

**BID DOCUMENT**

**(NIB No. REIL/RE/2021-22/SPVPP/580 KWP/070)**

**FOR**

**RATE CONTRACT FOR SURVEY, DESIGN, ENGINEERING, SUPPLY, PACKING AND  
FORWARDING, TRANSPORTATION, UNLOADING, STORAGE, INSTALLATION AND  
COMMISSIONING OF 580 KWP GRID CONNECETED ROOFTOPSOLAR PV SYSTEM  
INCLUDING COMPREHENSIVE MAINTENANCE FOR 5 YEARS AT VARIOUS LOCATIONS IN  
THE STATE OF BIHAR**

**ISSUED BY**



**RAJASTHAN ELECTRONICS & INSTRUMENTS LTD.**

**(A “Mini Ratna” Central Public Sector Enterprise)**

**2, Kanakpura Industrial Area, Sirsi Road, JAIPUR – 302 034**

**T. No. 0141-2470531/2470908/2470363, Fax –0141-2470139**

**Website: [www.reiljp.com](http://www.reiljp.com)**

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| ANNEXURE (BOQ) | PRICE ( FINANCIAL E- BID)              | SEPERATE    |

**RAJASTHAN ELECTRONICS & INSTRUMENTS LTD.**  
**2, Kanakpura Industrial Area, Sirsi Road, JAIPUR – 302 034**  
**T. No. 0141-2470531/2470908/2470363, Fax –0141-2470139**  
**Website: www.reiljp.com**

**NOTICE INVITING BID**  
**BID DOCUMENT**

**( NIB No. REIL/RE/2021-22/SPVPP/580 KWP/070)**

Rajasthan Electronics & Instruments Limited (REIL), Jaipur invites sealed bids, from interested bidders for rate contract for survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar. **The Solar PV modules & String inverters for 580 KWp will be supplied by REIL at Single location in District. (location/Godown will provide by vender).**

The bid shall comprise of technical bid and commercial Bid. The detailed scope of work, terms and conditions etc. are available with the Bid Form.

The details for Bid are as follows.

| S. No. | Item                                               | Description                                                                                                                                                     |
|--------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Last Date & Time for submitting e- tender          | 27.01.2022 up to 03.00PM                                                                                                                                        |
| 2      | Date & Time for submitting of hard copy of tender  | 28.01.2022 up to 03.00PM                                                                                                                                        |
| 3      | Opening of technical Bid                           | 28.01.2022 up to 03.00PM                                                                                                                                        |
| 4      | Opening of Commercial Bid                          | to be informed later to bidders successful in the technical bid                                                                                                 |
| 5      | Address for Submission of Bid, and Opening of Bids | <b>Dy. General Manager (MM)</b><br><b>Rajasthan Electronics &amp; Instruments Limited,</b><br><b>2, Kanakpura Industrial Area, Sirsi Road, JAIPUR – 302 034</b> |

**Kindly note that only online bid will be considered against this tender**

REIL reserves the right to reject the whole or part of any or all bids received, without assigning any reason.

Dy. General Manager (MM)

## **SECTION-I**

### **INSTRUCTION TO BIDDERS**

1. The Bid forms containing the Terms and Conditions, the Tender and the Schedule of contract, **should be returned in original along with the technical bid document, intact, after filling up the same and duly signing in full with stamp, on each page**, failing which the tender shall be liable for rejection. In the event of the space on the Schedule of contract / specifications of items/proforma being insufficient for the required purpose, additional pages may be added. Each such additional page must be numbered consecutively, bearing the Tender Number and be duly signed and stamped by the bidder. In such cases, reference to the additional pages must be made in the Tender Form. If any modification of the schedule is considered necessary, you should communicate the same by means of separate letter sent along with the Tender.

**E-Tendering Procedure:** The work shall be carried out through submission of online tenders only. No offer in physical form will be accepted and any such offer if received by REIL will be outrightly rejected. Tender documents can be downloaded from our website [www.reiljp.com](http://www.reiljp.com) or website of CPPP [www.eprocure.gov.in](http://www.eprocure.gov.in). Final bids are to be submitted on website [www.eprocure.gov.in](http://www.eprocure.gov.in). Any changes/modification in the tender enquiry will be intimated through above websites only. Tenderers are therefore, requested to visit our Website regularly to keep themselves updated.

The bidder should have a valid Digital Signature certificate issued by any of the valid certifying Authorities to participate in the online tender.

The bids shall be uploaded in electronic form only through e-tendering system on website [www.eprocure.gov.in](http://www.eprocure.gov.in).

#### **2. PROCEDURE FOR SUBMISSION OF TENDERS / BIDS:**

- i. **The tender should be submitted in ‘TWO BID’ SYSTEM:-**

##### **PART -I TECHNICAL BID:**

Technical Bid along with tender documents (duly signed on each page) to be uploaded in the e-tender portal. Technical Bid to be opened by the REIL committee.

- a. Board resolution/ Authorization letter for signing of the bid document from the bidder to be submitted.
- b. Prices / Costs of the items **should not be** indicated anywhere in the Technical Bid. This should be followed meticulously failing which the bid is liable to be rejected.
- c. All eligibility document should be submitted with the technical bid.

##### **PART -II FINANCIAL BID:**

Price Bid BOQ given with tender is to be uploaded strictly as per the format available with the tender failing which the offer is liable for rejection (renaming or changing format of BOQ sheet will not be accepted by the system).

The Technical Bid to be kept in a sealed envelope super-scribed with **“Tender for rate contract for survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar.”**

- ii. The cover should also be sealed and addressed to:  
**Dy. General Manager (MM),  
Rajasthan Electronics & Instruments Ltd.,  
2 Kanakpura Industrial Area, Sirsi Road, Jaipur- 302034.**

- iii. Tenders submitted without the 'Two Bid' System procedure will be rejected.

**Note: e-Procurement system does not allow submission of documents after due date of tender. Incomplete form or non-submission of required documents may results into rejection of your offer and no Communication shall be done for submission of documents.**

**3. LATEST HOUR FOR RECEIPT OF THE TENDER:**

Your tender must reach this office not later than the date and time notified in the Tender Notice. Any tender received after that shall be rejected. In the event of the stipulated date of opening of the tender being declared a closed holiday for Govt. offices, the date of opening of the tender(s) will be the next working day. Tender sent by hand delivery, should be delivered at this office not later than the due date and time stipulated in the schedule of tender.

**4. OPENING OF TENDER:**

The **Price/Financial bids** of the bidders whose technical bids are found technically suitable only will be opened later. **The decision of the evaluation committee on technical suitability shall be final.**

**5. PRICES:**

- i. Prices/Financial bid are to be quoted in Indian Rupees and must be meaningful and measurable in the context.
  - ii. Bidders should clearly specify whether prices quoted are inclusive of GST/duties/ statutory charges or such charges as extra. Where no specific mention GST or other duties quoted shall be **deemed to be inclusive of such taxes / charges.**
  - iii. **Price must be quoted in original sheet of BOQ failing which the same is liable to be rejected.**
  - iv. **REIL reserve the right to distribute the work among the eligible bidder on L1 rate depending on their financial capability, experience, field maintenance strength & Bid status on cluster basis.**
  - v. **Contract may be distributed on L1 rates.**
- 6. SECURITY DEPOSIT/PBG:** successful bidder shall submit Security Deposit amounting to 3% of the contract value in the form of DD/FDR/BG. Security deposit shall be refunded on completion of installation –commissioning and handover the systems to concern authority. **REIL reserves the right to forfeit the security deposit in case bidder fails to complete the project within stipulated completion period.**
- ii. Bank Guarantee should be valid for a period 9 month from the date of order/Rate contract.

## **SECTION-II**

### **7. ELIGIBILITY CONDITIONS:**

**A. Bidder must fulfill following criteria:-**

#### **TECHNICAL :**

1. Bidder should be registered with REIL for installation commissioning work of Solar Systems.
2. Bidder has experience in Installation, Commissioning, Operation and Maintenance of Solar systems during last seven years. (Attach verified documents such as I &C and maintenance certificate and copy of work orders).
3. Allotted Solar I &C work by REIL in FY 2020-21 should be completed.

#### **FINANCIAL:**

1. Minimum Annual Average Turnover (MAAT) of the bidder for last three financial years should be at least Rs. 25 Lakh. (2018-19, 2019-20 & 2020-21).

The following documents be submitted:

- a. Balance sheet for last two years.
- b. Photocopy of the last Two years Income Tax Return.
- c. Photocopy of GSTIN no. , PAN no.
- d. Declaration that firm is not blacklisted by any government department/ PSU.(Format Attached)
- e. Any other relevant documents.

**Note:• The Bidder should submit above documents along with the technical bid.**

### **B. OTHER CONDITIONS:**

- i. **Responsibility for executing Contract:** The contractor is to be entirely responsible for the execution of the contract in all respects in accordance with the terms and conditions as specified in the acceptance of tender.
- ii. The contractor shall not sublet transfer or assign the contract to any part thereof without the written permission of the competent authority. In the event of the contractor contravening this condition, competent authority be entitled to place the contract elsewhere on the contractors account at his risk and the contractor shall be liable for any loss or damage, which the competent authority, may sustain in consequence or arising out of such replacing of the contract.
- iii. **Document:** The bidder should have a valid **PAN /GSTNO &other statutory document as applicable** and produce attested copies of such certificates along with the tender papers in Technical Bid, failing which the tender is liable to be rejected.
- iv. **Right to accept / reject:** REIL reserves the right to reject any or all tender without assigning any reason whatsoever. Also, the REIL authority reserve the right to **award** any or part or full contract to any successful agency at its discretion and this will be binding on the bidder.
- v. The quantity of the SPV Systems shown in the tender can be increased or decreased to any extent depending upon the actual requirement.
- vi. **Assistance to contractor:** The contractor shall not be entitled for assistance either, in the procurement of raw materials required for the fulfillment of the contract or in the securing of transport facilities.

### **SECTION-III**

#### **SCOPE OF WORK**

Survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar.(the required solar PV modules & inverters will be supplied by REIL to site), Unloading of PV modules & inverters and safe storage is in contractor's scope and interconnection to 240V single phase/ LT Panel (415V) with required net meter as per Discom's guidelines. Contractor shall provide comprehensive operation & maintenance of the plant for a period of 5 year from the date of successful completion and commissioning of project.

The works to be governed by this contract shall cover "Survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar. Unloading of PV modules & inverters and safe storage is in contractor's scope and interconnection to 240V single phase /LT Panel (415V) with required net meter as per DISCOM's guidelines & confirming Technical Specification".

The solar power generating plant is intended to be synchronized with LT buses at various points of load centers. All the equipment required to complete the grid connection with the existing system will be in the scope of bidder.

- i. Identification of project sites in coordination with REIL / Nodal Agency.
- ii. Providing Engineering Drawings, Technical data, Structures Calculation, Modules layout drawing, Mounting Structures layout drawing, AC/DC cable Calculation, Layout drawing of AC/DC Cables, Drawing of Lighting Arrestor& Earthing System, operation manuals, catalogues, spare parts list, etc. for said equipments as erected at site.
- iii. Packing and Transportation of said equipment from the manufacturer's factory to the respective site in scope of contractor.
- iv. Receipt including unpacking of the said equipment at the site storage, preservation and conservation at site of Work at Nodal Agency offices.
- v. Un-packing, checking for damage/shortage, cleaning and erection at site.
- vi. Commissioning Acceptance Tests at site.
- vii. Warranty obligations and CMC for 05 years as per schedule
- viii. Approval of all drawings from REIL Engineer in charge/ Nodal Agency in the scope of contractor.
- ix. In case of any contradiction/deviation between the specification, General conditions of contract with site data and specifications for 580 KWp Grid Connected Solar Power Plant at various buildings, the special conditions related with site data and specifications for 580 KWp Connected Solar Power Plant shall prevail.
- x. If there are varying or conflicting provisions in the documents forming part of the contract, REIL shall be deciding authority with regard to the intentions of the provisions and decisions of REIL shall be final and binding on the contractor.
- xi. Any calculations, designs, drawings, schedules, information data progress charts etc. required by the REIL in connection with the contract, shall be furnished by the Contractor at his own expenses. All designs and drawings submitted by the contractor shall be based on a thorough study and shall be such that the customer is satisfied about their suitability. The REIL approval will be based on these considerations.

- xii. The contractor shall not be entitled to any extra payment due to hindrance resulting from normal operations in beneficiary premises, such as delay on account of adequate number of and duration of shutdown etc. not being granted.
- xiii. Module water washing shall be strictly carried out at least once in 30 days. If the site condition demands, higher frequency of cleaning, the same shall be implemented.
- xiv. Collection of daily, monthly and annual data of the plant from data logger and carrying out remedial action for any fault in the plant so that generation is not affected.
- xv. All the required spares in coordination with original supplier shall be stocked so as to have trouble-free operation.
- xvi. The contractor shall impart training to nominated staff persons of beneficiary on free of cost. Contents of training and number of staff for training shall be mutually decided.
- xvii. Trained and licensed operators to be posted at site for connection of system.
- xviii. All the required spares shall be stocked so as to have trouble-free operation. O & M shall include:

Tentative BOQ (for tender purpose) for the work of Survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar. The Solar PV modules & inverters for 580 KWp will be supplied by REIL to site.

| S.No. | Item Description                                                                                                                                                                                                                  | Qty.                                                | Supply at site | E&C    | O&M    | Remark                                                                   |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------|--------|--------|--------------------------------------------------------------------------|
| 1.    | Solar PV module of capacity 310Wp & above as per technical specifications                                                                                                                                                         | For 580kWp                                          | By REIL        | Bidder | Bidder |                                                                          |
| 2.    | Hot dip galvanized MS mounting structures as per Site requirement of required sizes and shapes for fixing Solar panels and other works.(as per Specification)                                                                     | For 580 kWp as required as design                   | Bidder         | Bidder | Bidder | Design to be submitted for approval                                      |
| 3.    | String Inverter/ Single phase/ 3 phases, 415 V AC, 50 Hz / 1phase, 230V AC as per technical specifications.                                                                                                                       | For 580 KVA                                         | By REIL        | Bidder | Bidder | As per site requirement                                                  |
| 4.    | D.C cables and LT cables :Supply ,laying (underground/ surface), testing and commissioning of copper conductor, XLPE insulated armored cables as per specification given in tender & various sizes required to complete the work. | As per site requirement as per design for each site | Bidder         | Bidder | Bidder | Size of the cable to be decided based on voltage drop & approval by REIL |
| 5.    | Control Cables: Supply, laying, termination, testing and commissioning of 1.1 KV XLPE insulated, GS wire armored cables as per relevant IS standard required to complete the work.                                                | As per site requirement for each site               | Bidder         | Bidder | Bidder |                                                                          |
| 6.    | Earthing & Lightning Arrester-Supply, Erection, Testing and Commissioning of all earthing equipments as per relevant IS standard and applicable IE rules to complete the work.                                                    | As per site requirement for each site               | Bidder         | Bidder | Bidder | Calculation ,Design & Drawing to be submitted for approval               |
| 7.    | Data Acquisition System/Plant Monitoring System as per given in                                                                                                                                                                   | 01 set for each site                                | Bidder         | Bidder | Bidder |                                                                          |



|     |                                                                                                                                                                                                       |                                              |        |        |        |                                                                   |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------|--------|--------|-------------------------------------------------------------------|
|     | tender.                                                                                                                                                                                               |                                              |        |        |        |                                                                   |
| 8.  | Safety Equipment- Supply and fixing of CO2 based firefighting equipment of reputed make, ISI marked as per the actual site requirement.                                                               | As per site requirement for each site        | Bidder | Bidder | Bidder |                                                                   |
| 9.  | Civil Works- All the associated Civil works complete in all respects, required to complete the work such as module structure foundation and trench work etc. will be in the scope of this work.       | As per site requirement for each site        | Bidder | Bidder | Bidder |                                                                   |
| 10. | Metering System- The bidirectional electronic energy meter (0.5 S Class) for measuring Export –Import energy meter conforming to relevant IS/IEC standard and as per regulation of respective states. | As per site requirement for each site        | Bidder | Bidder | Bidder | Specification shall be as per respective State's Discom guideline |
| 11. | Solar Energy Meters as per requirement of connection points as per guidelines of MNRE/DISCOM/SEB                                                                                                      | As required as per design                    | Bidder | Bidder | Bidder | Specification shall be as per respective State's Discom guideline |
| 12. | Module Cleaning Equipments, Grid of GI Pipe with suitable Pressure Pump (Motor)                                                                                                                       | As per site requirement                      | Bidder | Bidder | Bidder |                                                                   |
| 13. | Misc works: Any other work required to complete & commission the work.                                                                                                                                | As required as per design & site requirement | Bidder | Bidder | Bidder |                                                                   |

**Notes: The above BOQ is only for guidance purpose so that bidder gets an over view of the work to be executed. Bidders are requested to visit site before quoting the tender. Detailed BOQ, complete in all respects needs to be submitted by the bidder after the award of work to him and after the approval of detailed drawings of the project from REIL/Nodal Agency. The bidder will get detailed BOQ & drawings approved from the agency.**

**The system shall consist of (but not limited to) following equipment:**

- (a) Module Mounting structures (MMS)
- (b) Cables and hardware
- (c) Export-Import meter.
- (d) Remote Monitoring systems with SIM
- (e) AC Distribution boxes and DC distribution boxes (if required)
- (f) Earthing kits & Earth mat
- (g) Lightning arrestors in solar array.
- (h) Tool Kits for maintenance along with personal protective equipment
- (i) Consumable for Modules cleaning during O & M.

## **TECHNICAL SPECIFICATION**

Technical specification of BOM are as under:

### **OVERVIEW :**

A Grid Connected Solar Rooftop 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.

- 1. SOLAR PHOTOVOLTAIC MODULES:** The SPV Module 300Wp and above will be supplied by REIL.
- 2. STRING INVERTER/PCU :** The Inverter will be supplied by REIL Jaipur
- 3. ARRAY STRUCTURE:-**
  - i. Hot dip galvanized MS mounting structures/AL may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insulation. Minimum thickness of galvanization should be at least 80microns for steel. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
  - ii. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed. It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to REIL/ Nodal Agency. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed (withstand upto 150 Km/Hr).
  - iii. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
  - iv. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts(anti-theft only). Aluminum structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.
  - v. The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
  - vi. Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
  - vii. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m<sup>2</sup>.
  - viii. The minimum clearance of the structure from the roof level should be 300 mm.

#### **4. JUNCTION BOXES(JBs):**

- i. The junction boxes are to be provided in the PV array for termination of connecting cables. The Junction Boxes (JBs) shall be made of GRP/FRP/polycarbonate Powder Coated Aluminium /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- ii. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.
- iii. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- iv. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification .
- v. All fuses shall have DIN rail mountable fuse holders and shall be housed in thermo plastic IP65 enclosures with transparent covers.

#### **5. DC DISTRIBUTION BOARD:**

- i. DC Distribution panel to receive the DC output from the array field.
- ii. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

#### **6. AC DISTRIBUTION PANEL BOARD:**

- i. AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- ii. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- iii. The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- iv. All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz
- v. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- vi. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- vii. Should conform to Indian Electricity Act and rules (till last amendment).
- viii. All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

|                               |          |
|-------------------------------|----------|
| Variation in supply voltage   | +/- 10 % |
| Variation in supply frequency | +/- 3 Hz |

## **7. INTEGRATION OF PV POWER WITH GRID/**

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid.

## **8. REMOTE MONITORING**

- 8.1.1 The bidder shall provide unique login id and password for each installed solar power plant to BREDA and beneficiary.
- 8.1.2 The following parameters are accessible via the operating interface display in real time through remote monitoring separately for solar power plant:
  - a) AC Voltage, current & Output Power etc.
  - b) Power factor.
  - c) DC Input Voltage, current & Power etc.
  - d) Unit generated
  - e) Time disabled and idle

## **9. NET METERING SYSTEM:**

- i. The bidirectional electronic energy meter (0.5 S class) /as per discom guidelines shall be installed for the measurement of import/Export of energy.
- ii. The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to REIL before commissioning of SPV plant.
- iii. Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement
- iv. The Solar meters provided on distributed LT panels shall be microprocessor based and shall be connected to SCADA.

## **10. LIGHTNING PROTECTION:**

The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

## **11. SURGE PROTECTION:**

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement).

## **12. EARTHING PROTECTION:**

- i. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987 (reaffirmed 2006). In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of DISCOM/ Nodal Agency as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. All non-current metal parts shall be earthed with two separate and distinct earth continuity

conductors to an efficient earth electrode. Separate earthing to be provided for LA, AC and DC parts.

- ii. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

### **13. GRID ISLANDING:**

- i. In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.” Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- ii. A manual disconnect pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel

### **14. CABLE CONNECTIONS TO BE CARRIED OUT BY THE BIDDER:**

Cables of appropriate size to be used in the system shall have the following characteristics:

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range:  $-10^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ .
- iii. Voltage rating 660/1000V
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible
- vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- vii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- viii. The Cable should be of copper as per standards selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- x. Multi Strand, Annealed high conductivity copper conductor PVC type ‘A’ pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V,UV resistant for outdoor installation IS /IEC 69947.
- xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

- xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

## **15. CONNECTIVITY**

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

| <b>Plant Capacity</b> | <b>Connecting Voltage</b>                                           |
|-----------------------|---------------------------------------------------------------------|
| Up to 05 kW           | 240V-single phase or 415V-three phase at the option of the consumer |
| Above 05 kW           | 415V – three phase                                                  |

Utilities may have voltage levels other than above; DISCOMs may be consulted before finalization of the voltage level and specification is made accordingly. Net Metering should be as per DISCOM guideline.

## **16. TOOLS & TACKLES AND SPARES:**

After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the bidder for maintenance purpose. List of tools and tackles to be supplied by the bidder for approval of specifications and make from REIL/ Nodal Agency / owner.

## **17. DANGER BOARDS AND SIGNAGES:**

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Three signage shall be provided one each at control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with Nodal Agency /DISCOM.

## **18. DRAWINGS & MANUALS:**

- Two sets of Engineering, electrical drawings and Installation and O & M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- Approved ISI and reputed makes for equipment be used.

## **19. PLANNING AND DESIGNING:**

- The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The bidder should submit the array layout drawings along with Shadow Analysis Report to Nodal Agency for approval.
- Nodal Agency reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.

## **20. DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT:**

- The Contractor shall furnish the following drawings Award/Intent and obtain approval
- General arrangement and dimensioned layout
- Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- Structural drawing along with foundation details for the structure.
- Itemized bill of material for complete SV plant covering all the components and associated accessories.

- vi. Layout of solar Power Array
- vii. Shadow analysis of the roof
- viii. Actual Single line diagram should be submit along with cable layout
- ix. Any other drawings required by REIL

**21. SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT:**

The Solar PV system on the rooftop of the selected buildings will be installed for meeting the annual energy requirements of the PV capacity permissible by DISCOM as per regulation issued by BERC.

**22. SAFETY MEASURES:**

The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.

**23. DISPLAY BOARD:**

The Bidder has to display a board at the project site mentioning the following:

- 23.1.1 Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar wind etc.), Date of commissioning, details of tie-up with transmission and distribution companies, Power generation and Export FY wise.
- 23.1.2 The size and type of board and display shall be appropriate.

**24. BI-DIRECTIONAL METER/ NET METER:**

Technical specification of Bi-directional meter should be as per the prevailing regulations/guideline of BERC/DISCOM.

|                                        |                                                                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| IEC Standards                          |                                                                                                                                         |
| Solar                                  |                                                                                                                                         |
| IEC 61215/ IS                          | Design Qualification and Type Approval for Crystalline Silicon Terrestrial                                                              |
| IEC 61701                              | Salt Mist Corrosion Testing of Photovoltaic (PV) Modules                                                                                |
| IEC 61853- Part 1/<br>IS 16170: Part 1 | Photovoltaic (PV) module performance testing and energy rating<br>Irradiance and temperature performance measurements, and power rating |
| IEC 62716                              | Photovoltaic (PV) Modules – Ammonia (NH <sub>3</sub> ) Corrosion Testing (As per the site condition like dairies, toilets)              |
| IEC 61730-1,2                          | Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing                 |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 62804                      | Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1:<br><br>Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)                                                                                                                                                                                                                                        |
| IEC 62759-1                    | Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units                                                                                                                                                                                                                                                                                                                                                                                                                |
| Solar PV Inverters             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IEC 62109-1,<br>IEC 62109-2    | Safety of power converters for use in photovoltaic power systems Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems<br><br>Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor)                                                                                                                                                                                                                   |
| IEC/IS 61683 (as applicable)   | Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)                                                                                                                                                                                                                                                                                                                                                                                                |
| BS EN 50530 (as applicable)    | Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.                                                                                                    |
| IEC 62116/ UL                  | Utility-interconnected Photovoltaic Inverters - Test Procedure of                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IEC 60255-27                   | Measuring relays and protection equipment – Part 27: Product safety requirements                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| IEC 60068-2 (1, 2, 14, 27, 30) | Environmental Testing of PV System – Power Conditioners and Inverters<br>a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold<br>b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat<br>c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature<br>d) IEC 60068-2-27: Environmental testing - Part 2- 27: Tests - Test Ea and guidance: Shock<br>e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 |
| IEC 61000 –                    | Electromagnetic Interference (EMI) and Electromagnetic Compatibility                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



|                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2,3,5 (as applicable)                                       | (EMC) testing of PV Inverters                                                                                                                                                                                                                                                                                                                                                                                                          |
| Fuses                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IS/IEC 60947 (Part 1, 2 & 3), EN 50521                      | General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control- gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch- disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests |
| IEC 60269-6                                                 | Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems                                                                                                                                                                                                                                                                                                          |
| Surge Arrestors                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IEC 62305-4                                                 | Lightning Protection Standard                                                                                                                                                                                                                                                                                                                                                                                                          |
| IEC 60364-5-53/ IS 15086-5 (SPD)                            | Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control                                                                                                                                                                                                                                                                                                   |
| IEC 61643-11:2011                                           | Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods                                                                                                                                                                                                                                                                                        |
| Cables                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2) / IEC69947 | General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)                                                                                                                                                                                                                                                           |
| BS EN 50618                                                 | Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables                                                                                                                                                                                                                                                                                                                                                         |
| Earthing /Lightning                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                         |                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 62561 Series<br>(Chemical earthing) | IEC 62561-1<br><br>Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrode<br><br>IEC 62561-7<br><br>Lightning protection system components (LPSC) - Part 7: Requirements |
| Junction Boxes                          |                                                                                                                                                                                                                                                                                                                                      |
| IEC 60529                               | Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use                                                                                                                                                                         |
| Solar PV Roof Mounting Structure        |                                                                                                                                                                                                                                                                                                                                      |
| IS 2062/IS 4759                         | Material for the structure mounting                                                                                                                                                                                                                                                                                                  |

**25. OPERATION OF THE SYSTEM DURING WEEKENDS AND GENERAL HOLIDAYS AND CALCULATION OF CUF:**

During grid failure, the SPV system stops generating. Any instances of grid failure need to be mentioned in the monthly report and those instances need to be authorised by local DISCOM. Then the period will be excluded in calculation of CUF.

**26. WARRANTY/ GUARANTEE:-DEFECTLIABILITYPERIOD (DLP) SHALL BE FIVE YEARS:**

The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide system warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning. The successful bidder has to transfer all the Guarantees /Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be joint responsibility of the Successful bidder and the owner of the project and REIL will not be responsible in any way for any claims whatsoever on account of the above.

**27. TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP:**

- i. The Design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/Indian Standards as detailed in the Section- III

(Technical specifications) of the bid document. Where appropriate Indian Standards and Codes are not available, other suitable standards and codes as approved by the MNRE shall be used.

- ii. The specifications of the components should meet the technical specifications mentioned in Section
- iii. Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth Comprehensive Maintenance of the SPV plant.
- iv. The Bidder shall be responsible for sample quality testing of material of the Roof Top Solar PV system. All the lab testing and sampling cost shall be borne by the bidder through NABL/MNRE approved lab.

**28. COMPREHENSIVE MAINTENANCE CONTRACT (CMC):**

- The bidder shall be responsible for Comprehensive Maintenance of the Roof top Solar PV system for a period of 5 years after commissioning, during which REIL/ Nodal Agency will monitor the project for effective performance in line with conditions specified elsewhere in the bid document, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled and preventive maintenance, major overhauling of the plant, replacement of defective items supplied by bidder and maintaining log sheets for operation detail, deployment of staff for continuous operations and qualified engineer for supervision of CMC work, complaint logging & its attending.
- The bidder is required to submit a monthly report along with a consolidated 12 months report of the plants with a copy of the service log book as mentioned below along with the invoice for CMC.

**29. PLANT PERFORMANCE EVALUATION:**

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the CMC period. PR should be shown minimum of 70% at the time of inspection for initial commissioning. Minimum CUF of 15% should be maintained for a period of 5years. The bidder should send the periodic plant output details to REIL/ Nodal Agency for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions

**30. PROGRESS REPORT:**

The bidder shall submit the progress report monthly to REIL/ Nodal Agency in prescribed Performa. REIL/ Nodal Agency will have the right to depute their representatives to ascertain the progress of contract at the site.

**31. PROJECT INSPECTION:**

- i. The project progress will be monitored by REIL/ Nodal Agency and the projects will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from REIL/ Nodal Agency or any authorized agency/ experts. All the expenses for inspection in this regard shall be borne by the Bidder only.
- ii. REIL/ Nodal Agency reserves the right to do sample inspection checks for the projects commissioned by the Bidder.
- iii. REIL/ Nodal Agency may also depute a technical person(s) from its list of empanelled experts for inspection, Third party verification, monitoring of system installed to oversee, the implementation as per required standards and also to visit the manufactures facilities to check the quality of products as

well as to visit the system integrators to assess their technical capabilities as and when required

### 32. COMPLETION PERIOD:

Installation and commissioning of the SPV system should commence immediately after release of LOI and Installation & commissioning should be completed within 03Month from the date of LOI& may be extended depends upon the field situation.

The contractor will submit a detailed BAR/PERT chart indicating all the activities, mobilization of material and man power and other resources required to complete the work in stipulated time. Non completion of work within stipulated time period will attract the penalty as per the contract.

### 33. SCOPE OF WORK FOR OPERATION AND MAINTENANCE DURING 5 YEARS:

The supplier will have to quote the rates for Comprehensive Annual Operation and Maintenance Contract separately for 5 years. Cleaning of panels and tightening of connections shall be carried out every fortnightly. For maintenance of PCU/String Inverter coordination with PCU/String Inverter supplier shall be done.

Under Comprehensive annual maintenance contract, contractor shall provide the following services:-

- i. Attending Breakdown calls as and when required.
- ii. Routine checking, repair and cleaning of Devices during service visit as per maintenance schedule and as per stipulation of original equipment manufacturer.
- iii. Periodic monitoring of performance of the equipment.
- iv. Quarterly Review visit will be provided by contractor's engineer to check the health of system.
- v. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.
- vi. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacture/supplier's recommendations.
- vii. If negligence/ mal-operation on part of the Bidder's operator result in failure of equipment, such equipment should be repaired/replaced by the Bidder free of cost.
- viii. CAMC shall cover replacement of spare parts due to wear & tear, overhauling, machine breakdown and replacement of defective items supplied by the bidder & other parts and man power required for its operation for 5 years.

34. **HSN Code:** Bidder shall clearly mention in the HSN Code in the technical bid and shall be submitted HSN code with items wise details bid the bid.

### 35. MILESTONES:

**Table of milestone (s)**

| S. No. | Description of milestone                                                                                                                           | Time allowed in days (All are from date of LOI) |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 1      | Submission of data sheet & drawing for approval                                                                                                    | 10 days                                         |
| 2      | Supply of structures, cables, & other items required to complete the project, pre-dispatch inspection of material at by REIL, Jaipur /Nodal Agency | 45 days                                         |
| 3      | Installation and commissioning of complete system                                                                                                  | 70 days                                         |
| 4      | Commissioning of the system                                                                                                                        | 80 days                                         |
| 5      | Handover the system                                                                                                                                | 90 days                                         |

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## **SECTION-IV**

### **1. PAYMENT TERM:**

- i. 40% payment after supply of material at site, verification by competent authority and release of funds to REIL against supply of material
- ii. 50% payment after installation, commissioning and system hand over to beneficiary, verification and acceptance of documents by competent authority & release of funds to REIL against Installation & Commissioning.
- iii. Balance 10% payment against warranty maintenance @2% per year against submission of satisfactory maintenance certificate from competent authority & release of REIL's payment / BG..

### **2. PENALTY :**

- i. In case of delay in supply of material for more than 45 days from work order, Penalty @1% of Supply Cost per Week shall be imposed (Max. 5%) on the bidder.
- ii. In case of delay in I&C of project for more than 70 days from work order, Penalty @1% of I&C Cost per Week shall be imposed (Max. 5%) on the bidder.

### **3. GENERAL TERMS AND CONDITIONS**

- i. The above scope of work is indicative. However, if there is any other work the supplier shall carry out the same without any extra cost.
- ii. Responsibility, right and liabilities of the bidder, under this contract, will commence from the date of acceptance of the purchase order.
- iii. The work will have to be carried out in such a manner that will not cause any inconvenience to other agencies working in the site.
- iv. Prior to handing over of site, the entire site will be cleaned off debris etc.
- v. All the materials brought to site shall accompany with appropriate paper work like challan, Invoice etc. duly verified & signed by Customer, to be submitted to REIL for payment.
- vi. Any damage to the buildings / structures / area made by bidder's workmen or by bidder's agent will be made good by bidder at their cost.
- vii. Safety of bidder's workmen or bidder's agent is responsibility of the bidder. Accordingly, risk and necessary insurance and safety cover shall be addressed by bidder.
- viii. No child labour should be employed for executing the present contract.
- ix. Bidder is required to meet all the statutory obligation with regard to work deployed by bidder for the contract such as ESI, PF, Minimum wage act Work man compensation act, Income Tax act, Employees Insurance act etc.
- x. All tools and tackles required for installation, wiring, assembly, digging of cable trenches, earth pits etc have to be organized by the bidder. All the accessories such as power drilling machine, cutting machine, digging tools & complete set of crimping tools etc shall be organized by bidder.
- xi. All the works shall be executed strictly as per the direction of engineer in-charge at site.
- xii. **Pre-dispatch inspection of items supplied by bidders:**
  - a. Manufacture test certificates must be furnished in advance to enable clearance to dispatch to the site.
  - b. On completion of inspection, the test certificates must be furnished to REIL in advance to enable clearance for dispatch to the site.
  - c. Material shall be inspected at manufacturing work.

- xiii. **Material Delivery Schedule:** 45 days from placement date of LOI.
- xiv. **Delivery of material:** The material shall be delivered freight and loading unloading at respective site.
- xv. The complete job for supply of items and installation- commissioning shall be carried out by contractor.
- xvi. Five year on site guarantee and maintenance at site including spares of all the supplied items. A Service Level Agreement shall be signed with the supplier for 5 year free maintenance from the date of commissioning of systems.
- xvii. All necessary co-ordination activities for metering to the grid shall be carried out by bidder. This includes liaisoning with the Govt. Departments/ agencies.
- xviii. 5 years guarantee and onsite warranty maintenance of the equipments supplied the bidder from the date of commissioning of the project.

#### **NO NEAR RELATICE CLAUSE**

The bidder should give a certificate that none of his/her near relative is working in REIL as defined below along with their technical bid as per the attached Annexure. In case of proprietorship firm certificate will be given by the proprietor. For partnership firm certificate will be given by all the partners and in case of limited company by all the Directors of the company excluding Government of India/Financial institution nominees and independent non-Official part time Directors appointed by Govt. of India or the Governor of the state and full time Directors of PSUs both state and central. Due to any breach of these conditions by the company or firm or any other person the tender will be cancelled and Bid Security will be forfeited at any stage whenever it is noticed and REIL will not pay any damage to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in REIL's Tender. The near relatives for this purpose are defined as:- (a) Members of a Hindu undivided family. (b) They are husband and wife. (c) The one is related to the other in the manner as father, mother, son(s) & Son's wife (daughter in law), Daughter(s) and daughter's husband (son in law), brother(s) and brother's wife, sister(s) and sister's husband (brother in law).

## **RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR**

### **OTHER GENERAL TERMS AND CONDITIONS**

#### **1) AMENDMENT**

Except as otherwise provided herein, no addition, amendment to or modification of the Contract shall be effective unless it is in writing and signed by and on behalf of both parties.

#### **2) SEVERABILITY**

In the event that any or any part of the terms conditions or provisions contained in the Contract shall be determined invalid, unlawful or unenforceable to any extent such term, condition or provision shall be severed from the remaining terms, conditions and provisions that shall continue to be valid and enforceable to the fullest extent permitted by law.

#### **3) CONFIDENTIAL TREATMENT**

It is understood and agreed that data, know-how and other such proprietary information that was provided or will be provided by either party, will remain confidential.

#### **4) RELATIONSHIP OF THE PARTIES**

REIL relationship with Supplier will be that of a Business Associate, and nothing in this Contract shall be construed to create a relationship, joint venture, partnership.

#### **5) INDEMNITY**

REIL and the Supplier will indemnify, defend, and hold harmless each other and its divisions, successors, subsidiaries and affiliates, the assigned of each and their directors, officers, agents and employees from and against all liabilities, claims, losses, and damages of any nature, including, without limitation, all expenses (including attorney's fees), cost, and judgments incident there to REIL and REIL's obligations under this indemnity will survive the expiration, termination, completion or cancellation of this Contract or an order hereunder.

#### **6) FORCE MAJURE**

REIL and the Supplier shall not be under any liability to each other or to any other party in any way whatsoever for the destruction, damage, delay or any other matters of the nature arising out of reasons beyond the control of either party, including but not limited to a war, rebellion, civil commotion, strikes, lock-outs and industrial disputes; fire, explosion, earthquake, Act of God, flood, drought, bad weather, requisitioning or other act or order by any government department, council or other constituted body, and similar other reasons.

#### **7) RESTRICTION ON EMPLOYMENT**

Both the parties have agreed that they will not recruit any members of staff of other party directly or indirectly.

#### **8) ARBITRATION**

All disputes arising out of this contract and questions relating to its interpretation etc. shall be referred to the contract committee headed by ED/GM and if not resolved shall be referred to the sole arbitration of Managing Director, Rajasthan Electronics & Instruments Ltd., for his decision, which shall be final and binding on both parties. The Venue of Arbitration proceedings shall be at Jaipur.

#### **9) RISK AND COST**

In the event of failure on the part of the contractor in the installation and commissioning of goods and services, which is required in view of the pending orders, REIL shall be entitled to cancel the remaining order and procure the outstanding quantity through other sources at risk and costs of the contractor.

#### **10) TERMINATION OF CONTRACT:**

REIL shall be entitled to terminate this Contract, in the event of any or all or any of the following events, with a written notice of 15 days with due consent of the Bidder:-

- i. has abandoned the Contract
- ii. has without valid reason failed to complete the projects in respect of the contract.

- iii. persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just and proper cause.

**11) DURATION OF CONTRACT**

This contract shall take effect on the day of execution of this contract and shall endure for the period of 5 year from commissioning of SPV Power Plant and renewable as per mutual agreement.

**12) GOVERNING LAW**

This contract and its validity, interpretation and performance will take effect and be governed under the laws of India. Venue in any action in law or equity arising from the terms and conditions of this contract shall be the court of appropriate jurisdiction in Jaipur, Rajasthan (India)

**13) PREFERENCE TO MSE**

Preference to MSE will be given and procurement from SC/ST and Women Entrepreneurs shall be done as per the government guidelines. Start Ups are exempted from condition of prior turnover and prior experience subject to meeting of quality and technical specifications.

**14) CONTRACT:**

Before execution of the work, security deposit be submitted and a contract agreement for execution of the work shall be signed by the bidder with REIL within 7 days of LOI from REIL. In case agreement is not executed within the stipulated time, earnest money will be forfeited.

**15) OTHER TERMS & CONDITIONS:**

- i Compliance with Regulations and Indian Standard:- All works shall be carried out in accordance with relevant regulations, both statutory & those specified by the Indian standard related to the works covered by this specification. In particular the equipment and installation will comply with the following:-
  - a. Work man's compensation act.
  - b. Minimum wages Act.
  - c. Payment wages Act.
  - d. Contact Labour regulation & abolition Act.
  - e. ESI, PF & Bonus Act.
  - f. Regulation under Indian Electricity Rules,
  - g. Safety & Electrical Standard as applicable
- ii Watch & Ward:-

The contractor shall supply material from his godown for installation work at site, shall continue to be responsible for their safe custody till they are installed in position, tested, commissioned and handed over to beneficiaries as per format provided by REIL.
- iii Contractor shall arrange for compliance with statutory provision of safety regulation and departmental requirements of safety codes in respect of labour employed on the work by the contractor. Failure to provide such safety requirements would make the contractor liable for penalty. The departmental will be at liability to make arrangement for the safety requirements at the cost of the contractor & recover the cost thereof from him.
- iv Company shall not be held liable or responsible for any illness and for physical harm sustained by the contractor authorized representative during the execution of this agreement as they will not be deemed in any manner as employee of the company.
- v The contractor authorized representative shall take due care in handling the SPV system under this contract. Unwarranted activities, if found any, the company shall be authorized to recover the same from the contractor.
- vi Correction, over-writing and alteration should be initialed and dated by the Vendor otherwise the bid is liable to be rejected. The bid shall be typed or written in ink. Unit rates should be mentioned in the specified format failing which the bids are not likely to be considered.



- vii All Vendors shall therefore, furnish declaration that their firm is not involved in any litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment. It is also to be declared that their firm has not been black listed by any Central/State/ Public Sector Undertakings in India. The declaration should be verified by the Notary Public.
- viii The Vendor shall sign these conditions on each page at the end in token of acceptance of all the terms and it would be attached with the bid along with the declaration mentioned in above. He should also sign at the bottom of each of the pages of his bid to be submitted
- ix The company reserves the right to visit and inspect any site under this contract at any time and if defects are noted, payments may be stopped / recovered from contractor. The company reserves the right to terminate this contract without giving any notice, if in the opinion of the company, the performance of the contractor is not found satisfactory and according to terms stipulated by this contract.
- x The company shall be fully absolved from the third party claims and damages during the execution of the contract.
- xi All disputes arising out of this contract and questions relating to its interpretation etc. shall be referred to the sole arbitration of General Manager (RE), Rajasthan Electronics & Instruments Ltd., for his decision, which shall be final and binding on both parties.
- xii The contract agreement shall be executed at Jaipur and shall be subject to Jaipur court jurisdiction alone.
- xiii. The company shall deduct the TDS as per the Income Tax Act.
- xiv. The contractor shall be fully responsible for all repairs of the defects in maintenance during the period under contract.
- xv. The contractor shall not be entitled for assistance either, in the procurement of raw materials required for the fulfillment of the contract or in the securing of transport facilities.
- xvi. Any other work which is not mentioned here but required for successful commissioning of the SPV Power Plant shall be done by the contractor at no extra cost.
- xvii. Any work/contract conditions imposed by REIL shall also be applicable on the contractor.

\*\*\*\*\*

## SECTION -V

### Annexure – I

(On bidder's letter head and signed, stamp before uploading)

### **COVERING LETTER**

No.

Date:

Dy. General Manager (MM),  
Rajasthan Electronics & Instruments Limited,  
2, Kanakpura Industrial Area,  
Jaipur-302034  
Rajasthan.

Sub: Rate contract for survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar.

Dear Sir,

We hereby submit our offer in full compliance with terms & conditions of the above e-tender.

We confirm that, we have the capability for supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of \_\_\_\_\_KWp (1kWp-10kWp) grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar. (Supporting document in proof of capacity should be attached).

Based on eligibility and capacity to carry out work within the specified time of this bid, we are quoting as per following:

| Total Project Capacity | Minimum Bid Capacity in KW | Offer Bid Capacity in KW |
|------------------------|----------------------------|--------------------------|
| 580 KWp (1kWp-10kWp)   | 200 KWp                    |                          |

Regards,

Signature with company seal

Name-

Designation

## RAJASTHAN ELECTRONICS &amp; INSTRUMENTS LIMITED, JAIPUR

**COMMERCIAL TERMS AND CONDITIONS**

| S.n.                        | Term               | Description                                                                                                                                                                                                                                                                               | Complied /<br>Not<br>Complied | Deviati<br>on if<br>any |
|-----------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------|
| 1                           | GST                | Inclusive as applicable. Please specify the current rate.                                                                                                                                                                                                                                 |                               |                         |
| 2                           | Terms of payment   | As per tender document                                                                                                                                                                                                                                                                    |                               |                         |
| 3                           | Contract period    | 5 years from commissioning of SPV Power Plant.                                                                                                                                                                                                                                            |                               |                         |
| 4                           | Rate               | Firm rate for contract period.                                                                                                                                                                                                                                                            |                               |                         |
| 5                           | Offer validity     | 60 day from the date of bid opening.                                                                                                                                                                                                                                                      |                               |                         |
| 6                           | Quantity Variation | Quantity may increase or decrease depending upon the requirement.                                                                                                                                                                                                                         |                               |                         |
| 7                           | Completion Period  | As per tender document                                                                                                                                                                                                                                                                    |                               |                         |
| 8                           | GST No:            | GST no is essential for participating in this Tender. Kindly provide your GST No:                                                                                                                                                                                                         |                               |                         |
| 9                           | MSME Clause        | It is mandatory for MSE bidders to declare their Udhog Aadhar number on CPPP portal, failing which such bidders will not able to enjoy the benefits of procurement policy for MSE and also attach the certificate along with annexure.                                                    |                               |                         |
| 10                          | Note               | Corrigendum and extension if any will be hosted on website ( <a href="http://www.eprocure.gov.in">www.eprocure.gov.in</a> ) only. Please check regularly for further information update.                                                                                                  |                               |                         |
| 11                          | Other              | Part-I (Technical and Commercial Offer) to be opened by the REIL committee.<br><br>Part-II (Price Offer): Only those bidders whose offers are technically and commercially acceptable after evaluation of the technical and commercial offer will be opened & evaluated by the committee. |                               |                         |
| <b>SIGNATURE WITH STAMP</b> |                    |                                                                                                                                                                                                                                                                                           |                               |                         |

**RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR**

**PROCESS COMPLIANCE FORM**

(On bidder's letter head and signed, stamp before uploading)

To

**M/s. Rajasthan Electronics & Instruments Limited  
2, Kanakpura Industrial Area, Sirsi Road,  
Jaipur-302034**

**Sub:-Acceptance to the process related Terms and Conditions for the e-Tendering**

Dear Sir,

**This has reference to the Terms & Conditions for e-Tendering mentioned in the tender No.:-  
REIL/RE/2021-22/SPVPP/580 KWP/070**

We hereby confirm the following:-

- 1) The undersigned is authorized representative of the company.
- 2) We have carefully gone through the NIT, Tender Documents and the Rules governing the e-tendering as well as this document.
- 3) We will honor the Bid submitted by us during the e-tendering.
- 4) We undertake that if any mistake occurs while submitting the bid from our side, we will honor the same.
- 5) We are aware that if REIL has to carry out e-tender again due to our mistake, REIL has the right to disqualify us for this tender.
- 6) We confirm that REIL shall not be liable & responsible in any manner whatsoever for my/our failure to access & submit offer on the e-tendering site due to loss of internet connectivity, electricity failure, virus attack, problem with the PC, digital signature certificate or any other unforeseen circumstances etc.

With regards

Signature with company seal

Name-

Designation

E-mail Id:

(On bidder's letter head and signed, stamp before uploading)

**RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR**

**AUTHORIZATION CERTIFICATE**

Date

To

Dy. General Manager (MM),  
Rajasthan Electronics & Instruments Limited,  
2, Kanakpura Industrial Area,  
Jaipur-302034  
Rajasthan

Dear Sir,

We M/s. ....are authorizing Mr.. .... to submit tender document in reference to your tender no ..... **Dated .....for Rate Contract for Survey, design, engineering, supply, packing and forwarding, transportation, unloading, storage, installation and commissioning of 580 KWp (1kWp-10kWp) grid connected Rooftop Solar PV system including comprehensive maintenance for 5 years at various locations in the state of Bihar** our behalf. He is authorize to carry out communication and negotiations on our behalf.

On behalf of company .....

Name and Designation

Signed and sealed (who has signed the tender)

**CERTIFICATE FOR NON BLACK LISTING**  
(Bidder must submit it on Letter Head of the firm)

Date

To

Dy. General Manager (MM),  
Rajasthan Electronics & Instruments Limited,  
2, Kanakpura Industrial Area,  
Jaipur-302034( Rajasthan).

Ref: NIB No. ....

Dear Sir,

We M/s. ....confirm that we are not blacklisted in any PSUs / Government / Semi Government / Quasi Government department in India, as on date of submission of bid. This undertaking is submitted to the best of my knowledge. If at any stage it is found wrong, then REIL may take necessary action against us.

On behalf of company .....

Name and Designation

**Tender ref.:**

**UNDERTAKING OF NO NEAR RELATIVE**

Date

To

Deputy General Manager (MM),  
Rajasthan Electronics & Instruments Limited,  
2, Kanakpura Industrial Area,  
Jaipur-302034  
Rajasthan

Dear Sir,

I.....S/o..... R/o..... hereby  
certify that none of my relatives) as defined in the tender document is/are employed in REIL unit as per  
details given in tender document. In case at any stage, it is found that the information given by me is false  
/ incorrect, REIL shall have the absolute right to take any action as deemed fit/without any prior  
intimation to me.

On behalf of company .....

Name and Designation

**RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR**

**CHECK LIST**

| Sr. No. | Required Documents |                                           | Remark |
|---------|--------------------|-------------------------------------------|--------|
| 1.      | SECTION-I          | INSTRUCTION TO BIDDERS                    |        |
| 2.      | SECTION-II         | ELIGIBILITY AND OTHER CONDITIONS          |        |
| 3.      | SECTION-III        | SCOPE OF WORK & TECHNICAL SPECIFICATIONS  |        |
| 4.      | SECTION-IV         | PAYMENT TERMS & OTHERS CONDITIONS         |        |
| 5.      | SECTION-V          | ANNEXURES                                 |        |
| 6       | Annexure –I        | Covering Letter                           |        |
| 6       | Annexure –II       | Format of Commercial Terms and Conditions |        |
| 7       | Annexure- III      | Process Compliance Form                   |        |
| 8       | Annexure- IV       | Authorization Certificate                 |        |
| 9       | Annexure- IV       | NON Blacking Listing                      |        |
| 10      | Annexure- IV       | No near Relative                          |        |
| 11      | Annexure- VII      | Check list                                |        |