

TAMIL NADU TRANSMISSION CORPORATION LIMITED
ABSTRACT

TANTRANSCO – Establishment of 110/33-11 kV SS at Cheyyar SIPCOT Phase II with 2x16 MVA, 110/33 kV power transformers and 2x10 MVA, 110/11 kV power transformers in Villupuram Operation Circle (Thiruvannamalai EDC) of System Operation/Chennai – Administrative approval – Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.124

Dated: 29.08.2026
Visuvaivasu Varudam
Aavani - 12
Thiruvalluvar Aandu : 2057

READ: Chairman's approval dated : 27.08.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for establishment of 110/33-11 kV SS at Cheyyar SIPCOT Phase II with 2x16 MVA, 110/33 kV power transformers and 2x10 MVA, 110/11 kV power transformers in Villupuram Operation Circle (Thiruvannamalai EDC) of System Operation/Chennai at an estimated cost of Rs. 4055.041 Lakhs Gross and Nett. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure – Villupuram Operation Circle (Thiruvannamalai EDC) - A/c code no. 1020500.
3. By virtue of the provisions contained in sub-section (2) (a) of section 185 of the Electricity Act, 2003, TANTRANSCO being the Transmission utility, 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 works will be taken up after ensuring necessary budget provision.

// BY ORDER OF THE CHAIRMAN//

K.SRIDHARAN

CHIEF ENGINEER /TRANSMISSION (FAC)

Encl: Report and detailed estimate

To

The Chief Engineer/Distribution/Thiruvannamalai Region

(Per) CH TANTRANSCO Proceedings No. 124, dated : 29.08.2026

Copy to:

The Managing Director/TANTRANSCO/Chennai-2

The Director/Distribution/TNPDCL/Chennai-2

The Director/Transmission Projects/TANTRANSCO/Chennai-2

The Director/Operation/TANTRANSCO/Chennai-2

The Director/Finance/TANTRANSCO/Chennai-2

The Chief Engineer/System Operation & Transmission Projects/Chennai

The Superintending Engineer/Operation/Villupuram

The Superintending Engineer/Thiruvannamalai EDC

The Superintending Engineer/GCC -I/Chennai

The Superintending Engineer/Transmission -I/Chennai -2

The Superintending Engineer/Transmission -II/Chennai -2

The Superintending Engineer/System Studies/Chennai -2

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

B.P.Section (Administrative Branch)

Stock file

//FORWARDED BY ORDER//

Hein
29/08/2026

EXECUTIVE ENGINEER/MASTER PLAN II

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages establishment of 110/33-11 kV SS at Cheyyar SIPCOT Phase II with 2x16 MVA, 110/33 kV power transformers and 2x10 MVA, 110/11 kV power transformers in Villupuram Operation Circle (Thiruvannamalai EDC) of System Operation/Chennai at an estimated cost of Rs. 4055.041 Lakhs Gross and Nett.

Need:

SIPCOT Industrial Park is being developed at Cheyyar Taluk with the objective of promoting industries.

At present, power supply to the SIPCOT Phase I industrial areas is being extended from Mangal 110/33-11 kV Substation. At Mangal 110/33-11 kV SS, 2x25 MVA, 110/33 kV power transformers and 2x16 MVA, 110/11 kV power transformers are in service.

The sustained peak reached on the existing 2x25 MVA, 110/33 kV power transformer is 16 MVA. Pallavaram 33/11 kV SS with 2x8 MVA power transformer capacity has been sanctioned vide (per) CMD TANGEDCO Pro .No. 99, dt.09.04.2020 and is proposed to be fed from Mangal 110 kV SS. Melma 33 kV SS (2x8 MVA) now fed off Vandavasi 110 kV SS is proposed to be reverted back to Mangal 110 kV SS. In addition to the above, about 3.299 MVA of HT service applications are pending to be effected at Mangal 110 kV SS at 33 kV side. In total 51.3 MVA of loads are to be effected from Mangal 110 kV SS.

The sustained peak reached on the existing 2x16MVA, 10/11 kV power transformer is 24.57 MVA and loaded to 76.78% of its capacity. About 2.92 MVA of HT applications are proposed to be effected from Mangal 110 kV SS at 11 kV side.

Also, there is no possibility to transfer the 11 kV loads of Mangal 110 kV SS to nearby Vembakkam 110 kV SS , Vandavasi 110 kV SS and Arani 110 kV SS as they are located at a distance of 22 km, 32 km and 36 km respectively and load transfer will lead to low voltage complaints.

The Chief Engineer/Distribution/Thiruvannamalai Region has requested load demand of SIPCOT for about 23 MVA at the 33 kV level and 12.9 MVA at 11 kV level.

Such being the condition, the above load demand could not be effected at Mangal 110 kV SS, as the existing 2x25 MVA, 10/33 kV and 2x16 MVA, 110/11 kV power transformers will be overloaded. Also adequate space is not available at Mangal 110 kV SS for erection of additional power transformers and way leave problem.

In view of the above, in order to cater the above anticipated load demand of SIPCOT, it has become necessary to establish a new substation. Accordingly, it is proposed to establish Cheyyar SIPCOT Phase II 110/33–11 kV Substation at a distance of 4 km away from Mangal SIPCOT industrial area.

4 Nos. 33 kV breakers and 4 Nos. 11 kV feeder breakers are proposed to be erected in the proposed SIPCOT Industrial Park, Cheyyar SIPCOT Phase II 110/33-11 kV SS. Being TRANSCO scheme, provision for 33 kV & 11 kV link lines have not been included in the estimate. Hence, the CE/Distribution/Thiruvannamalai Region may arrange to evolve the same separately and obtain the approval of the competent authority, separately.

DETAILS OF POWER TRANSFORMER CAPACITY PROPOSED:

The anticipated demand of SIPCOT is approximately 23 MVA at 33 kV level and 12.9 MVA at 11 kV level. Hence, it is proposed to install 2x16 MVA , 110/33 kV and 2x10 MVA, 110/11 kV power transformers at the proposed Cheyyar SIPCOT Phase II 110/33–11 kV substation.

ADEQUACY OF TRANSMISSION SYSTEM:

The 110 kV source to the proposed SIPCOT Industrial Park, Cheyyar 110/33-11 kV SS is proposed to be extended from Kanchipuram 230/110 kV SS by making LILO of Kanchipuram (230 kV SS) – proposed Vembakkam (230 kV SS) 110 kV feeder.

Details of the Source SS:

a.	Name of the source SS	Kanchipuram 230/110 kV SS
b.	Capacity of the auto tr.	2x100 MVA
c.	Present peak reached	130 MVA
d.	Whether the auto tr. capacity is adequate: As per the load flow study results, the Source SS is adequate to cater the proposed load	

Details of the Source feeder:

a.	Name of the feeder	Kanchipuram (230 kV SS) – proposed Vembakkam (230 kV SS) 110 kV feeder
b.	Size/Loading capacity of the conductor	Panther – 84 MVA
c.	Present loading in MVA	New feeder
d.	Whether the conductor is adequate: As per the load flow study results, the Source feeder is found to be adequate to cater the proposed load	

DETAILS OF WORKS INVOLVED:

- Establishment of 110/33-11 kV SS at SIPCOT Industrial Park Phase II, Cheyyar with 2x16 MVA, 110/33 kV power transformer and 2x10 MVA, 110/11 kV power transformers with associated equipments.
- Erection of 110 kV DC line on DC tower with Panther conductor for a route length of 19.5 kms. for making LILO of the existing Kanchipuram (230 kV SS) and proposed Vembakkam (230 kV SS) - 110 kV feeder at the proposed SS.

LAND AVAILABILITY:

SIPCOT have allotted an extent of 4.24 acre land at plot No.A-19/2 in the SIPCOT Industrial Park, Cheyyar Phase II bearing Survey Nos. 2262/1Apt, 1Bpt, 2Apt, 2Bpt, 2Cpt, 227/1Bpt of Karanai village and SF No.170/1pt, 171/2Apt, 2Bpt, 2Cpt, 2Dpt, 173/3pt of Kunnavakkam village and enter upon permission has been issued by the SIPCOT authorities for the above land on 30.12.2021. The same was handed over free of cost for establishment of new SS (Gift deed executed on 25.06.2025).

The Superintending Engineer/ GCC-I/Chennai has certified that the above land is suitable for establishment of 110/33-11 kV SS at Cheyyar on 19.04.2021.


EXECUTIVE ENGINEER/MASTER PLAN II

**DETAILED ESTIMATE FOR ESTABLISHMENT OF 110/33-11 kV SS AT SIPCOT CHEYYAR SIPCOT PHASE II
WITH 2x16 MVA, 110/33 kV & 2x10 MVA, 110/11 kV POWER TRANSFORMERS IN VILLUPURAM OPERATION
CIRCLE (THIRUVANNAMALAI EDC)**

SL No.	DESCRIPTION	QTY	RATE	PER	Rs in Lakhs	
					AMOUNT	TOTAL AMOUNT
I	CIVIL WORKS					
1	Land cost (actuals) (Gift deed)				0.870	
2	Control room building with internal electrification, bore well with septic tank, Plinths, Fencing, Road and cable duct, Filling the yard with Gravel, Filling the yard with crusher dust (100 mm depth) and 20 mm HBG metal (100 mm depth) etc.,				510.691	
3	Total (including Contingencies @1%, Establishment & Supervision charges @15% & GST @18%)				700.368	
4	Total				701.238	701.238
II	ELECTRICAL WORKS					
1	110 kV AB Switch with earth blade	2 Nos	2.300	E	4.600	
2	110 kV AB Switch without earth blade	9 Nos	1.814	E	16.326	
3	110 kV SF6 Breaker	2 Nos	9.382	E	18.764	
4	110 kV CTs (Single Phase)	6 Nos	1.050	E	6.300	
5	110 kV PTs (Single Phase)	3 Nos	1.125	E	3.375	
6	110 kV LAS (Single Phase)	12 Nos	0.323	E	3.876	
7	33 kV AB Switch	11 Nos	0.395	E	4.345	
8	33 kV VCB (LV-2+ Feeder-4)	6 Nos	2.483	E	14.898	
9	33 kV CTs (Single Phase)	18 Nos	0.260	E	4.680	
10	33 kV PTs (Single Phase)	3 Nos	0.285	E	0.855	
11	33 kV LAS (Single Phase) - Station type	6 Nos	0.032	E	0.192	
12	33 kV LAS (Single Phase) - Distribution type	12 Nos	0.032	E	0.384	
13	11 kV breaker (LV-2+ Feeder-4)	6 Nos	1.378	E	8.268	
14	11 kV CTs	18 Nos	0.212	E	3.816	
15	11 kV AB Switch	12 Nos	0.390	E	4.680	
16	11 kV Bus PT (3 phase)	1 set	0.433	set	0.433	
17	11 kV LAS - Station type	6 Nos	0.015	E	0.090	
18	11 kV LAS - Distribution type	12 Nos	0.007	E	0.084	
19	Earthing and Yard lighting			LS	10.000	
20	Control & Relay panels			LS	25.000	

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CIRCLE (THIRUVANNAMALAI EDC)**

					Rs in Lakhs	
SL No.	DESCRIPTION	QTY	RATE	PER	AMOUNT	TOTAL AMOUNT
21	Control cable			LS	10.000	
22	110 V, 300AH Battery	1 set	4.320	set	4.320	
23	110 V, 60A Battery Charger	2 sets	1.125	set	2.250	
24	Fire Fighting equipments			LS	6.000	
25	110 V D.C Panel	1 No	0.830	E	0.830	
26	A.C Panel	1 No	1.029	E	1.029	
27	110 V DC Annunciator panel	1 No	0.97	E	0.970	
28	100 kVA,11 kV/433V, Stn.Transformer	1 No	4.014	E	4.014	
29	P&T Phone	1 No	0.100	E	0.100	
30	T&P materials & furnitures			LS	4.000	
31	Scientific Instruments			LS	10.000	
32	11 kV capacitor bank/2.4 MVAR	1 set	19.367	set	19.367	
33	Sub total				193.846	
34	Contingencies 1%				1.938	
35	Cost of materials				195.784	
36	Labour & Transport @ 15%				29.368	
37	Sub total for material, labour & transport (A)				225.152	
POWER TRANSFORMERS						
38	16 MVA, 110/33 kV Pr.Tr. with OLTC	2 Nos.	188.012	E	376.024	
39	10 MVA, 110/11 kV Pr.Tr. with OLTC	2 Nos.	123.725	E	247.450	
40	Labour & Transport for transformer	4 loc	10.000	loc	40.000	
41	Earthing	4 loc	0.550	loc	2.200	
42	Sub total for Transformer, labour & transport (B)				665.674	
43	Sub total (A)+(B)				890.826	
44	Establishment & Supervision charges @15%				133.624	
45	Sub total				1024.450	
46	GST @18%				184.401	
47	Total				1208.851	

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WITH 2x16 MVA, 110/33 kV & 2x10 MVA, 110/11 kV POWER TRANSFORMERS IN VILLUPURAM OPERATION
CIRCLE (THIRUVANNAMALAI EDC)**

SL No.	DESCRIPTION	QTY	RATE	PER	Rs in Lakhs	
					AMOUNT	TOTAL AMOUNT
48	110 kV Structure	1 set	136.721	set	136.721	
49	33 kV Structure	1 set	38.090	set	38.090	
50	11 kV Structure	1 set	33.791	set	33.791	
	Total SUBSTATION Electrical work				1417.453	
	Total SUBSTATION Work (Civil & Electrical work)					2118.691
	ASSOCIATED TRANSMISSION LINES					
	110 kV DC line on DC tower with Panther conductor with LILO arrangement at existing Kanchipuram - proposed Venbakkam 110 kV Feeder (incl. of all taxes, Land & Tree Compensation) (Annexure I)	19.5 kms	99.300	km	1936.350	
51	TOTAL (G&N)					4055.041

26/10/2020
EXECUTIVE ENGINEER/MASTER PLAN II

Annexure - I						
TAMILNADU TRANSMISSION CORPORATION LIMITED						
110 KV DC line on DC Towers with Panther conductor						
Sl. No.	Quantity		DESCRIPTION	Rate in Rs.	Per	Amount in Rs.
1			Galvanised steel tower materials with extension part wherever necessary, and bolts and nuts etc.,			
a	256.09	MT	MS tower parts	84,578.00	MT	2,16,59,580.02
b	16.18	MT	Ordinary Bolts & nuts	90,000.00	MT	14,56,200.00
2	1,111.00	No.	90 KN Disc Insulators	376.80	No.	4,18,624.80
3	2,057.00	No.	120 KN Disc Insulators	500.00	No.	10,28,500.00
			Conductor & Earth wire accessories			
4	120.00	Set	Single Suspension fittings for ACSR Panther	1,074.42	Set	1,28,930.40
5	36.00	Set	Sus. fittings for Jumper	1,074.42	Set	38,679.12
6	240.00	Set	Single Tension fittings for ACSR Panther	1,292.40	Set	3,10,176.00
7	12.00	Set	Double Tension Fittings for ACSR Panther	3,678.60	Set	44,143.20
8	240.00	Set	Vibration Damper for Panther	490.22	Set	1,17,652.80
9	30.00	Set	Mid span comp.joint for ACSR Panther	438.87	Set	13,166.10
10	10.00	Set	Repair sleeve for ACSR Panther	235.42	Set	2,354.20
11	120.00	Set	PA Rod for Panther	590.98	Set	70,917.60
12	60.60	KM	ACSR PANTHER conductors 1.0% sag	2,68,726.00	KM	1,62,84,795.60
13	10.50	KM	OPGW - 48 Fibre with accessories	2,50,185.00	KM	26,26,942.50
			Earthing materials			
14	40.00	No.	Pipe type earthing	1,613.08	No.	64,523.20
15	2.00	No.	Counter poise earthing (120m length)	3,870.43	No.	7,740.86
			Tower Accessories			
16	40.00	No.	Number plate	218.76	No.	8,750.40
17	40.00	No.	Danger Board	242.95	No.	9,718.00
18	40.00	No.	Phase plate (Set of three)	252.41	No.	10,096.40
19	40.00	No.	Circuit plate	235.58	No.	9,423.20
20			Total Cost of materials			4,43,10,914.40
			TOWER FOUNDATIONS			
21	20.00	No.	GCR type tower	1,03,802.00	No.	20,76,040.00
22	8.00	No.	0° to 2° Suspension tower	2,57,543.00	No.	20,60,344.00
23	12.00	No.	HCR type tower	3,43,984.00	No.	41,27,808.00
			2° to 30° Medium angle tower			
			KCR type tower			
			30° to 60° High angle & Dead end tower			
24			Tower protection works			5,00,000.00
25			Total Cost of Foundations			87,64,192.00
26			Erection charges(10% on item 20)			44,31,091.44
27			Transportation & Insurance charges (5% on Item 20)			22,15,545.72
28			Contingencies (1% on item 20, 25 & 26, 27)			5,97,217.44
29			Total amount (item 20+25+26+27+28)			6,03,18,961.00
30			Establishment & Supervision Charges at 15.0% on item 29			90,47,844.00
31			Total Cost of materials, Foundation and Erection charges excluding GST			6,93,66,805.00
32			GST @ 18% on total amount	10.00	KM	1,24,86,024.90
33			TOTAL COST (Item 30 & 31)	10,00,000.00	KM	8,18,52,829.89
34	10.00	KM	Tree/Crop compensation			1,00,00,000.00
35			Land compensation	10.00	KM	74,37,469.11
36			TOTAL COST PER			9,92,90,299.00
			TOTAL COST PER 1 KM			99,29,029.90
			(Rounding to nearest 1000)	SAY		99,30,000.00
			TOTAL COST/KM in LAKHS			99.30