



# KERALA STATE ELECTRICITY BOARD LIMITED

(Incorporated under Companies Act, 1956)

CIN: U40100KL2011SGC027424

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## Abstract

IHEP- Refurbishment of one No. faulty 48MVA, 11/220/√3kV Generator Transformer (TELK make, YOM: 1985) bearing M.O No.120240-1 of 780 MW Idukki HEP, Moolamattom – Sanction Accorded– Orders issued.

## Corporate Office (SBU-G/E)

B.O .(FTD) No. 563 /2020 (No. DGE/G3/IHEP/GT/2020-21 Thiruvananthapuram

dated: 07 -09-2020

- Read:-
1. Offer No. CSD/5819/2020-21/049 dated 22.07.2020 of M/s TELK, Angamaly.
  2. Letter No. CEG/AEE-I/IDUKKI/48 MVA Repair/2020-21 dated: 07-09-2020 of the Chief Engineer(Generation & PED) Moolamattom and the enclosed estimate.
  3. Note No.DGE/ G3/IHEP/GT /2020-21 dated 18-08-2020 of the Director (GE & SCM) (Agenda Item 51/8/2020)

## ORDER

The Idukki HEP is the largest Hydro Electric Power station in Kerala, with six Generators (6x130 MW) . There are 18 numbers of 48MVA, 11/220/√3kV, Generator Transformers (GTs) , three each for the six generators, located inside the power house cavern. One of the TELK make Unit#6 GT (A-phase ) tripped on 8<sup>th</sup> May 2020, at 18:17 Hrs. with the following relay indications.

- **At Main Bench Board (Control Room):-** 220 KV Cable Box Gas, Main Transformer Gas Trip, Main Transformer Winding Temperature high, Non-Lock out Trip, Generator Protection Lockout.
- **Relay Panel :-** Transformer Gas Trip, Master Trip-86E operated, Overall Differential Trip, Loss of Field Alarm.

The post fault DGA results of #6A GT showed high concentration of acetylene gas and suspected an internal arcing occurred in the winding. On internal inspection by the OEM of the GT ,LV upper lead takeout insulation at winding side was found damaged. The copper granules were found scattered on the clamp plate & upper core clamp region. Therefore, the faulty 48MVA GT was replaced with the available spare GT (Make: TELK, Sl.No.120240-2, YOM: 1986) in May 2020 and Unit#6 was put back in service on 30.05.2020 with minimum possible breakdown restoration time. Then, the faulty GT was transported to TELK, Angamally on 29.06.2020, for detailed inspection of core & coil assembly. The inspection was performed at the works of M/s TELK , in the presence of KSEBL Engineers and recommended for refurbishing of the transformer by replacing its winding & insulation with new one since the depth of winding damage is severe. It is reported that, M/s TELK will not provide any guarantee for trouble free operation of the transformer after repairing of the winding alone. Therefore, refurbishment for the above transformer necessitates replacement of the faulty windings along with its insulation. The repairing of the GT is essential because the spare available for the second stage has used for the replacement and there is no spare GT available with IHEP for the second stage machines.

Accordingly, the budgetary offer was collected from M/s TELK Ltd, Angamaly, Kerala for the refurbishment of the damaged GT by replacing the copper windings (HV & LV), leads, insulation materials including paper, press board, lead support, gaskets, consumables etc. along with labour charges for handling, manufacturing, inspection, processing and testing charges with the assumption that the core, HV/LV bushings, Tap changer, other accessories and tank are in healthy condition. But, the expected transportation charges, transit Insurance, assembling charges of transformer at Idukki Power Station after its refurbishment works, cost of transformer oil for filling the GT, after refurbishment work etc. are not covered under the scope of the offer from M/s TELK Ltd. Therefore , provision for the cost of new transformer oil (Approx.Qnty:12.5KL) as per recent KSEBL Purchase Order No.39/DYCE/18-19/07.02.2019 under Generation Circle, Moolamattom is included in this estimate amounting to Rs.1,50,00,000/- (Rupees One Crore and Fifty Lakhs Only).

Apart from the above, M/s TELK have agreed to furnish Corporate Guarantee instead of Bank guarantee up to a period of 12 months from the date of despatch of the repaired GT from their works against manufacturing defects such as use of defective material or bad workman ship for the replaced items only.The provision for applicable taxes and duties like GST @18%, also included in the estimate. The expenditure on account of this may be met from the budget provision for capital head under A/c:14.905 for the financial year 2020-21.

Considering the above , the Chief Engineer (Generation & PED) has requested sanction as per paper read (2) above ,for an estimate amounting to Rs 1,50,00,000/- , for the subject refurbishment/repair work of 48 MVA , 11/ 220/ 3 kV GT. Also requested to carry out the major part of the repairing work , through M/s TELK Angamally, the OEM of the equipment, by pointing out the following reasons.

- M/s TELK is the OEM of the equipment.
- M/s TELK is Public Sector undertaking and the product quality and work quality are much higher than those prevailing in other private undertaking engaged in similar works
- If entrusted to M/s TELK Angamally, the transportation cost will be comparatively less and it will be easier for engineers at Idukki Power House to monitor the work progress including arranging witness inspection at various testing stages.

The matter was placed before the Full Time Directors as per note read as (3) above. Having considered the matter in detail, the Full Time Directors meeting held on 26-08-2020, resolved to accord sanction to an estimate amounting to Rs 1,50,00,000/- (Rupees One Crore and Fifty Lakhs Only), for the proposed refurbishment/repair work of 48 MVA , 11/ 220/ 3 kV Generator Transformer at Idukki HEP and for entrusting the same to M/s TELK Angamally, the OEM of the equipment.

Further resolved that M/s TELK shall be insisted for giving warranty for a few years

Orders are issued accordingly.

By Order of the Full Time Directors,

Sd/-  
**(LEKHA.G)**  
Company Secretary  
(In -charge.)

To:

1. The Chief Engineer (Generation & PED), Moolamattom.
2. The Deputy Chief Engineer, Generation Circle ,Moolamattom

Copy to:

The Chief Internal Auditor,  
The TA to CMD/D(GE&SCM)/ D(TSO&S)/ D(DIT&HRM)/D(GC)/D(C&P)  
The Fair copy Superintendent/Library/Stock File

Forwarded / By Order  
Asst. Executive Engineer

DESPATCHED

No. 356

Date 08.09.2020