

TAMIL NADU TRANSMISSION CORPORATION LIMITED
ABSTRACT

TANTRANSCO - Enhancement of existing power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Pappakudi 110/11 kV SS in Villupuram Operation circle (Perambalur EDC) of Trichy Region - Administrative approval - Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.135

Dated: 28.09.2026

Parabhaaya Varudam

Purataasi - 11

Thiruvalluvar Aandu - 2057

READ: Chairman's approval dated : 23.09.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for enhancement of existing power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Pappakudi 110/11 kV SS in Villupuram Operation circle (Perambalur EDC) of Trichy Region at an estimated cost of Rs.258.556 Lakhs Gross and Rs.198.965 Lakhs Nett. subject to the following conditions as per Load Flow study dated : 17.07.2026:
 - i. The 110 kV source feeder will be adequate only after the establishment of Keezhakuppam 230/110 kV SS for bifurcating the Aduthurai radial 110 kV source feeder. However, the enhancement is considered in order to meet the (N-1) condition and no further load shall be connected to avoid 110 kV source feeder overload constraints. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure - Villupuram Operation Circle (Perambalur 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/Trichy Region

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/Villupuram

The Superintending Engineer/Perambalur 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//

Handwritten signature and date: 28/09/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Enclosure to (Per) CH TANTRANSCO Proceedings No. 135, dated : 28.09.2026

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages enhancement of existing power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Pappakudi 110/11 kV SS in Villupuram Operation circle (Perambalur EDC) of Trichy Region at an estimated cost of Rs.258.556 Lakhs Gross and Rs.198.965 Lakhs Nett. subject to the following conditions as per Load Flow study dated : 17.07.2026:

i. The 110 kV source feeder will be adequate only after the establishment of Keezhakuppam 230/110 kV SS for bifurcating the Aduthurai radial 110 kV source feeder. However, the enhancement is considered in order to meet the (N-1) condition and no further load shall be connected to avoid 110 kV source feeder overload constraints.

Need:

At present Pappakudi 110/11 kV SS is having 2x10 MVA, 110/11 kV power transformers. The sustained peak on the existing 2x10 MVA, 110/11 kV power transformers is 18.67 MVA and are loaded to 93.35 % of their capacity. Load growth of the SS is around 4.31 %.

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

Sl. No.	Name of the SS	Pr.Tr.cap in MVA (on 11 kV side)	Peak in MVA	% of loading	Distance
1	Jayamkondam 110/33-11 kV SS	110/11 kV, 1x16+1x10	21.59	83.04%	21 kms.
2.	Andimadam 110/33-11 kV SS	33/11 kV, 2x8	12.71	79.44%	22 kms.
3.	Thazhuthalaimedu 33/11 kV SS	33/11 kV, 2x8	13.94	87.12%	15 kms.

Load transfer to all the above nearby Substations are not possible as the Power transformers are loaded nearly more than 80% of their capacities and permanent load transfer will lead to low voltage problem due to distance criteria.

The salient features of 11 kV feeders fed off from Pappakudi 110/11 kV SS at present are given below:

Sl. No.	Name of the 11 kV feeder	CL in MVA	Length in km	MD reached in MVA	Voltage regn in %
1	Kaduvetti	5.278	8.53	4.19	6.60
2	Melanikuzhi	2.135	2.582	2.48	1.33
3	Thennavanallur	6.307	9.362	4.38	9.24
4	Azhagarkoil	3.292	18.065	3.62	16.68
5	Eraivangudi	8.289	17.13	6.85	24.38
6	Powergrid	0.150	0.454	0.070	0.040

From the above, it is observed that the voltage regulation of 11 kV Azhagarkoil feeder and 11 kV Eraivangudi feeder have exceeded the permissible limit of 8%. In this regard, the Chief Engineer/Distribution/Trichy region has stated that the sanction proposal for conductor strengthening of the 11 kV Azhagarkoil feeder and feeder bifurcation for 11 kV Eraivangudi feeder are under process. Even after load bifurcation of 11 kV Eraivangudi feeder, the voltage regulation could not be brought down within permissible limit and hence it is proposed to establish new 33/11 kV SS and land acquisition is under progress.

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 power transformer capacity from from 2x10 MVA to 1x16+1x10 MVA at Pappakudi 110/11 kV SS which is very much essential and is the only economical way.

Adequacy of Transmission system:

Details of the source SS:

a	Name of the source SS	Neyveli 230/110 kV SS
b	Capacity of the existing auto tr.	3x160 MVA
c	Present peak reached in MVA	380 MVA
d	Whether Auto tr./feeder is adequate:As per Load flow study report dt.12.05.2026, source Substation is adequate to cater the proposed enhancement.	

Details of the source feeder:

a	Name of the feeder	110 kV Aduthurai radial feeder
b	Size/Loading capacity of the conductor	Panther – 84 MVA
c	Present loading in MVA	94 MVA
d	Whether the conductor is adequate:	Load flow study report dt.17.07.2026 states that feeder is observed to be overloaded. The feeder will be adequate only after the establishment of Keezhakuppam 230/110 kV SS for bifurcating the source feeder. However, the power transformer enhancement may be considered only to meet out (N-1) condition and no further loads shall be connected to avoid feeder overload constraints.

The Chief Engineer/Distribution/Trichy region shall take necessary action to avoid source feeder overloading.

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	Present peak reached (in MVA)	Load transfer to the enhanced transformer	Anticipated peak (in MVA)
1	Pappakudi 110/11 kV SS	2x10 MVA	18.24	The power transformer will be connected in parallel to the existing power transformers to avoid overloading and to share the load	18.24

Details of work:

- Erection of 1 No. 16 MVA, 110/11 kV power transformer & its associated equipments at Pappakudi 110/11 kV SS.
- Dismantling of 1 No. 10 MVA, 110/11 kV power transformer at Pappakudi 110/11 kV SS.


28/09/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Detailed estimate for enhancement of existing 110/11 kV power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Pappakudi 110/11 kV SS in Villupuram Operation circle (Perambalur EDC)

Part I: Cost of new asset A/c code No.1020400					Rs. In Lakhs
SL NO	DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	16 MVA, 110/11 kV power transformer	1 No	171.960	Each	171.960
2	Plinth alteration			LS	3.500
3	Earthing			LS	1.000
4	Labour and Transport charges			LS	10.000
5	Sub total				186.460
6	Contingencies @ 1%				1.865
7	Sub total				188.325
8	Establishment and Supervision charges @15%				28.249
9	Sub total				216.573
10	GST @18%				38.983
11	Sub total				255.556
12	Add Dismantling charges				3.000
13	Total Gross				258.556
14	Less Credit				59.592
15	Total Nett				198.965

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

3.00 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 = $0.9 \times (\text{col.4} \times \text{col.5}) / 1.6$
1	10 MVA, 110/11 kV power transformer	1	59.592	25	25	53.632
2	Total					53.632

Part III Devolution of old equipment to store

Part III = Part IV - Part II

5.959 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 centages	Original cost of asset in lakhs
1	10 MVA, 110/11 kV power transformer (Y.O.M 1997)	1	47.108	4.711	7.773	59.592
2	Total					59.592

Rs. In Lakhs

Abstract			
Part I: New Asset	Gross	258.556	
	Nett	198.965	
Part I (a):Dismantling charges		3.000	
Part II: Accumulated Depreciation		53.632	
Part III :Devolution of old equipment to store		5.959	
Part IV :Removal of old assets		59.592	

J. Vignesh
28/07/2021
Executive Engineer/Master Plan II