

TAMIL NADU TRANSMISSION CORPORATION LTD

ABSTRACT

TANTRANSCO – Erection of 110 kV DC line on DC towers with Panther conductor for conversion of T'off arrangement into LILO arrangement in 110 kV Kinnimangalam - Theni-1 feeder at Usilampatty 110/33-11 kV Sub-Station towards provision of alternate source arrangement in Madurai Operation Circle of System Operation/Madurai – Administrative approval - Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No: 44

Dated: 08.05.2026.
Parabhaava Varudam,
Chithirai - 25,
Thiruvalluvar Aandu-2057.

READ: Chairman's approval dated :29.04.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the proposal for erection of 110 kV DC line on DC towers with Panther conductor for conversion of T'off arrangement into LILO arrangement in 110 kV Kinnimangalam - Theni-1 feeder alongwith provision of switching arrangement at existing 110/33-11 kV Usilampatty SS towards provision of alternate source arrangement in Madurai Operation Circle of System Operation/ Madurai at an estimated cost of Rs. 248.783 Lakhs Gross and Rs. 150.035 Lakhs Nett. The detailed estimate and report are annexed to these proceedings.
2. The expenditure is chargeable to TANTRANSCO, - Funds - Capital expenditure – Madurai Operation Circle - 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 the budget provision.

// BY ORDER OF THE CHAIRMAN //

J.PREMALATHA
CHIEF ENGINEER/TRANSMISSION

Encl: Report and detailed estimate.

To
The Chief Engineer/ System Operation/Madurai

Copy to:

The Managing Director/TANTRANSCO/Chennai-2
The Director/Transmission Projects/TANTRANSCO/Chennai-2
The Director/Operation/TANTRANSCO/Chennai-2
The Director/Distribution/TNPDC/Chennai-2
The Director/Finance/ TANTRANSCO /Chennai-2
The Chief Engineer/Transmission/ Chennai-2
The Chief Engineer/SO&TP/Madurai
The Chief Engineer/ Civil Transmission /Chennai -2
The Superintending Engineer /Planning/Transmission/ Chennai - 2
The Superintending Engineer /System Studies /Transmission/ Chennai - 2
The Superintending Engineer /Operation /Madurai
The Resident Audit Officer (AGO'S Unit) / Chennai -2
B .P. Section (Administrative Branch)
Stock file

//FORWARDED BY ORDER//


08/05/2024

EXECUTIVE ENGINEER/MASTER PLAN II

Enclosure to (Per) CH TANTRANSCO Proceedings No: 44, dated.08.05.2026.

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages erection of 110 kV DC line on DC towers with Panther conductor for conversion of T'off arrangement into LILO arrangement in 110 kV Kinnimangalam - Theni-1 feeder alongwith provision of switching arrangement at existing 110/33-11 kV Usilampatty SS towards provision of alternate source arrangement in Madurai Operation Circle of System Operation/Madurai at an estimated cost of Rs. 248.783 Lakhs Gross and Rs. 150.035 Lakhs Nett.

Need :

Usilampatty 110/33-11 kV SS was commissioned on 18.05.1968 and is presently having 1x25 MVA, 110/33 kV and 2x16 MVA, 110/11 kV power transformers.

The existing Usilampatty 110 kV substation is fed through SC line on SC tower with Wolf conductor through T'off arrangement from 110 kV Kinnimangalam-Theni- I feeder (Loc. T.135/1 to 135/7 as spur line). The existing A,B,C type old towers and the wolf conductor have served more than 55 years.

The present loading of Kinnimangalam - Theni I 110 kV feeder is 75 MVA (Exp) at Kinnimangalam end and 2.2 MVA (Imp) at Theni end.

During any contingent/breakdown situation in the 110 kV EHT main line of Kinnimangalam - Theni I feeder in the section between Valandur SS (Madurai EDC) and Ananji SS (Theni EDC) or in the spur line for 110 kV Usilampatty SS (Madurai EDC), the 110 kV source to the Usilampatty SS will get disturbed. Sectionalizing the faulty portion and attending the breakdown is time consuming. If LILO arrangement is proposed instead of existing spur line arrangement for 110 kV Usilampatty SS, reliability of supply can be ensured by reducing the interruption time.

Conversion of existing SC line on DC tower into SC line on DC tower is not possible since alternate supply cannot be arranged for the entire load till the erection of 7 Nos of Towers and 1.577 Kms . Hence erection of new DC towers with DC line for a length of 1.577 Kms and dismantling of the life period served SC line on SC tower is proposed in this estimate.

The proposed tower erection and LILO erection works will be carried out without any interruption of supply. During commissioning of line work, the 11 kV feeder loads and 33 kV feeder loads of Usilampatty 110/33-11 kV SS will be temporarily managed by back feeding arrangements from nearby Mondigundu 110/11 kV SS and from Valandur 110/33-11 kV SS and Chinnakattalai 110/33-11 kV SS respectively.

Usilampatty 110/33-11 kV SS is covered under the Chief Minister's Announcement in the Tamilnadu Legislative Assembly for the year 2023-24 towards "Provision of additional source for 110 kV Substations having only one source".

LOAD FLOW STUDY REPORT:

As per Load Flow report dt.06.04.26, load flow study has been conducted for the year 2027-28 network condition.

The load flow study has been conducted for the following cases.

Base case : With the existing T off arrangement at Usilampatty 110 kV SS and without the proposed LILO of 110 kV Kinnimangalam–Theni I feeder at Usilampatty 110/33-11 kV SS.

Case1 : With the proposed LILO arrangement of 110 kV Kinnimangalam– Theni I feeder at Usilampatty 110/33-11 kV SS.

The line loadings have been observed to be normal with the proposed LILO arrangement of 110 kV Kinnimangalam–Theni I feeder at Usilampatty 110/33-11 kV SS.

Hence, the proposal for alternate 110 kV source by making LILO of Kinnimangalam–Theni I feeder at Usilampatty 110/33-11 kV SS and dismantling of existing T'off arrangement may be considered.

DETAILS OF THE WORK INVOLVED:

- Erection of 110 kV DC line on DC towers with Panther conductor for a distance of 1.577 kms. (from Loc T.135/1 to Loc .T.135/7)
- Provision of 2 Nos. of 110 kV switching arrangement at the existing 110/33-11 kV Usilampatty SS.
- Dismantling of existing 110 kV SC line on SC towers with Wolf conductor for a distance of 1.577 kms. (from T.Loc.135/1 to 135/7).

Heinrich
08/10/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Detailed estimate for erection of 110 kV DC line on DC towers with Panther conductor for conversion of T'off arrangement into LILO arrangement in 110 kV Kinnimangalam - Theni-1 feeder at Usilampatty 110/33-11 kV Sub-Station towards provision of alternate source arrangement in Madurai Operation Circle

PART I : CHARGEABLE TO NEW ASSET A/c code No.1020400					Rs IN LAKHS	
SL No	DESCRIPTION	QUANTITY		RATE	PER	TOTAL AMOUNT
1	Erection of 110 kV DC line on DC tower with Panther conductor (As per Annexure I)	1.577	Kms	99.00	Km	156.123
2	110 kV Switching arrangement at existing 110/33-11 kV Usilampatty SS (As per Annexure II)	2	No.	44.312	E	88.624
3	Add dismantling charges					4.0355
4	Gross					248.783
5	Less credit					98.748
6	Nett					150.035
Part I A: DISMANTLING CHARGES CHARGEABLE to A/c code No. 4021137						4.0355

Part II: ACCUMULATED DEPRECIATION A/c No. 1011300

Sl. No	Description	Qty	Original cost of asset in lakhs	Full life period	Useful life period	Acc.Dep = $0.9 * (\text{col.4} * \text{col.6} / \text{col.5})$
1	Erection of 110 kV SC line on SC tower with Wolf conductor	1.577	98.748	35	35	88.873
2	Total					88.873

PART III : DEVOLUTION OF OLD EQUIPMENT TO STORES CHARGES

$$\text{Part IV} - \text{Part II} = 98.748 - 88.873 = 9.875$$

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

Rupees in lakhs						
Sl. No	Description	Qty	Original cost in lakhs *	Original erection charges	Original centages	Original cost of asset in lakhs
1	Erection of 110 kV SC line on SC tower with Wolf conductor	1.577	78.062	7.806	12.880	98.748
	Total					98.748

* - 50% value of present cost data rate for erection of 110 kV DC line on DC tower with Panther conductor has been adopted

ABSTRACT			Rupees in lakhs.	
PART I CHARGEABLE TO NEW ASSET	GROSS			248.783
Part I(A) : DISMANTLING CHARGES	NETT			150.035
Part II : ACCUMULATED DEPRECIATION CHARGES				4.0355
Part III : Devolution of old equipment to store				88.873
Part IV : REMOVAL OF OLD ASSET CHARGES				9.875
				98.748

[Signature]
08/05/2020
EXECUTIVE ENGINEER/MASTER PLAN-II

Annexure - I

TAMILNADU TRANSMISSION CORPORATION LIMITED
110 KV DC line on DC Towers with Panther conductor (SOR 25-26)

Sl. No.	Quantity		DESCRIPTION	Rate in Rs.	Per	Amount in Rs.
1			Galvanised steel tower materials with extension part wherever necessary, and bolts and nuts etc.,			
a	256.09	MT	MS tower parts	93,926.24	MT	2,40,53,570.80
b	16.18	MT	Ordinary Bolts & nuts	1,10,160.13	MT	17,82,390.90
2	1,111.00	No.	90 KN Disc Insulators	376.80	No.	4,18,624.80
3	2,057.00	No.	120 KN Disc Insulators	500.00	No.	10,28,500.00
			Conductor & Earth wire accessories			
4	120.00	Set	Single Suspension fittings for ACSR Panther	1,074.42	Set	1,28,930.40
5	36.00	Set	Sus. fittings for Jumper	1,074.42	Set	38,679.12
6	240.00	Set	Single Tension fittings for ACSR Panther	1,292.40	Set	3,10,176.00
7	12.00	Set	Double Tension Fittings for ACSR Panther	3,678.60	Set	44,143.20
8	240.00	Set	Vibration Damper for Panther	490.22	Set	1,17,652.80
9	30.00	Set	Mid span comp.joint for ACSR Panther	438.87	Set	13,166.10
10	10.00	Set	Repair sleeve for ACSR Panther	235.42	Set	2,354.20
11	120.00	Set	PA Rod for Panther	590.98	Set	70,917.60
12	60.60	KM	ACSR PANTHER conductors 1.0% sac	1,98,583.19	KM	1,20,34,141.31
13	10.50	KM	OPGW - 48 Fibre with accessories	2,50,185.00	KM	26,26,942.50
			Earthing materials			
14	40.00	No.	Pipe type earthing	1,613.08	No.	64,523.20
15	2.00	No.	Counter poise earthing (120m length)	3,870.43	No.	7,740.86
			Tower Accessories			
16	40.00	No.	Number plate	218.76	No.	8,750.40
17	40.00	No.	Danger Board	242.95	No.	9,718.00
18	40.00	No.	Phase plate (Set of three)	252.41	No.	10,096.40
19	40.00	No.	Circuit plate	235.58	No.	9,423.20
20			Total Cost of materials			4,27,80,441.80
			TOWER FOUNDATIONS			
21	20.00	No.	GCR type tower	102547.00	No.	20,50,940.00
			0° to 2° Suspension tower			
22	8.00	No.	HCR type tower	264604.00	No.	21,16,832.00
			2° to 30° Medium angle tower			
23	12.00	No.	KCR type tower	469820.00	No.	56,37,840.00

Annexure - I						
TAMILNADU TRANSMISSION CORPORATION LIMITED						
110 KV DC line on DC Towers with Panther conductor (SOR 25-26)						
Sl. No.	Quantity		DESCRIPTION	Rate in Rs.	Per	Amount in Rs.
24			30° to 60° High angle & Dead end tower			
			Tower protection works			5,00,000.00
25			Total Cost of Foundations			1,03,05,612.00
26			Erection charges(10% on item 20)			42,78,044.18
27			Transportation & Insurance charges (5% on Item 20)			21,39,022.09
28			Contingencies (1% on item 20, 25 & 26)			5,95,031.20
			Total amount (item 20+25+26+27+28)			6,00,98,151.27
29			Establishment & Supervision Charges at 15.0% on item 31			90,14,723.00
30			Total Cost of materials, Foundation and Erection charges excluding GST			6,91,12,874.27
31			GST @ 18% on total amount			1,24,40,317.37
32			TOTAL COST (Item 30 & 31)	10.00	KM	8,15,53,191.64
33	10.00	KM	Tree/Crop compensation	10,00,000.00	KM	1,00,00,000.00
34			Land compensation			74,37,469.11
35			TOTAL COST PER	10.00	KM	9,89,90,660.75
36			TOTAL COST PER 1 KM			98,99,066.07
			(Rounding to nearest 1000)	SAY		99,00,000.00
			TOTAL COST/KM in LAKHS			99.00

Annexure II

DETAILED ESTIMATE FOR 110 KV SWITCHING ARRANGEMENT

Rs. In lakhs

SI No	DESCRIPTION	UNIT	QTY	RATE	TOTAL
1	110 kV AB switch 2000 A without earth	Nos.	1	1.814	1.814
2	110 kV AB switch 2000 A with earth	Nos	1	2.300	2.300
3	Structure		LS	15.000	15.000
4	Busbar arrangement		LS	2.000	2.000
5	Foundation materials		LS	5.000	5.000
6	Earthing, Yard lighting		LS	2.000	2.000
7	Sub total				28.114
	Contingencies 1 %				0.281
	Cost of materials and equipments				28.395
	Labour and transport 15%				4.259
	Sub total				32.654
	Establishment and Supervision Charges @ 15%				4.898
	Sub total				37.553
	GST @ 18%				6.759
	Total				44.312