

TAMIL NADU TRANSMISSION CORPORATION LIMITED

ABSTRACT

TANTRANSCO – Provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower and (ii) on existing 110 kV Ambur – Somalapuram DC tower (from Loc1 to 22) in Thiruvalem Operation Circle of System Operation/Chennai – Revised administrative approval – Accorded

TECHNICAL BRANCH

(Per) CH TANTRANSCO Proceedings No.111

Dated:30.07.2026
Parabhaava Varudam
Aadi - 14
Thiruvalluvar Aandu - 2057

READ: Chairman's approval dated : 24.07.2026

PROCEEDINGS:

1. The Tamil Nadu Transmission Corporation Limited hereby approves the revised administrative proposal for provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower and (ii) on existing 110 kV Ambur – Somalapuram DC tower from Loc1 to 22 at an estimated cost of Rs.581.224 lakhs Gross and Nett by superseding the approval already accorded vide (Per) CH.TANTRANSCO Proceedings No.309, dt.26.12.2017 in Thiruvalem Operation Circle of System Operation/Chennai subject to the following Load flow study report dt.13.05.25 :

i) As per CEA regulations, tapping of line should not be allowed from main line for 66 kV and above class of lines. Hence 110 kV 2nd circuit from Ambur to Somalapuram 110 kV SS has been considered instead of proposed Take off arrangement in Ambur- Vadakathipatty 110 kV line to Somalapuram 110 kV SS. With the proposed Vinnamangalam-Ambur 110 kV 2nd circuit and Ambur-Somalapuram 2nd circuit, the line loadings are observed to be normal. The detailed estimate and report are annexed to these proceedings.

2. The expenditure is chargeable to TANTRANSCO - Funds - Capital Expenditure - Thiruvallam Operation Circle (System 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 necessary budget provision.

// BY ORDER OF THE CHAIRMAN//

K.SRIDHARAN

CHIEF ENGINEER/TRANSMISSION (FAC)

Encl: Report and detailed estimate.

To

The Chief Engineer/TP&SO/Chennai

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/Distribution/Vellore

The Chief Engineer/Civil Transmission/Chennai -2

The Superintending Engineer /GCC /Salem

The Superintending Engineer/Operation/ Thiruvallam

The Chief Financial Controller/General/ TANTRANSCO, Chennai-2.

The Chief Internal Audit Officer/TANGEDCO, Chennai-2.

The Deputy Secretary, TANTRANSCO, Chennai-2.

(Per) CH TANTRANSCO Proceedings No. 111, dated :30.07.2026

Copy to:

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//

[Signature]
30/07/2026
EXECUTIVE ENGINEER/MASTER PLAN II

Enclosure to (Per) CH TANTRANSCO Proceedings No. 111 , dated :30.07.2026

REPORT TO ACCOMPANY THE ESTIMATE

This proposal envisages revised administrative approval for provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower and (ii) on existing 110 kV Ambur – Somalapuram DC tower from Loc1 to 22 at an estimated cost of Rs.581.224 lakhs Gross and Nett by superseding the approval already accorded vide (Per) CH.TANTRANSCO Proceedings No.309, dt.26.12.2017 in Thiruvalem Operation Circle of System Operation/Chennai subject to the following Load flow study report dt.13.05.25 :

As per CEA regulations, tapping of line should not be allowed from main line for 66 kV and above class of lines. Hence 110 kV 2nd circuit from Ambur to Somalapuram 110 kV SS has been considered instead of proposed Take off arrangement in Ambur-Vadakathipatty 110 kV line to Somalapuram 110 kV SS. With the proposed Vinnamangalam-Ambur 110 kV 2nd circuit and Ambur-Somalapuram 2nd circuit, the line loadings are observed to be normal.

Need:

Administrative approval for provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower (ii) on existing 110 kV Ambur – Somalapuram DC tower and (iii) on existing 110 kV Ambur – Vadakathipatty DC tower in Thiruvalem Operation Circle of Vellore Region has already been accorded vide (Per) CH. TANTRANSCO Proceedings No.309, dt. 26.12.2017.

The Chief Engineer/TP & SO/Chennai has furnished a proposal seeking revised administrative approval stating the following reasons:

i) At present, existing 110 kV Vinnamangalam - Ambur feeder feeds Ambur 110 kV SS, Somalapuram 110 kV SS, Vadakathipatty 110 kV SS, Odugathur 110 kV SS and Valuthur railway traction SS radially. The above feeder is with Panther conductor and the sustained peak reached on the above feeder is 80 MVA.

ii) The existing 110 kV Somalapuram - Ambur feeder with Panther conductor feeds Somalapuram 110 kV SS and the sustained peak reached on the above feeder is 16 MVA.

iii) The existing 110 kV Vinnamangalam - Ambur feeder fed from Vinnamangalam 230 kV SS reaches its full load current frequently and trips with overload indication. The loads have been restricted daily by forced grouping and forced load shedding to avoid tripping of the feeder. This proposal also bifurcates the loads of 110 kV Vinnamangalam - Ambur feeder thereby avoiding tripping of that feeder.

iv) Further, Anaicut 110 kV SS is fed from Thiruvalam 230 kV SS through 110 kV Thiruvalam - Vellore II feeder. The sustained peak reached on the above feeder is 94 MVA. However, in case of contingency, supply could not be extended from Vinnamangalam 230 kV SS to any of these substations in that feeder due to the 110 kV Vinnamangalam-Ambur feeder is already in overloaded condition. As this proposal bifurcate the loads of 110 kV Ambur feeder, some of the substations could be extended from Vinnamangalam 230KV SS.

v) To avoid ROW issue, revised route has been proposed which will avoid obstructions between tower locations 75&76, 76&77 in the 110 kV Ambur-Vadakathipatty line. The existing location No.18 of 110 kV Ambur-Vadakathipatty line has fallen in forest and making T'off arrangement from existing tower Loc.18 of 110 kV Ambur-Vadakathipatty line to existing tower Loc.17 of 110 kV Ambur-Somalapuram line will require forest clearance which is tedious and cumbersome process.

vi) Hence, the proposal has been revised in coordination with both Operation/Thiruvalam and GCC/Salem wing for provision of alternate source to Somalapuram 110 kV SS by stringing 110 kV SC line with panther conductor on free arm of the (i) existing 110 kV Vinnamangalam - Ambur DC tower to a route length of

8.102 km and (ii) on existing 110 kV Ambur – Somalapuram DC tower (from Loc1 to 22) to a route length of 4.705 km.

vi) Provision of 1 No. bay extension at Ambur 110 kV SS and Vinnamangalam 230 kV SS. Since, the existing vacant bay is available at Somalapuram 110 kV SS, the bay extension work is not included in this proposal.

vii) Somalapuram 110 kV SS is included in the Announcement scheme for the year 2023-2024 towards "Provision of additional source for 110 kV Substations having only one source".

viii) SE/GCC/Salem has stated that adequate space is available at both Ambur 110 kV SS and Vinnamangalam 230 kV SS for erection of 110 kV bay.

Cost Benefit Analysis :

The cost of free arm stringing of 110 kV SC line with Panther conductor from Loc.18 to 88 of 110 kV Ambur – Vadakathipatty feeder for a route length of 15.475 km. and 1No.110 kV bay extension at Vadakathipatty 110 kV SS (included in BP.No.309, dt. 26.12.2017) will be saved.

Load Flow Study report :

Revised Load Flow Study has been conducted for the Network condition for the year 2025-26 is as follows :

Sl.No.	Name of the Proposal	Observations
1	Proposal for alternate 110 kV source to Somalapuram 110 kV SS (Vinnamangalam-Ambur 110 kV 2 nd circuit by free arm stringing and Take off arrangement in Ambur-Vadakathipatty 110 kV line to Somalapuram 110 kV SS)	As per CEA regulations, tapping of line should not be allowed from main line for 66 kV and above class of lines. Hence 110 kV 2 nd circuit from Ambur to

		Somalapuram 110 kV SS has been considered instead of proposed Take off arrangement in Ambur-Vadakathipatty 110 kV line to Somalapuram 110 kV SS. In Base case, the existing Vinnamangalam-Ambur 110 kV line has been observed to be overloaded. With the proposed Vinnamangalam-Ambur 110 kV 2nd circuit and Ambur-Somalapuram 2nd circuit, the line loadings are observed to be normal.
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The details of original sanction, its cost and details of revised estimate and its cost, are given below:

Sl.No	Description	Cost in Lakhs	Remarks
1	Provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower (ii) on existing 110 kV Ambur – Somalapuram DC tower and (iii) on existing 110 kV Ambur – Vadakathipatty DC tower in Thiruvalem Operation Circle of Vellore Region	Rs.375.25 Lakhs Gross and Nett.	Approved vide (Per) CH.TANTRANSCO Proceedings No.309, dt.26.12.2017

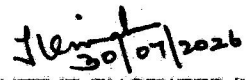
2.	Provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line with Panther conductor on the free arm of (i) existing 110 kV Vinnamangalam – Ambur DC tower and (ii) on existing 110 kV Ambur – Somalapuram DC tower from Loc1 to 22 in Thiruvalem Operation Circle of System Operation/Chennai	Rs.581.224 Lakhs Gross and Nett.	Revised estimate submitted for approval.
3.	Difference in cost (More)	Rs.205.974 Lakhs	Due to ROW issues and lapse of 8 years after according Administrative Sanction.
4.	In percentage (More)	35.44 %	

In this regard, the CE/TP&SO/Chennai has stated that as the administrative approval has elapsed for more than 5 years.

Due to cost variation of the proposal from the already approved scheme, revised approval is necessary to take up the work.

Details of the work involved:

- Stringing of 110 kV SC line with Panther conductor on the free arm of the existing 110 kV Vinnamangalam – Ambur DC tower for a route length of 8.102 kms.
- Stringing of 110 kV SC line on existing 110 kV Ambur – Somalapuram DC tower with Panther conductor from Loc1 to 22 for a route length of 4.705 kms.
- Extension of 110 kV bays - 2 nos (1 no. each at Vinnamangalam 230 kV SS and Ambur 110 kV SS)


 30/07/2026
 EXECUTIVE ENGINEER/MASTER PLAN II

Revised administrative approval for provision of alternate source to Somalapuram 110 kV SS by stringing of 110 kV SC line on existing 110 kV Vinnamangalam – Ambur DC tower with Panther conductor, on existing 110 kV Ambur – Somalapuram DC tower with Panther conductor in Thiruvalem Operation Circle of System Operation/Chennai

Sl. No	Description	QTY		Rate in Lakhs	PER	Amount in Lakhs
1	Stringing of 110 kV SC line on existing 110 kV Vinnamangalam – Ambur DC tower with Panther conductor (As per Annexure I)	8.102	kms	32.890	E	266.475
2	Stringing of 110 kV SC line on existing 110 kV Ambur – Somalapuram DC tower with Panther conductor (As per Annexure I)	4.705	kms	32.890	E	154.747
3	Extension of 110 kV Bay at Vinnamangalam 230 kV SS and Ambur 110 kV SS (As per Annexure II)	2	Nos.	80.001	E	160.002
4	Total (Gross & Nett.)					581.224

Handwritten signature
30/07/2020
Executive Engineer/Master Plan II

Annexure I

Stringing of 110 KV SC line with Panther conductor on free arm of the existing DC towers.

Sl. No.	QTY	Unit	DESCRIPTION	Rate in Rs.	Per	Amount in Rs.
1	686	No.	90 KN Disc Insulators	376.80	No.	258484.80
2	1029	No.	120 KN Disc Insulators	500.00	No.	514500.00
3			Conductor & Earth wire accessories			
4	60	Set	Single Suspension fittings for ACSR Panther	1074.82	Set	64489.20
5	36	Set	Suspension fitting for jumper	1074.82	Set	38693.52
6	120	Set	Single Tension fittings for ACSR Panther	1292.40	Set	155088.00
7	6	Set	Double Tension Fittings for Panther	3678.60	Set	22071.60
8	120	Set	Vibration Damper for Panther	490.22	Set	58826.40
9	15	Set	Mid span comp.joint for ACSR Panther	438.87	Set	6583.05
10	10	Set	Repair sleeve for ACSR Panther	235.42	Set	2354.20
11	60	Set	PA rod for Panther	590.98	Set	35458.80
12	30.3	KM	ACSR PANTHER conductors 1.0% sag	198583.19	KM	6017070.66
	10.50	KM	OPGW - 48 Fibre with accessories	2,50,185.00	KM	2626942.50
13			TOTAL COST OF MATERIALS			9800562.73
14			Contingencies @ 1%			98005.63
15			Subtotal			9898568.35
16			Labour & Transport @ 15%			1484785.25
17			Subtotal			11383353.61
18			Establishment & Supervision Charges at 15%			1707503.04
19			Total			13090856.65
20			GST at 18%			2356354.20
21			TOTAL COST PER	10	KM	15447210.85
		KM	Tree/Crop compensation	1000000	KM	10000000
			Land compensation			7437469.11
			TOTAL COST PER	10	KM	32884679.96
22			TOTAL COST PER 1 KM			3288468.00
23			(Rounding to nearest 1000)	SAY		3289000.00
24			COST PER KM IN LAKHS			32.89

Annexure II
DETAILED ESTIMATE FOR 110 KV BAY EXTENSION

SI No	DESCRIPTION	UNIT	QTY	RATE	Rs. In lakhs
					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	110 kV SF6 Breaker 40 kA	Nos	1	5.648	5.648
4	110 kV CTs (Single Phase)	Nos	3	1.665	4.995
5	Relay & control panel	Nos	1	10.000	10.000
6	Structure		LS	15.000	15.000
7	Control cables		LS	2.000	2.000
8	Busbar arrangement		LS	2.000	2.000
9	Foundation materials		LS	5.000	5.000
10	Earthing, Yard lighting		LS	2.000	2.000
11	Sub total				50.757
	Contingencies 1 %				0.508
	Cost of materials and equipments				51.265
	Labour and transport 15%				7.690
	Sub total				58.954
	Establishment and Supervision Charges @ 15%				8.843
	Sub total				67.797
	GST @ 18%				12.204
	Total				80.001