



RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

(An ISO 9001 : 2015 & 14001 : 2015 “Mini-Ratna” Central Public Sector Enterprise)

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NOTICE INVITING TENDER FOR “SUPPLY OF BOS, ERECTION, TESTING & COMMISSIONING OF 465 kWp CUMULATIVE CAPACITY GRID CONNECTED ROOF TOP SOLAR PV POWER PLANTS IN THE STATE OF GUJARAT, MAHARASTRA.”

TENDER NO. REIL/RE/2023-24/PP/004 dated 09.05.2023

Important Dates:

Last Date & Time for submitting e- tender: 23.05.2023 up to 15:00 Hrs

Date & Time for opening of e-tenders: 24.05.2023 at 15:00 Hrs

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

RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

NOTICE INVITING TENDER NO. REIL/RE/2023-24/PP/004

This is a Notice Inviting Tender (NIT) for “**Supply of BOS, Erection, Testing & Commissioning of 465 kWp Cumulative Capacity Grid Connected Roof Top Solar PV Power Plants in the state of Gujarat & Maharashtra**” as per description and terms & conditions specified hereinafter:

Item Description:

S. No.	Description
1.	Supply of BOS, Erection, Testing and Commissioning of 465 kWp Cumulative Capacity Grid Connected Roof Top Solar PV Power Plants in the state of Gujarat & Maharashtra.

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 out rightly rejected. Tender documents can be downloaded from our website www.reiljp.com or website of CPPP www.eprocure.gov.in. Final bids are to be submitted on website www.eprocure.gov.in. Any changes modification in the tender enquiry will be intimated through above websites only. Bidder 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.

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

Price Bid:- Price Bid format given with tender is to be uploaded after filling all relevant information like basic prices, taxes & duties. The Price bid should be uploaded strictly as per the format available with the tender failing which the offer is liable for rejection (blank or changing format of price sheet will not be accepted by system). **REIL reserve the right to distribute the work.**

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

The bidder shall submit bid security form alongwith technical bid.

The details for Bid are as follows:

S. No.	Item	Description
1	Last date for submission of Online Bid	23.05.2023 (15:00 Hrs)
2	Opening of technical Bid	24.05.2023 (15:00 Hrs)
3	Opening of Commercial Bid	To be informed later to successful bidders in the technical bid
4	Contact Person(s) for Technical Queries	1. Sh. OP Choudhary, Dy. Manager (RE), op.choudhary@reil.co.in , +91-8980034575
5	Contact Person(s) for Tender related Queries	1. Sh. Sanjay Gupta, AGM (MM-BOS), sanjay.gupta@reil.co.in 2. Sh. Praveen Kumar, Dy. Manager (MM), praveen.kumar@reil.co.in , +91-7727011738

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

Addl. General Manager (MM-BOS)

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RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

Process Compliance Form

(Tenderers are required to print on their company's letter head and signed, stamp before uploading).

To

**Addl. General Manager (MM-BOS),
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/2023-24/PP/004 dated 09.05.2023.**

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:

ELIGIBILITY CRITERIA:

A) TECHNICAL ELIGIBILITY CONDITIONS:

Bidder must fulfill following criteria:-

1. The Bidder should be a Company / Firm / Corporation, incorporated in India under the Companies Act, 1956 or 2013 and having experience in Design, Supply and Installation & Commissioning of Solar Power Plants.

OR

A Limited Liability Partnership Firm (LLP) registered under section 12 of Limited Liability Partnership Act, 2008 and having experience in Installation & Commissioning of Solar Power Plants.

2. Experience of having successfully completed similar works during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following:

- a) Three similar completed works costing not less than the amount equal to **40% (Rs. 19.53 lac)** of the estimated cost.

OR

- b) Two similar completed works costing not less than the amount equal to **50% (Rs. 24.41 Lac)** of the estimated cost.

OR

- c) One similar completed work costing not less than the amount equal to **80% (Rs. 39.05 Lac)** of the estimated cost.

3. The bidder, who has received the work order / LoA from REIL in FY 2017-18 or before, but the work is still pending, would be out rightly rejected.

B) FINANCIAL ELIGIBILITY CONDITIONS:-

1. Average Annual Financial Turnover during the last 3 years, ending 31st March of the previous financial year, should be at least **30% (Rs. 14.65 Lac)** of the estimated cost.

2. The bidder should have adequate financial resources or should have sufficient resources audited financial statement to undertake the contract. Below mentioned documents are required:

Letter from a Financial Institution that it is willing to fund the project.

OR

Declaration on bidder's letter head (in case the bidder wish to use the internal resources for funds / shall be furnished).

Bidder should submit following documents along with Technical bid:-

1. Company Incorporation Certificate / Company Registration Certificate.
2. Bankers Report.
3. Balance sheet & ITR for last three years i.e. 2019-20, 2020-21 & 2021-22.
4. Turnover and Positive Net worth value duly certified by CA.
5. Past Experience details as per technical eligibility asked in the NIT. (Kindly attach verified documents from customer such as Work Order, Completion Certificate and O&M Certificate)
6. Letter for financial resources
7. Photocopy of GST Registration no. & PAN no.
8. Any other relevant documents Undertaking towards completion of work received upto FY 2017-18 from REIL. This undertaking is required only from regular vendors of REIL.

(C) OTHER CONDITIONS:

- a) **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.
- b) The contractor shall not sublet transfer or assign the contract to any part thereof without the written permission of the Addl. General Manager (MM-BOS). In the event of the contractor contravening this condition, Addl. General Manager (MM-BOS) 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 Addl. General Manager (MM-BOS), may sustain in consequence or arising out of such replacing of the contract.
- c) **Document:** The bidder should have a valid **PAN / TAN /GST NO & 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. Check list be attached.
- d) **Right to accept / reject:** REIL reserves the right to reject any or all tender without assigning any reason whatsoever. Also, the REIL authority reserves 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.
- e) The capacity of SPV Power Plant shown in the tender can be increased or decreased to any extent depending upon the actual requirement.
- f) **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.

D) Electrical Contractor License

- The work shall be carried out by the contractor, having valid Electrical Contractor License for carrying out installation work under the direct supervision of the persons holding valid certificates of competency issued by the State Government. The same shall be submitted to REIL by successful bidder after placement of work order.
- The successful BIDDER shall furnish the names and particulars of the certificate of competency of supervisor and workmen to be engaged for carrying out this work.

E) PRICES:

- a. Prices are to be quoted **in Indian Rupees**.
- b. Prices quoted in the Price/Financial Bid must be meaningful and measurable in the context.
- c. Price must be quoted in original sheet of BOQ failing which the same is liable to be rejected
- d. Offer shall be valid for 60 days from the date of bid opening

SCOPE OF WORK & TECHNICAL SPECIFICATIONS

Rooftop Solar PV System

Supply of BOS, erection, testing, commissioning of rooftop Grid Connected Solar PV Power Plants are proposed to be installed at 06 Nos. Sites as per the capacity mentioned in **Bill of Quantities**. These installations shall be connected with LT System of the premises which is being fed by Grid or Diesel Generators (in case of grid outage).

SCOPE OF WORK OF REIL :

- a) Supply of SPV Modules (Min. 400 Wp Capacity)
- b) Supply of String Inverters.

REIL shall handover the material at respective site(s) to the Contractor. Further, storage and safety of material (supplied by REIL) shall be in the scope of contractor.

SCOPE OF WORK OF CONTRACTOR:

- Module Mounting Structure and frames
- Array Terminal Box, AC/DC Junction box, as per requirement
- Grid interfacing AC Distribution Panel with Generation Meter (for local energy generation measurement)
- Integration of Solar PV Power Plant with Grid/PCC
- Cable & wires alongwith associated accessories
- Earthing, Lightning, Surge & Grid islanding Protection arrangement
- Civil works for PV Array Structures/Panels etc.
- Data logging/Plant monitoring
- Danger boards & signages
- Cleaning system for Solar PV Modules
- Portable fire extinguishers
- Display board at Project site (for above 25 kWp)
- Portable Flood Light Panel along with associated lighting fixture (2 nos. of fixture type: FL-2).
- Fixed / movable type metallic ladder.

1) Site Visit, Identification of rooftop Area & Solar Potential Assessment for the mentioned sites, Obtaining No Objection Certificate (NOC) from Distribution Company (DISCOM) for grid connectivity of rooftop Solar PV Power Plant.

2) Comprehensive Maintenance Contract (CMC) for 4 years after the end of defect liability period (01 year).

All civil works associated with the installation & commissioning of Grid Connected Rooftop Solar PV Power Plant, including necessary structural works, shall be done by the Contractor. The Contractor shall specify and submit detail GA drawing indicating various components of Solar PV Power Plant. Employer 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.

The Employer shall provide the identified rooftop area for Solar PV power plant installation.

Access to the rooftop for installation and O&M shall be provided by the Contractor through fixed/movable type metallic ladder including associated civil & earthing works.

Module Mounting Structure (MMS) and associated civil works

- a) Hot dip galvanized MS mounting structures should be used for mounting the modules/panels/arrays. The minimum thickness of the galvanization shall be as per Section-GTR.
- b) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame and associated fasteners, nuts & bolts. Considering light weight, anodized Aluminum can also be used for inclined roofs suiting to the wind zone of location for array frames/structures, except for legs.
- c) The array structure shall be so designed that it will occupy minimum space without sacrificing the output from Solar PV system. The structure shall be designed to allow easy replacement of any module and suiting to site conditions.
- d) The Mounting structure shall be designed suiting to the wind zone of the location (as per National Building Code 2016) where the PV system is proposed to be installed.
- e) The mounting steel structure shall be as per IS 2062 (latest version).
- f) Aluminum frames should be avoided for installations in coastal areas.
- g) No welding is allowed on the mounting structures.
- h) All fasteners, nuts & bolts should be made up of stainless steel of minimum SS304 grade.
- i) The total load of the structure with PV modules on the roof should be less than 60kg/m^2 .
- j) The contractor shall take care of the load bearing capacity of roof.
- k) Minimum Ground Clearance of the lowest part of the module should be at least 300mm from the top of plain roof. However, no minimum clearance criteria shall be applicable for inclined roof.
- l) Coping shall be provided over ballast/pedestal to avoid any water stagnation.
- m) Floor surface shall be roughened before placing ballast/pedestal over it.
- n) Gola shall be laid around the ballast/pedestal with approved water proofing compound.
- o) Water proofing treatment of approved brand as well as punning on the surface and all-around ballast/pedestal shall be done to avoid any seepage into the existing roof as per Drawing-1 enclosed with this specification.
- p) All concrete shall be Nominal Mix 1:1.5:3 with 20mm nominal size of aggregate. All RCC work shall be as per IS-456. Reinforcement steel shall be high strength Fe 500 conforming to IS 1785.
- q) Brick works, if any, shall be done using 1st class bricks of approved quality as per IS 3102.
- r) Plastering in cement mortar 1:5, 1:6 and 1:3 shall be applied.
- s) For painting on concrete, masonry and plastered surface, IS 2395 shall be followed. For distempering, IS 427 shall be referred. For synthetic enamel painting, IS 428 shall be followed.

For cement painting, IS 5410 shall be followed.
- t) The array structure shall be grounded properly using maintenance free earthing kit.
- u) The bird spike shall be provided at the highest point of the array/module structure to avoid sitting of birds on solar PV modules.

Junction Boxes (JBs) and String Multiplier Box (SMB) / String Combiner Box (SCB)

- a) JB/SMB/SCB shall be dust free, vermin-proof, water-proof and made of FRP/GRP/Thermoplastic with IP-65 degree of protection.
- b) The JB/SMB/SCB shall have copper bus bar of current carrying capacity suitable for interconnection of Solar PV array with adequate safety margin.
- c) The JB/SMB/SCB shall have suitable cable entry points fitted with cable glands of appropriate sizes for both input and output terminations.
- d) The JB shall have suitable arrangement for the followings:
 - Combine groups of modules into independent sub-arrays.
 - Provide arrangement for disconnection for each of the groups.
 - Provide a test point for each sub-group for quick fault location.
 - Provide group array isolation.
- e) Each JB of solar PV array system shall have high quality Metal Oxide Varistors (MOVs) / Surge Protection Devices (SPDs)/ Reverse Blocking Diodes of suitable capacity.
- f) The box should be placed at a height suitable for ease of accessibility.
- g) 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.
- h) Other details of Box and terminal blocks shall generally be in accordance with requirements specified in Section-GTR.
- i) Built-in junction box of Solar PV module shall be as per manufacturer's proven design.

Integration of Solar PV Power Plant with Grid/ PCC

The output power from Solar PV array shall be fed to the inverters which convert DC to AC and feed it into the main electricity grid through to Power Control Centre (PCC). In case of grid/PCC failure or low/high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid/PCC. Once the bus is normalized or synchronization criteria is met, the solar PV system should automatically be synchronized with the grid/PCC.

A manual disconnection switch/isolator with locking arrangement shall be provided near the inverter/PCU to isolate the system during any maintenance activity. The cost of manual disconnection switch/isolator shall be deemed to be included under the cost of inverter/PCU.

Power generated by the solar PV power plant shall be fed to the nearest

PCC/grid available. The location of PCC shall be as mentioned in Section-

Project.

Grid Interfacing AC Distribution Panel

- a) AC Distribution Panel (ACDP) shall control the AC power from PCU/ inverter and shall have necessary surge arrestors. ACDP shall be provided between inverter/PCU and utility grid/PCC.
- b) It shall have MCB/MCCB/ACB or Circuit Breaker, as required, of suitable rating for connection and disconnection of PCU from grid/PCC. Generation Meter shall be of Three Phase, 4-wire, 415V AC type of 0.5 accuracy class.
- c) AC output of the inverter/PCU shall be fed to the AC Distribution Panel (ACDP) which

will behaving metering and isolation provisions and shall also house the generation meter for solar PV generation metering.

- d) All switches, MCB/MCCB/Circuit Breakers, connectors etc. should conform to IS/IEC 60947.
- e) The panel shall be metal clad, totally enclosed, rigid, floor mounted, air-insulated and cubical type suitable for operation on three phase 415 volts, 50Hz and with degree of Protection of IP- 54/IP-65 for Indoor/Outdoor.

Net-Metering

- a) Quantity of Net-Meters shall be as per BPS/Section-Project.
- b) Net-meter shall be bi-directional electronic energy meter of 0.5S/0.2S class (as applicable for DISCOM utility) for measurement of import/export of energy.
- c) The Net-meter shall be CT operated conforming to IS 16444 Part-2.
- d) If specified in BPS/Section-Project, the existing meters on source side shall be replaced by the Contractor with Net-meter. However, replacement of associated CT/PT are not envisaged under Contractor's scope.
- e) Net-metering shall be provided as per State policy. All administrative expenditure shall be made by Employer towards availing the net metering connection from DISCOM. However, arrangement of net-meters or deposit of charges for arrangement of net-meter shall be covered under Contractor's scope.
- f) Contractor shall get the Net-meter installed after due testing and sealing from DISCOM utility.

Reverse Power Flow Blocking Scheme

Export towards the utility grid is normally not desired. Hence, reverse power flow blocking scheme including associated relays, control system etc. shall be provided. This scheme shall be capable of sensing and blocking power flow in the reverse direction towards the utility grid. Also, the scheme shall be capable of reconnecting the solar PV system into service again once the export situation normalizes i.e. when the load exceeds the solar generation.

Data Logging/Plant Monitoring

- a) A dedicated data logging system with required software and hardware interface for remote monitoring through internet shall be provided by Contractor. However, supply of Computers is not envisaged under Contractor's scope. The data logging system shall be web based and shall support mobile application (of Indian Origin).
- b) Above system should provide time and date stamped system data logs for analysis, Metering and Instrumentation for display of systems parameters and status indication.
- c) Contractor shall aggregate the data with data storage feature from each inverter.
- d) Following weather parameters monitoring equipment shall be provided as part of Data logging System/Plant Monitoring:
 - i. Solar Irradiance:
 - For 10kWp to less than 100kWp:
An integrating Pyranometer/Solar cell based irradiation sensor (along with calibration certificate) with the sensor mounted in the plane of the array. Readout shall be integrated with plant monitoring system.
 - For 100kWp and above:

An integrating Pyranometer (Class II or better) shall be provided with the sensor mounted in the plane of the array. Readout shall be integrated with plant monitoring system.

- ii. Temperature:
 - Temperature probes, complete with readouts integrated with the plant monitoring system, for recording the Solar panel temperature and/or ambient temperature shall be provided at a suitable shade free location near the PV modules.
- e) Following parameters shall be accessible in real time through Plant Monitoring system:
 - i. AC Voltage.
 - ii. AC Output current.
 - iii. Output Power.
 - iv. Power factor.
 - v. Energy in kWh
 - vi. DC Input Voltage.
 - vii. DC Input Current.
 - viii. Time Active.
 - ix. Time disabled.
 - x. Time Idle.
 - xi. Power produced
 - xii. Temperature (°C)
 - xiii. Inverter status
 - xiv. Irradiance
 - xv. Protective function limits (viz. -AC Over voltage, AC Under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage).
- f) String DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
- g) The data on a specified interval (at least 15 minute) shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
- h) Provision for Internet monitoring and download of historical data shall be provided.
- i) Sim card shall be arranged by contractor and charges for the same upto complete maintenance period shall be in the scope of contractor.
- j) The contractor shall also provide access of mobile app (Indian origin) without any cost to Employer for monitoring of rooftop solar PV power plant till maintenance period as per the contract.

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 maintenance period. PR should be minimum 80% at the time of inspection for initial commissioning acceptance. Minimum CUF (18% for General category states and 15% for Special category states) should be maintained. The categories of states shall be as per MNRE guidelines/orders. The contractor should send the periodic plant output details to Employer for monitoring the CUF. The PR shall be measured at Inverter output $\text{Measured output in kW}$ irradiation conditions. 1000 W/m^2

$$\text{PR} = \frac{\text{Measured output in kW}}{\text{Installed Plant capacity in kW} \times \text{Measured radiation intensity in W/m}^2}$$

Protections

The system shall be provided with all necessary protections like Earthing, Lightning, Surge and Grid islanding protections as mentioned below:

Lightning and Surge Protection

- a) The SPV power plants shall be provided with lightning & over-voltage protection. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the Solar PV array shall be suitably protected against lightning by deploying adequate number of Lightning Arrestors/Masts with separate earthing system.
- b) Lightning protection should be provided as per IS/ IEC 62305.
- c) Protection against induced high-voltages shall be provided by the use of surge protection devices (SPD) and the earthing terminal of SPD shall be connected to the earthing system.

Earthing Protection

- d) Earthing system shall generally be in accordance with IS:3043.
- e) PV array structure and metallic frame of all electrical equipment shall be earthed by two separate and distinct connections to earthing system.
- f) The lightning arrester/masts shall also be earthed properly.
- g) Earth resistance shall be less than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.
- h) GI strip of minimum size 3mmx30mm shall be used for carrying out earthing connections. The GI strip should be connected to earth mat grid.
- i) Adequate number of Earthing pit with removable covers shall be provided as per IS.

Grid Islanding Protection

In the event of a power failure on the electric grid, it is required that any independent power- producing inverters attached to the grid turns 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 Solar 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.

Cables & wires and associated accessories

Cables of appropriate sizes along with suitable lugs, glands etc., as required, shall be provided by the Contractor meeting the following characteristics:

- a) Shall conform to IEC 60227/IS 694, IEC 60502/IS1554 standards.
- b) Voltage rating: 1100V
- c) Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- d) Flexible/Multi Strand
- e) Suitable sizes of cables shall be provided to limit the voltage drop to be less than 2% of system voltage.
- f) For the DC cabling, FRLS type XLPE / XLPO insulated and sheathed, UV stabilized single core multi-stranded flexible copper cables shall be use. Multi-core cables shall not be used.
- g) For the AC cabling, PVC or XLPE insulated and PVC sheathed armored single or multi-core flexible copper cables shall be used. Outdoor AC cables shall have a UV-stabilized outer sheath IS/IEC 69947.
- h) Minimum DC/AC cables size shall be 4 mm² copper.

- i) In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires
- j) All LT XLPE cables shall conform to IS:7098 Part I&II.
- k) The DC cables from the Solar PV module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm
- l) Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
- m) All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm.
- n) Cable Marking: All cable/wires are to be marked in proper manner by good quality ferrule or by other means so that the cable can be easily identified. The following colour code shall be used for cable wires
 - i. DC positive: red (the outer sheath can be black with a red line marking)
 - ii. DC negative: black
 - iii. AC single phase: Phase: red; Neutral: black
 - iv. AC three phase: phases: red, yellow, blue; neutral: black
 - v. Earth wires: green
- o) Cables and conduits that have to pass through walls or ceilings shall be taken through PVC pipe sleeve.
- p) Cable conductors shall be terminated with tinned copper end ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.
- q) Bending radii for cables shall be as per manufacturer's recommendations and IS: 1255.
- r) Cables connecting the monitoring sensors, environmental sensors etc. shall be shielded to avoid signal loss.
- s) For laying/termination of cables latest BIS/IEC Codes/ standards shall be followed.

Danger Boards and Signages

Danger boards and signages shall be provided as and where necessary as per relevant standards/IE rules as amended up to date.

Cost of provision of Danger boards & signages shall be deemed to be included in cost of Grid connected Rooftop Solar PV Power Plant.

Cleaning system for Solar PV Modules

A Suitable Solar PV module cleaning & water washing system with complete piping, valves, hose pipes, pressure pumps, wipers, mops etc. shall be provided for regular cleaning and water washing of the rooftop solar PV modules.

Existing plumbing piping system shall be tapped suitably for above purpose in consultation with Employer's site in-charge.

Drainage system for rooftop shall be provided/strengthened suitably by the Contractor,

as required. Cost of above shall be deemed to be included in cost of Grid connected Rooftop

Solar PV Power Plant.

Portable Fire Extinguishers

1 number each of 6kg DCP type and 4.5kg CO₂ type Portable fire extinguishers shall be provided and mounted at suitable location on/near each rooftop.

Display Board

A display board, as per standard drawing no. C/ENG/STD/BAY NAME PLATE enclosed in this Technical Specification, shall be provided at the project site (for above 25 kWp) mentioning the Plant Name, Capacity, Location, Date of commissioning and estimated Power generation.

Portable Flood Light Panel

Contractor shall provide Portable Flood Light Panel along with associated lighting fixture (2 nos. of fixture type: FL-2) for maintenance purpose of the Solar Plant. The detailed drawing for the Portable Flood Light Panel (PFLP) shall be as per the drawing attached in the specification.

Details of lighting fixture type FL-2 shall be as mentioned below:

Sl. no.	Technical Specification	Type FL-2 (LED Flood Light Luminaries)
1.	System Wattage	≤250W
2.	System Lumen Output	≥ 23000
3.	System efficacy (Lumens/Watt)	≥ 100
4.	Housing	Pressure Die Cast Housing
5.	Ingress Protection	IP-65
6.	Surge Protector (Internal)	3kV
7.	Surge Protector (External)	10kV
8.	Mounting	On Lattice Structure
9.	THD	<10%
10.	CRI	>70
11.	CCT	5700k±300k
12.	Power Factor	>0.95
13.	Ik Protection	IK-05
14.	Operating Humidity	90% RH
15.	Burning Hours	50,000
16.	Operating Temperature	-5°C to 45°C
17.	Lumen Maintenance	70% at the End of Burning Hours

Quality Assurance/Control Program

Contractor shall develop and submit a quality assurance/control program covering all major components of Rooftop Solar PV System. Plan shall cover factory acceptance testing, type tests, site installation tests etc. including procedures thereof. Employer reserves the right to witness tests, review data and enforce the quality assurance program.

As-built drawings and Manuals

As-built Engineering drawings/documents (in two sets of hard copies per site & one set of soft copy in pdf format) and Installation and O&M manuals (in two sets of hard copies per site & one set of soft copy in pdf format) shall be provided by the Contractor after completion of entire works.

Engineering Data and Drawings

Following drawings/documents (as applicable) shall be submitted by the Contractor to Employer for approval, progressively for supply and execution of work at site:

- a) General arrangement drawing indicating all relevant dimensions
- b) Schematic drawing showing PV panels, PCU/Inverters, JB/SCB/SMB, AC distribution boards, meters etc.
- c) Solar PV array layout along with shadow analysis report
- d) Single Line Diagram with details of all components
- e) Design & drawing for Module Mounting Structure (MMS)
- f) Design & drawing for the foundation of MMS
- g) Sizes and specifications of cables
- h) DSLP calculation and drawing
- i) Earthing layout
- j) Cable routing layout
- k) Drawings/documents including test reports, as applicable, for equipment - Solar PV module, PCU/Inverter, JB/SMB/SCB, AC distribution boards, Cables etc.
- l) Water piping layout
- m) Bill of Materials

In case, any additional drawings/documents are required, the same shall also be submitted during the execution of works.

Safety Measures

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

Maintenance during defect liability period

The defect liability period of the installation, excluding Solar PV modules and PCU/Inverter, shall be 12 months from the date of Commissioning. Defect liability period for Solar PV modules and PCU/Inverter shall be as mentioned elsewhere in this Technical Specification.

The contractor shall undertake the maintenance activities of the Rooftop Solar PV Power Plant during the defect liability period, if specified in BPS.

The contractor shall carry out all routine/scheduled/preventive and breakdown/corrective maintenance activities ensuring servicing and replacement, if required, of parts and components of Solar PV power plant including all required man and materials so as to ensure uninterrupted working at full efficiency.

A typical Maintenance schedule and report format is attached at Annexure-II.

Comprehensive Maintenance Contract (CMC) for next 4 years after the end of defect liability period

This includes Preventive/Routine/Scheduled maintenance and Breakdown/Corrective maintenance ensuring servicing and replacement, if required, of parts and components of Solar PV Power Plant for a period of Four (04) years from the end of defect liability period including all required man and materials.

Supply of any material, as required, for Preventive/Routine maintenance (as per Annexure-II typically), Breakdown/Corrective maintenance shall be included in CMC.

Down time of solar PV Power Plant

The down time of PV Power Plant, or part thereof, should not be more than 120 hours from the time of reporting the same to the Contractor. In case of non-rectification of the issue after 5 days (120 hours) from reporting the complaint, Employer may consider repairing/replacing such a defective system at risk and cost of the contractor. Notwithstanding the same, the contractor shall continue to have the responsibilities and obligations of the contract.

Pre-Commissioning, Commissioning, Trial-run & Completion

As soon as the Facilities covered by these specifications are physically completed in all respects, the Precommissioning, Commissioning, Trial-run (for a period of 30 days) and Completion of the Facilities, as mentioned in Section-GTR of Technical Specification shall be attained.

Acceptance of the Solar PV power plant shall be done after completion of the Trail-run comprising of Thirty (30) consecutive days of uninterrupted energy output. A performance datasheet during the period of trail-run shall be submitted by the Contractor to Employer.

Annexure-1 Applicable Standards/Certifications for Grid Connected Rooftop Solar PV Power Plants

All components of Grid Connected Rooftop Solar PV Power Plant shall conform to the relevant standards and certifications given below:

Solar PV Modules/Panels	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules–Ammonia (NH3) 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
Solar PV Inverters	

IEC 62109-1, 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 Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
IEC 62116/ UL 1741/ IEEE 1547	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068-2 / IEC 62093	Environmental Testing of PV System – Power Conditioners and 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	
BFC 17-102:2011	Lightening 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
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 Lighting	
IEC 62561 Series (Chemical earthing)	IEC 62561-1 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 electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
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

Energy Meter

As per IS or as specified by the DISCOMs

A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements)

Solar PV Roof Mounting Structure

IS2062/IS4759

Material for the structure mounting

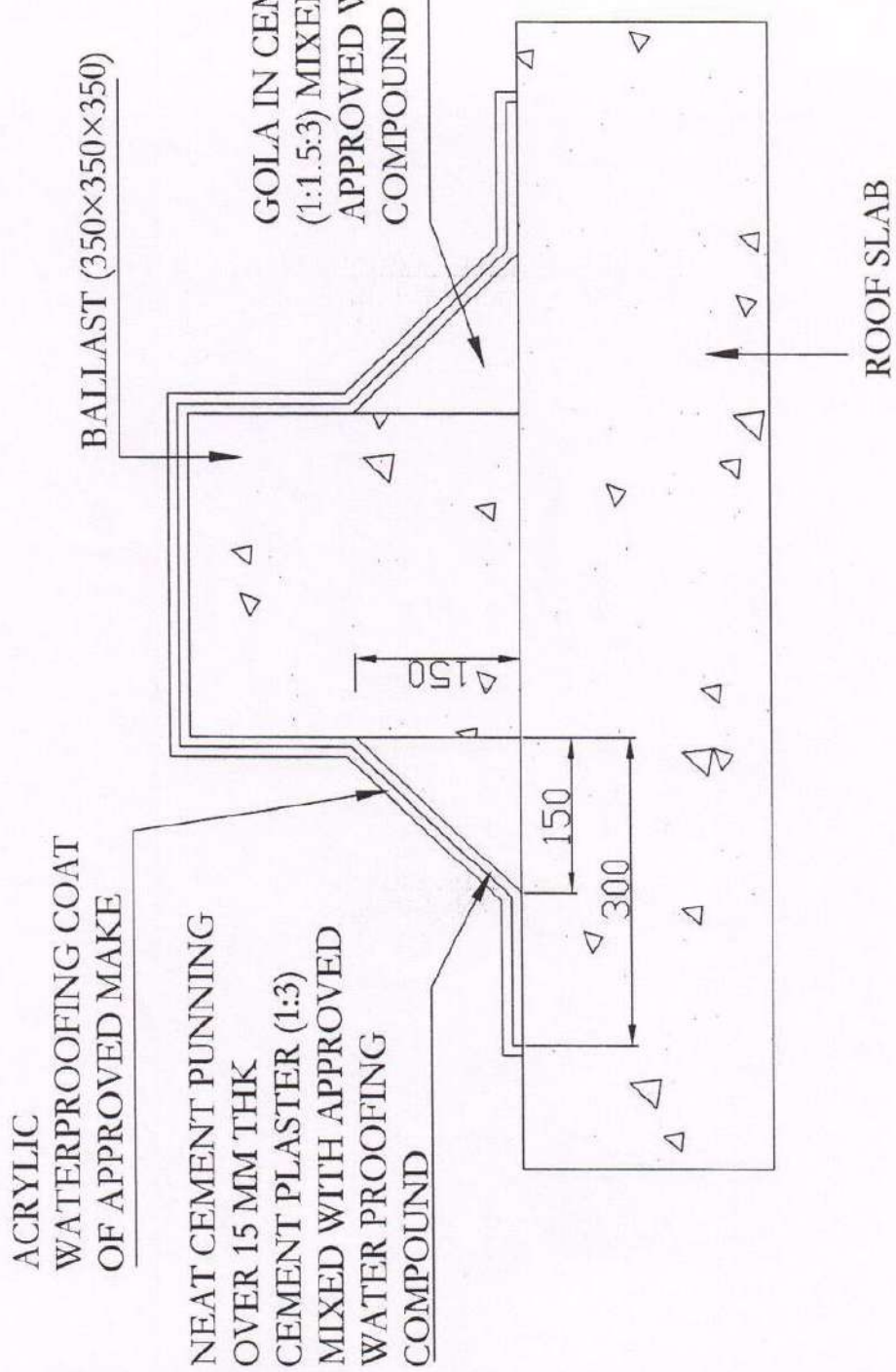
Maintenance schedule and Report format for Rooftop Solar PV Power Plant

Component	Activity	Description	Interval	Date	Name/ Signature	Remarks
PV module	Cleaning	Clean PV modules with plain water or mild dishwashing detergent, soft sponge/cloth. Iso-propyl alcohol may be used to remove oil or grease stains.	Fortnightly			
		Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.				
		The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.				
		Do not use brushes, any types of solvents, abrasives or harsh detergents. Do not spray water on the panel if the panel glass is cracked or the back side is perforated.				
		Wipe water from module as soon as possible. Use proper safety belts while cleaning modules at inclined roofs etc.				
	Inspection (for plants > 100kWp)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual			
PV array	Inspection	Check the PV modules and rack for any damage.	Annual			
		Determine if any new objects, such as vegetation growth, are causing shading of the array and remove them, if any.	Annual			
	Vermin Removal	Remove bird nests or vermin from array and rack area.	Annual			

Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required.	Annual			
		Check position of Switches and breakers. Check operation of all protection devices.	Annual			
Cabling/Wiring	Inspection	Inspect cabling for signs of cracks, defects, loose connections, corrosion, overheating, arcing, short or open circuits, and ground faults. If the insulation is damaged, replace the wire.	Annual			
PCU/Inverter	Inspection	Observe instantaneous operational indicators on the face plate of the inverter	Monthly			
		Inspect housing or shelter for physical maintenance.				
		Check for connection tightness.				
		Removal of dust in heat sinks and ventilation with dry cloth/brush.				
		Check for vermin infestation/spider webs/wasps' nests.				
		Check functionality, e.g. automatic disconnection upon loss of grid power supply				
	Check the state of DC/AC surge arrestors, cable connections, and circuit breakers.					
	Service	Clean or replace the air filters.	As needed			
Instruments	Validation	Check monitoring instruments (Pyranometer etc.) with standard instruments to verify their operation within tolerance limits.	Annual			

Tracker (if applicable)	Inspection	Inspect gears, gear boxes, bearings etc.	Annual			
	Service	Lubricate tracker mounting bearings, gearbox as required.	Bi-annual			
Shutting down the system		<p>Disconnect the system from all power sources in accordance with instructions for all other components used in the system.</p> <p>Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.</p> <p>To the extent possible, a system shutdown will not be done during daytime or peak generation.</p>				

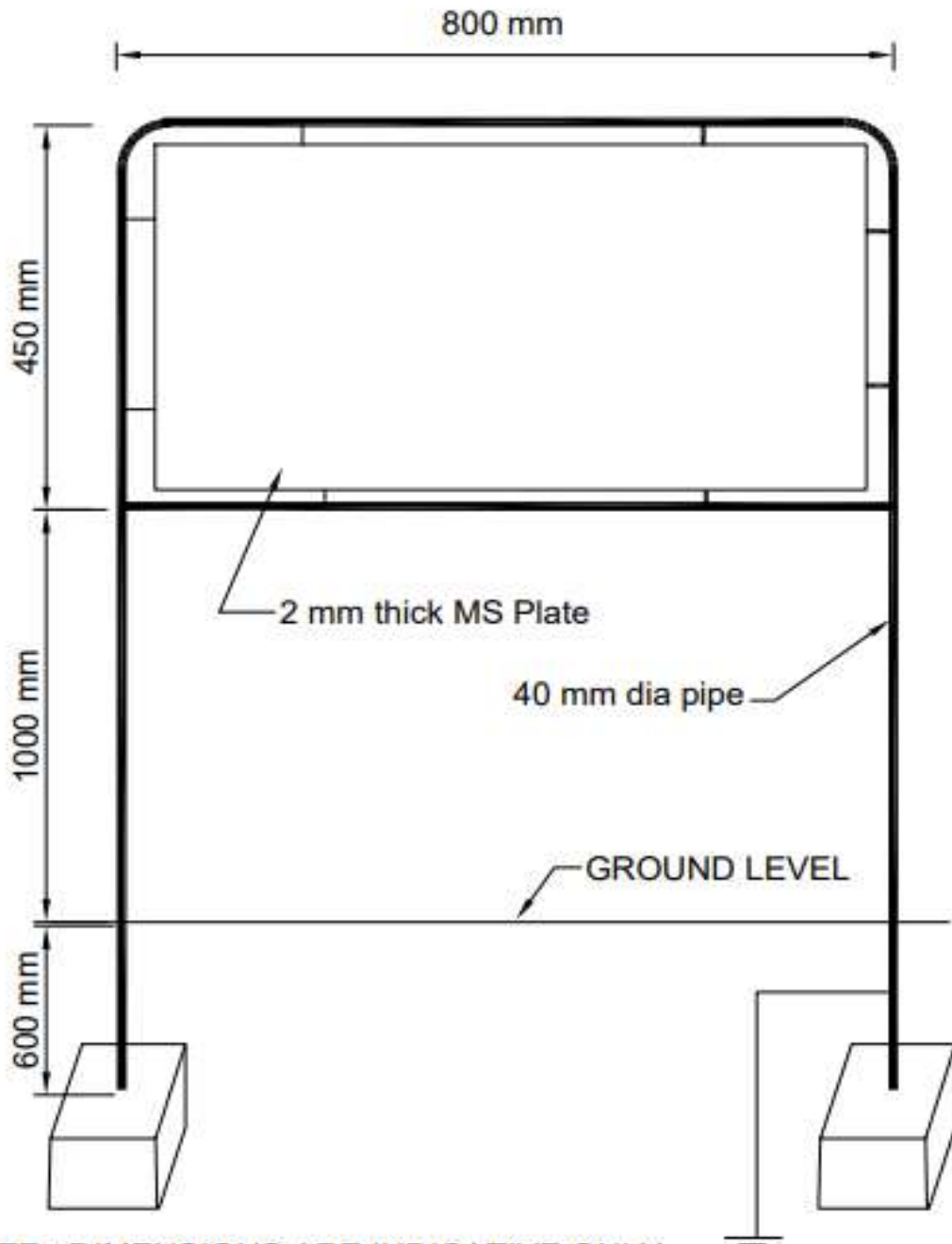
Drawing -1.



Name /
 19/3/18
 (AE, Engg-Civil)
 ABMISHA VERMA
 Date /
 19/3/18
 (S.K. Prasad)

INDICATIVE DRAWING OF WATERPROOFING TREATMENT ON BALLAST

Date /
 19/3/18
 (S.K. Prasad)



NOTE : DIMENSIONS ARE INDICATIVE ONLY.
IT MAY VARY AS PER SITE REQUIREMENT.

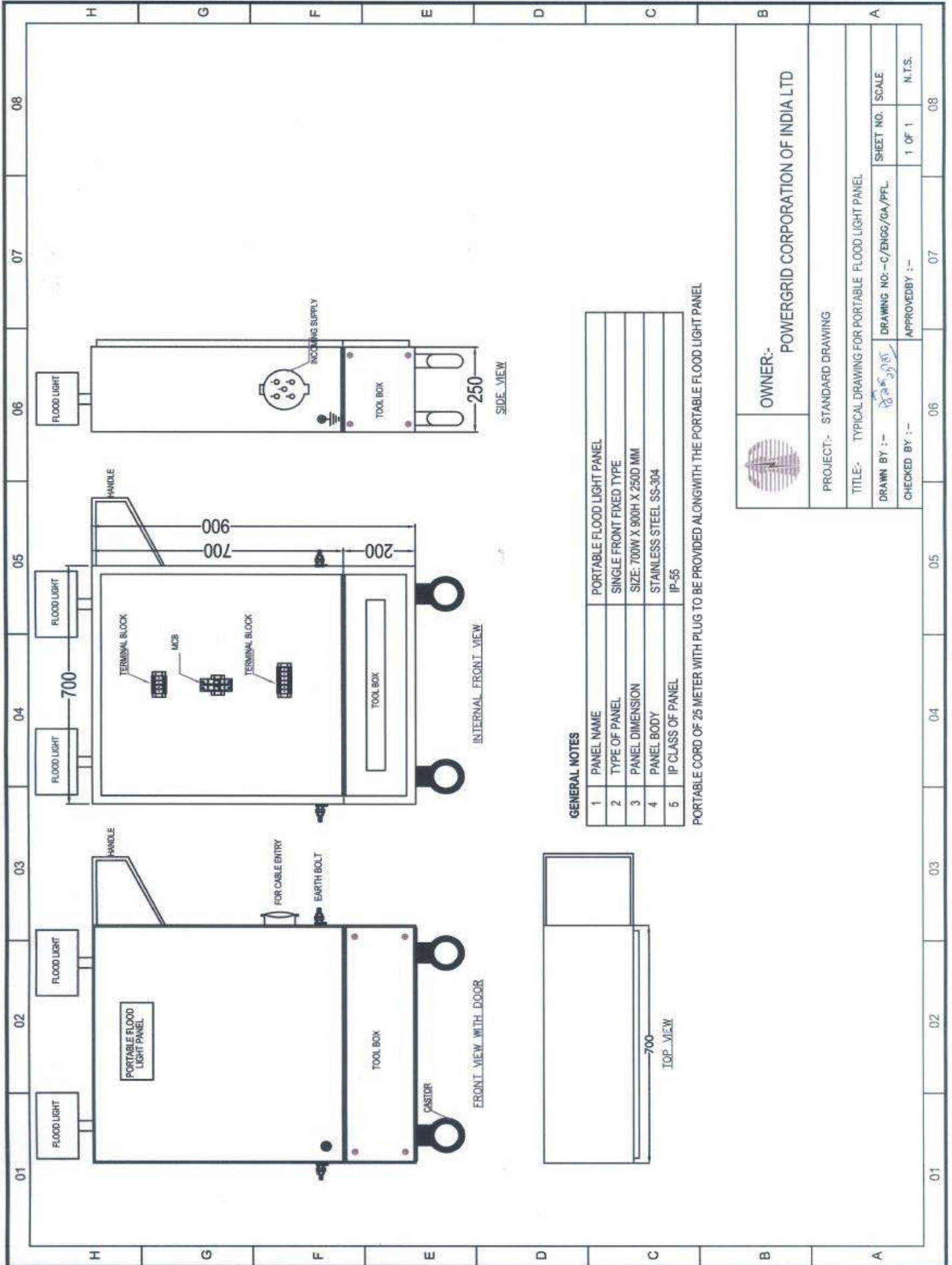
**POWER GRID CORPORATION
OF INDIA LIMITED**
(A Government of India Enterprise)



PROJECT :- STANDARD

TITLE:- STANDARD BAY NAME PLATE

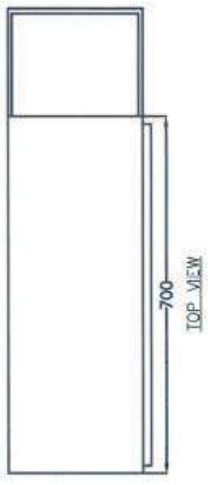
<i>[Signature]</i>	<i>[Signature]</i>	18/02/2008	Drawing No.:	Rev.
CKD BY	PRPD BY	Date	C/ENG/STD/BAY NAME PLATE	




GENERAL NOTES

1	PANEL NAME	PORTABLE FLOOD LIGHT PANEL
2	TYPE OF PANEL	SINGLE FRONT FIXED TYPE
3	PANEL DIMENSION	SIZE: 700W X 800H X 250D MM
4	PANEL BODY	STAINLESS STEEL SS-304
5	IP CLASS OF PANEL	IP-55

PORTABLE CORD OF 25 METER WITH PLUG TO BE PROVIDED ALONGWITH THE PORTABLE FLOOD LIGHT PANEL



	OWNER:-	POWERGRID CORPORATION OF INDIA LTD
	PROJECT:-	STANDARD DRAWING
TITLE:- TYPICAL DRAWING FOR PORTABLE FLOOD LIGHT PANEL		
DRAWN BY :-	<i>[Signature]</i>	DRAWING NO.:-C/ENGG/GA/PFL
CHECKED BY :-		APPROVED BY :-
		SHEET NO. SCALE
		1 OF 1 N.T.S.

Bill of Quantities

Sr. No	State	Location	Site Address & Capacity (in kWp)	
1	Gujarat	Bachav	Power grid corporation of india limited, village bhimasar, taluka anjar, dist kutch, pin 370240 (gujarat), Kachchh, Gujarat, 370240, India	62
2	Gujarat	Bhuj	Power grid corporation of india limited, 765/400/220 kv bhuj pooling substation, village- palanpur (badi), taluka-nakhatrana, dist-kutch, gujarat 370001, Kachchh, Gujarat, 370001, India	61
3	Daman	Magarwada,	Powergrid corporation of india limited, 400/220kv gis magarwada s/s, zari road, vill: magarwada, moti daman, daman-396220, Daman, Daman & diu, 396220, India	62
4	Gujarat	Pirana	Power grid corporation of india limited, 400/220 kv s/s, pirana, sardar patel ring road, near gaay bachhada circle, kamod ahmedabad -382427, Ahmedabad, Gujarat, 382427, India	78
5	Dadra and Nagar Haveli.	Kala	Power grid corporation of india limited, 400/220 kv sub-station, survey no 39, village kala, amboli post, silvassa, ut of dadar and nagar haveli-396230, Dadra & nagar haveli, Dadra & nagar haveli, 396230, India	113
6	Maharashtra	Boisar	Powergrid corporation of india limited, vill and post- betegaon, mahagaon road, tal & dist.- palghar, boisar, maharashtra-401501, Thane, Maharashtra, 401501, India	89
			Total Capacity	465kWp

SPECIAL CONDITIONS OF THE CONTRACT (SCC)

- The Contractor shall provide all temporary ladders, scaffolding materials, platforms, supports, Lighting, Fencing and other necessary facilities required for handling, erection, testing and visual inspection of supplies at the point of installation and shall also provide necessary packing plates, wedges, shims, levelling screws etc., required for erection of equipment and structures.
- The Contractor shall provide erection consumables like welding rods, solder lugs, oil, grease, kerosene, cotton waste, etc., required for erection of plant equipment and steel structures.
- Land will be allotted free of charge for the purpose of site office & stores. Material Storage Facility to be developed by Contractor.
- Contractor has to ensure and follow all safety rules (including gates passes, work at height rules & dealing with accidents rules etc.) and other legal rules of Indian Oil Premises.
- All safety items i.e. helmets, gloves etc. should be provided to all manpower at site during I&C work by Contractor.
- Customer shall charge penalty amount in case of any minor & major safety violations during Installation & Commissioning work.
- Contractor shall ensure timely of good housekeeping, work display board, barrier, removal of muck in his working area.
- Contractor shall place one supervisor for execution of the project and safety supervisor for ensuring safety during execution of work.
- Contractor has to take insurance of all work i.e. Supply, Transit of Material, I&C of systems etc. and the same shall be submitted with claiming of payments.
- The project completion timeline is **5 months** from the date of issue of work order. The delay in completion of project shall be subjected to LD @ 0.5% of the contract price plus escalation and upto maximum of 5% of total contract price (excluding O&M period).
- All material shall be inspected by REIL QA & Customer before dispatch. Third party Inspection may also be asked by REIL / Customer as per requirements. The same shall be arranged by Contractor.
- Contractor shall follow all labour law & rules, PF, Wages etc. as per customer guidelines and rules.
- Contractor shall submit detailed design and drawings for the project and shall also submit as built drawings.
- Contractor shall provide required walkways and lifelines, safety railings (in case of Shed Roof).
- Contractor has to follow all safety rules and other rules of customer Premises during project execution time.

GENERAL TERMS & CONDITIONS OF THE CONTRACT

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 Vendor 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 Vendor 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) RESTRICTION ON EMPLOYMENT

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

7) 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**.

8) RISK AND COST

In the event of failure on the part of the contractor in the supply, 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.

9) 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 Vendor:-

- 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.

10) DURATION OF CONTRACT

This contract shall take effect on the day of execution of this contract and shall endure until commissioning and hand over the Power Plant(s) to beneficiary and renewable as per mutual agreement.

11) 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)

12) 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.

13) CONTRACT:

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

14) NO NEAR RELATIVE 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 Appendix . 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).

15) PAYMENT SCHEDULE:

1) **70%** Payment shall be released after Supply of Complete BOS material (site wise) and submission of following documents:

- a) Detailed GST Invoice
- b) LR / Delivery Challan
- c) Material Receipt Certificate (MRC)
- d) Transit Insurance Policy
- e) Manufacturers / Factory Test Report of Items
- f) Successful Inspection of Material at Site by Customer

Note: Release of REIL payment from customer against supply of material is mandatory.

2) **20%** Payment shall be released after successful I&C and Net Metering of SPV Power Plant (site wise) and submission of following documents:

- a) Detailed GST Invoice
- b) JMC
- c) Taking Over Certificate by Customer
- d) Warranty / Guarantee Certificate

Note: Release of REIL payment from customer against I&C of systems is mandatory.

- 3) **10%** Payment shall be released after successful 5 years O&M (2% each year) and submission of documents i.e. detailed GST invoice & O&M certificate signed and stamped by customer. and upon receipt of 10% BG of O&M Value, valid for 4 years.

Note: Release of REIL payment from customer against O&M of systems is mandatory.

16) FORCE MAJEURE:

- i. Notwithstanding the provisions contained in the Bidding Documents; the Contractor shall not be liable to forfeit (a) Bid Security for delay and (b) termination of contract; if it is unable to fulfill its obligation under this Contract due to force majeure conditions.
- ii. For purpose of this clause, "Force majeure" means an event beyond the control of the Contractor and not involving the Contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not limited to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes etc. Whether a "Force majeure" situation exists or not, shall be decided by REIL and its decision shall be final and binding on the Contractor. REIL may extend the date of completion for a further period corresponding to the period of force majeure.
- iii. If a force majeure situation arises, the Contractor shall notify REIL in writing promptly, not later than 7 (seven) days from the date such situation arises. The Contractor shall notify REIL not later than 3 days of cessation of force majeure conditions. After examining the cases, REIL shall decide and grant suitable additional time for the completion of the work, if required.

17) 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 Vendor shall supply material 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 beneficiary as per format provided by REIL.
- iii Vendor 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 Vendor. Failure to provide such safety requirements would make the Vendor liable for penalty. The department will make arrangement for the safety requirements at the cost of the Vendor & 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 Vendor authorized representative during the execution of this agreement as they will not be deemed in any manner as employee of the company.
- v The Vendor 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 Vendor.
- 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 Vendor. The company reserves the right to terminate this contract without giving any notice, if in the opinion of the company, the performance of the Vendor 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 Addl. General Manager (MM), 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 Vendor shall be fully responsible for all repairs of the defects in maintenance during the period under contract.

NOTE:

- 1. REIL can split the work among Contractors as per Project Requirement and approval of committee. The contractor shall give site preference in the bid.**
- 2. If Bidder/ Contractor is found deficient/non-adherent to the provisions of the above work, then they may not be awarded any assignment in future.**
- 3. All payments (against delivery of material) shall be released to the Contractor after submission of Inspection report duly approved (signed and stamped) by REIL QA.**

Performance Security: Bank Guarantee of 10% of total contract value shall be submitted by successful bidder within 15 days after placement of work order. The same shall be returned after acceptance of the project after completion of one year O&M and upon receipt of 10% BG of O&M Value, valid for 4 years.

Appendix -III**RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR**

S. No.	Term	Description	Complied / Not Complied	Deviation if any
1.	GST / Taxes	Extra as applicable		
2.	Bid Security Declaration Form	As per given in tender document		
3.	Technical & Financial Eligibility Criteria	As per given in tender document		
4.	Terms of payment	As per given in tender document		
5.	Contract period	As per given in tender document/LOI /Work order		
6.	Performance Security	10% BG of the contract value		
7.	Comprehensive O&M	As per tender documents		
8.	LD Clause	As per tender documents		
9.	Warranty of equipment supplied	As per tender documents		
10.	Completion Period	As per given in tender document/LOI /Work order		
11.	Special Terms & Conditions	As per given in tender document		
12.	General Terms & Conditions	As per given in tender document		
13.	Udhyam Registration	As per recent Government guide line, manufacturer / Service provider has to take Udhyam registration to avail benefit of MSME. Attach your copy of Udhyam Registration with tender.		

SIGNATURE WITH STAMP

(To be submitted on Bidder's Letter Head)

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

Authorization Certificate

To

Date

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

Dear Sir,

Mr. is hereby authorized to sign and submit tender document in reference to your tender no. **REIL/RE/2023-24/PP/004 dated 09.05.2023 on behalf of M/s** for "Supply of BOS, Erection, Testing & Commissioning of 465 kWp Cumulative Capacity Grid Connected Roof Top Solar PV Power Plants in the state of Gujarat & Maharashtra".

On behalf of company

Name and Designation

Signed and sealed (who has signed the tender)

(To be submitted on Bidder's Letter Head)

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

UNDERTAKING OF NO NEAR RELATIVE

Date

To

Addl. General Manager (MM-BOS),
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

Signed and sealed (who has signed the tender)

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

CERTIFICATE FOR NON BLACK LISTING

Date

To

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

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

Signed and sealed (who has signed the tender)

BID SECURITY DECLARATION FORM

To,

Rajasthan Electronics & Instruments Limited, (REIL)
2, Kanakpura Industrial Area Sirsi Road,
Jaipur-302034 (Rajasthan)

Dear Sir,

In accordance with REIL NIT No. REIL/RE/2023-24/PP/..... dated 01.05.2023, We, M/s. _____, wish to participate in the said tender for - Supply of BOS, Erection, Testing & Commissioning of 300 kWp Cumulative Capacity Grid Connected Roof Top Solar PV Power Plants in the state of Maharashtra.

We confirm that we have read the provisions of the bidding document no.: REIL/RE/2023-24/PP/..... dated 01.05.2023 and we hereby declare the following:

We confirm that, in case we withdraw or modify our bid during the period of validity, or if we are awarded the contract and we fail to sign the contract, or to submit a performance security before the deadline defined in the NIT, we will be suspended for a period of two years.

Date:

Place:

Signature:

Name of the Authorized person

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

CA CERTIFICATE

Date

To

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

Dear Sir,

It is certified that M/s is falling under MSE category as per guidelines contained in the provisions of the MSMED Act, 2006 and notification No. S.P. 1722(E) dated 05.10.2006 and having UdhogAdhar no.

We also certify that the investment in plant and machinery (Imported and indigenous) as on date is Rs.....

Chartered Accountant

Firm name:-

Signature with seal

UDIN

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

UNDERTAKING TOWARDS COMPLETION OF WORK

Date

To

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

Dear Sir,

We, M/s.confirm that we have not any pending REIL project, against work order received upto FY 2017-18.

On behalf of company

Name and Designation

Signed and sealed (who has signed the tender)

Tender ref.: REIL/RE/2023-24/PP/004 dated 09.05.2023

PREFERRED SITES

Date

To

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

Dear Sir,

We, M/s. is interested in execution of work in following states:

1. Preferred Site No. 1 :
2. Preferred Site No. 2 :
3. Preferred Site No. 3 :
4. Preferred Site No. 4 :
5. Preferred Site No. 5 :
6. Preferred Site No. 6 :

On behalf of company

Name and Designation

Signed and sealed (who has signed the tender)

Appendix -XI

RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

Check List

Sr. No.	Required Documents	Remark
1.	Sealed and signed process compliance form. (Appendix-I)	
2.	Sealed and signed Special Terms & Conditions, Scope of work and Technical Specifications (Appendix-II)	
3.	Sealed and signed Tender terms & conditions of tender (Appendix-III)	
4.	Authorization certificate (Appendix-IV)	
5.	Sealed & signed Undertaking of No Near Relative (Appendix-V)	
6.	Sealed & signed Certificate for Non Black listing (Appendix-VI)	
7.	Bid Security Declaration Form (Appendix-VII)	
8.	Sealed & signed CA Certificate for MSME firms(Appendix -VIII)	
9.	Undertaking towards completion of REIL work received upto FY 2017-18(Appendix -IX)	
10.	Preferred States (Appendix -X)	
11.	Check list (Appendix -XI)	