kV Melakottaiyur #	15.1	5.374	2	10.3	2.915

At Thulukkapatty 110/11 kV SS, 2x10 MVA power transformers are in service. The sustained peak on the existing power transformers is 8 MVA and the power transformers are loaded to 40% of its capacity. The load growth in this area is 2 % per annum. The details of 11 KV feeder feeding remaining portion of Kottur and its surrounding areas are furnished below:

Sl. No	Name of the feeder (#)	Length in kms	CL in MVA	Peak in MVA	Voltage regn. %	Line loss in LU
1	11 kV Rural #	12.3	4.766	2.2	8.8	3.997
2	11 KV Industrial feeder	19.5	4.679	1.81	7.9	0.283

At Pandalgudi 33/11 kV SS, 2x8 MVA power transformers are in service. The sustained peak on the above said power transformers is 4.34 MVA and the power

transformers are loaded to 27.12 % of their capacity. The load growth in this area is 1% per annum. The details of 11 KV feeder feeding a portion of Kottur and its surrounding areas are furnished below:

Sl. No	Name of the feeder (#)	Length in kms	CL in MVA	Peak in MVA	Voltage regn. %	Line loss in LU
1	11 kV Kallupatty #	17.9	4.56	1.7	11.1	6.758

The voltage regulation of 11 KV Appanaickenpatti- Melakottaiyur feeder, 11 KV Thulukkanpatti – Rural feeder and 11 KV Pandhalgudi –Kallupatty feeder have exceeded the permissible limit of 8%. Further, all the above feeders are lengthy.

Load transfer from Thulukkanpatti 110/11 KV SS to nearby Soolakarai 110 KV SS is not possible as it is located at about 10 kms away from Thulukkanpatti 110 KV SS and will lead to low voltage problems.

Load transfer from Pandhalgudi 33/11 KV SS to nearby Nenmani 33/11 KV SS is not possible as it is located at about 10 kms away from Pandhalgudi 33/11 KV SS and will lead to low voltage problems.

Further, a 765/400 KV SS is in service at Virudhunagar. The station supply for the above substation is availed from 11 KV Industrial feeder off Appanaickenpatti 110/33/11 KV SS which is situated at a distance of about 8 kms away. Alternate station supply is extended through 11 KV Industrial feeder from Thulukkanpatti 110/11 KV SS which is situated at a distance of about 19 kms away. Due to lengthy feeders, considerable time is being taken to restore supply during break downs. Hence, it becomes essential to maintain uninterrupted station supply for Virudhunagar 765/400 KV SS.

Under the above circumstances, in order to provide reliable station supply to Virudhunagar 765/400 KV SS, to improve voltage regulation of the feeders, to reduce the length of the existing feeders feeding the area, to reduce line loss and to accommodate future load growth in and around Kottur, it becomes necessary to establish a new 33/11 kV SS at Kottur.

**Reduction in line loss:**

On establishment of 33/11 kV SS with 1x8 MVA power transformers at Kottur , the voltage regulation and line losses of the existing feeders after load transfer to Kottur 33/11 KV SS are furnished below:

Sl. No	Name of the feeder (#)	Length in kms	CL in MVA	Voltage regn. %	Line loss in LU
1	11 kV Melakottaiyur #	6.84	1.989	2.3	0.439
2	11 kV Rural #	10.2	3.561	5.02	2.026
3	11 KV Industrial feeder	7.9	3.249	2.4	0.064
4	11 kV Kallupatty #	8.4	2.703	3.9	1.451

On establishment of the proposed 33/11 kV SS at Kottur, the savings in line loss will be 7.213 LU per annum. The financial savings due to the above is Rs.78.18 lakhs per annum.

**Details of power transformers capacity proposed:**

A connected load of about 7.877 MVA is proposed to be transferred from Appanaickenpatti 110/33/11 kV SS, Thulukkappatty 110/11 KV SS and Pandalgudi 33/11 KV SS to the proposed Kottur 33/11 KV SS. Average diversity factor for this area is about 2.52. The anticipated peak to be incident on the proposed Kottur 33/11 KV SS will be of 3.12 MVA. Hence, 1x8 MVA, 33/11 KV power transformer has been proposed at new 33/11 KV SS.

At present Pandhalgudi 33/11 KV SS is fed from Velayuthapuram 110/33 KV SS through 33 KV Velayuthapuram – Pandhalgudi feeder and alternate source for Pandhalgudi 33/11 KV SS is availed from Aruppukottai 110/33-11 KV SS through 33 KV Aruppukottai – Pandhalgudi feeder.

It has been proposed to extend 33 KV supply for the proposed Kottur 33/11 KV SS from the above said Aruppukottai 110/33-11 KV SS through 33 KV Aruppukottai –Pandhalgudi feeder. In this regard, it has been proposed to erect link line of 14.8 kms from tapping location of the above said 33 KV feeder. Hence, the total length of the now proposed 33 KV Aruppukottai – Kottur feeder would be 17.6 kms. (Existing 2.8 km + link line 14.8 kms)

**Adequacy of Transmission system:****Details of source SS:**

a)	Name of the substation	Aruppukottai 110/33-11 KV SS
b)	Power transformers capacity	(1x25+1x16 MVA) , Total 41 MVA 110/33 kV side
c)	Peak reached in MVA	13.15
d)	Proposed addition in MVA	8
e)	Anticipated peak in MVA	21.15
f)	Whether power tr. capacity of the source SS is adequate:	Adequate.

**Details of Source Feeder:**

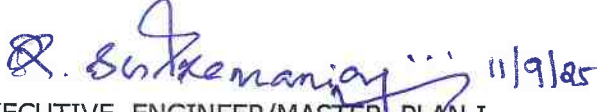
a.	Name of the feeder	33 KV Aruppukottai – Pandhalgudi feeder
b.	Size/Loading capacity of the conductor	Dog conductor – 17.78 MVA
c.	Present loading in MVA	Nil
d.	Proposed addition in MVA	8 MVA proposed
e.	Anticipated load in MVA	8 MVA
f.	Whether the conductor is adequate	Adequate.

**Details of works involved:**

- Establishment of 33/11 kV SS at Kottur with 1x8 MVA, 33/11 kV power transformer with associated equipments.
- Erection of 33 kV link line with ACSR Dog conductor to the proposed Kottur 33/11 kV SS from tapping location of 33 KV Aruppukottai – Pandhalgudi feeder for a distance of 14.8 Kms.

**Land availability:**

Land to an extent of 1.0 acre has been allotted inside the premises of Virudhunagar 765 KV SS at Mannarkottai village by TANTRANSCO. Land acquisition is under process and necessary action is being taken to pay the land cost. Since being TANTRANSCO land, pending acquisition of land, the proposal may be considered as a special case. The Chief Engineer/Distribution/Tirunelveli has certified that the above land is suitable for establishing the proposed substation.

  
EXECUTIVE ENGINEER/MASTER PLAN I  
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**DETAILED ESTIMATE FOR ESTABLISHMENT OF 33/11 kV SS WITH 1x8 MVA,33/11 kV POWER TRANSFORMER AT KOTTUR IN VIRUDHUNAGAR EDC**

**Part I : New Asset Chargeable to Capital**

RS. in Lakhs

SL. NO	DESCRIPTION	QTY	RATE	PER	AMOUNT in Lakhs	TOTAL
<b>I</b>	<b>CIVIL WORKS</b>					
1	Land cost				7.472	
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.,)					
	Sub total				156.867	
<b>II</b>	<b>Electrical Works</b>				<b>164.339</b>	<b>164.34</b>
1	33 kV AB Swtich	3 Nos	0.445	E	1.335	
2	33 kV SF6 Breaker	1 No	2.801	E	2.801	
3	33 kV CTs	3 Nos	0.302	E	0.906	
4	33 kV PT	3 Nos	0.267	E	0.801	
5	33 kV LAS stn. Type	3 Nos	0.037	E	0.111	
6	11 kV breaker (1 LV+4 fdrs)	5 Nos	1.637	E	8.185	
7	11 kV CTS	15 Nos	0.250	E	3.750	
8	11 kV AB Switch	10 Nos	0.199	E	1.990	
9	11 kV Bus PT	3 Nos	0.392	E	1.176	
10	11 kV LAS stn. Type	3 Nos	0.018	E	0.054	
11	11 kV LAS distn. Type	12 Nos	0.008	E	0.096	
12	Plinth for breakers	5 Nos	2.000	E	10.000	
13	Earthing painting and Yard lighting				8.000	
14	Control cable				7.000	
15	110 V, 120 AH Battery with 2 chargers	1 set	9.249	set	9.249	
16	100 kVA, 11 kV/433 V Stn. Tr.	1 No	4.477	set	4.477	
17	DC panel	1 No	0.979	E	0.979	
18	AC panel	1 No	1.011	E	1.011	
19	110 V DC Annunciator Panel	1 No	1.02	E	1.020	
20	C&R panel				15.000	
21	Fire Fighting equipments				3.000	
22	P&T Phone	1 No	0.100	E	0.100	
23	Scientific Instruments				5.000	
24	Sub Total				<b>86.041</b>	
25	Contingencies @ 1%				0.860	
26	Total for materials				86.901	
27	Labour and Transport charges @ 15%				13.035	
28	GST on labour & transport @ 18%				2.346	

SL. NO	DESCRIPTION	QTY	RATE	PER	AMOUNT in Lakhs	TOTAL
29	Sub total				102.283	
30	8 MVA, 33/11 kV Pr. Tr. With OLTC	1 No	78.488	E	78.488	
31	Labour and transport charges for Pr. Tr.	1 No.	8.000	E	8.000	
32	Earthing	1 Loc	0.550	loc	0.550	
33	Sub total				189.321	
34	Estt & Sup. Charges 15%				28.398	
35	Sub Total				<b>217.719</b>	<b>217.72</b>
36	33 kV Structure	1 set	38.09	set	38.090	
37	11 kV Structure	1 set	33.791	set	33.791	
	Erection of 33 kV link line with ACSR Dog conductor to the proposed Kottur 33/11 kV SS from tapping location of 33 KV Aruppukottai -Pandhalgudi feeder	14.8 km	10.79	km	159.692	
38	Erection of 11 kV Link lines with 7/4.09 ACSR	10.0 kms	7.89	Km	78.900	
39	11 KV capacitor bank 2.4 MVAR				22.795	
40	Sub Total				<b>333.268</b>	<b>333.27</b>
41	Total Gross & Nett					<b>715.33</b>

  
 Executive Engineer/Master Plan I 11/9/25  
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