

June 10, 2013

Sealed Quotations (Technical and Financial in separate appropriately marked envelopes) are invited for purchase of Metal Hydride Storage system for Hydrogen storage for Photovoltaic / Fuel Cell Hybrid system being installed in Photovoltaic lab .

The detail specifications are given below.

The sealed quotations should reach the address mentioned below latest by 5:00 PM on Monday ,June 24,

2013 :

Prof. V.Dutta

Photovoltaic Lab., Centre for Energy Studies

I.I.T., Hauz Khas

New Delhi 110016, INDIA.

### **TECHNICAL SPECIFICATIONS of FUEL-CELL SYSTEM**

#### **Name of work:**

(1) Supply and (2) Installation, Commissioning and Testing of Fuel-Cell and accessories for Photovoltaic Laboratory at Center for Energy Studies, Block V in IIT Delhi.

#### **BRIEF SCOPE OF WORK:**

The scope of the contractor shall be, including but not limited to design, supply and installation of the required Fuel-Cell System with accessories, protection, communication, control systems and peripherals. Testing and commissioning of entire Fuel-Cell system in totality and ensuring the performance, warrantee, annual maintenance as per the Terms and Conditions.

#### **BROAD DESCRIPTION OF WORK:**

The Fuel-Cell(FC) shall be a part of the Photovoltaics / Fuel-Cell Hybrid system meant to power the loads of the designated area (Photovoltaic Lab, CES, Block V, IIT Delhi). The FC system is envisaged to provide 1kW. The hydrogen generated by an electrolyzer will be stored in a metal hydride storage system and will be used by Fuel-Cell that shall feed the captive grid through a suitable Fuel-Cell-Inverter.

The Fuel-cell should have the facility to communicate, through standard interfaces (e.g. RS 232, USB etc.) with an external central controller.

## **TECHNICAL REQUIREMENTS:**

The main components of the system are the following:

### **1. Fuel Cell Generator**

#### **Requirements**

- i) The power rating of the PEM Fuel Cell should not be less than 1kW.
- ii) The desirable Power Density range is to be in the range 3.8 - 6.5 kW/m<sup>3</sup>.
- iii) The efficiency should be  $\geq 40\%$  @ MPP voltage.
- iv) Hydrogen purity should be  $\sim 99.995\%$  (dry hydrogen).
- v) Hydrogen Pressure should be in between 0 to 1 bar.
- vi) Sensors and protection systems should be provided.
- vii) Local controller with communication mechanism with the external controllers should be provided.
- viii) Suitable maintenance mechanisms should be present.

#### **Certificates and supporting documents:**

All the supporting test reports and quality/performance certificates of IEC/BIS/IS (as applicable) should be submitted.

All the supporting circuit diagrams, control details and specification sheets should be submitted.

#### **Terms and Conditions**

1. IIT Delhi is exempted from paying custom duty under notification No.51/96 (partially or fully) and necessary "Custom Duty Exemption Certificate" can be issued after providing following information.  
a. Shipping details i.e. Master Airway Bill No. and House Airway No. (if exists) b. Forwarder details i.e. Name, Contact No., etc.

Custom Duty Exemption Certificate will be issued to the shipment in the name of the Institute and Bills of Entry should be submitted to IIT Delhi later on.

2. Either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

3. If the bidder is an authorized dealer of any manufacturer, the authorized Indian dealership certificate from the principles should be enclosed. Similarly, proprietary certificate for proprietary items should be provided.

4. IIT Delhi is exempted from paying Excise Duty and necessary Excise Duty .  
Exemption Certificate will be provided for which following information are required. a. Quotation with details of Basic Price, Rate & Amount on which ED is applicable.

5. Please quote prices of imported items at FOB (Freight on Board) IIT Delhi inclusive of all taxes, freight, delivery, installation and onsite training charges. The quotation should provide the total price of the system including all taxes and transportation charges.

6. In case IIT Delhi is imposed with demurrage charge due to import on CIF, the entire demurrage charge has to be borne by the Indian Agent of foreign supplier.
7. Three years comprehensive warranty be provided and AMC price beyond 3 years should be mentioned separately.

**Payment Options:**

Letter of Credit: 90% payment against shipping documents & balance 10% after satisfactory installation.

OR Sight Draft: Payment against documents through bank.

8. Delivery period: within 1 month from the issue of supply order.
9. Warranty: at least 3 years onsite warranty should be provided.
10. The quotations must have validity of at least three months.
11. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated clearly.
12. Authority of IIT Delhi reserves the right to reject any or all quotations without assigning any Reasons.