



KERALA STATE ELECTRICITY BOARD Ltd

(Incorporated under the Companies Act, 1956)

Registered Office: Vidyuthi Bhavanam, Pattom,

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ABSTRACT

Construction of 110 kV Substation at Murikkassery and 5.5 km 110kV DC line - Revised Administrative Sanction- Accorded - Orders issued.

CORPORATE OFFICE (SBU-T)

B.O (FTD)No.142/2023(DIRTSO-AE6/2022/3339)

Thiruvananthapuram, Dated: 21.03.2023

Read: 1.B.O. (FTD) No. 2740/2016/D(T&SO)/T1/Murikkassery/2016-17 dated 27.09.2016.
2.Note No. CETS-AE5/2022/3154/1188 dated 03.11.2022 of the Chief Engineer (Transmission South).
3.Note No. CETS-AE5/2022/3154(1)/1560 dated 25.01.2023 of the Chief Engineer (Transmission South).
4.Remarks of the Financial Adviser vide Note No. FA/Tender-2/8/2023 dated 21.02.2023.
5.Reply to the remarks of FA vide Note No. CETS-AE5/2022/3154(3)/1659 dated 25.02.2023 of the Chief Engineer (Transmission South).
6.Note No. CETS-AE5/2022/3154(4)/1667 dated 28.02.2023 of the Chief Engineer (Transmission South).
7.Note No. DIRTSO-AE6/2022/3339(2)/210 dated 06.03.2023 of Director (T,SO,P&S) (Agenda Item No. 39/3/23).

ORDER

The Administrative Sanction was accorded as per the B.O. read as 1st above for the construction of 110 kV Substation at Murikkassery and associated 8 km 110 kV DC line, at an estimate of Rs.11.60 Crore. The estimate was based on SOR 2012. The working estimate was prepared based on DSR 2016 and sanction was accorded for

- construction of 5.5 km 110kV DC line, amounting to Rs.4.30 Crore.
- construction of control room building, amounting to Rs.1.21 Crore.
- complete yard work, amounting to Rs.1.28 Crore.

As per the note read as 2nd above, the Chief Engineer (Transmission South) reported that during the execution of works, certain modifications were necessitated in the project design due to site constraints, as detailed below.

- Due to the steep hilly terrain of the line route, one third of the total towers were changed from normal 110 kV towers to 220 kV and multi circuit towers for ensuring the required line clearance and to minimise sag issues, which resulted in large quantity variations in the construction of tower foundations including increase in the number of rock foundations.

- Hydraulic manual method of earth work excavation was suggested in the sanctioned estimate. But on actual execution, this method was found inadequate due to hard rock locations. As conventional blasting method suggested in the sanctioned estimate is prohibited since these locations are in the vicinity of eco-sensitive zone, chemical blasting method is adopted in the revised estimate. Hence, excavation cost became high.
- By considering the easiness, reliability, low maintenance cost and less fault detection time, OPGW and polymer insulators are now proposed instead of conventional line materials such as earth wire, porcelain insulators, hardware fittings etc. This has led to increase in the cost estimate.
- Tree cutting compensation amount included in the sanctioned estimate was found insufficient and compensation for land in the right of way of the line was not included in the sanctioned estimate.
- GST @15% only was considered for erection, commissioning, transportation, insurance & contingencies and in civil works.
- Due to the presence of hard rock in the yard, earth mat design is changed.

Due to the above changes in the scope/design of the project, the estimate was revised for an amount of Rs.25.30 Crore. (construction of Substation - Rs.8.3 Crore, construction of 5.5 km DC line - Rs.17 Crore) and the Chief Engineer (TS) submitted an interim report for sanction. Since the revised estimate amount is found to be 2.18 times higher than the sanctioned estimate, the Board directed the Chief Engineer to stop the work from 08.11.2022 and to rework the estimate.

Based on the above, the scope/design of the project was revised by including optimum tower designs suitable for rocky areas which reduced the quantity of excavation, concrete for foundation and the quantity of revetment of foundations. Further, three extra items (viz. boring of holes in hard rock with Hilti compound, fabrication of structures/stube for hill side extensions to optimize foundations and RR masonry above plinth level) were included in the revised estimate due to special tower foundation design.

Accordingly, the Chief Engineer (TS) submitted a revised estimate for an amount of Rs.20.1 Crore and requested revised Administrative Sanction for the work. The revised estimate is 73.27% in excess of the original sanctioned estimate.

The Financial Adviser offered certain remarks on the revised estimate as per note read as 4th, which were replied by the Chief Engineer (Trans. South) as per note read as 5th above.

The matter was placed before the Full Time Directors as per the note read as 7th above. Having considered the matter in detail, the Full Time Directors in the meeting held on 13.03.2023,

Resolved to accord revised administrative sanction for the work "Construction of 110/11 kV Substation at Murikkassery with 2x12.5 MVA transformers by drawing 5.5 km 110 kV DC line as LILC from Kuthunkal-Neriyamangalam feeder" for an amount of Rs.20.1 Crore (Rupees Twenty Crore Ten Lakh only) under Transmission Circle, Thodupuzha, including

the three extra items that were necessitated due to the difficult terrain condition.

Orders are issued accordingly.

**By Order of the
Full Time Directors**



**LEKHA G
Company Secretary**

To:

The Chief Engineer (Transmission South)

Copy to: The Financial Advisor/ Chief Internal Auditor/ Chief Engineer (IT,CR&CAPs)

/Company Secretary

The Deputy Chief Engineer, Transmission Circle, Thodupuzha

The TAs to CMD/ D(T,SO,P&S)/ D(D,SCM&IT)/ D(GE&HRM)/ D(GC)/

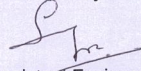
D(REES,S,N,S&W)

The PA to Director (Finance)

The CA to Secretary (Administration)

Stock File.

Forwarded / By Order



Assistant Engineer

Annexure to BO

Abstract of Estimate

PART A: CONSTRUCTION OF 110KV SUBSTATION, MURIKASSERY

Sl.No	Particulars	Amount
1	Cost of materials (A)	34,295,491
2	Erection & Commissioning (B)	3,050,784
3	Transport, Insurance & contingencies (C= 6% of A)	2,057,729
4	Civil works and special works (D)	23,277,281
5	Tree cutting compensation (E)	0
7	Sub Total (F=A+BC+D+ E)	62,681,285
8	Overhead & Supervision charges (G=10% of F)	6,268,129
9	Cost of land(H)	980,000
10	Total (I=F+G+H)	69,929,414
11	Taxes and Duties (J=GST @18% for A,B,C,D,G)	12,410,894
12	Fee for energisation approval and other Unforeseen (K)	659,692
	Total	83,000,000

PART B: CONSTRUCTION OF 5.5KM 110KV DC LINE TO PROPOSED 110KV SUBSTATION, MURIKASSERY

Sl.No	Particulars	Amount
1	Cost of materials (A)	23,363,047
2	Erection and commissioning (B)	8,637,536
3	Transport, Insurance, contingencies (C=6% of A)	1,401,783
4	Civil works and special works etc. (D)	41,622,078
5	Overhead and Supervision charge (E=10% of (A+B+C+D))	7,502,444
6	Taxes and Duties (F=GST @18% for A, B, C, D &E)	14,854,840
7	Land compensation 15% of land fair value 5.5km *22m @ 15lakhs/acre(i) (G)	6,735,527
8	Land compensation 85% of tower area 26nos * 18m * 18 m '=1.76 acres @ 15lakhs/acre(ii) (H)	2,654,622
9	Tree cutting Compensation (I=5.5km *Rs.1500000)	8,250,000
10	Fee for energisation approval, PWD &PTCC (J)	1,500,000
11	Unforeseen (K)	1,478,123
		118,000,000

PART A	Construction of 110kv Substation, Murikkassery	83,000,000
PART B	Construction of 5.5km 110kv DC line to proposed 110kv Substation, Murikkassery	118,000,000
	GRAND TOTAL	201,000,000

(Rupees Twenty Crore Ten Lakhs only)