TAMIL NADU TRANSMISSION CORPORATION LIMITED

ABSTRACT

TANTRANSCO – Enhancement of 110/11 kV power transformer capacity from 2x10 MVA to 2x16 MVA at Keeramangalam 110/33-11 kV SS in Trichy Operation Circle (Pudukkottai EDC) of Trichy Region – Administrative approval – Accorded

---

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.166

Dated: 24.09.2025
Visuvaavasu Varudam
Puratasi - 08
Thiruvalluvar Aandu 2056

READ: Chairman's approval dated 22.09.2025

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for enhancement of 110/11 kV power transformer capacity from 2x10 MVA to 2x16 MVA at Keeramangalam 110/33-11 kV SS in Trichy Operation Circle (Pudukkottai EDC) of Trichy Region at an estimated cost of Rs.552.42 Lakhs Gross and Rs.377.71 Lakhs Nett. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure – Trichy Operation Circle (Pudukkottai 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 (FAC)

Encl: Report and detailed estimate.

To

The Chief Engineer/Distribution/ Trichy Region

(Per) CH TANTRANSCO Proceedings No. 166, dated : 24.09.2025

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/Transmission Projects/ Trichy

The Chief Engineer/System Operation/ Trichy

The Superintending Engineer/Operation/ Trichy

The Superintending Engineer/ Pudukkottai EDC

The Superintending Engineer/GCC/Trichy

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//

24/09/2025

EXECUTIVE ENGINEER/MASTER PLAN II

Enclosure to (Per) CH TANTRANSCO Proceedings No.166, dated : 24.09.2025

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages enhancement of 110/11 kV power transformer capacity from 2x10 MVA to 2x16 MVA at Keeramangalam 110/33-11 kV SS in Trichy Operation Circle (Pudukkottai EDC) of Trichy Region at an estimated cost of Rs.552.42 Lakhs Gross and Rs.377.71 Lakhs Nett.

Need:

At present, Keeramangalam 110/33-11 kV SS is in service with 1x16 MVA, 110/33 kV and 2x10 MVA, 110/11 kV power transformers. The combined peak reached on the existing 110/11 kV Power Transformers is 17.6 MVA which is loaded to 88 % of its capacity. Load growth reached is 4.15%.

The details of the nearby substations to Keeramangalam 110/33-11 kV SS are as below:

Sl. No.	Name of the SS	Pr.Tr.cap in MVA	Peak in MVA	% of loading	Distance
1	Neduvasal 33/11 kV SS	1x8	3.144	39.3 %	30 kms.
2.	Avanathankottai 33/11 kV SS	2x8	10.29	64.31 %	13 kms.
3.	Maramadakki 33/11 kV SS	2x8	8.573	53.58 %	13 kms.

Load transfer from Keeramangalam 110 kV SS to the nearby Neduvasal 33/11 kV SS, Avanathankottai 33/11 kV SS and Maramadakki 33/11 kV SS are not feasible due to distance criteria. If done so, it will lead to low voltage problem.

The salient features of 11 kV feeders fed off Keeramangalam 110/33-11 kV SS are given below:

Name of the 11 kV feeder	CL in MVA	MD in MVA	Length in km	Voltage regulation in %
11 kV Keeramangalam	4.695	3.429	5.489	4.66
11 kV Senthangudy	4.880	4.382	6.581	6.73
11 kV Panangulam	4.565	3.429	7.646	6.19
11 kV Kodikarampai	1.852	1.810	6.526	2.89
11 kV Merpanaikadu	6.044	5.049	6.745	8.84
11 kV LN Puram	7.112	6.097	8.508	10.07
11 kV Kasimpudupettai	3.113	1.790	5.738	2.77

From the above, it is observed that the voltage regulation of 11 kV Merpanaikadu feeder and 11 kV LN Puram are well beyond the permissible limit of 8%. In this regard, the Chief Engineer/Distribution/Trichy region is instructed to take necessary action to bring down the overloading of the above mentioned 11 kV feeders within limit by evolving necessary improvement work such as feeder bifurcation/strengthening work, etc.

Hence, in order to meet the load growth in the area, to avoid overloading of the existing power transformers and to provide uninterrupted supply, it becomes necessary to enhance the existing 110/11 kV power transformers from 2x10 MVA to 2x16 MVA at Keeramangalam 110/33-11 kV SS.

Adequacy of Transmission system:

Details of the source SS:

a.	Name of the substation	Vellalaviduthy 400/ 230-110 kV SS
b.	400/110 kV auto transformer capacity	2x200 MVA
c.	Peak reached in MVA	230 MVA
d.	Whether power tr. capacity of the source SS is adequate:	As per the load flow study results, source substation is adequate to cater the proposed load.

Details of the source feeder:

a.	Name of the feeder	110 kV Vellalaviduthy– Keeramangalam feeder
b.	Size/Loading capacity of the conductor	Panther - 84 MVA
c.	Present loading in MVA	30 MVA
d.	Whether the conductor is adequate: As per the load flow study results, the source feeder is adequate to cater the proposed load.	

Details of work:

- Erection of 2 Nos. 16 MVA, 110/11 kV power transformers at Keeramangalam 110/33-11 kV SS.
- Dismantling of 2 Nos. 10 MVA, 110/11 kV power transformers at Keeramangalam 110/33-11 kV SS.

24/09/2025

EXECUTIVE ENGINEER/MASTER PLAN II

DETAILED ESTIMATE FOR ENHANCEMENT OF EXISTING 110/11 KV POWER TRANSFORMER CAPACITY FROM 2x10 MVA INTO 2x16 MVA AT KEERAMANGALAM 110/33-11 KV SS IN TRICHY OPERATION CIRCLE

Part I: Cost of new asset chargeable

RUPEES IN LAKHS

Sl. No.	Description	Quantity	Rate	Per	Amount in Lakhs
1	16 MVA, 110/11 kV Pr.Tr. with OLTC	2 Nos.	221.854	E	443.708
2	Contingencies 1%				4.437
3	Sub total				448.145
4	Labour and Transport charges inclusive of GST	2 Nos.	10.000	E	20.00
5	Plinth alteration	2 Nos.	3.500	E	7.00
6	Sub total				475.145
7	Estt.& Supervision charges @ 15%				71.272
8	Sub total				546.417
9	Add dismantling charges				6.000
10	**Total (Gross)**				**552.42**
11	Less credit				174.70
12	**Total (Nett)**				**377.71**

Part I (a):Dismantling charges Chargeable = 6.00 lakhs

Part II: Accumulated Depreciation Chargeable

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	10 MVA, 110/ kV Power Transformer	1	87.466	25	11	34.636
2	10 MVA, 110/ kV Power Transformer	1	87.238	25	20	62.812
3	Total		174.704			97.448

Part III Devolution of old equipment to store

Part III = Part IV - Part II = **77.26** lakhs

Part IV Removal of old assets Chargeable

Sl.No	Description	Qty	Original cost in lakhs	Original erection charges	Original centage	Original cost of asset in lakhs
1	10 MVA, 110/11 kV Power Transformer (Y.O.M 2013-PO TR No.2439)	1	69.143	6.914	11.409	87.466
2	10 MVA, 110/11 kV Power Transformer (Y.O.M 2005-PO TR No.1253)	1	68.963	6.896	11.379	87.238
3	Total					174.704

Abstract

		Rs. In Lakhs
Part I: New Asset Chargeable	**Gross**	**552.42**
	Nett	**377.71**
Part I (a):Dismantling charges Chargeable		**6.00**
Part II: Accumulated Depreciation Chargeable		**97.45**
Part III :Devolution of old equipment to store		**77.26**
Part IV :Removal of old assets Chargeable		**174.70**

24/09/2025

Executive Engineer/Master Plan II