



KERALA STATE ELECTRICITY BOARD Ltd

(Incorporated under the Companies Act, 1956)

Registered Office: Vidyuthi Bhavanam, Pattom,

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ABSTRACT

Hydrogen Energy Storage System - Invitation of Expression of Interest - Sanctioned - Orders issued.

SBU/G-E

BO (FTD)No.649/2022(DGE/G1/Hydrogen Plant/2022-23)/555

Thiruvananthapuram,Dated: 23.07.2022

- Read: 1.Note No.5/AE3/2022/CE(PED)/Hydrogen Electrolyzer/196 dated 07.07.2022 of the Deputy Chief Engineer (PED) with full powers of the Chief Engineer.
- 2.Note dated 12.07.2022 submitted by the Deputy Chief Engineer (PED) with full powers of the Chief Engineer.
3. Note No.DGE/G1/Hydrogen Plant/2022-23/114 dated 13.07.2022 of the Director (Generation - Electrical) to the Full time Directors (Agenda 57/7/22).

ORDER

The emerging power plants in the state are predominantly of Variable Renewable Energy (VRE) which is widely distributed across the state. The inherent variability of renewable energy sources such as wind and solar presents a pressing need for large scale storage of clean electricity. With increasing share of renewable energy, future energy system will need large scale storage of electricity. Hydrogen is one of the most promising options for storing energy from renewables. The two most common methods for producing Hydrogen are steam methane reforming and electrolysis. Electrolysis employs electric current to split water into Hydrogen and Oxygen in an electrolyser. The Hydrogen produced can be used for supplying to industries or as fuel for Hydrogen vehicles. Another option is Hydrogen Energy Storage system in which the Hydrogen can be converted to electricity during peak demand hours by converting the stored Hydrogen to electricity using fuel cells/Internal Combustion Engines/Gas turbines. Hydrogen can also be used for blending with Natural gas in Gas turbines.

The Deputy Chief Engineer (PED) with full Powers of Chief Engineer as per letter read as 2nd above reported that since Hydrogen technology is new to KSEBL, Expression of Interest is proposed to be invited depicting the details of the land available. The call for EoI for Hydrogen is for a complete end to end solution for the following options. The applicants can apply for any or all the options.

Option 1-Hydrogen production plant for sale of Hydrogen to Industries/Fuel for vehicle.

Option 2-Hydrogen Production Plant with plant for conversion of Hydrogen to Electricity.

Option 3-Hydrogen Production Plant with equipment for blending with Natural Gas for new LNG plant.

It was also informed that on receipt of suitable responses for the Expression of Interest, Request for Proposal can be invited for implementation of Hydrogen Production Plant either as a utility owned Grid asset (Design, Build, Operate and Transfer) or on co investment basis. The Deputy Chief Engineer with full Powers of Chief Engineer has also proposed the following minimum prequalification conditions for inviting EoI.

- a. The applicant should have a minimum annual turnover of ₹10 Crore in any three years of last five years and solvency of ₹1 Crore. For JV or consortium, each of the partners or combination of partners

- b. The Bidder should be a body corporate incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto or a Partnership Firm having executed partnership deed and registered as per sections 58 & 59 of the Partnership Act 1932 as amended or a Limited Liability Partnership Act, 2008 as amended or Proprietorship firm. In case of Consortium all the parties of the said consortium shall meet the above criteria.

The daily production capacity at each site is specified as 500kg of Hydrogen.

It was further informed that presently two sites are identified for installing the Hydrogen Production plants. One is at the existing BDPP land at Brahmapuram where 24.13 Acres of free land is available. Also KSEBL has own land where existing BSES Kerala plant is located at Pathalam, Eloor in Kochi (20 acres). The ownership of the land has been transferred to KSEB Ltd. Even though the operation of the combined cycle plant has been stopped, the plant is yet to be dismantled by BSES Kerala. Once the BSES plant is dismantled, this land can be utilised for setting up of Hydrogen Production Plant.

An expression of interest was prepared from the office of Deputy Chief Engineer, PED with full powers of Chief Engineer. The opinion of M/s. NTPC was sought on that Expression. The EoI document has been modified incorporating most of the suggestions of NTPC and submitted for approval of the Board.

The matter was placed before the Full time Directors as per Note read as 3rd above for a decision.

The Full Time Directors meeting held on 15.07.2022 resolved to accord sanction to invite Expression of Interest for Setting up Hydrogen Energy Production System (Using Electrolysis or Other Proven methods) at the KSEBL owned locations at BDPP and KSEB land where BSES plant is located for capacities proposed or with higher capacities.

Further resolved to approve the attached EOI documents for publication.

Further resolved to authorise Deputy Chief Engineer(PED) with full powers of Chief Engineer for inviting EoI for the subject item.

Orders are issued accordingly.

**By Order of the
Full Time Directors**

Sd/-
LEKHA G

Company Secretary

To:

The Deputy Chief Engineer (PED) with full powers of Chief Engineer.

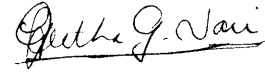
The Chief Engineer (Generation), Moolamattom.

The Chief Engineer (Transmission) South

The Deputy Chief Engineer, Generation Circle, Thrissur.

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

Forwarded / By Order

A handwritten signature in black ink, appearing to read "G. J. Nair". The signature is written in a cursive style with a horizontal line underneath the name.

Assistant Executive Engineer