

Distribution of Order

Status of L1 Bidder	% Order Distribution	
Class - I Supplier	L1 Bidder : 100 %	
Class - II Supplier	Eligible Class - I Supplier : 100 %	In case of non-availability of eligible Class - I Supplier L1 Bidder : 100 %

Tender No. : 21000530-HD-10157



Tender Published On : 07-Sep-2021 16:03

TENDER DOCUMENT

Sl.No.	Description	Attached File	Set Value	Supporting Doc. Req'd
1	TENDER DOCUMENT	Special Terms.pdf	-	No
2	TECHNICAL TERMS	Technical Terms.pdf	-	No

SPECIAL TERMS AND CONDITIONS

Bidders to kindly note that the Unit of Measurement to be considered is PER KILOWATT PEAK OF INSTALLED CAPACITY and not EACH (as mentioned in lines of the Tender). Unit of Measurement of EACH is mentioned due to system Constraints. Vendors to quote for Unit of Measurement, PER KILOWATT PEAK OF INSTALLED CAPACITY.

Bidders are requested to carefully read the bid document, Specifications, Data Sheets, Instructions etc. as contained herein and submit their most competitive offer for HPCL's review and acceptance.

Site Visit- The intending vendor should inspect the site at his own expense and make himself familiar with the site conditions. Non-familiarity of the site conditions will not be a reason either for extra claim or for not carrying out the work in conformity with the drawings and specifications. Successful bidder shall conduct survey and submit detailed designs, general arrangement, and bill of materials etc. for HPCL approval before commencement of works. Notwithstanding, such approvals shall not absolve the contractor of his obligations to deliver the final product compliant in all respects with reference to specifications & minimum requirements as enumerated in this tender document.

Quoted price- Final Price shall include Basic cost, 8.9% GST applicable, loading and unloading charges, Insurance, Freight, Third Party Inspection Charges, Liasoning charges with authorities and other charges, if any.

Vendors are requested to note the following:

- GST rate of 5% has been prescribed on renewable energy devices.
- GST rate of 18% has been prescribed for services/installation.

70% of supply Tax & 30% of service tax should be considered thus as per below calculation, **8.9% GST is derived.**

Description	GST %	% Supply / Services	% GST
Supply	5	70	3.5
Service/Installation	18	30	5.4
GST %			8.9

Therefore, it is suggested to the vendors to quote GST @ 8.9% for all the 3 Schedules.

After opening of price bid, we will split the values for Line No. 1 of Schedule Nos. 1, 2 and 3 into 70% (against supply) and 30% (against service) and place the Purchase Order on the L1 bidder with rates of GST as above, i.e. 5% against supply and 18% against Services.

Note: The distance between MCC room (electrical control room) & solar installation site in Anantpur & Bahadurgarh plants is around 700-800 metres and in Hoshiarpur LPG Plants is around 1300 metres approximately. Parties are advised to inculcate cable charges for the same in the quoted price.

Note: Bidders are requested to note that if any terms & conditions/Clause given under this Special Terms & Conditions conflicts with similar terms & conditions given elsewhere in Tender (such as General Terms & Conditions, General Purchase conditions etc.), then terms/conditions given under Special Terms & Conditions will prevail.

Parties are advised to be thorough with the state's current rules and regulations regarding CEA and net metering approvals for Solar projects. **There should not be any discrepancies/confusions while quoting regarding the same.**

Please read the instructions given below carefully before submitting your offer:

1. When there is a difference between the rates in figures and words, the rate which corresponds to the amount written in words shall be taken as correct and bids shall be evaluated accordingly.
2. Parties to quote rates in line with HPCL guidelines in the Price Bid.
 - A) **This tender is for Design, Manufacturing, Supply, Installation, Testing & Commissioning of Solar PV Power Plant on turnkey basis at Anantapur (Andhra Pradesh), Bahadurgarh (Haryana) and Hoshiarpur (Punjab) LPG Plants of HPCL, in accordance with the design & technical specifications.**
 - B) The bidders must be fully aware of various norms and guidelines of the respective states and ensure compliance while designing and installation.
 - C) **CEA Approval-** All the follow up with the state electricity department/local authorities for CEA approval shall be done by the party and all liasoning charges arising out of this shall be borne by the party completely.
 - D) **Net Metering Approval-** Follow up with the State Electricity Board and subsidiary/local power company etc. shall be in the scope of successful bidder on whom purchase order will be placed to get net metering connection expeditiously. Vender will also make available various forms and formats of applications to be filled by HPCL (under the guidance of the supervisor in charge of the party) for this purpose.
 - E) All works & material required for complete installation and functioning of solar PV system as per HPCL requirement, customized to site conditions shall be in the scope of the contractor.

- F) **Complaint Resolution-** Rectification of all the defects observed / developed in the Solar PV Power Plant during Warranty period shall be carried out by the contractor promptly, at the most within 7 days from the date of receipt of complaint.
- G) After completion of works, the site shall be cleared of excess material, debris etc. and leave the site neat & clean.
- H) The contractor shall conduct on-site training HPCL personnel regarding the assembly, startup, operation, maintenance and troubleshooting of the Solar PV Power Plant system.
- I) Loading and unloading of materials shall be in scope of party. The Vendor shall be responsible for all damages to material during loading, transportation and unloading and shall replace the same free of cost if any such damages are found at the time of inspections after receipt of material at respective sites.
- J) Contractor shall make his own arrangements for transportation, boarding & lodging of manpower required for the project. Please note that manpower cannot stay inside the plant beyond the stipulated working hours.
- K) Contractor shall comply with all labor laws, adhere to all safety precautions, work permit system, gate pass system etc. and will work under the supervision of the officer in charge

1. Inspection and Testing:

Bidding party shall compulsorily test and inspect all the equipments by third parties like Lloyds, DNV, EIL, BV or Bax counsel or any other party approved by HPCL. However, such an inspection does not relieve the vendor of his responsibility for any defects in material and or workmanship and for delivery of the goods in accordance with specification given. Inspection charges payable to the third party shall be in the scope of vender. Quoted prices shall include charges towards all testing as per offered parameters. The scope of third party inspection shall also include the proof of readiness and shipment.

2. Delivery Period:

- Site survey, Design, Supply, Installation & commissioning & CEA Approval shall be completed within 3 months from the date of LOI/PO.
- Net metering approval shall be completed within 5 months from the date of PO/LOI whichever is earlier.
- The contractor shall supply to the consignee invoice in duplicate and packing slip of all material delivered or dispatched by him.
- In case of any occurrence of loss or damage in transit up to destination, it shall be liability of the contractor. He shall arrange to replace the damaged apparatus.

3. The bidder should be a company involved in design, manufacturing, supply, erection and commissioning of Solar Photovoltaic Power Systems and should have executed on-grid projects of not less than 100kWp in a single project (Supported by client & OEM certificates). **Copy of the same to be uploaded in unpriced Bid.**

4. Bidders must submit the organization chart of the company clearly showing the details of Technical Personnel, Installation, Commissioning capability, training set up etc.

5. The firm should have a technical maintenance and support base for post installation services facilities to achieve the 48 hours response time. The details of which should be enclosed.

6. Firm shall possess valid electrical competency/ contractor license for installation & commissioning works. **Copy of the same to be uploaded in unpriced Bid.**

8. Payment Terms:

- i) 60% against receipt of equipment/materials at site and submission of manufacturer's test certificates, third party inspection reports etc., complete.
- ii) 27% amount will be released after Erection and commissioning of the equipment & CEA approval.
- iii) 10% amount will be released after receipt of net metering approval as applicable.
- iv) 3% against submission of performance bank guarantee for 3% of the total PO value. If no BG is submitted, the amount will be released after successful completion of defect liability period. Payment will be released from CPO, Mumbai. Defect liability period is of 3 years from the date of commissioning of solar system.
- v) Party should submit bill/invoice in duplicate and original invoice should reach to CPO, Mumbai and duplicate should submit to LPG Operations department, Hindustan Bhavan-3.
- vi) **Retention money:** 3% of PO value (inclusive of GST) shall be deducted towards the retention money and the same shall be released after the defects liability period. Alternatively, vendors may submit the Performance Bank Guarantee (PBG) from bank other than co-operative bank equivalent to 3% Retention money valid during the defect liability period in order to receive 100% payment of the Due amount.

9. **Penalty for Delayed Delivery/Commissioning:** A penalty of 0.5% of remaining PO value per week of delay beyond contractual delivery/completion period shall be levied subject to a maximum of 5% of the PO value.

10. Warranty:

- a. Total system shall be under warranty for a minimum period of 3 years from the date of commissioning and handing over to HPCL.
- b. For the warranty period of 3 yrs., the party representative shall have to visit each site twice each year to check the condition of components, power generation etc. and give a detailed report to the concerned plant at the end of the visit. Additionally, the representative shall attend any additional site complaints and provide resolutions within 30 days from the time of issue log. All the damaged/non-functioning materials under warranty shall be replaced free of cost by the party. If the party fails to comply with the aforementioned jobs, HPCL has the right to rectify the problem through any external vendor at its own cost and the amounts of the same shall be recovered either through running bills or through retention money/PBG of the contractor.
- c. There shall be a warranty for SPV modules for 10 years against limited power loss of not more than 10% of nominal output and for 25 years against limited power loss of not more than 20% of nominal output, from the date of supply.

d. The PCU/Inverter shall be guaranteed for a minimum period of 5 years from the date of commissioning and handing over to HPCL.

11. The contractor shall provide all tools and tackles for proper execution of work.

12. Warranty certificate shall be provided by the manufacturer for PV modules, inverter, data logger etc. and there should be provision for the replacement of any malfunctioning/defective component based on the certificate within the warranty period.

13. Gate Passes/Work Permits/ Safety Measures: It shall be the responsibility of the Contractor to take valid workmen passes for all labor employed by him for the entire duration from locations for the completion of the job. The contractor shall strictly adhere to the Work Permit System, use of PPE and other safety norms as laid down by HPCL from time to time.

14. Codes and Standards:

a) All equipment and accessories shall comply with requirements of relevant national /international standards.

b) Test certificates with I-V curves & efficiency from reputed lab shall be provided for the SPV Modules.

15. Drawings & Manuals:

a) Detailed technical drawings of all aspects (e. g. General arrangement (GA), foundation drawings, Mounting, wiring & protection scheme, earthing layout etc.) of the system shall be provided by the contractor.

b) Detailed manual on Operation & Maintenance of the system shall be provided by the contractor. The drawings & manuals shall be given in hard as well as soft format.

Technical Specification of Solar Power Plant

A Grid Tied Solar Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features to supplement the grid power during day time. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

Solar PV system shall consist of following:

- Solar PV modules consisting of required number of Polycrystalline PV cells.
- Grid interactive Power Conditioning Unit/ Inverter with Remote Monitoring System
- Mounting structure
- Junction box and distribution boxes.
- Earthing, Lightning arrestors
- Cables and hardware
- Data logger

I) PV Modules:

1. Individual Solar PV Module should be of capacity ranging 240-300Wp conforming to IEC: 61215 2nd Ed or latest, IEC: 61730 - I: 2007, IEC: 61730 - II: 2007, manufactured in India & to be eligible for subsidy by Ministry of New & Renewable Energy, Govt. of India. The Solar PV Module should be made of polycrystalline Silicon Solar Cell connected in series/parallel of make Websol, Vikram Solar, TATA Power Solar Systems, Waaree, IBC Solar, Navitas Solar, Emvee Solar etc or any equivalent PV Panels. (or any MNRE certified panel manufacturer based in India having a setup of more than 100 MW per annum.)
2. SPV modules of similar output with +/- 3% tolerance in single string shall be employed to avoid array mismatch losses.
3. SPV module shall contain crystalline high power silicon solar cells. The solar cell shall have surface anti-reflective coating to help to absorb more light in all weather conditions.
4. Each module shall have low iron tempered glass front for strength & superior light transmission. It shall also have tough multi-layered polymer back sheet for environmental protection against moisture & provide high voltage electrical insulation. The PV module shall be provided with lead wire with water proof connector for output terminal.

5. Module junction box (weather resistant, UV & IR protected) shall be designed for long life outdoor operation in harsh environment.
6. SPV module shall be highly reliable, lightweight and shall have a service life of more than 25 years. There shall be a warranty for SPV modules for 10 years against limited power loss of not more than 10% of nominal output and for 25 years against limited power loss of not more than 20% of nominal output, from the date of supply.
7. Wherever more than one module is required, identical modules shall be used.
8. The PV modules shall be equipped with bypass diode to eliminate hot-spot phenomenon.
9. The PV modules shall be resistant to abrasion, rain, water and environmental pollution.
10. The solar modules shall have suitable encapsulation & sealing arrangements to protect the silicon cells from the environment. The encapsulation arrangement shall ensure complete moisture proofing (IP65) for the entire life of solar modules. The terminal block shall be of Nylon 6 material or equivalent.
11. The array structure shall be grounded properly using maintenance free earthing kit as per IS: 3043-1987, tested & certified by a reputed lab.
12. Each PV module used in solar power project must have a RF identification tag (RFID), which must contain the following information. The RFID should be inside the module laminate and must be able to withstand harsh environmental conditions.
 - a) Name of the manufacturer of PV Module
 - b) Name of the Manufacturer of Solar cells
 - c) Month and year of the manufacture (separately for solar cells and module)
 - d) I-V curve for the module
 - e) Peak Wattage, I_m , V_m and FF for the module
 - f) Unique Serial No and Model No of the module
 - g) Date and year of obtaining IEC PV module qualification certificate
 - h) Name of the test lab issuing IEC certificate
 - i) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

II) Module Mounting Structure:

1. Modules are proposed to be installed on open ground with a suitable ground clearance. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels. Suitable clearance within the array shall be maintained for access for maintenance.

2. The structure shall be designed to allow easy replacement of any module & shall be in line with the site requirements. The design and detailed layout arrangement of the solar array and other components should be submitted in the technical bid.
3. The array structure shall be made of hot dipped galvanized MS angles of suitable size (minimum 80 microns). The minimum clearance of the lowest part of any module structure will not be less 500 mm from ground level. The support structure design & foundation shall be designed to withstand wind speed up to 200 kmph.
4. The structure will be designed for simple mechanical and electrical installation. It will support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly. There will be no requirement of welding or complex machinery at site.
5. The foundation for module mounting structure shall be preferably 1:2:4 PCC or any other combination based on the local site condition requirement for which design details shall be submitted. All fasteners shall be of SS-316 grade stainless steel.
6. The bidder can visit the site before quoting rate. After taking into consideration all aspects of the site condition etc., the bidder shall quote for all works. No extra claim shall be entertained at post project stage. The foundation design of module structure design shall be submitted to HPCL for approval. The work will be carried out as per designs approved by HPCL.

III) Junction Boxes:

1. The junction boxes shall be IP65, dust, vermin & waterproof & made of FRP/ (Hensel or equivalent make)/PP/ABS plastic/UV/IR /water and vermin proof. The terminals shall be connected to copper bus bar arrangement of proper sizes.
2. Metal Oxide Varistors (MOV) or Suitable Surge Protection Devices (SPD's Type-II) shall be used at the terminals of array junction boxes for external over voltage protection.
3. The junction boxes shall have suitable cable entry points fitted with cable glands of outdoor/ weather proof appropriate sizes for both incoming & outgoing cables.
4. Suitable markings are provided on the bus bar for easy identification & cable ferrules shall be fitted at the cable termination points for identification.
5. The Array Junction Box should preferably have maximum 08 inputs and 01 output with MOV and Terminal block.

IV) Power Conditioning Unit (PCU) / INVERTER:

- i. A multi-function Grid connected Inverter combines the functionality of a Grid-Interactive solar