RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

(An ISO 9001 : 2015 & 14001 : 2015 "Mini Ratna" Central Public Sector Enterprise)

2, KANAKPURA INDUSTRIAL AREA, SIRSI ROAD,

JAIPUR-302034

Tel No: 0141 - 2470879 / 0141 - 2470908

website: www.reiljp.com

NIT for "Rate Contract for Survey, Design, Supply (except SPV Module), Erection, Testing, Commissioning and Comprehensive Operation and Maintenance for 5 years Grid Connected Rooftop Solar Photovoltaic Power Projects on various Government buildings in Western Region (WR) in India"

TENDER NO. REIL/RE/2025-26/02 Dated 02.05.2025

Important Notes:

1.	TENDER FEE	RS. 1,000/- (Rupee One Thousand Only) through Demand Draft / RTGS
2.	ESTIMATED TENDER VALUE	RS. 250 LAKH ONLY
3.	EARNEST MONEY DEPOSIT (EMD)	RS. 5,00,000/- (2% OF ESTIMATED VALUE IN FORM OF DEMAND DRAFT/BANK GUARANTEE/RTGS)
4.	LAST DATE OF ONLINE TENDER SUBMISSION	17.05.2025 upto 17:00 HRS
5.	TECHNICAL BIDS OPENING DATE	19.05.2025 upto 17:00 HRS
6.	OFFER VALIDITY	90 Days from the last date of tender submission
7.	Pre Bid Meeting (Online)	Rajasthan Electronics & Instruments Ltd., 2, Kanakpura Industrial Area, Sirsi Road, Jaipur – 302034 **08.05.2025 at 15:00 HRS**
8.	CONTACT PERSON(S) FOR TECHNICAL QUERIES	1. Sh. Kuldeep Singh Rathore, Sr. Engineer (RE), Email : kuldeep.rathore@reil.co.in , Contact : +91-7727007749 2. Sh. Deepak Gupta, AGM (RE), Email : deepak.gupta@reil.co.in Contact : +91-7727011714
9.	CONTACT PERSON(S) FOR TENDER QUERIES & SUBMISSION OF HARD COPY OF TENDER FEE & EMD	1. Sh. Mukesh Kumar Gupta, Sr. Engineer (MM), Email : mukesh.gupta@reil.co.in , Contact : +91-8387814090 2. Sh. Arun Kumar Dwivedi, AGM (MM), Email : arun.dwivedy@reil.co.in

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

Bidders Details

Information Details	Primary Contract	Secondary Contract
Name		
Designation		
Company Name		
Company Address		
Phone No.		
Mobile No.		
Email		
Website		

RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

NOTICE INVITING TENDER NO. REIL/RE/2025-26/02

This is a Notice Inviting Tender (NIT) for **"Rate Contract for Survey, Design, Supply (except SPV Module), Erection, Testing, Commissioning and Comprehensive Operation and Maintenance for 5 years Grid Connected Rooftop Solar Photovoltaic Power Projects on various Government buildings in Western Region (WR) in India"** as per description and terms & conditions specified hereinafter:

Item Description:

S. No.	Description	Total Rate Contract Cumulative Capacity of this NIT
1.	Rate Contract for Survey, Design, Supply (except SPV Module), Erection, Testing, Commissioning and Comprehensive Operation and Maintenance for 5 years Grid Connected Rooftop Solar Photovoltaic Power Projects on various Government buildings in **Western Region (WR)** in India. (Western Region - Gujarat, Madhya Pradesh, Dadra & Nagar Haveli and Daman & Diu, Maharashtra, Goa and Chhattisgarh).	1.00 MWp

Note:

1. This rate contract shall be valid for a period of One Year. It may be extended further as per requirement.
2. Bidder has to submit EMD. EMD shall be 2% of estimated rate.
3. Techno-commercial eligibility shall be checked.
4. Individual work orders shall be allocated to successful bidders, after received of work order from end customer to REIL. Site Survey shall be carried out by successful bidder for submission of feasibility report before issue of work order.
5. The SPV Power Plant capacity on one building shall be in the range of 10 kWp to 1000 kWp.
6. Work shall be splited to L-1 & L-2 in the ratio of 70% & 30% at L-1 rate. REIL is authorized to allocate final capacity as per end customer requirements.

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.

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

Addl. General Manager (MM)

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Annexure - I

RAJASTHAN ELECTRONICS & INSTRUMENTS LIMITED, JAIPUR

Process Compliance Form

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

To

Addl. General Manager (MM)
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/2025-26/02 dated 02.05.2025.

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:

Annexure - II

INSTRUCTION TO BIDDERS

1. The Bid forms containing the Terms and Conditions, the tender and the Schedule of contract, **should be submitted online** 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.

2. PROCEDURE FOR SUBMISSION OF TENDERS / BIDS:

The tender should be submitted in **"TWO BID" SYSTEM:**

PART -1 TECHNICAL BID:

Technical Bid along with tender documents (duly signed on each page) to be uploaded in the e-procurement portal. Technical Bid to be opened by the REIL committee. Board resolution/ Authorization letter for signing of the bid document from the bidder be submitted. 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.

All eligibility documents should be submitted with the technical bid.

PART -2 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).

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.

1. 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 and binding.**

2. PRICES:

i. Prices/Financial bid are to be in BOQ format 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. Evaluation will be done on total price (w/o GST) quote by bidder's zone wise.
v. REIL has reserve to right for negotiation with L1 bidder.

3. OFFER VALIDITY:

Validity of offer shall be 90 days from tender opening date.

4. EMD:

Interested bidder shall submit Earnest Money (EMD). The EMD amount shall be deposited in form of Demand Draft/RTGS/Bank Guarantee to REIL. EMD should be valid for a period of 45 days beyond the bid validity period (i.e 135 days from last date of submission of bid). The bid shall be treated as non responsive in case of non submission of EMD amount. No interest shall paid towards EMD amount.

EMD shall be forfeited without prejudice to the bidder being liable for any further consequential loss or damage incurred to REIL under following circumstances:-

100% of EMD amount, if a Bidder withdraws/revokes or cancels or unilaterally varies his bid in any manner.

Note: MSE (Micro & Small Enterprises) shall be exempted from payment of Tender Document Fee & EMD. It is mandatory for MSE bidders to declare their UDHYOG AADHAR NUMBER on CPP Portal, failing which such bidders will not able to enjoy the benefits of procurement policy for MSE and also attach the relevant certificate with their bid submission.

5. OTHERS -

i. Bidder has to submit per kW rates.
ii. The tender fee and Bid Security as detailed under to be deposited in REIL office in hard copy as per the Bid timeline given in the Bid Information Sheet.

SITE DETAILS, ESTIMATED RATES & EMD REQUIREMENTS

S. No.	Zone Name	State / UT	Total Rate Contract Capacity (in kWp) AC Capacity	Maximum Ceiling Limit in Rs. (per kWp) excluding GST	Estimated Rate (in Rs.) excluding GST	EMD (in Rs.)
1.	Western Zone	Gujarat, Madhya Pradesh, Dadra & Nagar Haveli and Daman & Diu, Maharashtra, Goa and Chhattisgarh.	1000	25000	2,50,00,000/-	5,00,000/-

Note: Maximum ceiling limit has been defined for the zone. These values are including O&M for 5 years but without GST. Any bid price received higher than mentioned ceiling limit, shall be out rightly rejected.

Annexure - III

ELIGIBILITY CRITERIA (ZONE WISE):

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 Grid Connected Solar Power Plants.

   OR

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

2. Experience of having successfully completed similar works **(Design, Supply, Installation & Commissioning of Grid Connected Solar Power Plants in Govt. Buildings / Govt. Projects)**, 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% of the estimated cost.

   OR

   b) Two similar completed works costing not less than the amount equal to 50% of the estimated cost.

   OR

   c) One similar completed work costing not less than the amount equal to 80% of the estimated cost.

3. Out of above, bidder has to submit satisfactorily O&M report of minimum one year for at least one completed work.

B) FINANCIAL ELIGIBILITY CONDITIONS:-

1. Average Annual Financial Turnover during the last 3 years, ending 31st March of the previous financial year (2023-24), should be at least 30% of the estimated cost. Turnover of 3 years (2021-22, 2022-23 & 2023-24) is required duly certified by CA along with balance sheets.

2. The bidder should have positive net worth as on 31.03.2024. Net worth certificate is required duly certified by CA.

3. 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 (estimated project cost to be mentioned in letter).

   OR

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

4. The bid shall be not considered for bidders, who are having prior contract terminations due to non-performance or litigation history against government entities. Annexure-IX is required from bidder duly notarized.

Bidder should submit following documents along with Technical bid:-

1. Company Incorporation Certificate / Company Registration Certificate.
2. Balance sheet & ITR for last three years i.e. 2021-22, 2022-23 & 2023-24.
3. Turnover of last 3 years and Net worth value duly certified by CA.
4. Past Experience details as per technical eligibility asked in the NIT. Kindly attach verified documents from customer such as Work Orders, Completion Certificates and O&M Certificate. The experience documents should be duly notarized.
5. Photocopy of GST Registration no. & PAN no.
6. Any other relevant documents
7. All required annexures in tender

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.

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.

Annexure – III A

DETAILED SCOPE OF WORK OF BIDDER

Annexure-A Particulars	Description
Brief Scope of Work	Design, engineering, manufacture, testing at manufacture's work, supply including transportation & insurance, unloading, storage, erection, testing and commissioning of following equipment and items complete in all respect: 1. Grid Connected Rooftop Solar PV Power Plant including all associated equipment & facilities as per technical specification. Power Control Centre (PCC) for Integration of Solar PV Power Plant with utility Grid shall be the existing AC Distribution Board available near to the roof top of the building. For above said integration of Rooftop Solar (RTS) system, the scope of works shall be considered limited up to the ground floor level of the building. 2. Three Phase Net-Meter / Reverse Power flow scheme / Zero export controller as per the State Utility policy for Grid Connectivity of Rooftop Solar PV Power Plant. In case, reverse power flow blocking scheme / Zero Export controller is required (instead of Net-meter) as per the State utility policy, same shall be provided by the contractor in lieu of the Net-meter without any price implication. 3. Metallic ladder for access to rooftop including associated civil & earthing works. 4. Comprehensive Maintenance Contract (CAMC) for five (05) years from the date of commissioning or start of net-metering, whichever is later. 5. For cleaning / washing of the rooftop solar system, water supply at a single point near to the building shall be made available to the contractor. All further distribution for the same shall be made by the Contractor suiting to the site conditions. 6. Any other items not specifically mentioned in the specification but which are required for erection, testing and commissioning and satisfactory operation of the roof top solar system are deemed to be included in the scope of the specification unless specifically excluded.
PHYSICAL AND OTHER PARAMETERS	a) Seismic Zone : As per IS 1893 b) Wind Zone : As per National Building Code (NBC) 2016 c) Coastal Area Consideration : YES for buildings located within 60km from the sea-shore, otherwise NO
Technology	SPV Modules shall be provided by REIL at site (min. 500 Wp). Inverters are to be purchased from Class-I local supplier only by Contractor.
O&M Period	5 Years from the date of Completion of Facilities. The Contractor shall provide comprehensive Maintenance (CAMC) of the plants for a period of

	05 years from the date of commissioning or start of net metering whichever is later. During the maintenance period, the Contractor 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 all defective equipment including Inverters etc., deployment of staff for maintenance, complaint logging & its attending.
Estimate life of solar PV plant	25 Years
Location/Site Details	
Location(s)	Govt. Buildings in various Zones in India
Electrical Interconnection Details	
Evacuation Voltage	As per State solar policy/SERC/Discom
Power for Construction	Construction power will be provided at one point of each location. Necessary arrangement including cabling, metering, etc. to draw power at required locations shall be done by bidder within the quoted price. The energy consumed shall be chargeable as per discom rates.
Water	Water shall be provided free of cost for construction and periodical cleaning of modules at one point of each location. Additional connection points may also be allowed subject to feasibility. However necessary arrangement including pipe laying, pumping, metering, etc. to draw water at required locations shall be done by bidder within the quoted price.
Access to Roofs	Bidder has to make permanent MS ladders at buildings wherever access to the Rooftops is not available
Performance Parameters / Guarantees	
Minimum CUF	As per tender requirement.
Minimum values of PR	75%.
GHI Values	Shall be as per PV Syst Software 7.4.5 version or latest version using Meteonorm 8.1 data.
Special conditions	The capacity at a location shall be arrived based on preliminary assessment of data received from customers and shall be allocated to the vendor as per the allocation strategy stated in the bidding documents. However, if the capacity range changes during detailed engineering, then also same rate for the allocated capacity range shall be applicable.
	Premise/location wise Commissioning of rooftop solar with net metering/ net billing/behind the meter is allowed.
	The O&M rates shall be minimum 10% of total cost.
	The quoted price per kW in tender shall be considered for the Rooftop Solar (RTS) system of capacity range upto 10 kW. For the RTS system of capacity above 10 kW and upto 50 kW, the price shall be considered 0.9 times the quoted price. Further, for the RTS system of capacity above 50 kW, the price shall be considered 0.85 times the quoted price.
	The quoted price per kW shall be considered for the Rooftop Solar (RTS) system to be installed on a single building. For example, if RTS system is to be installed on several buildings of a single premises, each building shall be considered separately for installation/capacity etc. of the RTS system.
	The contractor shall inspect and examine the site & its surroundings and should satisfy himself as to the nature of the roof, the quantities and nature

	of work, materials necessary for completion of the work and their availability, means of access to site and in general shall himself obtain all necessary information as to risks, contingencies, and other circumstances. The contractor shall finalize the SLD, Layout of the Roof Top Solar and prepare other necessary drawings / documents, as required, for submission to the DISCOM.
	The Contractor shall provide the metering arrangement as specified in the technical specification and shall assist the building owner for signing the Net Metering Agreement (as per MNRE/State/DISCOM Guidelines) with DISCOM
	Any fee related to registration of RTS project / NOC / net metering from the state departments etc., as applicable, shall be borne by the Contractor.
	All materials, manpower, scaffolding materials, machinery, tools, and tackles, transportation & loading/unloading, packaging and unpackaging, safe storage, watch and ward, etc. all inclusive, shall be arranged by the Contractor within the quoted price. Scope shall include all type of transportation of materials inside the working site and manpower etc. required to execute and complete the work. Underground cabling work, if required for grid connectivity of the RTS system, shall also be included in the scope of works of the Contractor
	Remote Metering Facility to be provided as per Technical Specifications.
	Contractor shall take Fire and peril insurance policy from the reputed/nationalized agency covering the risk of damage, theft of material/ equipment/ properties after completion of the work(s) throughout the O&M period **on replacement cost basis.**
	Contractor shall take third party liability insurance for deployed workmen, employees against any damage, loss, injury or death arising out of the O&M work. The insurance shall be for the replacement value of the project to ensure guaranteed minimum generation.
	Contractor shall take following insurances: 1. Transit insurance till delivery of material at site 2. Work man compensation policy during installation of systems 3. Contractor All Risk Insurance Policy during installation of systems 4. Any other insurance policy required by end customer 5. Liquidation, Death, Bankruptcy etc., shall be the responsibility of Bidder.
Mandatory Spares	The required mandatory spares shall be provided by contractor at site. The bidder is clarified that no mandatory spares shall be used during the commissioning of the equipment. Any spares required for commissioning purpose shall be arranged by the Contractor. The unutilized spares if any brought for commissioning purpose shall be taken back by the contractor. Wherever spares in Technical Specification has been specified as “each type/each rating/each type & rating”: If the offered spare/spares are

	sufficient to replace the respective main equipment of all types/ratings, then such offered spare/spares shall be acceptable. It implies that common spare/spare set fulfilling the spare requirement of all types/ratings shall also be acceptable, provided it is configurable at site itself without special assistance of OEM. Mandatory Spares, wherever mentioned, are envisaged for the equipment/items being supplied under the main equipment heads under present scope meeting the requirements of Technical Specifications. The component/sub-component of an equipment/item Mandatory Spare, which is not applicable as per the offered design of respective main equipment, shall not be referred to.
BGs to be submitted by bidder	1. **During construction period:** Contract performance bank guarantee for 3% of the allocated EPC contract amount (without O&M). 2. **During O&M period:** • O&M performance guarantee for 3% of the O&M amount of allocated EPC contract. 20% of it shall be released every year.

SCHEDULE A

SCOPE OF WORK

Grid Connected Rooftop Solar PV Power Plant shall be provided over the rooftop area of identified building(s). This installation shall be a supplement source to substation AC distribution board/Main Switch Board bus to save on conventional energy supply from the grid during solar energy generation from the plant.

The system design and equipment shall conforming all respects to high standard of engineering, design & work man ship and shall be capable of performing continuous operation in a manner acceptable to the Employer.

The scope of work shall include, but not limited to, the equipment, materials, supply and services as mentioned below:

1. Site Visit, Identification of rooftop area& Solar potential assessment for the mentioned site(s), Obtaining No Objection Certificate (NOC) from the Electricity Distribution Company (DISCOM) for grid connectivity of rooftop Solar PV Power Plant, if required.
2. Grid Connected Rooftop Solar (RTS) PV Power Plant covering, but not limited to, the following:
    a. Inverter/ Power Conditioning Units (PCU)
    b. Module Mounting Structure(MMS) and associated civil works
    c. Meters
    d. Array junction box

e. DC Distribution Box (DCDB),if required
f. AC Distribution Box
g. Integration of Solar PV Power Plant with Grid/PCC
h. Cable & associated accessories
i. Protection Systems– Earthing, Lightning, Surge
j. Civil works for PV Array Structures/Panels etc.
k. Data logging/ Plant monitoring
l. Danger boards & signages
m. Cleaning system for Solar PV Modules
n. Miscellaneous
o. Portable Flood Light Panel along with associated lighting fixture (2nos.of fixture type: FL-2).

3. Comprehensive Maintenance Contract (CMC) for five (05) years from the date of commissioning of the plant or start of net-metering, whichever is later.

All civil works associated with the installation & commissioning of the Grid Connected Rooftop Solar PV Power Plant, including necessary structural works, shall be done by the Contractor. The Contractor shall specify and submit detailed General Arrangement (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 Operation & Maintenance (O&M) shall be provided by the Contractor through fixed/movable type metallic ladder (of 3 mtr vertical height) including associated civil & earthing works.

Annexure – III B

Technical Specifications of equipments

Power Conditioning Unit (PCU)/ Inverter .

1. The combined wattage of all inverters should not be less than the rated capacity of power plant under STC.
2. The estimated life of the Rooftop solar PV system shall be 25 years. The DC/AC ratio of the rooftop solar system shall be such that the module capacity shall not be greater than 20% of the inverter capacity.
3. The inverter should be purchased from class I Local supplier and must comply with the Quality Control Order dated 30.08.2017 for Solar Photovoltaic Inverters and its amendments thereof.
4. Inverter/PCU should comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683, IS 16221(Part 2), IS 16169 and IEC 60068-2(1,2,14,30) /Equivalent BIS Std.
5. Maximum Power Point Tracker (MPPT) shall be integrated in the inverter/PCU to maximize energy drawn from the array. Environmental testing of MPPT units should qualify IEC 60068- 2(1,2,14,30)/Equivalent BIS.
6. The inverters /PCUs shall be IEC61000 compliant for electromagnetic compatibility, harmonics, Surge, etc.
7. The PCU/invertershallhaveanoverloadingcapacityofminimum20%.
8. The output power factor of inverter should be suitable for all voltage ranges or sink of reactive power. Inverters should have internal protection arrangements against any sustained fault in the feeder line and against the lightning on feeder.
9. TheInvertersshouldcontainthefollowingclearandindelibleMarkingLabel&WarningLabelas per IS 16221 Part II:
    i) The name or trademark of the manufacturer or supplier.
    ii) A model number, name or other means to identify the equipment,
    iii) A serial number, code or other marking allowing identification of manufacturing location and the manufacturing batch or date within a three-month time period.
    iv) Input voltage, type of voltage (a.c. or d.c.), frequency, and maximum continuous current for each input.
    v) Output voltage, type of voltage (a.c. or d.c.), frequency, maximum continuous current, and for a.c. outputs, either the power or power factor for each output.
    vi) The Ingress Protection (IP) rating.
10. Suitable marking shall be located adjacent to each fuse or fuse holder or in another location provided that it is obvious to which fuse the marking applies, giving the

fuse current rating and voltage rating for fuses that may be changed at the installed site.

11. In case the building is having a 3-ϕconnection, 3-ϕ inverter shall be provided as per the requirements and regulations of the State, without any additional cost to the Employer.

12. Inverter/ PCU shall be capable of complete automatic operation including wake-up synchronization & shutdown.

13. The Inverter should have a provision of remote monitoring of inverter data through sim card. Recurring charges of SIM card for the contract period shall be borne by the Contractor. Required website/mobile app platform, where the Employer can access the data, should be provided/explained to the Employer. Inverter should also have provision to feed the data to the remote monitoring server to the Employer's portal using relevant API/protocols. All the inverter data should be available for monitoring by web access. Charges for internet and website/mobile app platform shall be borne by the Contractor throughout the contract period.

14. PCU front panel shall be provided with display (LCD or equivalent) to monitor the following:
    1. DC power input
    2. DC input voltage
    3. DC current
    4. AC output power
    5. AC voltage (all the 3 phases)
    6. AC current (all the 3 phases)

15. Protection required in Inverter (minimum):
    1. Input side disconnection switch.
    2. Earth leakage/Ground fault monitoring.
    3. DC reverse polarity protection.
    4. DC over voltage/current limitation protection.
    5. AC short circuit / Earth fault protection.
    6. AC over voltage/current limitation protection.
    7. DC and AC side surge protection (MOV) in-built.

16. **Anti-islanding protection:** PCU shall have arrangements for adjusting DC input current and should trip against sustainable fault downstream and shall not start till the fault is rectified.
17. The PCU shall be able to withstand an unbalanced load conforming to IEC

standard and relevant electricity condition. The PCU shall include appropriate self-protective and self-diagnostic features to protect itself and the PV array from damage in the event of PCU component failure or from parameters –beyond the PCU's safe operating range due to internal or external causes.

18. PCU shall go to shutdown/standby mode, with its contacts open, under the following conditions before attempting an automatic restart after an appropriate time delay.
19. When the power available from the PV array is insufficient to supply the losses of the PCU, the PCU shall go to standby/shutdown mode.
20. The PCU control shall prevent excessive cycling of shut down during insufficient solar irradiance.
21. Typical technical features of the inverter/PCU shall be as follows:

<table>
<tr><td>PCU/Inverter AC rating</td><td>As per capacity of PV Plant</td></tr>
<tr><td>Switching devices</td><td>IGBT/MOSFET</td></tr>
<tr><td>Control</td><td>Microprocessor/DSP</td></tr>
<tr><td>Nominal AC output voltage and Frequency</td><td>As per CEA / State regulations</td></tr>
<tr><td>Output frequency</td><td>50Hz</td></tr>
<tr><td>Grid Frequency Synchronization Range</td><td>As per CEA/State Regulations</td></tr>
<tr><td>Ambient temperature considered</td><td>-20ºC to 60ºC</td></tr>
<tr><td>Humidity</td><td>95%Non-condensing</td></tr>
<tr><td rowspan="2">Protection of Enclosure</td><td>IP-54 (Minimum) for indoor.</td></tr>
<tr><td>IP-65 (Minimum) for outdoor.</td></tr>
<tr><td>Grid Voltage tolerance</td><td>As per CEA/State Regulations</td></tr>
<tr><td>No-load losses</td><td>Less than 1% of rated power</td></tr>
<tr><td>Inverter efficiency (minimum)</td><td><table><tr><td>Rated Output Power(kW)</td><td>Minimum Overall Efficiency</td></tr><tr><td>1kW</td><td>92%</td></tr><tr><td>Above1kWto3kW</td><td>93%</td></tr><tr><td>Above3kWto5kW</td><td>95%</td></tr><tr><td>Above5kWto10kW</td><td>96%</td></tr><tr><td>Above10kWto20kW</td><td>97%</td></tr><tr><td>Above20kW</td><td>98%</td></tr></table></td></tr>
<tr><td>THD</td><td><3%</td></tr>
</table>

PF(minimum)	0.9(lag)-1-0.9(lead)
Warranty	PCU/ inverter shall have a minimum comprehensive warranty of 10 years.
DC injection limit	Should not inject DC power more than 0.5% of full rated output at the interconnection point andcomplytoIEEE519.

Module Mounting Structure (MMS) and Associated Civil Works

1. The contractor shall take care of the load bearing capacity of roof.
2. Module mounting structures can be made from three types of materials viz. Hot Dip Galvanized Iron, Aluminum and Hot Dip Galvanized Mild Steel (MS). MS will be preferred for raised structure.
3. MMSsteelshallbeasperlatestIS2062:2011andgalvanizationofthemountingstructureshallbe in compliance of latest IS 4759.
4. MMS of Aluminum shall be as per AA6063T6. For Aluminum structures, necessary protection towards rusting needs to be provided either by coating or an iodization.
5. All bolts, nuts, fasteners shall be of stainless steel of grade SS 304 or hot dip galvanized, panel mounting clamps shall be of aluminum and must sustain the adverse climatic conditions. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts.
6. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame and associated fasteners, nuts & bolts.
7. The upper edge of the module must be covered with windshield so as to avoid building air ingress below the module. Slight clearance must be provided on both edges (upper & lower) to allow air for cooling.
8. Suitable fastening arrangements such as grouting and calming should be provided to secure the installation against the specific wind speed.
9. The structures shall be designed to allow easy replacement, repairing and cleaning of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Necessary testing provision for MMS to be made available at site.
10. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection ease of installation, replacement, cleaning of panels and electrical maintenance.
11. The structure shall be designed to withstand operating environmental conditions for a period of a minimum of 25 years.
12. The Mounting structure shall generally be designed to withstand the wind speed as per IS875 Part3 having factor of safety minimum 1.5 and wind speed of 180km/hour or

cyclonic winds for coastal area. Further structures in coastal areas shall be painted with marine paint.

13. Aluminum frames should be avoided for installations in coastal areas.
14. No welding is allowed on the mounting structure.
15. The Contractor shall be responsible for the waterproofing of the roof disturbed/ pierced during installation and maintenance period. The Contractor should immediately take the necessary action to repair any damage to the waterproofing of the rooftop.

16. The Rooftop Structures may be classified in following broad categories:

a. Ballast Structure

i. For flat RCC Roofs, the mounting structure must be Non-invasive ballast type and any sort of penetration of roof to be avoided.

ii. The minimum clearance of the structure from the roof level should be 300 mm to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of terrace.

iii. The structures should be suitably loaded with reinforced concrete blocks of appropriate weight with Nominal Mix 1:1.5:3 with 20mm nominal size having compressive strength of 25MPa after 28 days of curing.

b. <u>Structure with Anchor fastener</u>

i. For inclined/ Dome type RCC Roofs, the mounting structure shall be fixed on the roof with proper fasteners/bolts along with chemical grouting and sealing.

ii. The roof should remain water proof after erection of the structure.

c. Metallic roof structure

i. The structure design should be as per the slope of the metallic roof.

ii. Minimum thickness of the structural members shall be 2mm.

iii. Fixing the MMS shall not cause any damage to the roof. The roof should remain waterproof.

iv. Proper walkway and lifeline shall be provided.

v. The inclination angle of structure can be done in two ways:

1. With the same tilt angle based on the slope of roof to get the maximum output.
2. The base of the structure should be connected on the Purlin of roof with the proper fastening arrangement.

d. **RCC Elevated Structure :** It can be divided into further three categories:

- **<u>A - Minimum clearance from roof (upto1000MM)</u>**

i) The structure shall be designed to allow easy replacement of any

module and shall be in line with site requirement. The gap between modules should be minimum 30 MM.

ii) Base Plate- Base plate thickness of the Structure should be 5MM for this segment.

iii) Column-Structure Column should be minimum 2 MM in Lip section/ 3 MM in C-Channel section. The minimum section should be 70 MM in Web sideand 40 MM in flange side in Lip section.

iv) Rafter-Structure rafter should be minimum 2 MM in Lipsection / 3MMin C-Channel section. The minimum section should be 70 MM in Web side (y-axis) and 40 MM in flange side (x-axis).

v) Purlin-Structure purlin should be minimum 2MM in Lipsection. The minimum section should be 60MM in Web side and 40MM in flange side in Lip section.

vi) Front/back bracing- The section for bracing part should be minimum 2 MM thickness. Connection-The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HOG 8.8 Grade.

vii) For single portrait structure the minimum ground clearance should be 500 MM.

- **<u>B - Medium clearance from roof (1000MM-2000MM)</u>**

i) Base Plate - Base plate thickness of the Structure should be Minimum 6 MM for this segment.

ii) Column-Structure Column should be minimum 2 MM in Lip section/ 3 MM in C-Channel section. The minimum section should be 80 MMin Websideand 50 MM in flangeside in Lip section.

iii) Rafter -Structure rafter should be minimum2MMinLip section/ 3MMin C-Channel section. The minimum section should be 70 MM in Websideand 40 MM in flangeside in Lip section.

iv) Purlin-Structure purlin should be minimum 2 MM in Lipsection. The minimum section should be 70 MM in Web side and 40 MMin flange side in Lip section.

v) Front/ backbracing- The section for bracing part should be minimum 2 MM thickness.

vi) Connection-The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module

mounting fasteners should be SS- 304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

- **C - Maximum clearance from roof (2000MM-3000 MM)**
  - i) Base Plate - Base plate thickness of the Structure should be minimum 8 MM for this segment.
  - ii) Column - Structure Column thickness should be minimum 2.6 MM in square hollow section (minimum 50x50) or rectangular hollow section (minimum 60x40) or 3 MM in C- Channel section.
  - iii) Rafter - Structure rafter should be minimum 2 MM in Lip section / 3 MM in Channel section. The minimum section should be80MMinWebsideand50MMinflangeside in Lip section.
  - iv) Purlin- Structurepurlinshouldbeminimum2MMinLipsection.Theminimumsection should be 80 MM in Web side and 50 MMin flange side in Lip section.
  - v) Front/ backbracing- The section for bracing part should be minimum 3 MM thickness.
  - vi) Connection-The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS- 304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

- **D – Super elevated structure (More than 3000MM clearance from roof)**
  - **D1 - Base structure**
    - i) BasePlate- BaseplatethicknessoftheStructureshouldbe10MMforthissegment.
    - ii) Column-Structure Column minimum thickness should be minimum 2.9 MM insquare hollow section (minimum 60x60) or rectangular hollow section (minimum 80x40).
    - iii) Rafter - Structure Rafter minimum thickness should be minimum 2.9 MM in square hollow section (minimum 60x60} or rectangular hollow section (minimum 80x40).
    - iv) Cross bracing -Bracing for the connection of rafter and column should be of minimum thickness of 4 mm L-angle with the help of minimum bolt diameter of 10 mm.
  - **D2 – Upper structure of super elevated structure-**
    - i) Base Plate - Base plate thickness of the Structure should be minimum 5

MM for this segment.

ii) Column-Structure Column should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 70 MM in Web side and 40MM in flange side in Lip section.

iii) Rafter - Structure rafter should be minimum 2 MM in Lip section / 3 MM in Channel section. The minimum section should be 70 MM in Web side and 40MM inflangeside in Lip section.

iv) Purlin-Structure purlin should be minimum 2MM in Lipsection. The minimum section should be 60 MM in Web side and 40 MMin flange side in Lip section.

v) Front/ back bracing- The section for bracing part should be minimum 2MM thickness.

vi) Connection-The structure connection should be bolted completely. Legtorafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt.

vii) Module mounting fasteners should be SS-304 only and remaining fasteners either 5S-304 or HOG 8.8 Grade.

17. If distance between two legs in X-Direction is more than 3M then sagangle / Bar should be provide for purlin to avoid deflection failure. The sagangle should be minimum 2MM thick, and bar should be minimum 12Dia.
18. Degree-The Module alignment and tilt angle shall be calculated to provide the maximum annual energy output. This shall be decided on the location of array installation.
19. Foundation- Foundation should be as per the roof condition. Foundation can be done with the help of 'J Bolt' (refer 15 5624 for foundation hardware). Proper Neto bond solution should be used to adhere the Foundation block with the RCC roof. Foundation J - bolt length should be minimum 12MM diameter and length should be minimum 300MM.

20. Material standards:
    i) Design of foundation for mounting the structure should be as per defined standards which clearly states the Load Bearing Capacity & other relevant parameters for foundation design (as per 15 6403 / 456 / 4091 / 875).
    ii) Grade of raw material to be used for mounting the structures so that it complies the defined wind loading conditions (As per IS 875 - Ill) should be referred as follows (IS 2062 - for angles and channels, IS 1079 - for sheet, IS 1161 & 1239 for round pipes, IS 4923 for rectangular and square hollow section).
    iii) Test reports for the raw material should be as per IS 1852 / 808 / 2062 / 1079 / 811.
    iv) In process inspection report as per approved drawing & tolerance should be as per 15 7215.
    v) For ascertaining hot dip galvanizing of fabricated structure following should be referred:
        a. Min coating required should be as per IS 4759 & EN 1461.
        b. Foundation Hardware - If using foundation bolt in foundation then it should be as per

IS 5624.

c. Testing of galvanized material
    i. Pierce Test (IS 2633)
    ii. Mass of Zinc (IS 6745)
    iii. Adhesion Test (IS 629)
    iv. CuSO4 Test (IS 2633)
    v. Superior High-Grade Zinc Ingot should be of 99.999% purity (IS 209)

21. Coping shall be provided over ballast/pedestal to avoid any water stagnation.
22. Floor surface shall be roughened before placing ballast/pedestal over it.
23. Gola shall be laid around the ballast/pedestal with approved water proofing compound.
24. Waterproofing 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.
25. All RCC work shall be as per IS-456. Reinforcement steel shall be high strength Fe 500 conforming to IS 1785.
26. Brick works, if any, shall be done using 1st class bricks of approved quality as per IS 3102.
27. Plastering in cement mortar 1:5, 1:6 and 1:3 shall be applied.
28. 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.

Meters

The RTS system shall be provided with the following energy meters:

a. Net meter: To record the import and export units of electricity.
b. Generation Solar meter(s): To keep record for total generation of the RTS plant at each termination. The solar meter shall be having warranty for a minimum period of 10 years.
c. The installation of meters including CTs & PTs, wherever applicable, shall be carried out by the contractor as per the terms, conditions and procedures laid down by the concerned State Regulations/DISCOMs.
d. The metering arrangement and the inter-connection of the RTS system with the network of the DISCOM shall be as per the provisions of the Net Metering Regulations and the technical standards & norms specified by the CEA/State Regulations for connectivity of distributed generation resources and for the installation and operation of meters.
e. Net-metering, if applicable, 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 netmeter shall be covered under Contractor's scope.
f. The contractor shall get the Net-meter (if applicable) installed after due testing and sealing from DISCOM utility.

Array Junction Boxes

1. 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/Powder coated aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement conforming to IP-65 or better degree of protection. All wires/cables must be terminated through cable lugs. The JBs shall be such that input & output termination can be made through suitable cable glands. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules will be fitted at the cable termination points for identification.
2. The Junction box shall be provided with copper bus bars/ terminal blocks with suitable termination threads, hinged door with EPDM rubber gasket and single /double compression type cable glands. Polyamide glands and MC4 Connectors may also be provided.
3. The junction box shall be suitable with adequate safety factor to interconnect the Solar PV array.
4. 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.
5. Junction boxes shall be mounted on the MMS such that they are easily accessible and are protected from direct sunlight and harsh weather.
6. Built-in junction box of Solar PV module shall be as per manufacturer's proven design.

7.0 DC Distribution Box (DCDB)

1. DCDB may not be required for smaller RTS systems, if alternate suitable arrangement is available in the inverter, based on the contractor's offered design.
2. DCDB are to be provided to receive the DC output from the PV array field.
3. DCDB shall be dust & vermin proof conforming to IP 65 or better degree of protection.
4. The bus bars of DCDB shall be made of EC grade copper of the required size.
5. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the inverter along with necessary surge arrestors. MCB shall be used for currents up to 63 Amperes and MCCB shall be used for currents above 63 Amperes.

AC Distribution Box(ACDB)

1. ACDB shall control the AC power from inverter and should have necessary surge arrestors, if required. ACDB shall be provided between the inverter/PCU and AC mains (LT bus bar/utility grid point) while in grid tied mode.
2. ACDB shall have MCB/MCCB/ACB or circuit breaker, as required, of suitable rating for connection and disconnection of the inverter/PCU from the AC mains/utility grid.
3. All switches and the circuit breakers, connectors should conform to IEC 60947:2019, part I, II and III/ IS 60947 part I, II and III.
4. ACDB shall be metal clad, totally enclosed, rigid, floor mounted, air-insulated & cubical type suitable for operation on 1-ϕ/3-ϕ, 230V AC or 415V AC, 50 Hz (or voltage levels as per CEA/State regulations) and conforming to IP-54/IP-65 or better degree of protection for indoor/outdoor placement.
5. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
6. The inverter output shall have the necessary rated AC surge arrestors, if required and MCB/ MCCB. RCCB shall be used for successful operation of the PV system, if inverter does not have required earth fault/residual current protection.

Integration of Solar PV System with Grid/PCC

1. The output power from Solar PV array would be fed to the inverters/PCU which converts DC produced by Solar PV array to AC and feeds it into the main electricity grid after synchronization.
2. 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, if not available in inverter.
3. MCB/MCCB or a manual isolation switch/isolator, besides automatic disconnection to grid, shall be provided at utility end in t he i n st all at i on premi se s to isolate the grid connection of RTS system to carry out any maintenance. This switch shall be locked by the utility personnel. The cost of this MCB/MCCB or manual isolation switch/isolator shall deem to be included in the overall award price.

Reverse Power Flow Blocking Scheme / Zero Export Controller

Export towards the utility grid is normally not desired. Hence, a reverse power flow blocking scheme or Zero export controller including associated relays, control system etc., as applicable, 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.

Protection Systems

The RTS systems shall be provided with all necessary protections like earthing, lightning and Surge Protection etc. as per State/CEA regulations as described below:

1. **Earthing Protection :-**
    a. The earthing shall be done in accordance with the latest applicable standards. This specification is intended to outline the requirement of earthing for Solar PV Array (DC Side) and AC power block side of Solar PV Plant. It is not the intent of the specification to specify all details of design and construction since the Contractor has full responsibility for engineering and implementation of the earthing system meeting the functional requirement. Any additional equipment, material, services which are not mentioned herein but are required for installation, testing and commissioning of the

earthing system for safe and satisfactory operation of plant shall be included under scope of the Contractor.

b. Each array structure of the PV yard, Low Tension (LT) power system, earthing grid for switchyard, all electrical equipment, inverter, all junction boxes, etc. shall be grounded properly as per IS 3043-2018.
c. Metallic frame of all electrical equipment shall be earthed by two separate and distinct connections to earthing system, each of 100% capacity.
d. Earth resistance should be as low as possible and shall never be higher than 5 ohms. The same shall be demonstrated by the contractor at site. Additional earthing arrangements, if required to meet the above, shall deemed to be included in the Contractor's overall scope.
e. For 10 kW and above systems, separate three earth pits shall be provided for individual three earthing viz.: DC side earthing, AC side earthing and lightning arrestor earthing.

2. Lightning Protection :-

a. The RTS system shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the overvoltage 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.
b. The entire space occupying the SPV array shall be suitably protected against lightning by deploying the required number of Lightning Arrestors (LA)/ Lightning masts (LM) placed at strategic locations with separate earthing system.
c. Lightning protection should be provided as per BFC 17-102:2011 /NFC17-102:2011/IEC 62305 standard.
d. The protection against induced high-voltages shall be provided by the use of Metal Oxide Varistors (MOVs)/Franklin Rod type LA/Early streamer type LA.

3. Surge Protection :-

a. Internal surge protection, wherever required, shall be provided.
b. It will consist of three SPD type-II/MOV type surge arrestors connected from +ve and –ve terminals to earth.

Cables & Associated Accessories

1. All cables should conform to the latest edition of IEC/equivalent BIS (ISI marked) viz. IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1&2)/ IEC 69947 (as applicable).
2. Cables should be flexible and should have good resistance to heat, cold, water, oil, abrasion etc.
3. Armored cable should be used and overall PVC type 'A' pressure extruded insulation or XLPE insulation should be there for UV protection.
4. Cables should have Multi Strand, annealed high conductivity copper conductor on DC side and copper/FRLS type Aluminum conductor on AC side. For DC cabling, multi-core cables shall not be used.
5. Cables should have an operating temperature range of -10°C to +80°C and voltage rating of 660/1000 V.
6. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop less than 2% (DC Cable losses).
7. 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%.

8. The electric cables for DC systems for rated voltage of 1500 V shall conform to BIS 17293:2020.
9. The DC cables for photovoltaic systems (BT(DE/NOT)258) shall conform to BS EN 50618.
10. The cables/wires shall be routed in RPVC pipe/ GI cable tray and suitably tagged & marked with good quality ferule or by other means so that the cable is easily identified.
11. All cable trays shall be provided with covers.
12. Thermo-plastic clamps to be used to clamp the cables and conduits, at intervals not exceeding 50 cm.
13. The size of neutral wire shall be equal to the size of phase wires in a three-phase system.
14. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25 years.

Data Logging /Plant Monitoring

1. 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).
2. The above system should provide time and date stamped system data logs for analysis, metering and instrumentation for display of systems parameters and status indication.
3. The contractor shall aggregate the data with data storage feature from each inverter.
4. 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 (Class II or better) /Solar cell based irradiation sensor (along with calibration certificate) with the sensor mounted in the plane of the array. Readout shall be integrated with the 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 the 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.
5. Measurement of Solar PV parameters at Inverter level: The Inverter shall have provision of data logging through Mod Bus (RS-485) protocol.
6. Following parameters shall preferably 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).

7. 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.
8. 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.
9. Provision for internet monitoring and download of historical data shall be provided.
10. Sim card shall be arranged by the contractor and charges for the same upto complete maintenance period shall be in the scope of contractor.
11. 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 Performance Guarantee (PG) test shall be carried out after the successful commissioning of the RTS system by measuring the Performance Ratio (PR) and comparing with the Guaranteed PR (75%). The mathematical formula for calculating PR is given below:

$$PR = (P \times 1000 \times 100) / (C \times G)$$

Where,

P = Instantaneous Power in kW

C = Installed capacity of RTS in kWp

G = Measured Global Inclined Insolation (GII) in W/m2

- For measuring the Global Inclined Insolation (GII), pyranometer shall be mounted at the plane of the PV module. The pyranometer shall be brought to site on returnable basis, if not provided for Data logging.
- Measuring instruments to record the site data shall include pyranometer (inclined with sensitivity of 7μV/(W/m2), temperature sensor, signal converter etc.
- The Contractor shall be responsible for conducting the PG test after achieving the physical completion & synchronization of the plant and complying with the relevant requirements from utility/State.
- The PR values shall be computed based on actual energy generated at inverter output.

- If the Contractor fails to achieve the guaranteed performance levels, the Contractor, shall on its own cost, rectify all the defects identified during the test and take the necessary steps/efforts to qualify/pass the PG test. After rectification the PG test will be restarted. In case, the Contractor fails to rectify the same after repeated intimations, the RTS system shall be replaced at its cost.

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, as required. The existing plumbing piping system shall be tapped suitably for the above purpose in consultation with Employer's site in-charge.

A drainage system for rooftop shall be provided / strengthened suitably by the Contractor, as required. Cost of above shall deem to be included in cost of Grid connected Rooftop Solar PV Power Plant.

Portable Flood Light Panel

The 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	TypeFL-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°Cto45°C
17.	Lumen Maintenance	70%attheEndofBurningHours

Comprehensive Maintenance (CAMC)

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 Five (05) years from the date of commissioning or the start of net-metering, whichever is later, including all required man and materials.

The Contractor shall be responsible for all the required activities for successful maintenance of the Rooftop Solar PV system for a period of 05 years from the date of commissioning of the plant or start of net-metering, whichever is later, including, but not limited to, the following:

i. Maintenance of Solar Power Plant shall be compliant with grid requirements.
ii. Deputation of qualified and experienced engineer/ technicians/ Surya Mitra when required throughout the CAMC period at project site.
iii. Periodic checks of the Modules, PCUs and Balance of System (BoS) shall be carried out as a part of routine preventive and breakdown maintenance.
iv. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required. Supply of all spares, consumables and fixtures as required.
v. All the testing and metering instruments required for the Testing, Commissioning and Maintenance period shall be calibrated or have a valid calibration certificate.
vi. If negligence/ mal operation on part of the Contractor's operator results in failure of equipment, such equipment should be repaired/ replaced by the Contractor free of cost.
vii. Online Performance Monitoring, controlling, troubleshooting, maintaining logs & records on the web-Portal.
viii. In case of any fault or any grievance in the system, the Contractor has to ensure a response time of 24 hours and maximum expected turnaround time of 72 hours (additional time limit may be considered under special circumstances). In case of non-rectification of the issue after lapse of above time period after reporting the complaint, Employer may consider repairing/replacing such a defective system at the risk and cost of the contractor. Notwithstanding the same, the contractor shall continue to have the responsibilities and obligations of the contract.

A typical schedule for maintenance and format for Annual Maintenance report is indicated at Annexure-B and Annexure-C respectively. The Contractor may suitably modify the same incorporating manufacturer's recommendations, if any. Supply of any material, as required, for Preventive/Routine/Breakdown/Corrective maintenance shall deem to be included in CAMC.

Engineering Data and Drawings

The Contractor shall submit the Engineering data/design & drawings/documents for a typical system for one time approval of the Employer. The design once approved shall be replicated for installations by changing the relevant parameters w.r.t. location/ capacity. Design calculation of any specific project, if sought by the Employer, shall be submitted by the Contractor.

Following drawings/documents (as applicable) shall be submitted by the Contractor to the 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. k) Drawings/documents, as applicable, for equipment-Solar PV module, PCU/Inverter, JB,
l. DCDB, ACDB, Cables etc.
m. l) Water piping layout, if applicable
n. m) Bill of Materials

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

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

Standards

1. The works covered by the specification shall be designed, engineered, manufactured, built, tested and commissioned in accordance with the Acts, Rules, Laws and Regulations of India.
2. The equipment offered by the contractor shall at least conform to the requirements specified under relevant IS standard. In case of discrepancy between IS and other international standards, provisions of IS shall prevail. The Contractor shall also note that the list of standards presented in this specification at Annexure-A is not complete. Whenever necessary, the list of standards shall be considered in conjunction with specific IS. If the IS standard is not available for an equipment/material, then other applicable international standard (IEC/Equivalent), as per the specification, shall be accepted.

3. The Contractor shall note that standards mentioned in the specification are not mutually exclusive or complete in themselves but intended to complement each other.
4. When the specific requirements stipulated in the specifications exceed or differ from those required by the applicable standards, the stipulation of the specification shall take precedence.
5. Other internationally accepted standards which ensure equivalent or better performance than that specified in the standards specified under the technical specification for various equipment shall also, be accepted, however the salient points of difference shall be clearly brought out during detailed engineering along with English language version of such standard. The equipment conforming to standards other than specified under Annexure-A/individual sections for various equipment shall be subject to Employer's approval.

Miscellaneous

1. Safety measures: Electrical safety of the installation(s) including connectivity with the grid must be considered and all the safety rules & regulations applicable as per Electricity Act, 2003 and State/CEA Regulation etc., including latest amendments, must be followed.
2. Danger boards/signages and Caution Boards should be provided as and where necessary as per State/CEA Regulations as amended up to date.
3. Firefighting system: Portable fire extinguishers/sand buckets shall be provided wherever required as per norms.
4. The Contractor should dispose of the packing material, surplus items, unused materials, waste etc. generated during construction, as per applicable Rules and standards. Concrete waste and dead mortar, if any, are to be removed and the area is to be cleaned immediately.
5. The Contractor shall be fully responsible for safety of manpower, materials and premises. The contractor shall take special care for safe working at height, electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003, CEA guidelines and other applicable standard practices.
6. The Contractor shall provide suitable lifeline arrangements on the roof, as per requirement, to enable the safety of workers while working at height during installation of RTS and CAMC period. The workers working at the site should have undergone proper training for safe working at height and should have been trained to use safety PPEs including Safety belts with double hooking system. The Contractor shall follow the safety rules as mentioned in the bid documents/CEA/State regulations etc. All safety PPEs like safety shoes, helmet, belt, lifeline, fall arrester etc., as applicable, shall be provided by the Contractor without any additional cost to the Employer.
7. As per site requirement, the Contractor may also have to install fall arrester and safety net to ensure safe working conditions. The design of fall arrester and details of safety net to be installed shall be submitted to the Employer for review prior to start of work to ensure safety of workers during execution.
8. As per the site requirement, the Contractor shall install and maintain G.I. walkway with antiskid holes on the roof with toe guard to ensure safety during installation of RTS and during CAMC period. The minimum width of the walkway shall be 300mm. Walkway shall be installed on the rooftop before the start of installation works so that the safety of workers can be ensured and damage to roof can be avoided.
9. The Contractor shall ensure that the roofs are not damaged during installation and CAMC period. After installation of solar PV system, the roofs should remain as waterproof as before. If any

damage is caused to the roof by the Contractor, the same must be rectified immediately by the Contractor without any additional cost implication.

10. Instruction sheets shall be placed in suitable places, as required.
11. The Contractor should also train the owner about the operational requirements, washing methodology/frequency and precautions to be undertaken for the RTS system.
12. The Contractor shall ensure to provide access to the Employer's authorized representative at project site from time to time for audit purpose of the project. The Contractor shall facilitate inspection of solar PV plant as and when required by the Employer.
13. The Contractor shall provide the data and information of progress and performance parameters of the project.
14. The Contractor shall be solely responsible for taking necessary registrations under applicable labour laws and other extant laws that may be required for fulfilment of their performance as per the provisions of the bid documents.
15. Before commencement of the works, the Contractor shall ensure that its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work. Liquidation, Death, Bankruptcy etc., shall be the responsibility of Contractor as per the provisions of bid documents.
16. The Contractor shall take third party liability insurance for deployed workmen, employees against any damage, loss, injury, or death arising out of the maintenance work.
17. The Contractor shall further adopt Fire and peril insurance policy covering the risk of damage, theft of material/ equipment/ properties throughout the construction period till Commissioning. The insurance shall be for the replacement value of the project.
18. The Contractor shall warrant that the goods supplied are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials as per the standards specified in the technical specifications. The Contractor shall provide a warranty covering the rectification of all defects in the design of equipment, materials and workmanship including all spare parts for a period of initial five (5) Operational Years.

***

Annexure-A

General Standard and Codes

Solar PV Inverters	
IEC62109or IS16221	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 Part2: Particular requirements for inverters. Safety compliance
IS/IEC 61683	Photovoltaic Systems– Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
IEC60068-2/IEC62093	Environmental Testing of PV System– Power Conditioners and Inverters
IEC62116:2014/IS16169	Utility-interconnected photovoltaic inverters – Test procedure of islanding prevention measures
Fuses	
IS/IEC60947(Part1,2 &3),EN50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): Low-voltage Switchgear and Control-gear, Part 1: General rules Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors switch- disconnectors and fuse-combination units EN50521:Connectors for photovoltaic system- Safety requirements and Tests.
IEC60269-6:2010	Low-voltage fuses- Part6: Supplementary requirements for fuse links for the Protection of solar photovoltaic energy systems.
Surge Arrestor	
BFC17-102:2011/NFC 102:2011/IEC62305	102:2011/IEC62305LightningProtection
IEC60364-5-53/IS15086-(SPD)IEC61643-11:2011	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control Low-voltage surge protective devices-Part11:Surge protective devices connected to low-voltage Power systems- Requirements and test methods
Earthing/Lightning	
IEC62561/IEC60634 Series (Chemical earthing) (as applicable)	IEC62561-1:Lightning protection system components (LPSC)-Part: Requirements for connection components IEC62561-2: Lightning protection system components (LPSC)–Part2: Requirements for conductors and earth electrodes. IEC62561-7: Lightning protection system components (LPSC)-Part7: Requirements for earthing enhancing compounds.
Others	
IS/IEC60529	Degrees of Protection provided by enclosures (IP coding)
IS2705/IS16227/ IEC 61869	Instrument Transformers
IS3043	Code of practice for earthing.
IS/IEC60255	Measuring Relays and Protection Equipment
IEC60269	HRC Cartridge fuses
IS10118	Codeofpracticeforselection,installationandmaintenanceofswitchgear and Control gear.

Note: If any standard has expired or does not exist anymore, then the other standard which has substituted it shall be applicable.

Annexure-C

Quarterly Maintenance Report to be submitted to Employer

Month and year:

Name of the Contractor:

LOA No:

Project Capacity:

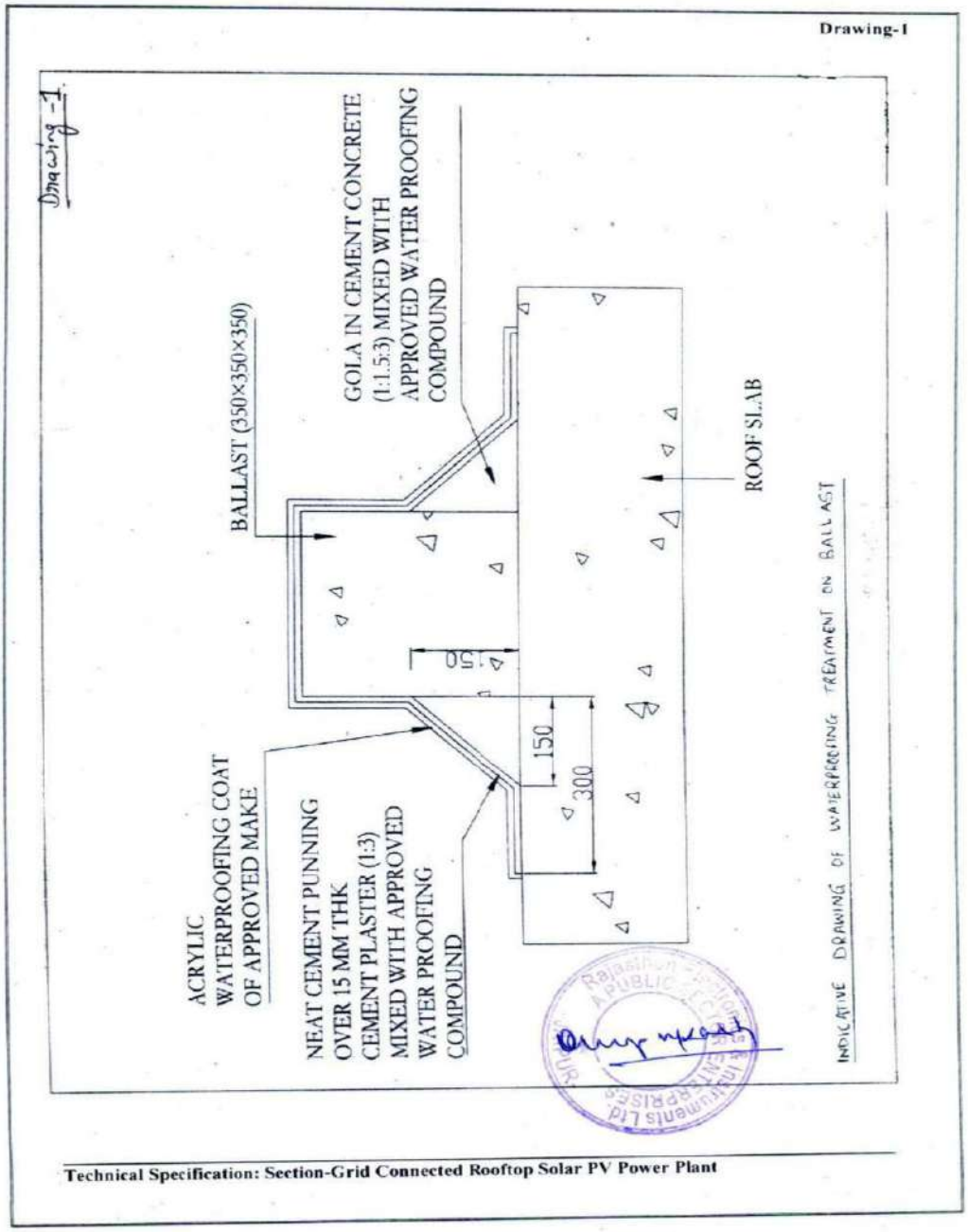
Address of the site:

Date:

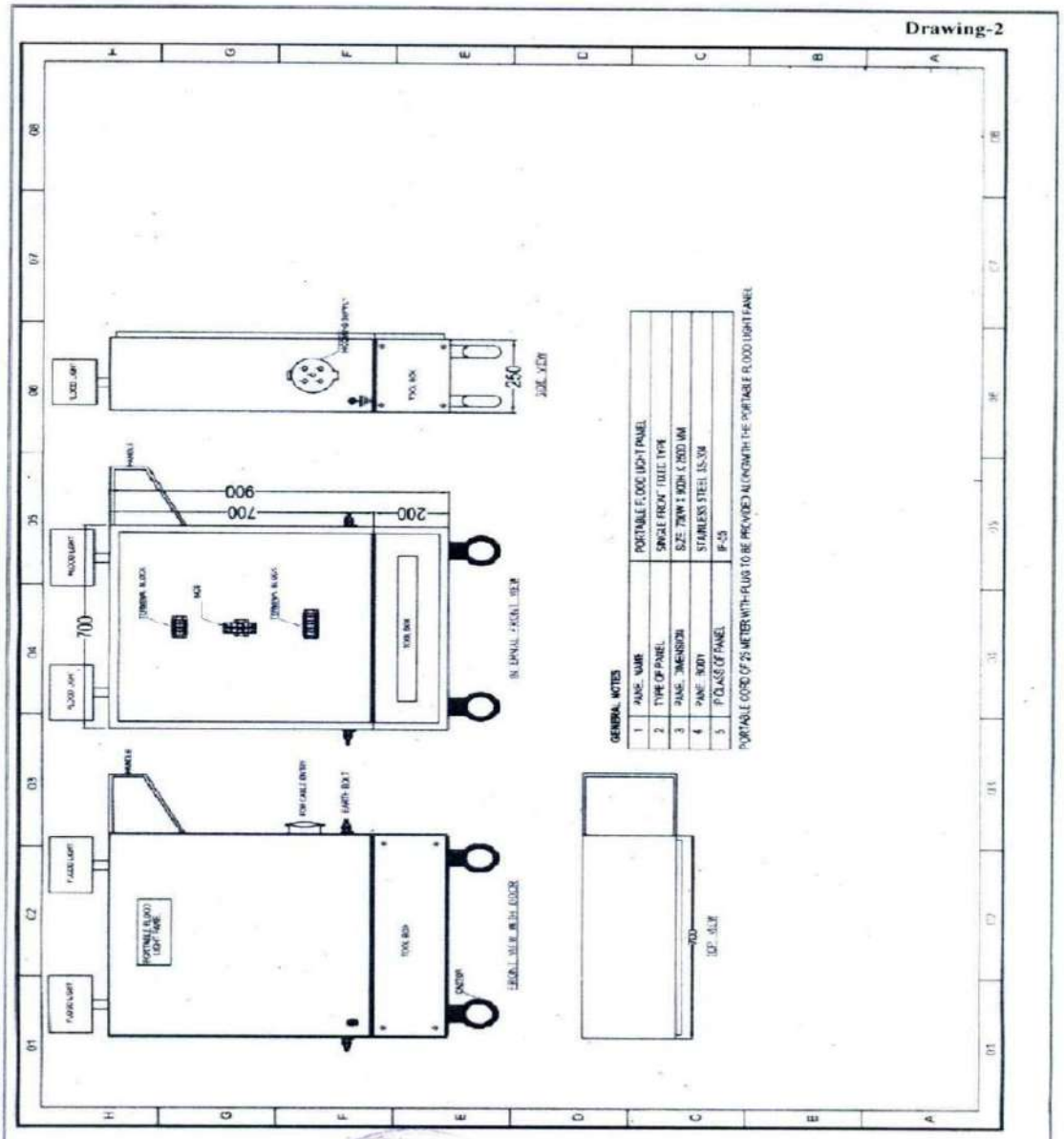
Component	Activity	Description	Remarks
PV Modules Array	Inspection	Infrared camera inspection for hotspots; by pass Diode failure.	
	Cleaning & Inspection	Cleaning of PV modules and check for any damage.	
Junction Boxes	Inspection	Inspect electrical boxes for corrosion, intrusion of water or vermin. • Check position of switches and breakers. Check status of all protection devices.	
Wiring	Inspection	Inspect cabling for signs of cracks, defects, lose connections, corrosion, overheating, arcing, short or open circuits, and ground faults	
Inverter	Inspection	Observe instantaneous operational indicators on the faceplate. Inspect Inverter housing or shelter for any physical	
Inverter	Service	Clean or replace any airfilters. If required.	

Signature of the Authorized signatory of the Contractor

Signature of the Owner/Representative of building


Drawing-1
Drawing -1
GOLA IN CEMENT CONCRETE (1:1.5:3) MIXED WITH APPROVED WATER PROOFING COMPOUND
BALLAST (350×350×350)
ROOF SLAB
ACRYLIC WATERPROOFING COAT OF APPROVED MAKE
NEAT CEMENT PUNNING OVER 15 MM THK CEMENT PLASTER (1:3) MIXED WITH APPROVED WATER PROOFING COMPOUND
150
300
INDICATIVE DRAWING OF WATERPROOFING TREATMENT ON BALLAST
Technical Specification: Section-Grid Connected Rooftop Solar PV Power Plant

Drawing-2



Technical Specification: Section-Grid Connected Rooftop Solar PV Power Plant

Annexure – III C

IMPORTANT NOTES:

1. Contractor shall carry out detailed site survey first and shall submit design and drawings to REIL for approval. All design calculations will be required for selection of equipments.
2. Contractor shall submit make & technical specifications of each item to REIL for approval before procurement.
3. Contractor shall submit third party test reports of major items i.e. String Inverter, MMS, and Transformer etc. (if required by end customer).
4. Contractor shall submit all test reports & certificates required as per tender prior to finalization of make.
5. During the maintenance period, the Contractor 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 all defective equipment including defective PV Modules, Inverters etc., deployment of staff for maintenance, complaint logging & its attending.
6. Ladders shall be installed by Contractor wherever required.
7. Appropriate Walkways and Lifelines shall be provided by Contractor on shed type roof.
8. Contractor shall place well qualified and dynamic graduate engineer at site to handle all the activities at site.
9. Safety, Health and Environment Protocols to be followed by the contractor as per customer rules and regulations.
10. Timely delivery of material is required.
11. Parallel teams are required for installation of Solar Power Plant at difference sites.
12. SIMs shall be provided by contractor for remote monitoring of systems. The charges pertaining to recharge the SIM of all inverters shall be borne by Contractor till completion of the 05 years O&M period.
13. Module cleaning arrangements to be done by the contractor at all sites. Appropriate size of Tank and suitable Motor (to lift the water) shall be provided by the contractor. The water shall be provided the customer.
14. Cable Tranches (wherever required) shall be done as per requirement and upto satisfaction level of the REIL / customer.
15. Solar Meters, Energy meters, Net Meters (as per DISCOM specifications) shall be installed at each location by the contractor and shall be sealed by the DISCOM to fulfill RPO / any other obligations. Contractor shall liaison with concerned DISCOM & Electrical Inspector for required clearances.
16. Any fee related to registration of RTS project / NOC / net metering from the state departments etc., as applicable, shall be borne by the Contractor.
17. The work to be done under this specification shall include all labour, plant, equipment, material and performance of all work necessary for the complete installation and commissioning of “Grid Connected Rooftop Solar PV Power Plant". All apparatus, appliances, material and labour etc. not specifically mentioned or included, but are necessary to complete the entire work or any portion of the work in compliance with the requirements implied in this specification is deemed to be included in the scope of contractor.
18. Before proceeding with the construction work the Contractor shall fully familiarize himself with the site conditions and General arrangements & scheme etc. Though the Employer shall endeavor to provide the information, it shall not be binding for the Employer to provide the same. The bidders are advised to visit the sites and acquaint themselves with the topography,

infrastructure and also the design philosophy. The bidder shall be fully responsible for providing all equipment, materials, system and services specified or otherwise which are required to complete the construction and successful commissioning, operation & maintenance of the “Grid Connected Rooftop Solar PV Power Plant" in all respects. All materials required for the Civil and construction/installation work including cement and steel shall be supplied by the Contractor. Complete design (unless specified otherwise in specification elsewhere) and detailed engineering shall be done by the Contractor.

19. All materials, manpower, scaffolding materials, machinery, tools, and tackles, transportation & loading/unloading, packaging and unpackaging, safe storage, watch and ward, etc. all inclusive, shall be arranged by the Contractor within the quoted price. Scope shall include all type of transportation of materials inside the working site and manpower etc. required to execute and complete the work. Underground cabling work, if required for grid connectivity of the RTS system, shall also be included in the scope of works of the Contractor.

Annexure – III D

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) SEVERABREILITY

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 served 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) RESTRICTIN ON EMPLOYMENT

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

7) DISPUTE RESOLUTION

The parties agree to use their best efforts to resolve any dispute that may arise under the Agreement through good faith negotiations. No party shall commence any litigation in relation to this Agreement unless it has first invited the Chief executive of the other party (or any person duly authorized to action his behalf) to meet with its own Chief executive (or any person duly authorized to act on his behalf) for the purpose of endeavoring to resolve the dispute on mutually acceptable terms. Any dispute arising under this Agreement which cannot be settled by negotiation/mediation between the parties, or their respective representatives shall be submitted to the competent court of law. The courts situated at Jaipur only shall have the jurisdiction."

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. Start Ups are exempted from condition of prior turnover and prior experience subject to meeting of quality and technical specifications as per clause mentioned in Eligibility Criteria (Annexure - III)

13) CONTRACT:

Before execution of the work, performance security deposit be submitted and a contract agreement for execution of the work shall be signed by the Vendor with REIL as per terms & conditions mentioned in work order / tender. In case agreement is not executed within the stipulated time, earnest money will be forfeited. In case of sub-contracting of work, contractor has to take prior approval from REIL. The main contractor shall be liable for all acts of its subcontractors.

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 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).

15) 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.

16) 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 if 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 Under takings 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 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 Vendor shall be fully responsible for all repairs of the defects in maintenance during the period under contract.

NOTE:

1. **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.**

17. Work Completion period: Within 90 days from the date of placement of work order.

18. Performance Security (Site Wise):

Contract Performance Security @ 3% of total EPC contract value (without O&M) shall be submitted by successful bidder within 14 days after placement of work order of site. This security shall be valid till a period of 18 months. However, in case of delay in Completion of Facilities, the validity of all the contract performance securities shall be extended by the period of such delay.

After the end of successful completion of period mentioned above, Contract Performance Security shall be returned to agency provided agency has submitted CPG @3% of O&M Contract price.

19. LD / Penalty against delay in completion of work:

If the contractor fails to achieve the successful Completion of Facilities within the agreed work schedule, the Contractor shall pay to the Employer as liquidated damages and not as penalty, a sum calculated at the following rates:

1. 0.5% per week of the contract value corresponding to the capacity not commissioned for the premises.
2. The total amount of liquidated damages for delay under the contract will be subject to a maximum of five percent (5%) of the total Contract Price excluding O&M.

Further, REIL is authorized to terminate the contract for non-performance, delays and quality related issues. REIL shall terminate the contract without any liability in cases of fraudulent representation by the contractor.

20. Defect Liability Period:

Defect Liability Period shall be as per guarantees and warranties mentioned in Technical Specification for Solar Modules, Inverter and Solar Generation Meters and/or any other item for which guarantee/warranty is specifically mentioned in Technical Specification. For all other items/equipments in Technical specification, the Defect Liability Period shall be twelve (12) months from the date of Completion of Facilities of Entire Project.
If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant and Equipment supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Contractor shall at its discretion, determine) such defect as well as any damage to the Facilities caused by such defect.

21. Payment Terms (Site Wise):

1) **40%** Payment of Total Contract Price 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) **45%** Payment Total Contract Price 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) **15%** Payment of Total Contract Price shall be released after successful 5 years O&M (3% each year) and submission of documents i.e. detailed GST invoice & O&M certificate signed and stamped by customer.

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

Notes:

i. **PRICE ESCALATION**

No Price escalation is allowed. The rate(s) quoted against the work shall remain firm during the entire Rate Contract period.

Annexure – IV

CHECKLIST OF TENDER TERMS & CONDITIONS

S. No.	Term	Description	Complied / Not Complied	Deviation if any
1.	GST / Taxes	As applicable.		
2.	Tender EMD	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	As per given in tender document		
7.	Comprehensive O&M	As per given in tender document		
8.	LD Clause	As per given in tender document		
9.	Warranty of equipment supplied	As per given in tender document		
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				

Annexure – V

(To be submitted on Bidder's Letter Head)

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

Authorization Certificate

To

Date

Addl. General Manager(MM),
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/2025-26/02 Dated 02.05.2025 on behalf of M/s ……** for **"Rate Contract for Survey, Design, Supply (except SPV Module), Erection, Testing, Commissioning and Comprehensive Operation and Maintenance for 5 years Grid Connected Rooftop Solar Photovoltaic Power Projects on various Government buildings in Western Region (WR) in India**".

On behalf of company ……

Name and Designation

Signed and sealed (who has signed the tender)

Annexure – VI

(To be submitted on Bidder's Letter Head)

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

UNDERTAKING OF NO NEAR RELATIVE

Date

To

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

Dear Sir,

We, M/s. _____ hereby certify that none of our relative(s) as defined in the tender document is/are employed in Rajasthan Electronics & Instruments Limited (REIL) 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 us

On behalf of company ……

Name and Designation

Signed and sealed (who has signed the tender)

Annexure – VII

(To be submitted on Bidder's Letter Head)

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

CERTIFICATE FOR NON BLACK LISTING

Date

To

Addl. General Manager (MM),
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)

Annexure – VIII

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

CA CERTIFICATE TOWARDS PLANT & MACHINERY

Date

To

Addl. General Manager (MM),
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 Udhyog Adhar 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 ……

Annexure – IX

(To be submitted on Bidder's Letter Head)

CERTIFICATE TOWARDS LEGAL / CONTRACTUAL DISPUTES

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

Date……

To

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

Dear Sir,

We M/s …….. do hereby confirm that we do not have any legal /contractual disputes with REIL / Any other PSU / Any Govt. Organization.

Also, we confirm that we do not have any prior contract terminations due to non-performance or litigation history against any government entity.

On behalf of company ……

Name and Designation

Annexure – X

(To be submitted on Bidder's Letter Head)

CERTIFICATE TOWARDS COMPLETION OF WORKS
(APPLICABLE ONLYFOR REIL PAST CONTRACTORS)

Tender ref.: REIL/RE/2025-26/02 Dated 02.05.2025

Date……

To

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

Dear Sir,

We, M/s …….. do hereby confirm that we do not have any pending work, assigned by REIL till FY 2021-22.

On behalf of company……

Name and Designation

Annexure-XI

(MII CERTIFICATE BY CA)

PP- PREFERENCE TO MAKE IN INDIA

To,

AGM (MM),

Rajasthan Electronics & Instruments Limited,

2, Kanakpura Industrial Area,

Jaipur-302034 Rajasthan

Ref: Tender No..... Dated.....

Dear Sir,

I/We……..(Name of bidder) undertake that, we meet the mandatory Local Content (LC) requirement for qualifying as "Class I Local Supplier as per the PP-LC Policy against this tender. The percentage of Local Contents the bid is ……%

On behalf of company ……

Name and Designation ……

Annexure – XII

INTEGRITY PACT

Between

Rajasthan Electronics & Instruments Limited (REIL), a company registered under the Companies Act 1956 and having its registered office at 2, Kanakpura Industrial Area, Jaipur-302012 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3. The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or anyther statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agent(s)/ representative(s) in India if any. Similarly the Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principal(s) if any. Further details as mentioned in the "Guidelines on Indian Agent of Foreign Suppliers" shall be disclosed by the Bidder(s)/ Contractor(s). Further as mentioned in the guidelines all the payments made to the Indian Agent/ Representative have to be in Indian Rupees only.

2.1.5 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in

question, the Principal is entitled to disqualify the Bidders(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" framed by the Principal.

Section 4 – Compensation for Damages

4.1 If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

6.1 The Bidder(s)/ Contractor(s) undertake(s) to demand from his sub-contractors a commitment in conformity with this Integrity Pact. This commitment shall be taken only from those sub-contractors whose contract value is more than 20% of Bidder's/ Contractor's contract value with the Principal.

6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to Vigilance Office.

Section 8 –Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

Ms. Arundhaty Ghosh, Director General (Postal Services) (Retd.) has been appointed as IEM for this contract. Her address is as below.

CG 151 ,1st Floor, Sector II, Salt Lake, Kolkata – 700091
E- Mail :arundhatyg@gmail.com

Mr. Shekhar Prasad Singh, IAS (Retd.) has been appointed as IEM for this contract. His address is as below.
Plot No. 176, Road No. 11, Prashasan Nagar, Jubilee Hills, Hyderabad - 500033
E- Mail :spsinghias1983@gmail.com

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the MD, REIL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6 The Monitor will submit a written report to the MD, REIL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8.7 If the Monitor has reported to the MD, REIL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the MD, REIL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.8 The word ‘Monitor’ would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the MD, REIL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. Jaipur.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place----------

Date----------

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address)_____

Annexure – XIII

FORMAT FOR EMD BANK GUARANTEE

M/s._____ (Name & Address of the Firm) having their registered office at _____ (Address of the firms Registered office) (Hereinafter called the 'bidder') wish to participate in the tender No. _____ for _____ Rajasthan Electronics & Instruments Limited (REIL) and WHEREAS a Bank Guarantee for (Hereinafter called the "Beneficiary") Rs. _____ (Amount of EMD) valid till_____ (Mention here date of validity of this Guarantee which from the date of the submission of Tender's offer) which is required to be submitted by the bidder along with the tender.

We, _____ (Name of the Bank and address of the Branch giving the Bank Guarantee) having our registered office at _____ (address of Bank's Registered office) hereby give this Bank Guarantee No. _____ dated _____ and hereby agree unequivocally and unconditionally to pay immediately on demand in writing from the Rajasthan Electronics & Instruments Limited or any officer authorized by it in this behalf any amount not exceeding Rs. (Amount of E.M.D.), (Rupees _____ (In words) to the said Rajasthan Electronics & Instruments Limited on behalf of the bidder.

We _____ (Name of the Bank) also agree that withdrawal of the tender or part thereof by the bidder within its validity or Non submission of Security Deposit by the bidder within one month from the date tender or a part thereof has been accepted by the Rajasthan Electronics & Instruments Limited would constitute a default on the part of the bidder and that this Bank Guarantee is liable to be invoked and en-cashed within its validity by the Beneficiary in case of any occurrence of a default on the part of the bidder and that the en-cashed amount is liable to be forfeited by the Beneficiary.

This agreement shall be valid and binding on this Bank upto and inclusive of _____ (mention here the date of validity of Guarantee) and shall not be terminable by notice or by Guarantor change in the constitution of the Bank or the firm of bidder or by any reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, conceded with or without our knowledge or consent by or between the bidder and the REIL.

"Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this Guarantee shall not be assignable, transferable by the beneficiary (i.e. REIL). Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the Bank. Any invocation of the Guarantee can be made only by the beneficiary directly.

NOTWITHSTANDING anything contained hereinbefore, our liability under this guarantee is restricted to Rs. _____ (Amt. of E.M.D.) (Rupees_____ _____) (in words). Our Guarantee shall remain in force till _____ (Date of validity of the Guarantee). Unless demands or claims under this Bank Guarantee are made to us in writing on or before _____(Date of validity of the Guarantee), all rights of Beneficiary under this Bank Guarantee shall be forfeited and we shall be released and discharged from all liabilities there under:

Place:

Date:-

Please mention here Complete Postal Address of the Bank with Branch Code, Telephone.

SIGNATURE OF THE BANK'S
AUTHORISED SIGNATORY WITH
OFFICIAL ROUND SEAL

NAME OF DESIGNATED BANKS:

Note -1: The Bank Guarantee (B.G)shall be from the Nationalize Banks or any other Banks, as Notified by the Finance Department, from time to time.

Note -2: The B.G shall be signed by two bank officer jointly if the amount of B.G is more than Rs 50,000/- and B.G must have proper B.G number as per R.B.I guidelines.

Annexure – XIV

FORMAT FOR PERFORMANC SECURITY BANK GUARANTEE

(To be stamped in accordance with Stamp Act If any, of the Country of the issuing Bank)

Bank Guarantee No…….

Date……..

To [Purchaser's Name & Address]

Dear Sirs,

In consideration of the…*Purchaser's Name]…..(Hereinafter referred to as the 'Purchaser' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s….*Contractor's Name]…….with its Registered/Head Office at…….(Hereinafter referred to as the 'Contractor'. Which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Purchaser's Purchase Order No……dated……and the same having been acknowledged by the contractor, for……..(Contract sum in figures and words] for……*Name of the work] and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to -----% (*)……of the said basic value of the aforesaid work under the Purchase Order.

We……[Name & Address of the Bank]…….having its Head Office at…….(hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context of meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Purchaser's on demand any and all monies payable by the Contractor to the extent of…….(*) as aforesaid at any time up to…….(@)……..*days/month/year] without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Purchaser's on the Bank shall be conclusive and binding notwithstanding any difference between the Purchaser's and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Purchaser's and further agrees that the guarantees herein contained shall continue to be enforceable till the Purchaser discharges this guarantee or till….*days/month/year] whichever is earlier.

The Purchaser shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Purchaser shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to

enforce any covenants, contained or implied, in the Contract between the Purchaser and the Contractor or any other course or remedy or security available to the Purchaser.

The Bank shall not be released of its obligation under these presents by any exercise by the Purchaser of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance of other acts of omission or commission on part of the Purchaser's or any other indulgence shown by the Purchaser or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Purchaser at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Purchaser may have in relation to the Contractor's liabilities.

Notwithstanding anything to the contrary contained herein.

1. Our liability under this Guarantee shall not exceed Rs. ---------- (Rupees ---------- Only).
2. This Bank Guarantee shall be valid up to ----------
3. Further, a claim period of 60 days after validity period ----------is available to you to make a demand under the Bank Guarantee, in respect of a cause of action which has arisen during the validity period only.
4. We are liable to pay up to the guarantee amount only and only if we receive from you a written claim or demand duly received by authorized Bank officials within the validity period of the guarantee as above or within claim period, if any.

The said letter of guarantee has been transmitted through SFMS gateway to your bank. It is advised that in your own interest, you may verify the genuineness of above letter of guarantee from your bank/branch

WITNESSES: Signature……..

Signature…… Name…….

Name…….. Official Address……

Official Address…….

Designation……. Seal

Signature……

Name……

No……..

Address…….

Annexure – XV

REIL BANK DETAILS

Name of Organization	Rajasthan Electronics & Instruments Limited (REIL), Jaipur, Rajasthan, India
PAN Number	AABCR1528G
GST Number	08AABCR1528G1ZL
Banker Name	Punjab National Bank
Branch Name	Large Corporate Branch, M.I.Road, Jaipur, Rajasthan, India
Bank Account Number	0221008700000152
IFSC Code	PUNB0022100
Type of Account	Cash Credit Account

Annexure – XVI

(To be submitted on Bidder's Letter Head)

CHECK LIST OF ALL ANNEXURES

Sr. No.	Required Documents	Please Confirm Submission (v)
1.	Sealed and signed process compliance form. (Annexure-I)	
2.	Sealed and signed Instruction to Bidders (Annexure-II)	
3.	Sealed and signed Annexure-III to Annexure III D	
4.	Sealed and Signed Annexure-IV (Checklist of Tender terms & conditions)	
5.	Authorization certificate (Annexure-V)	
6.	Sealed & signed Undertaking of No Near Relative (Annexure-VI)	
7.	Sealed & signed Certificate for Non Black listing (Annexure-VII)	
8.	Sealed & signed CA Certificate for MSME firms(Annexure -VIII)	
9.	Certificate towards Legal / Contractual Disputes (Annexure-IX)	
10.	Certificate towards Completion of Works (Annexure -X)	
11.	PP-Preference to Make In India form (Annexure – XI)	
12.	Integrity Pact (Annexure - XII)	
13.	Format for EMD Bank Guarantee (Annexure - XIII)	
14.	Format for Performance Security Bank Guarantee (Annexure - XIV)	
15.	REIL Bank Details for preparation of BG (Annexure - XV)	
16.	Checklist (Annexure -XVI)	