

TAMIL NADU TRANSMISSION CORPORATION LIMITED

ABSTRACT

TANTRANSCO – Proposal for i) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval for the work carried out in CE/D/Vellore region and ii) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS in Thiruvalam Operation Circle (Krishnagiri EDC) of Vellore Region – Administrative approval – Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.140

Dated: 22.10.2026
Parabhaava Varudam
Iypasi - 05
Thiruvalluvar Aandu - 2057

READ: Chairman's approval dated : 16.10.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for for i) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval for the work carried out in CE/D/Vellore region and ii) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS in Thiruvalam Operation Circle (Krishnagiri EDC) of Vellore Region at an estimated cost of Rs.591.884 Lakhs Gross and Rs.338.065 Lakhs Nett. subject to provision of (2x100+1x160) MVA, 230/110 kV auto transformers at Uddanapally 230/110 kV SS. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure - Thiruvalam Operation Circle (Krishnagiri 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//

K.SRIDHARAN
CHIEF ENGINEER/TRANSMISSION

Encl: Report and detailed estimate

To

The Chief Engineer/Distribution/ Vellore Region

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/Salem

The Chief Engineer/Civil Transmission/Chennai -2

The Superintending Engineer /GCC /Salem

The Superintending Engineer/Operation/ Thiruvallur

The Superintending Engineer/ Krishnagiri 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 V/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//

Handwritten signature
22/10/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Enclosure to (Per) CH TANTRANSCO Proceedings No.140 dated : 22.10.2026

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages i) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval for the work carried out in CE/D/Vellore region and ii) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS in Thiruvallam Operation Circle (Krishnagiri EDC) of Vellore Region at an estimated cost of Rs.591.884 Lakhs Gross and Rs.338.065 Lakhs Nett. subject to provision of (2x100+1x160) MVA, 230/110 kV auto transformers at Uddanapally 230/110 kV SS.

Need:

I) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval at Denkanikottai 110/33/11 kV SS

Denkanikottai 110/33/11 kV SS was in service with 2x16 MVA, 110/33 kV transformers.

SE/Krishnagiri EDC has stated that in order to manage the load and to avoid frequent interruptions during emergency conditions, 1 No.25 MVA power transformer was allotted to Denkanikottai 110/33/11 kV SS on 13.05.2024 towards enhancement of 1st unit of 16 MVA, 110/33 kV (with pending administrative approval) and commissioned on 07.06.2024.

Hence, this proposal is evolved for ratification of the enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA in anticipation of administrative approval and to regularize the stores transaction.

II) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS

At present Denkanikottai 110/33/11 kV SS is in service with (1x16+1x25) MVA, 110/33 kV and 2x8 MVA, 33/11 kV power transformers. The sustained peak reached on the existing 110/33 kV power transformers is 40.30 MVA and the power transformers are loaded to 98.29 % of its capacity.

A maximum demand of 40.3 MVA was recorded on 17.03.2026 at 13.00 hrs and 24.02.2025 at 17.00 hrs. Due to parallel operation of existing 16 MVA and 25 MVA power transformers, the load could not be shared equally.

The Substation can safely carry only about 37.5 MVA under the existing arrangement and any further increase in load causes abnormal overloading of 16 MVA power transformer. Recently on 06.04.2026, the power transformer tripped on overload with actuation of Winding temperature alarm indicating severe thermal stress on the existing power transformers.

At present, 33 kV supply from Denkanikottai 110 kV SS is extended to the following Substations:

Sl.No.	Name of the SS	Pr.Tr. capacity (MVA)	Sustained Peak in MVA
1	Denkanikottai 33/11 kV SS	2x8	14.80
2	Anchetty 33/11 kV SS	2x8	2.50
3	Nagondapally 33/11 kV SS	2x8	13.80
4	Iruthukottai 33/11 kV SS	2x8	8.22

The nearby substation to Denkanikottai 110/33/11 kV SS is Kempatty 110/33-11 kV SS, which is having 3x25 MVA, 110/33 kV power transformers with a sustained peak of 75.3 MVA (more than 100% loading) and is also at a distance of 21 kms. for which load transfer is not possible. The another nearby substation is Uddanapally 110/33-11 kV SS which is having (1x25+2x16) MVA, 110/33 kV power transformers with a sustained peak of 51 MVA (89.47% loading) and is at a distance of 21.7 kms. for which load transfer is not possible. Moreover, load transfer to both these Substations will lead to low voltage problem due to distance criteria.

Hence, in order to avoid overloading of the existing power transformers, to provide uninterrupted supply, to meet the future load growth and to meet the contingency in the existing and nearby SS, the existing 16 MVA, 110/33 kV power transformer capacity also needs to be enhanced to 25 MVA at Denkanikottai 110/33/11 kV SS.

At present, the existing (1x25+1x16) MVA, 110/33 kV power transformers are being controlled by 1 No. 110 kV GC breaker. As per norms, individual HV breaker has to be provided for transformer capacity of 25 MVA and above. Hence, provision of 1 No. 110 kV HV breaker has been made in the estimate, so that the 25 MVA power transformers will have separate HV breaker for each 110/33 kV power transformer.

The SE/GCC/Salem has certified that the space is adequate for enhancement of existing second unit 110/33 kV power transformer capacity from 16 MVA to 25 MVA and 1 No. HV breaker at Denkanikottai 110/33/11 kV SS subject to the following conditions:

i) Provision of 110 kV strung bus modification shall be made in the Administrative sanction proposal ii) Arrangements for 3 days continuous Line Clear shall be made while executing the erection work iii) Provision of additional 1 No. 110 kV GC is feasible with 3 meters skew between incoming & outgoing isolators. It is ensured that Sl.No. (i) & (iii) are included in the estimate of the proposal.

Adequacy of Transmission system:

Details of source SS:

a.	Name of the source SS	Uddanapally 230/110 kV SS	Hosur 230/110 kV SS
b.	Capacity of the auto tr.	3x100 MVA	(3x160+1x100)MVA (At present)
c.	Present peak reached	220 MVA	483 MVA
d.	Whether the auto tr. capacity is adequate: As per the load flow study result dt.13.08.2026, the Source SS has been observed to be adequate subject to provision of 2x100+1x160 MVA, 230/110 kV auto transformers at Uddanapally 230/110 kV SS.		

Details of Source Feeder:

a.	Name of the Feeder	110 kV Uddanapally – Hosur – SIPCOT feeder	110 kV Hosur – Kempatty I & II feeder
b.	Size of the Conductor	Panther – 84 MVA	Panther – 84 MVA
c.	Present Loading in MVA	74 MVA	52 MVA
d.	Whether the conductor size is adequate: As per the load flow study result dt.13.08.2026, Source feeder has been observed to be adequate		

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	Denkanikottai 110/33-11 kV SS.	(1x25+1x16), 110/33 kV	40.3 MVA	Extg. peak – 40.3 MVA Jawalagiri 33/11 kV SS (1x8 MVA) – 6 MVA	46.3 MVA

i) Details of work completed and to be ratified :

- Erection of 1 No. 25 MVA, 110/33 kV power transformer at Denkanikottai 110/33/11 kV SS.
- Dismantling of 1 No. 16 MVA, 110/33 kV power transformer at Denkanikottai 110/33/11 kV SS.

ii) Details of work involved :

- Erection of 1 No. 25 MVA, 110/33 kV power transformer at Denkanikottai 110/33/11 kV SS.
- Erection of 1 No. 110 kV HV breaker and associated equipments at Denkanikottai 110/33/11 kV SS.
- Dismantling of 1 No. 16 MVA, 110/33 kV power transformer at Denkanikottai 110/33/11 kV SS.

Hein 22/10/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Detailed estimate for i) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval and ii) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS in Thiruvallam Operation Circle (Krishnagiri EDC) of Vellore Region

Part I: Cost of new asset chargeable : A/c. Code : 1020400

RUPEES IN LAKHS					
Sl. No.	Description	Quantity	Rate	Per	Amount in Lakhs
1	110 kV AB switch w/o earth blade	2 Nos	1.570	E	3.140
2	110 kV SF6 breaker	1 No.	6.090	E	6.090
3	110 kV CT	3 Nos	1.977	E	5.931
4	110 kV LAS	3 Nos	0.288	E	0.864
5	Control & Relay Panel			LS	5.000
6	Control cable			LS	3.000
7	Earthing, painting & Yard lighting			LS	3.000
8	110 and 33 kV Structure modification and re-engineering works (busbar arrangements, jumpering arrangements, clamps and connectors etc.) inclusive of all			LS	20.000
9	Plinth for breaker			LS	2.000
10	Cost of materials				49.025
11	Contingencies 1%				0.490
12	Sub total				49.515
13	Labour and Transport charges @ 15%				7.427
14	Sub total for material, labour & transport (A)				56.943
15	25 MVA, 110/33 kV power transformer with OLTC for enhanced 1st unit (PO.TR. 2181, dt.25.04.2011)	1 No	110.170	E	110.170
16	25 MVA, 110/33 kV power transformer with OLTC	1 No	239.450	E	239.450
17	Plinth for transformer	2 loc	3.000	E	6.000
18	Labour and Transport charges	2 loc	10.000	loc	20.000
19	Earthing	2 loc	0.500	loc	1.000
20	Sub total for material, labour & transport (B)				376.620
21	Sub total (A)+(B)				433.563
22	Establishment & Supervision charges @15%				65.034
23	Sub total				498.597
24	Add dismantling charges				3.000
25	Sub total				501.597
26	GST @18%				90.287
27	Total (Gross)				591.884
28	Less credit				253.820
29	Total (Nett)				338.065

Detailed estimate for i) Enhancement of 110/33 kV power transformer capacity from 2x16 MVA to (1x25+1x16) MVA with ratification in anticipation of approval and ii) Enhancement of 110/33 kV power transformer capacity from (1x25+1x16) MVA to 2x25 MVA at Denkanikottai 110/33/11 kV SS in Thiruvallam Operation Circle (Krishnagiri EDC) of Vellore Region

Part I (a):Dismantling charges Chargeable A/c.code : 4021137

3.00

lakhs

Part II: Accumulated Depreciation Chargeable : A/c. 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	16 MVA, 110/33 kV Power Transformer	1	122.238	25	3	13.202
2	16 MVA, 110/33 kV Power Transformer	1	131.582	25	5	23.685
3	Total					36.886

Part III Devolution of old equipment to store

Part III = Part IV - Part II . = **216.93** lakhs

Part IV Removal of old assets Chargeable : A/c. Code : 1010300

Sl.No	Description	Qty	Original cost in lakhs *	Original erection charges	Original centage	Original cost of asset in lakhs
1	16 MVA, 110/33 kV Power Transformer (PO.TR.2773/2016)	1	96.631	9.663	15.944	122.238
2	16 MVA, 110/33 kV Power Transformer (PO.TR.2912/2017)	1	104.017	10.402	17.163	131.582
3	Total					253.820

Rs. In Lakhs

Abstract			
Part I: New Asset Chargeable	Gross		591.884
	Nett		338.065
Part I (a): Dismantling charges Chargeable			3.000
Part II: Accumulated Depreciation Chargeable			36.886
Part III: Devolution of old equipment to store			216.933
Part IV: Removal of old assets Chargeable			253.820


 EXECUTIVE ENGINEER/MASTER PLAN II