



KERALA STATE ELECTRICITY BOARD LIMITED

(Incorporated under the Companies Act, 1956)

CIN:U40100KL2011SGC027424

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Abstract

Upper Sengulam HEP (24MW-53.22Mu) – Revised Administrative Sanction – Sanctioned - Orders issued.

Corporate Office(SBU-G/C)

BO(DB)No. 662/2020(DGC/AEEV/Up-Sen /2015) TVPM dated: 03.11.2020

- Read:
1. BO(FB)No.1497/2013(GPC4 (C)/SEN-EXTN/17/2008) dated 09.07.2013
 2. G.O. (Rt) No. 292/2013/PD dated 01.11.2013.
 3. BO(FTD) No.1679/2015(DGC/AEE V/UP-Seng/Land/2015) dated 09.07.2015.
 4. BO(FTD) No.357/2020(DGC/AEE V/UP-Seng/Land/2015) dated 26.05.2020.
 5. Note No. CECCS/USHEP/2013-14/1023 dated 24.09.2020 of the Chief Engineer (Civil Construction) South.
 6. BO(FTD) No. 619/2020(DGC/AEE V/UP-Sen/2015) dated 07.10.2020.
 7. Note No. DGC/AEEV/Up-Sen /2015 dated 06.10.2020 of the Chairman & Managing Director
 8. Proceedings of the 55th meeting of the Board of Directors held on 14.10.2020((Agenda 20-10/2020).

ORDER

The Upper Sengulam H.E Project envisages utilization of surplus water expected to be available at Sengulam Balancing Reservoir (SBR) of Sengulam H.E Project after commissioning of Sengulam Augmentation Scheme and 60MW Pallivasal Extension Scheme. Presently the main source of inflow to the reservoir is from the tail race of the existing Pallivasal HEP. The tail water of Pallivasal Power House is being conveyed to the Sengulam Balancing Reservoir through tunnel by pumping water upto tunnel inlet, thereafter by gravity flow. On completion of the Pallivasal Extension Scheme, the tail water of the existing Pallivasal scheme is to be pumped to the tail race pool of Pallivasal Extension Scheme and from there it is conveyed through a steel pipe to the existing tunnel inlet of Sengulam Balancing Reservoir by gravity flow. With the commissioning of Sengulam Augmentation Scheme under construction, water diverted from Western Kallar river would also be reaching the Sengulam Balancing Reservoir. The total catchment area of the scheme is 304.73 Sq km and design head is 330m. The installed capacity of the scheme is 24MW and the expected annual generation is 53.22 MU. The proposed Power

House is located at the upstream of the existing Sengulam Power House in Vellathooval village of Devikulam Taluk in Idukki district.

KSEBL as per B.O read as 1st above has accorded Administrative Sanction for the implementation of Upper Sengulam SHEP at an estimated cost of Rs 213.52 Crore excluding IDC at 2012 price level. The project cost including IDC is Rs 255.55 Crore. The MNRE grant is not considered for the financial analysis. Further it was decided that work shall be tendered only after land is under possession of KSEBL. Necessary Government sanction for the implementation of the project has also been obtained as per G.O read as 2nd above.

The total extent of land required for the Project is 6.2339 ha. This consists of 0.95 ha of forest land leased out to M/s HNL, 1.00 ha of land under possession of KSEBL and the balance 4.2839 ha of land which includes 2.0259 ha of patta land, 0.8006 ha of non patta land, 0.8490 ha of purampoku and 0.6084 ha of revenue purampoku. KSEBL as per B.O read as 3rd above has accorded sanction for acquisition of 4.2839 ha of land for the implementation of Upper Sengulam Hydro Electric Project through negotiated purchase/normal acquisition procedure.

KSEBL as per B.O read as 4th above has accorded sanction for purchasing 425.22 cents patta land and for taking over the possession of 483.16 cents of non-patta land by paying ex-gratia amount and cost of buildings from 11 land owners/holders for the implementation of the Project with a financial commitment of Rs 6,17,74,638/- based on the decision of the DLPC meeting held on 06.11.2019 and the meeting held on 04.03.2020 in the chamber of the District Collector, Idukki.

Based on the outcome of pre- construction survey, certain changes in the project components were necessitated during design. KSEBL as per B.O read as 6th above has resolved to approve the modifications to project components with respect to approved DPR of Upper Sengulam Hydro Electric Project.

As per the revised design, the project consists of a vertical shaft 6mx6m, Power tunnel of diameter 3.3m and length 2659.1m, D shaped ADIT tunnel of 4.0m diameter and length 179m, surge shaft of 10m diameter, a low pressure pipe of diameter 2.8m and length 65m, steel lined pressure shaft of finished diameter of 2.8m and length 985.14m, penstock/feeder pipes of 2.2m diameter and length 33m, a surface Power House 34.55mx18.7m with installed capacity of 1x24MW (Francis Turbine) and access roads, bridge/culverts, retaining walls etc.

The Chief Engineer (Civil Construction) South as per note read as 5th above has reported that the estimated quantity of various items of work required for the implementation of the scheme is revised based on design drawings and cost estimate is prepared based on DSR 2016 with cost index of Munnar (149.69%). The project cost has been increased to Rs 276.21 Crore which includes Rs 209.88 Crore for civil works and Rs 66.32 Crore for electro-mechanical and power evacuation works. Provision for 18% GST is also given in the estimate. The project cost including IDC at 10% is Rs 316.00 crore.

The financial analysis is carried out without considering the MNRE grant. The debt equity ratio taken is 90:10 with present average tariff realization rate as Rs 6.34/unit. The levelised tariff with loan repayment is Rs 5.31/unit. The payback period is 13 years and Internal Rate of Return is 8.69%. The minimum time required to complete the project is 48 months.

The Chief Engineer (Civil Construction) South requested Revised Administrative Sanction at an estimated cost of Rs 276.20 crore based on DSR 2016 with cost index of Munnar 149.69% (The project cost including IDC at 10% is Rs 316.00 crore) for the execution of Upper Sengulam Hydro Electric Project. Also, the Chief Engineer (Civil Construction) South requested sanction to invite separate tenders for Civil works and Electro Mechanical works.

The matter was considered by the Full Time Directors in the meeting held on 01.10.2020 (Agenda 8/10/20) and it was resolved to place the matter before Board of Directors of KSEBL. Accordingly the proposal was placed before the 55th meeting of the Board of Directors as per note read as 7th above.

The Board was informed that the Administrative Sanction for the implementation of Upper Sengulam HEP had been accorded earlier in 2013 at an estimated cost of Rs 213.52 Crore excluding IDC at 2012 price level based on the preliminary estimate. The proposal for revised Administrative Sanction at an estimated cost of Rs 276.20 Crore based on DSR 2016 (including IDC at 10%, the project cost is Rs 316.00 Crore) and inviting separate tenders for Civil works and Electro Mechanical works was discussed in detail.

The Secretary, Power stated that a policy need to be formulated that in execution of Generation projects as to whether separate tender for Civil and E & M works would be invited or a combined tender would be floated. The Chairman informed that depending on site /terrain conditions, the decision would vary and hence it would be proper to decide the matter on a case to case basis.

The Additional Chief Secretary(Finance) observed that detailed estimates shall be prepared in PRICE software and Technical Sanction shall be issued based on detailed investigation and design. After discussion, the Board

RESOLVED TO accord Revised Administrative Sanction for the implementation of Upper Sengulam Hydro Electric Project at an estimated cost of Rs 276.20 Crore based on DSR 2016 with cost index of Munnar 149.69% . (the project cost including IDC at 10% is Rs 316.00 Crore) on condition that detailed estimates shall be prepared in PRICE software and Technical Sanction shall be issued based on detailed investigation and design.

RESOLVED FURTHER to invite separate tenders for Civil works and Electro Mechanical works for Upper Sengulam HEP.

Orders are issued accordingly.

The Chief Engineer (Civil Construction) South shall take further necessary action in this regard.

By Order of the Director Board,

Sd/-

LEKHA G.

COMPANY SECRETARY IN CHARGE

To

The Chief Engineer (Civil Construction) South, Vydyuthi Bhavanam,
Thiruvananthapuram.

Copy to:

The Chief Internal Auditor/ Financial Adviser

The Chief Engineer (IT)

The RCAO/The RAO

The TA to CMD/Director(GC)/Director(D,IT&HRM)/ Director(T&SO)/Director (CP&S)/
Director (GE&SCM)

The PA to Director (Finance) /Company Secretary

The Legal Liaison Officer, KSE Board Ltd., Kochi

Library/Stock File

Forwarded / By Order



Assistant Executive Engineer