KERALA STATE ELECTRICITY BOARD Ltd
(Incorporated under the Companies Act, 1956)
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ABSTRACT

Sabarigiri HEP - Revival of 60MW Unit No.4 Hydro Turbine Generator - Extended Performance Trial run - Sanctioned - Orders issued.

SBU/G-E

BO (FTD)No.625/2022(DGE/G1/Sabarigiri Unit#4/2022-23) Thiruvananthapuram,Dated: 19.07.2022

Read: 1. B.O. (FTD) No.449/2020 (DGE/G1/Sabarigiri Unit#4/2020-21) dated 01.07.2020.

2. B.O. (FTD) No.655/2021 (DGE/G1/Sabarigiri Unit#4/2021-22) dated 16.09.2021.

3. Meeting convened by the Director (Generation -Electrical) on 12.07.2022.

4. Letter No.CEG/AE-II/Sabarigiri Unit #4/2022-23/616 dated 14.07.2022 of the Chief Engineer (Generation).

5. Note No.DGE/G1/Sabarigiri Unit#4/2022-23/115 dated 14.07.2022 of the Director (Generation-Electrical) to the Full Time Directors (Agenda 66/7/22).

ORDER

Sanction was accorded as per B.O read as 1st above for the immediate shut down of Unit No.4 machine at Sabarigiri HEP to avoid accidents and for ensuring safety till the inherent faults are rectified and to entrust M/s CPRI or any other reputed agency in this field to find out the inherent faults of the machine and to rectify the same. Accordingly, M/s CPRI was entrusted to carry out the work,but the efforts were not fruitful. Hence as per B.O read as 2nd above, M/s.NHPC (National Hydroelectric Power Corporation), Faridabad was engaged as the Owner's Engineer for the revival and rehabilitation of the Unit #4 generator.

The first probable cause reported by M/s NHPC was vibration due to Civil/Foundation Structure. The assessment and strengthening of the foundation has been carried out by IIT, Chennai and the post revival NDT testing of the foundation has been completed and found satisfactory. Since the machine was under shut down for the last two years, the alignment, resetting of the bearing pads and associated works were carried out before the trial run and the same were completed successfully before the trial run.

The Chief Engineer (Generation) as per the letter read as 4th above reported that trial the run of the machine was conducted under strict condition monitoring and surveillance at 25 MW for 49.02 hours after the inspection of M/s NHPC. At 25 MW, the performance was found to be stable. At higher capacity operation, vibration increased beyond limits. Thereafter the machine was shut down for detailed inspection and for the installation of additional vibration monitoring equipment for stringent condition monitoring of the critical vibration levels. The Chief Engineer has informed that during the trial run, the machine performance and performance parameters were stable. The unit has been equipped with additional casing vibration monitoring equipment and is ready for extended trial run. Based on the above reports of the trial running of the unit, a meeting was convened by the Director (Generation-Electrical) on 12.07.2022.In the meeting it has been unanimously decided to request for the approval of the Board for extending the performance trial run of Unit

Accordingly the following has been proposed by the Chief Engineer (Generation) for extending the trial run of the machine as per M/s NHPC recommendation.

- At present the Unit #6 (60 MW Machine) has been under shutdown due to winding failure and work is under progress and is expected to be back in service by November 2022. The monsoon at Moozhiyar and at the catchment areas of Kakki reservoir are in full swing and water levels are rising rapidly. Hence the restoration of Unit #4 is very essential. This will generate a considerable amount of revenue and will help to utilize the monsoon water to an extent by avoiding spillage of water through reservoir. The anticipated revenue which can be generated by this strategy (25 MW X 24 hrs X 30 Days X 4 Months) will be 72 Million Units and with an average cost of ₹4/Unit may generate ₹28.8 Crore.
- The Unit #4 machine has a stable performance during its trial run at a load of 25 MW, and the Owners Engineer M/s NHPC has recommended to run the machines on nozzles 2 & 4 at 25 MW load with minimum start stop cycles & fortnightly inspections, with constant monitoring for an extended period of trial run to fix much more stable operational region.

Hence it has been proposed to have a dedicated monitoring crew consisting of one Assistant Engineer and one Sub Engineer for round the clock continuous vigil monitoring of the machine till Unit #6 is ready for commercial operation. In order to materialize the same, an Engineering Graduate and a Diploma holder can be engaged on contract basis during the period of performance trial run at an additional expenditure of ₹2160/- per shift (₹2160/- X 3 shift per day X 30 days X 4 Months) amounting to ₹7,77,600/-. After due training operators on contract can be engaged on routine shift and experienced crew members can be deployed for exclusive monitoring of Unit #4.

The Chief Engineer has further informed that recommendations of M/s NHPC need to be carried out. M/s NHPC has recommended to run the machine at 25 MW for an extended period with minimum operations. Hence the continuous 25 MW operation has to be ensured to avoid frequent shutting down and put back operations as per SLDC operational requirements.If there is any deviation in performance parameters while running the machine during the proposed trial run, the machine may be put under forced shut down. It is also informed that the complete rectification works as recommended by NHPC will take almost one year and the tendering activities including awarding work for the same can be carried out during the period of trial run.

The matter was placed before the Full Time Directors as per Note read as 5th above for a decision.

Having considered the matter in detail. The Full Time Directors meeting held on 15.07.2022 resolved to accord sanction for the following.

1. To extend the period of trial run of Unit #4 generator at Sabarigiri HEP at 25 MW load on nozzles 2 & 4 with minimum start stop cycles & fortnightly inspections, with constant monitoring or at a stable operational region, till the revival of Unit # 6 ensuring the performance parameters as recommended by M/s NHPC.
2. To engage a dedicated monitoring crew consisting of one Assistant Engineer and one Sub Engineer for round the clock continuous vigil monitoring of the machine with an Engineering Graduate and a Diploma holder on contract basis at an additional expenditure of ₹2160/- per shift.

Further resolved that the above operations shall be carried out ensuring safety of operations.

Orders are issued accordingly.

By Order of the
Full Time Directors

Sd/-
LEKHA G
Company Secretary

To:

The Chief Engineer (Generation), Moolamattom.
The Deputy Chief Engineer, Generation Circle, Moozhiyar.

Copy to: The Financial Advisor/Chief Internal Auditor/Company Secretary
The Chief Engineer (IT)/ RCAO/ RAO
The TA to Chairman & MD/ Director (GE)/ Director(GC)/ Director (Trans, SO, Planning &Safety)/ Director (D&SCM)/ Director (REES, Soura, Nilaavu, Sports & Welfare)
The PA to Director (Finance,IT&HRM)
The Secretary (Administration)
Stock File

Forwarded / By Order

Geetha G. Nair
Assistant Executive Engineer