

TAMIL NADU TRANSMISSION CORPORATION LIMITED
ABSTRACT

TANTRANSCO – Enhancement of existing power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Othakadai 110/11 kV SS in Madurai Operation Circle (Madurai EDC) of Madurai Region – Administrative approval - Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.118

Dated: 14.08.2026
Parabhaava Varudam
Aadi - 29
Thiruvalluvar Aandu 2057

READ: Chairman's approval dated:12.08.2026

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 Othakadai 110/11 kV SS in Madurai Operation Circle (Madurai EDC) of Madurai Region at an estimated cost of Rs.343.839 Lakhs Gross and Rs.213.851 Lakhs Nett. in order to maintain system reliability and meet the (N-1) condition of 110/11 kV power transformers subject to condition that no further loads shall be connected at Othakadai 110/11 kV SS to avoid 110 kV source feeder overloading as per Load Flow study dated : 12.05.2026.The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure – Madurai Operation Circle (Madurai 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/ Madurai Region

(Per) CH TANTRANSCO Proceedings No. 118, dated : 14.08.2026

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/Transmission Projects&System Operation/Madurai
The Superintending Engineer/Operation/Madurai
The Superintending Engineer/ Madurai EDC
The Superintending Engineer/GCC/ Madurai
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//

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14/08/2026
EXECUTIVE ENGINEER/MASTER PLAN II

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages enhancement of existing power transformer capacity from 2x10 MVA to 1x16+1x10 MVA at Othakadai 110/11 kV SS in Madurai Operation Circle (Madurai EDC) of Madurai Region at an estimated cost of Rs.343.839 Lakhs Gross and Rs.213.851 Lakhs Nett. in order to maintain system reliability and meet the (N-1) condition of 110/11 kV power transformers subject to condition that no further loads shall be connected at Othakadai 110/11 kV SS to avoid 110 kV source feeder overloading as per Load Flow study dated : 12.05.2026.

Need:

At present Othakadai 110/11 kV SS is having 2x10 MVA, 110/11 kV power transformers. The sustained peak reached on the existing 110/11 kV power transformer-I is 8.12 MVA which is loaded to 81.2 % of its capacity. The sustained peak reached on the existing 110/11 kV power transformer-II is 9.25 MVA which is loaded to 92.5 % of its capacity. Load growth of the SS is around 19%.

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

Sl. No.	Name of the SS	Pr.Tr.cap in MVA	Peak in MVA	% of loading	Distance
1	Thiruppalai 110/11 kV SS	2x16	29.83	93.22 %	11 kms.
2.	Vandiyur 110/11 kV SS	3x16	19.47	40.56 %	8 kms.

The peak reached at nearby Thiruppalai 110/11 kV SS is about 29.83 MVA (93.22% loading) and is at a distance of 11 kms. for which load transfer is not possible due to overloading and low voltage problem. 11 kV Pandikovil feeder of nearby Vandiyur 110/11 kV SS can backfeed partial loads of 11 kV Agriculture College of Othakadai 110/11 kV SS only at times of emergency and permanent load transfer will lead to low voltage problem.

The salient features of 11 kV feeders fed off from Othakadai 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	Othakadai	9.126	3.738	5.42	4.865
2	High Court	1.650	1.619	1.14	0.577
3	Thirumohur	3.641	4.628	2.10	2.471
4	Agriculture College	6.103	5.457	5.42	7.519
5	Kadachanendhal	8.303	7.471	5.79	10.939

From the above, it is observed that the voltage regulation of 11 kV Kadachanendhal feeder has exceeded the permissible limit of 8%. In this regard, the Chief Engineer/Distribution/Madurai region has stated that the proposal for strengthening of the entire length of 11 kV Kadachanendhal feeder by Racocon conductor (ACSR 7/4.09 mm conductor) is under process. It is also stated that partial load transfer of 3.463 MVA is proposed to be transferred to newly proposed Mathur 33/11 kV SS by laying a link line thereby reducing the voltage regulation of the above feeder.

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 2x10 MVA to 1x16+1x10 MVA at Othakadai 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	Alagarkoil 230/110 kV SS
b	Capacity of the existing auto tr.	2x100 MVA
c	Present peak reached in MVA	170.47 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.	

The SE/O/Madurai has stated that enhancement of auto transformer capacity from 2x100 to 2x160 MVA at Alagarkoil 230/110 kV SS has been sanctioned and erection of 1 No. 160 MVA auto transformer is under progress.

Details of the source feeder:

a	Name of the feeder	Alagarkoil – Pasumalai 110 kV feeder
b	Size/Loading capacity of the conductor	Panther – 84 MVA
c	Present loading in MVA	75.39 MVA
d	Whether the conductor is adequate:	Load flow study report dt.12.05.2026 states that overloading has been observed in Alagarkoil-Pasumalai 110 kV feeder. However, the 110/11 kV power transformer enhancement from 2x10 to 1x16+1x10 MVA at Othakadai 110/11 kV SS may be considered in order to maintain system reliability and to meet out the (N-1) condition of 110/11 kV power transformers at Othakadai 110/11 kV SS subject to the condition that no further loads shall be connected at Othakadai 110/11 kV SS.

The Chief Engineer/Distribution/Madurai 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	Othakadai 110/11 kV SS	2x10 MVA	18.24	The power transformer loads will be shared to avoid overloading	18.24

Details of work:

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


 14/05/2026
 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 Othakadai 110/11 kV SS in Madurai Operation circle (Madurai 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	234.184	Each	234.184
2	Plinth alteration			LS	3.500
3	Earthing			LS	1.000
4	Labour and Transport charges			LS	10.000
5	Sub total for material, labour & transport				248.684
6	Contingencies @ 1%				2.487
7	Sub total				251.171
	Establishment and Supervision charges				
8	@15%				37.676
9	Sub total				288.846
10	GST @18%				51.992
11	Sub total				340.839
12	Add Dismantling charges				3.000
13	Total Gross				343.839
14	Less Credit				129.988
15	Total Nett				213.851

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 = $0.9 \times (\text{col.4} \times \text{col.6} / \text{col.5})$
1	10 MVA, 110/11 kV power transformer	1	129.988	25	4	18.718
2	Total					18.718

Part III Devolution of old equipment to store

Part III = Part IV - Part II

111.27 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 2022 - PO TR No.3106)	1	102.757	10.276	16.955	129.988
2	Total					129.988
Rs. In Lakhs						
Abstract						
Part I: New Asset				Gross		343.839
				Nett		213.851
Part I (a):Dismantling charges						3.000
Part II: Accumulated Depreciation						18.718
Part III :Devolution of old equipment to store						111.269
Part IV :Removal of old assets						129.988

12/05/2026
Executive Engineer/Master Plan II