

TAMIL NADU TRANSMISSION CORPORATION LIMITED

ABSTRACT

TANTRANSCO – Enhancement of existing 110/33 kV power transformer capacity from 2x16 MVA to 3x16 MVA at Tindivanam 110/33-11 kV SS in Villupuram Operation Circle (Villupuram EDC) of Villupuram Region – Administrative approval – Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No. 108

Dated: 17.07.2026

Parabhaava Varudam

Aadi - 1

Thiruvalluvar Aandu - 2057

READ: Chairman's approval dated : 13.07.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for enhancement of existing 110/33 kV power transformer capacity from 2x16 MVA to 3x16 MVA at Tindivanam 110/33-11 kV SS in Villupuram Operation Circle (Villupuram EDC) of Villupuram Region at an estimated cost of Rs.455.921 Lakhs Gross and Rs.452.349 Lakhs Nett. subject to condition that no further loads shall be connected at Tindivanam 110/33-11 kV SS to avoid 110 kV source overloading in order to maintain system reliability and to meet the (N-1) condition based on load flow study report 27.05.2025. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure – Villupuram Operation Circle (Villupuram EDC) - A/C code No: 1020400.
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//

D.ASHOK KUMAR
CHIEF ENGINEER/TRANSMISSION

Encl: Report and detailed estimate.

To

The Chief Engineer/Distribution/ Villupuram Region

(Per) CH TANTRANSCO Proceedings No.108, dated : 17.07.2026

Copy to:

The Managing Director/TANTRANSCO, Chennai-2.
The Director/ Transmission Projects/ TANTRANSCO, Chennai-2.
The Director/Operation/TANTRANSCO/Chennai -2
The Director /Finance/TANTRANSCO, Chennai-2
The Director /Distribution, TNPDC, Chennai-2.
The Director /Finance, TNPDC, Chennai-2
The Chief Engineer/TP &SO/Chennai -2
The Chief Engineer/Civil Transmission/Chennai -2
The Superintending Engineer /GCC I/ Chennai
The Superintending Engineer/Operation/ Villupuram
The Superintending Engineer/ Villupuram EDC
The Chief Financial Controller/General/ TANTRANSCO, Chennai-2.
The Chief Internal Audit Officer/TANGEDCO, Chennai-2.
The Deputy Secretary,TANTRANSCO, Chennai-2.
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//

[Signature]
17/07/2026

EXECUTIVE ENGINEER/MASTER PLAN II

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages enhancement of existing 110/33 kV power transformer capacity from 2x16 MVA to 3x16 MVA at Tindivanam 110/33-11 kV SS in Villupuram Operation Circle (Villupuram EDC) of Villupuram Region at an estimated cost of Rs.455.921 Lakhs Gross and Rs.452.349 Lakhs Nett. subject to condition that no further loads shall be connected at Tindivanam 110/33-11 kV SS to avoid 110 kV source overloading in order to maintain system reliability and to meet the (N-1) condition based on load flow study report 27.05.2025.

Need:

Tindivanam 110/33-11 kV SS is in service with 2x16 MVA, 110/33 kV and 2x16 MVA, 110/11 kV power transformers. The sustained peak on the existing 2x16 MVA, 110/33 kV power transformers is 29.15 MVA and the power transformer is loaded to 91.09 % of its capacity.

At present, 33 kV supply from Tindivanam 110 kV SS is extended to the following Substation:

Sl. No	Name of the 33 kV feeder	Length of feeder in kms	Name of the 33 kV SS/HT	Pr. Tr capacity/ HT demand in (MVA)	Sustained Peak in MVA
1	Kiliyanur	23.02	Kiliyanur 33/11 kV SS	2x8	14.5
			Uppuvellore 33/11 kV SS	1x8	
2	Chendur	4.61	Thenbazaar line tap 33/11 kV SS	1x3.5	1.7
3	Elamangalam	11.56	Ural 33/11 kV SS	1x8	3.9
4	Saram	10.2	Saram 33/11 kV SS	1x8	6.9
			M/s.HG Industries (P) Ltd	2.25	
5	Endiyur	5.26	Endiyur 33/11 kV SS	1x8	4.1
6	Santhaimedu	7.3	Santhaimedu 33/11 kV SS	1x8	6.9

The nearby substation to Tindivanam 110/33-11 kV SS is Chendur 110/33-11 kV SS, which is having (1x10+1x16) MVA, 110/33 kV Power Transformers with a sustained peak of 25.7 MVA (98.9% loading) for which load transfer is not possible and is at a distance of 12 kms. The another nearby substation is Elamangalam 110/33-11 kV SS

which is having 3x16 MVA, 110/33 kV Power Transformers with a sustained peak of 29.15 MVA (60.7% loading) and is at a distance of 15 kms. Moreover, load transfer to both these Substations will lead to low voltage problem due to distance criteria.

The SE/GCC-I/Chennai has certified that the space is adequate for provision of 1No. additional 16 MVA, 110/33 kV power transformer and 2 Nos. GCC breakers at Tindivanam 110/33-11 kV SSP.

Hence, in order to avoid overloading of the existing power transformers, to provide uninterrupted supply and to meet the (N-1) condition, it becomes necessary to enhance the existing 110/33 kV power transformer capacity from 2x16 MVA to 3x16 MVA at Tindivanam 110/33-11 kV SS.

Adequacy of Transmission system:

Details of source SS:

a.	Name of the substation	Villupuram 230/110 kV SS	Acharapakkam 230/110 kV SS
b.	230/110 kV Auto transformer capacity	2x160 MVA	3x100 MVA
c.	Present peak in MVA	251 MVA	195.88 MVA
d.	Whether Auto tr./feeder is adequate: As per the load flow study result, Source 230 kV substation is adequate to cater the proposed SS load.		

Details of Source Feeder:

a.	Name of the Feeder	110 kV Villupuram – Acharapakkam feeder
b.	Size of the Conductor	Panther – 84 MVA
c.	Present Loading in MVA	39.219 MVA
g.	Whether the Conductor size is adequate: Load flow study result reveals that 110 kV feeder overloading has been observed. However, the 110/33 kV power transformer enhancement from 2x16 to 3x16 MVA, at Tindivanam 110/33-11 kV SS may be considered in order to maintain system reliability and meet the (N-1) condition of 110/33 kV power transformers at Tindivanam 110/11 kV SS subject to the condition that no further loads shall be connected at Tindivanam 110/11 kV SS.	

The proposed loads that will be incident after enhancement of power transformer is given below:

Sl.No	Name of the SS/EHT feeder	Capacity/ Sanctioned load (MVA)	Present peak reached (MVA)	Load transfer to the enhanced transformer (MVA)	Anticipated peak (MVA)
1	Tindivanam 110/33-11 kV SS.	2x16, 110/33 kV	29.15 MVA	The power transformer will be connected in parallel to the existing power transformers to avoid overloading and to share the load	29.15 MVA

Details of work involved:

- Erection of 1 No. 16 MVA, 110/33 kV power transformer and its associated equipments at Tindivanam 110/33-11 kV SS.
- Erection of 2 Nos.110 kV GC breakers and associated equipments at Tindivanam 110/33-11 kV SS.
- Dismantling of existing aged 110 kV GC breaker.
- Re-erection of 110 kV DP and isolator switch with earth from existing location to new location.


 EXECUTIVE ENGINEER/MASTER PLAN II

**Estimate for enhancement of existing 110/33 kV power transformer capacity from 2x16 MVA into 3x16 MVA at
Tindivanam 110/33-11 kV SS in Villupuram Operation Circle (Villupuram EDC)**

Part I: Cost of new asset A/c code No.1020400

S.No	DESCRIPTION	QTY	RATE	PER	AMOUNT in Lakhs	TOTAL in lakhs
I	Civil Works					
1	Providing foundation concrete for structure and equipment plinths for power transformer and other equipments, cable duct, quarry dust filling, spreading of metal and other allied civil works,painting,etc.,				46.441	
2	Supply and stringing of Jumper span				2.426	
3	Total				48.867	
4	Total (including contingencies @1%, Establishment & Supervision charges @15% & GST @18%)				66.976	66.976
II	Electrical Works					
1	110 kV AB Switch w/o earth	9 Nos	1.814	E	16.326	
2	110 kV SF6 breaker	2 Nos	5.648	E	11.296	
3	110 kV CT	6 Nos	1.665	E	9.990	
4	110 kV LAS (Station type)	6 Nos	0.323	E	1.938	
5	33 kV VCB (LV-1)	1 No	2.483	E	2.483	
6	33 kV AB switch	2 Nos	0.395	E	0.790	
7	33 kV LAS (Station type)	3 Nos	0.032	E	0.096	
8	33 kV CTs	3 Nos	0.261	E	0.783	
9	Control & Relay Panel			LS	10.000	
10	Control cable			LS	10.000	
11	Earthing and Yard lighting			LS	2.000	
12	110 and 33 kV Structure modification and re-engineering works (busbar arrangements, jumpering arrangements,clamps and connectors etc.)			LS	10.000	
13	Cost of materials				75.702	
14	Contingencies @1%				0.757	
15	Sub Total				76.459	
16	Labour & Transport Charges @ 15%				11.469	
17	Sub total for material,labour & transport (A) 16 MVA, 110/33 kV Power transformer with				87.928	
18	OLTC	1 No.	188.012	E	188.012	
19	Labour & transport for transformer	1 loc	10.000	loc	10.000	
20	Earthing	1 loc	0.550	loc	0.550	
21	Sub total for material,labour & transport (B)				198.562	
22	Sub total (A)+(B)				286.490	
23	Establishment & Supervision charges @15%				42.973	
24	Sub total				329.463	
25	GST @18%				59.303	
26	Total Electrical				388.767	388.767
27	Total (Civil & Electrical work)				455.743	
28	Add dismantling charges				0.179	
29	Total (Gross)				455.921	
30	Less credit				3.572	
31	Total (Nett)				452.349	

Part I A: Dismantling Charges Chargeable to A/c code No. 4021137 = 0.179 lakhs

Part II : Accumulated Depreciation Chargeable to (STOCK) A/c code No. 1011300

Sl.No	Description	Qty	Original cost of asset in lakhs	Full life period	Useful life period	Acc.Dep = 0.9* (col.4*col.6/col.5)
1	110 kV Oil circuit breaker	1 No	3.572	25	31	3.215
2	Total		3.572			3.215

Part III Devolution of old equipment to store

Part III = Part IV - Part II = 0.36 lakhs

PART IV REMOVAL OF OLD ASSET CHARGABLE TO A/c No. 1010300

Sl.No	Description	Qty	Original cost in lakhs	Original erection charges	Original centage	Original cost of asset in lakhs
1	110 kV Oil circuit breaker	1 No	2.824	0.282	0.466	3.572
	Total					3.572

* Since cost data for 110 kV oil mounted with CT circuit breaker is not available, 50% value of present cost data rate for 110 kV SF6 breaker has been adopted

Rs. In Lakhs

Part I: New Asset Chargeable

Abstract

Gross 455.921
Nett 452.349

Part I (a):Dismantling charges Chargeable 0.179
Part II: Accumulated Depreciation Chargeable 3.215
Part III :Devolution of old equipment to store 0.357
Part IV :Removal of old assets Chargeable 3.572

[Signature]
17/07/2026
Executive Engineer/Master Plan II