



PUNJAB STATE POWER CORPORATION LTD

RegdOffice:PSEB Head Office,The Mall, Patiala-147001

Corporate Identification Number (CIN) : U40109PB2010SGC033813GSTIN 03AAFCP5120Q1ZC

OFFICE OF DY.CHIEF ENGINEER /INVESTMENT PROMOTION CELL,T8, SHAKTI VIHAR, PSPCL,PATIALA

Mob: 096461-23332, 096461-29246 e-mail:rts-ipc@pspcl.in,e-tendering page: <https://eproc.punjab.gov.in>

TENDER ENQUIRY NO: 24/IPC/RTS/2020-21

Tender Notice for Empanelment & discovering L1 rates for EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects for design, manufacture, testing, supply, installation and commissioning of different capacity Grid Connected Roof Top Solar Power Projects varying from 1 KWp to 500 KWp, with Subsidy as applicable (Central Financial Assistance by MNRE, GOI) for Residential Premises and Residential Welfare Associations/Group Housing societies Premises in State of Punjab including comprehensive maintenance for 5 years.

In order to facilitate the public, MNRE vide letter no 318/331/2017-Grid connected Rooftop ,GOI, MNRE, made arrangements that the DISCOM's i.e. PSPCL, will be the Nodal Agency to empanel the EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects for installation of Grid connected Rooftop SPV Power Plants anywhere in the State of Punjab and in the process of discovering Lowest (L1) of rates for different capacity ranges rooftop solar power projects which are to be displayed on the website of PSPCL for the information of the users. The residents of Punjab desirous to install Rooftop SPV power plant and want to avail subsidy from MNRE through PSPCL for the same shall have to install the Rooftop SPV Power Plant from any Empaneled agency of PSPCL. EPC Companies desirous of getting their information displayed may upload the technical detail of their systems/ equipment and pricing in the Performa available up to the last date as specified hereunder. The terms and conditions along with technical specifications are mentioned inNIT.

1. DUE DATES & TIME :

- i Last date for downloading of Specification / Tender : 01.01.2021 upto 17:00 PM documents from PSPCL website.
- ii Last date & time for Submission of Tenders : 04.01.2021 upto 17:00 PM
- iii Date & time for opening of Techno commercial bids : 07.01.2021 at 11:00 AM

2. CONTACTS :

- i Dy. Chief Engineer/Investment Promotion Cell : email : rts-ipc@pspcl.in
: rts.ipc@gmail.com
Sr.Xen/Solar-2 Mob :96461-23332
AEE/Solar-2 96461-29246

NOTES: -

1. In case the due date for opening of tender happens to be a holiday, then tenders would be received & opened on the next working day at the same time.
2. Tender specification can only be downloaded from PSPCL's website <https://eproc.punjab.gov.in> and no hard copy of the same will be issued by this office. Details regarding E-tendering is available on website www.pspcl.in
3. Tender specification can only be downloaded from website www.eproc.punjab.gov.in. Details



regarding E-Tendering is available on website www.eproc.punjab.gov.in. All the prospective bidders are requested to get their digital signatures, register themselves on the website www.eproc.punjab.gov.in. and get conversant with the process of online submission of tenders well in time so as to submit the tender by the due deadline. No request for extension in the due date of tender opening in any case shall be entertained. The bidders may contact <https://eproc.punjab.gov.in> at contact nos 0172-2970263, 0172-2970284,0120-4001002/0120-4200,462/0120-4001005/0120-6277787. Corrigendum, if any after the publication of this tender enquiry shall only be uploaded on website <https://eproc.punjab.gov.in> and will not be published in newspapers.

4. The prospective bidders are requested to be extra cautious in filling the tender and to get in touch with this office in case of any difficulty. Once the tender is opened, no request regarding giving relaxation or for overlooking any mistake committed by the bidder will be entertained.

--Sd--
Dy. Chief Engineer,
Investment Promotion Cell,
Shakti Vihar,PSPCL Patiala.



CONTENTS

S. No.	DESCRIPTION	Page No
1.	<u>Notice Inviting tender</u>	1 to 2
2.	<u>Tender Notice</u>	4 to 5
3.	<u>Check List of documents consisting of tender/ offer</u>	6
4.	<u>Definitions</u>	7 to 9
5.	<u>General Instructions to be observed by the Tenderers</u>	10 to 14
6.	<u>Introduction to Programme</u>	15 to 16
7.	<u>General Terms & Conditions</u>	17 to 23
8.	<u>Other Conditions</u>	24 to 30
9.	<u>Scope of work & Technical Specifications</u>	31 to 43
10.	<u>Tender Conditions Undertaking (Annexure-A)</u>	44 to 45
11.	<u>Schedule of Experience (Annexure-B)</u>	46
12.	<u>Annual Turnover Certificate (Annexure-C)</u>	47
13.	<u>Affidavit for not been debarred /blacklisted (Annexure-D)</u>	48
14.	<u>Power of Attorney (Annexure-E)</u>	49 to 50
15.	<u>General particulars of Bidder (Annexure-F)</u>	51
16.	<u>Financial Bid/Price bid (Annexure-G)</u>	52
17.	<u>Bank Guarantee Performa</u>	53

**PUNJAB STATE POWER CORPORATION LTD**

RegdOffice:PSEB Head Office,The Mall, Patiala-147001

Corporate Identification Number (CIN) : U40109PB2010SGC033813GSTIN 03AAFCP5120Q1ZC

OFFICE OF DY.CHIEF ENGINEER /INVESTMENT PROMOTION CELL,T8, SHAKTI VIHAR, PSPCL,PATIALA

Mob: 096461-23332, 096461-29246e-mail:rts-ipc@pspcl.in,e-tendering page: <https://eproc.punjab.gov.in>**TENDER NOTICE**

Department Name	Investment Promotion Cell ,PSPCL												
Tender Specification No.	24/IPC/RTS/2020-21												
Tender Issuing Authority	Dy.Chief Engineer / Investment Promotion Cell ,PSPCL												
Address details of issuing authority	T8, IPC, Thermal Design, Shakti Vihar, PSPCL, Patiala												
Place	T8, IPC, Thermal Design, Shakti Vihar, PSPCL, Patiala												
Short Description	<p>Empanelment & discovering LI rates for EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects for design, manufacture, testing, supply, installation and commissioning of different capacity Grid Connected Roof Top Solar Power Projects varying from 1 KWp to 500 KWp, with Subsidy as applicable (Central Financial Assistance by MNRE, GOI) for Residential Premises and Residential Welfare Associations/Group Housing societies Premises in State of Punjab including comprehensive maintenance for 5 years. Capacity Ranges for Empanelment are redefined as under:</p> <table border="1"> <thead> <tr> <th>Sr No</th> <th>Category of Bidder</th> <th>Capacity range</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Category A & B</td> <td>1 KWp to 10KWp</td> </tr> <tr> <td>2</td> <td>Category A Only</td> <td>More than 10 KWp to 100 KWp</td> </tr> <tr> <td>3</td> <td>Category A Only</td> <td>More than 100 KWp to 500 KWp</td> </tr> </tbody> </table>	Sr No	Category of Bidder	Capacity range	1	Category A & B	1 KWp to 10KWp	2	Category A Only	More than 10 KWp to 100 KWp	3	Category A Only	More than 100 KWp to 500 KWp
Sr No	Category of Bidder	Capacity range											
1	Category A & B	1 KWp to 10KWp											
2	Category A Only	More than 10 KWp to 100 KWp											
3	Category A Only	More than 100 KWp to 500 KWp											
Start date for down loading of Specification/ tender documents from PSPCL's web site https://eproc.punjab.gov.in	04.12.2020												
Last date for down loading of Specification/ tender documents from PSPCL's web site https://eproc.punjab.gov.in	01.01.2021 upto 17:00 PM												
Last date for Bid Submission	04.01.2021 upto 17:00 PM												
Techno commercial Bid Opening date.	07.01.2021 at 11:00 AM												
Tender Cost (Non-Refundable)	Rs.5000/- + Rs.900/- (GST @ 18%)= Rs. 5900/-												
EMD	Rs.50000/-												
Payment mode.	e-payment on procurement website.												
Payment in favour of	A.O/Thermal Design, PSPCL, Patiala												
NOTES: -													
<ol style="list-style-type: none"> In case the due date for opening of tender happens to be a holiday, then tenders would be received / opened on the next working day at the same time. Tender specification can only be downloaded from PSPCL's website https://eproc.punjab.gov.in and no hard copy of the same will be issued by this office. Details regarding E-tendering is available on website www.pspcl.in Tender specification can only be downloaded from website www.eproc.punjab.gov.in. Details regarding E-Tendering is available on website www.eproc.punjab.gov.in All the prospective bidders are requested to get their digital signatures, register themselves on the website www.eproc.punjab.gov.in. and get conversant with the process of online submission of tenders well in time so as to submit the tender by the due deadline. No request for extension in the due date of tender opening on the above grounds shall be entertained. The bidders may contact https://eproc.punjab.gov.in at contact nos 0172-2970263,0172-2970284,0120-4001002/0120-4200,462/0120-4001005/0120-6277787. Corrigendum, if any after the publication of this tender enquiry shall only be uploaded on website https://eproc.punjab.gov.in and will not be published in newspapers. The prospective bidders are requested to be extra cautious in filling the tender and to get in touch with this office in case of any difficulty. Once the tender is opened, no request regarding giving relaxation or for overlooking any mistake committed by the bidder will be entertained. 													
<p>--Sd-- Dy.Chief Engineer, Investment Promotion Cell Shakti Vihar,PSPCL Patiala.</p>													

**CONDITIONS:**

1. PSPCL is inviting tender for Empanelment & discovering L1 rates for EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects for design, manufacture, testing, supply, installation and commissioning of different capacity Grid Connected Roof Top Solar Power Projects varying from 1 KWp to 500 KWp, with Subsidy (Central Financial Assistance by MNRE, GOI) for Residential Premises and Residential Welfare Associations/Group Housing societies Premises in State of Punjab including comprehensive maintenance for 5 years and display the lowest rates on the PSPCL website.
2. PSPCL will also allocate the work to the Empaneled Agencies for setting up of Rooftop Solar Power Plants through this Tender to successful bidders who agree to work on the L1 rates. The Empaneled agencies are to contact & get their work for private clients directly at their own.
3. The firms may download tender specifications form PSPCL Website <https://eproc.punjab.gov.in>
4. All tenders must be accompanied by Tender Cost and Earnest Money Deposit (EMD) at the rates prescribed in the tender documents. The first part will, consist of Tender Cost and Earnest Money submitted via e-payment gateway on the e-tendering portal.
5. The Blacklisted and debarred firms by PSPCL/any other Govt./Semi govt. organization shall not be eligible for participation in the tender.
6. The offers should be kept valid for at least 120 days from the date of opening of tenders.
7. Telegraphic or conditional quotations will not be accepted.
8. PSPCL reserves the right to nullify the NIT without assigning any reason.
9. In case the due date of opening of tenders happens to be a holiday, tenders shall be received / opened at the same time on the next working day.
10. Before uploading the e-tender, bidders are requested to read the specifications carefully and take cognizance of corrigendum/ amendments uploaded on e-tendering website, so that their offer may not be rejected on account of amendments/ revisions in the earlier specifications (if any).
11. Corrigendum, if any, after the publication of this tender enquiry shall only be uploaded on e-tendering website and will not be published in any newspaper.
12. The whole tender should be properly page numbered (by print/ typed) with index showing all the contents of the tender documents.
13. Every Agency/ firm/bidder has to inform their GSTIN No. at the time of payment of applicable fees like tender cost or empanelment fee.
14. The instructions issued under this NIT, will be read together with MNRE regulations for Grid Connected Rooftop as well as instructions for Net-Metering for Grid Connected Roof Top Solar PV Power Plants in PSPCL's Electricity Supply Instruction Manual 2018, amended time to time.
15. Only the documents submitted at the time of Bid Submission shall only be considered in evaluation process. However, PSPCL may ask for any clarification regarding documents, etc if required. Bidders are advised to ensure that all supporting documents are submitted at the time of Bid Submission.

--Sd--

Dy.Chief Engineer ,
Investment Promotion Cell,
Shakti Vihar, PSPCL Patiala.



CHECK LIST OF DOCUMENTS CONSISTING OF TENDER/OFFER

Bidder to ensure that following documents are mandatorily submitted/uploaded/filled online with the tender for it to be complete:-

Sr. No.	Details	Part	Remarks
1.	Tender Document Cost &EMD	Part-I	Submit tender cost & EMD via e-payment gateway on the e-tendering portal before the last date & time of submission of bids.
2.	Annexure-A Tender Terms & Conditions Undertaking		FILL ON-LINE AS WELL AS SUBMIT HARD COPY TO THE OFFICE.
3.	Annexure-B Details of Experience / Proof of Ability		
4.	Annexure-C Annual Turnover Certificate		
5.	Annexure-D Affidavit for not been debarred or Blacklisted by any Government/Semi Govt. department or undertaking on Govt. Stamp paper of minimum Rs. 100 denomination.		
6.	Annexure-E Power of Attorney		
7.	Annexure-F General Particulars of Bidder	Part-II	FILL ON-LINE ONLY
8.	A Registered manufacturing Company/Firm/ Corporation duly incorporated under the relevant laws of its jurisdiction.		
9.	Memorandum & Article of Association for public/ private Ltd firm, Partnership deed for Partnership firms and supporting document for proprietary firm		
10.	A copy of valid GST registration certificate.		
11.	A copy of PAN Card.		
12.	Any other supporting documents mentioning the purpose		
13.	Annexure-G Financial bid/Price Bid	Part-III	

Note:

- i) **All scanned copies must bear full signature of person authorized as per constitution and composition of the firm.**
- ii) Please flag the annexure and write page number in the box for documents submitted offline to this office
- iii) Bids received without supporting documents for the various requirements mentioned in the tender document may be rejected.



2. **DEFINITIONS:**

The words and expressions beginning with capital letters and defined in the E-Tender document set up under the Electricity Act 2003;

“**Approved Rate**” shall be those rates which are discovered & finalized by PSPCL after Opening of part-III/Financial Bid for allocation of capacity/work to any firm/bidder for executing subsidized Solar Power Projects.

“**Additional Allocation**” shall mean that additional allocation in KW for solar power project installation to empanelled vendors other than initial allocations.

“**Beneficiary**” shall mean the Residential/Domestic category Consumers of PSPCL, in Punjab State for 1-phase / 3-phase connection of Supply of Electricity and who intends to install solar power project in his premises.

“**B.I.S**” shall mean specifications of Bureau of Indian Standards (BIS);

“**Bids**” shall mean the Technical Bid and the Financial Bid submitted by the Bidder electronically at the prescribed web portal, in response to the e-bid document, in accordance with the terms and conditions hereof;

“**Bid Deadline**” shall mean the last date and time for submission of Bid in response to the e- bid document, and as may have been extended in accordance with the e-bid document;

“**Bidding Company**” shall refer to such single company that has submitted the Bid in accordance with the provisions of the e-tender document;

“**Bid Capacity**” shall means capacity offered by the bidder (Category-A) in his Bid under invitation. Bidder (Category-A) shall quote maximum and minimum capacities in the prescribed format.

“**CEA**” shall mean Central Electricity Authority.

“**Commissioning**” means Successful operation of the Project / Works by the Contractor, for the purpose of carrying out Performance Test(s) as defined in tender document.

“**Capacity Utilization Factor(CUF)**” shall mean the ratio of actual energy generated by SPV project over the year to the equivalent energy output at its rated capacity over the yearly period. $CUF = \text{actual annual energy generated from the plant in kWh} / (\text{installed plant capacity in kW} * 365 * 24)$.

“**Consents, Clearances and Permits**” shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, or concessions required to be obtained from or provided by any concerned authority for the purpose of installation of the generation plant or captive consumption of such generation;

“**Cut-Off Date**” means the last date for registration by consumer for installation of solar rooftop plant in his premises under subsidy till 2400Hrs of the day. No new subsidy cases in present tender shall be registered after the Cut-Off date.

“**Earnest Money Deposit**” shall mean the prescribed amount paid via e-payment gateway on the e-tendering portal before the last date & time of submission of bids.



“**Electricity**” means the electrical energy in kilowatt hours;

“**Electricity Act 2003**” shall mean the Electricity Act, 2003 and any rules, amendments, regulation, notifications, guidelines or policies issued there under from time to time;

“**Financial Bid**” shall mean the cost at which solar RTS plants are to be installed as per capacity range with 5 years comprehensive maintenance in the Part -III of the e-bid document;

“**IEC**” shall mean specifications of International Electro-technical Commission;

“**KWp**” shall mean kilo-Watt Peak;

“**KWh**” shall mean kilo-Watt-hour;

“**Last date**” means the last date of Empanelment up to which all projects which are registered up to cut-off date shall be installed and commissioned.

“**MNRE**” shall mean Ministry of New and Renewable Energy, Government of India;

“**O&M**” shall mean Operation & Maintenance of Rooftop Solar PV system for 5 years; “**Owner of the project**” shall mean anyone who has ownership(including lease ownership also) of the roof and is the legal owner of all equipment’s of the project.

“**Plant**” shall mean rooftop solar photovoltaic power generation plants implemented on the individual site;

“**PV**” shall mean photovoltaic;

“**Eligibility Condition**” shall mean the qualification requirements set forth in Tender Document.

“**Quoted Rate**” shall mean the capital cost requirement, in KWp, quoted by the Bidder in accordance with the prescribed Annexure-G and shall be construed to have considered the capital cost for Design, Supply, Installation, Testing and Commissioning of Grid Connected Rooftop Solar Photovoltaic Power Plants including its Operation and Maintenance for five (5) years. The quoted capital cost shall also include development of necessary evacuation infrastructure and its Operation and Maintenance.

“**Rs.** ”shall mean Indian rupees;

“**PSERC**” means the Punjab State Electricity Regulatory Commission constituted under Section 82 of the Electricity Act 2003 for the State of Punjab;

“**Punjab State Electricity Grid Code**” or **Grid Code** or **PSEGC** shall mean the document notified by the PSERC describing the responsibilities for planning and operation of the power system in Punjab and amended from time to time;

“**Performance Ratio (PR)**” means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured. $PR = (\text{Measured output in kW} / \text{Installed Plant capacity in kW}) * (1000 \text{ W/m}^2 / \text{Measured radiation intensity in W/m}^2)$.

“**Security Deposit/Performance Guarantee**” shall mean the bank guarantee to be provided from a Selected Bidder to the PSPCL in accordance with the allocated capacity in KW to the bidder after getting LOA/LOI.



“Successful Bidder(s) /Empanelled vendors/Project Developers(s)” shall mean the Bidder(s) selected by PSPCL pursuant to this TENDER for Implementation of Grid Connected Roof Top Solar PV System as per the terms of the this document, and to whom an Empanelment Letter has been issued;

Wp shall mean Watt Peak.

“1KWp”for the purpose of conversion in **Wp** shall be considered as 1000Wp



GENERAL INSTRUCTIONS TO BE OBSERVED BY TENDERERS:

1. The following instructions must be carefully observed by all tenderers. Quotations/ tenders, not strictly in accordance with these instructions, will liable to be rejected.
 - i) The tender must be complete in all respects. The following points should carefully be studied in order to ensure uploading/submission of a complete and comprehensive tender. Failure to comply with any of these instructions or to offer brief explanation for non-compliance is likely to render effective comparison of the tender as a whole impossible and may lead to rejection of an otherwise competitively lowest offer.
 - ii) Telegraphic quotations will not be accepted. The bid opening, Evaluation & finalization shall be made by considering "ONLINE" submitted tenders only.
 - iii) The tenders shall be uploaded/submitted in three parts i.e. Part-I, Part-II & Part-III. The following procedure will be adopted for the opening of tenders.

Part-I: Tender Document Cost & Earnest Money Deposit (EMD): The first part will, consist of Tender Cost and Earnest Money submitted via e-payment gateway on the e-tendering portal and copy of same shall be submitted to this office as per clause 5.1 below.

Part-II: Technical/Commercial bids: The second part will consist of technical specification & all other terms and conditions except the rates. *For Part-II, it is mandatory for all the agencies/ firms to upload all technical details on e-procurement site as well as submit their Annexure-A (Tender conditions undertaking), Annexure-B (schedule of experience along with proof of experience), Annexure-C (Turn over certificate) & Annexure-D (Affidavit for not been blacklisting) in single sealed envelope before last date of submission of tenders and documents as per clause 5.1. However, all tender documents are required to be submitted online before last date of submission of tenders.*

While opening the Tenders, Tender Cost & Earnest Money deposit shall be evaluated first. Part II of the Tender shall be opened for only those tenders, who will deposit Tender Cost and Earnest Money in accordance with the terms of Notice Inviting Tender, failing which the tender will be liable to be rejected.

Part-III: Price Bids: After opening Part-II of the bids (technical/commercial), the bids will be technically & commercially evaluated by PSPCL. The third part of the bids (Price bid) shall be opened in case of only those firms whose Part-I & Part-II of the bids after evaluation is found to be conforming to the specifications. The date and time for opening Part-III of the tender will be intimated to the qualifying firms. The price bids (Part-III) will be opened in the presence of the representative of the qualifying bidders who choose to attend. **Part-III shall be submitted ONLINE through e-Tendering portal ONLY.**

2. PSPCL reserves the right to modify/amend technical particulars, terms and conditions of the tender and to reject any or all the tenders received without assigning reasons. PSPCL will not be responsible for and will not pay any expenses or losses that may be incurred by the bidder in the preparation of the tenders and nothing shall be paid on this account.
3. Quotations/Tenders shall be uploaded on given website up to specified hours of the due date given in the tender notice and shall be opened immediately thereafter in the presence of tenderers or their agents who may like to be present.
4. In case the due date of opening tenders happens to be a holiday, tenders shall be received / opened at the same time on the next working day.
5. **Preparation of e-tender:**

5.1 **Documents Comprising the Bid**



The e-tender prepared by the Bidder shall comprise the following components:

List of Documents in ORIGINAL which are required to be submitted Offline to this office. However all bidders are also required to submit all the documents online on e-tendering portal:

- (a) A copy of proof of Tender cost & Earnest Money (EMD) submitted via e-payment gateway on the e-tendering portal in single sealed envelope. These documents must be submitted to this office in single sealed envelope before last time and date of submission of tenders.
- (b) Tender undertaking letter as per Annexure-A provided in e-tender document.
- (c) Details for Past Experience meeting Qualification Requirement as prescribed in Annexure-B with certified performance certificate by appropriate Authority or Joint Commissioning Reports or Experience certificate by SNA's for experience and eligibility
- (d) Annual turnover certificate as per Annexure-C, duly certified by Chartered Accountant.
- (e) Bidder will submit a duly notarized Affidavit on stamp paper of minimum denomination of Rs.100/- (Annexure-D) that he/firm has not been debarred or Blacklisted by any Government/Semi-Govt. Organization.

NOTE:- All documents above must be submitted in 02 envelopes. First envelope (subscribed as Part-I) shall contain documents for point no.(a). The Second envelope (subscribed as Part-II) shall contain all documents from point no (b) to (e).

Bidder shall clearly mention, IN CAPITAL LETTERS ONLY, following details on all the envelopes submitted to PSPCL against this tender.

- i. Tender no: /IPC/RTS/2020-2021
- ii. Name of bidder/firm/Agency:
- iii. Address:
- iv. Document inside envelope:EMD & Tender fee(1st Envelope) and Tender Documents (2nd Envelope).
- v. Category Applied: Category-A or Category-B.
- vi. Contact person name:
- vii. Mobile No:
- viii. Email Id:

Documents required to be submitted Online:

- (f) Documents as per Sr No. (a) to (e) above.
- (g) Authorization letter/Power of Attorney as per Annexure-E of the Bidder, for the person representing his Company/Firm/ Corporation, that he is authorized to discuss/sign the documents related to these-tender___/IPC/RTS/2020-21.
- (h) General Particular of bidders Annexure-F.
- (i) All documents as per checklist sr no. 1 to 9 (Page no.6) must be uploaded online on e-tendering portal.
- (j) **The Annexure-G (Price bid/Part-III) at Sr no. 16 of checklist at page 6 shall only be filled in online portal by Category-A bidder only and no scanned copy or hard copy of price bid/Part - III should be submitted.**

5.2 Price Bid/Part-III by Category-A bidder only (Online Mode Only):

- a) The Bidder shall indicate prices as prescribed in Annexure-G(Part-III).Only Bidders who intend to



participate in tender as Category-A bidders are required to submit Price Bid/part-III i.e. Annexure-G.

- b) Bidder may quote /apply for single capacity range or all capacity ranges as per eligibility in rupees for KWp only.
- c) Bidder must ensure that rates quoted must be in Rs for KWp only.

5.3 Bid Currencies:

Prices shall be quoted in Indian Rupees (INR)only

5.4 Format and Signing of e-tender:

- a) The bid must contain the name, residence and places of business of the persons making the e-tender and must be signed and sealed by the Bidder with his usual signature. The name and designations of all persons signing should be typed or printed below the signature.
- b) e-tender by corporation/ company must be signed with the legal name of the corporation/ company/firm by the “President, Managing Director or by the Secretary” or any other designation or a person duly authorized.
- c) The original copy of the e-tender shall be typed and signed by the Bidder or a person duly authorized. All the pages of the bid shall be initialed by the person or persons signing the tender.
- d) The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case, such corrections shall be initialed by the person or persons signing the tender.

5.5 Uploading of e-tender:

The bid shall be uploaded online as per guidelines of PSPCL.

- a) The tender must be complete in all technical and commercial aspect and should contain requisite certificate, drawings, informative literature etc. as required in the specification.
- b) Part-I : This part contains Requisite tender cost & Earnest Money. Bidder should upload scanned copy of fee submitted via e-payment on the e-tendering portal and submit copy of same to PSPCL office in sealed envelope as per clause 5.1 above
- c) Part-II: As explained in General instruction to be observed by tendered (Page-10 of this NIT).The Bidder should NOT submit price bid in Part-II.
- d) Part-III: This part contains price of Solar System @Rs./KWp basis for each of the Rooftop SPV system Capacities Range inclusive of total system cost including Photo voltaic solar modules, inverters, balance of systems, including cables, switches/circuit –breakers/connectors/junction boxes, mounting structure, earthing, lightning arrestor, cost of meters(if any, other than net meter), local connectivity cost, cost of civil works, foundation etc. and its installation, testing, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years, applicable fees and taxes etc. for determining L1 rate in each of the Rooftop SPV Capacity Range.
- e) MNRE vide its notification no.318/38/2018-Grid connected Rooftop Dt 21.07.2020 have decided the following benchmark costs which are inclusive of total system cost including Photo voltaic solar modules, inverters, balance of systems, including cables, switches/circuit –



breakers/connectors/junction boxes, mounting structure, earthing, lightening arrestor, cost of meters (if any, other than net meter), local connectivity cost, cost of civil works, foundation etc. and its installation, testing, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years, applicable fees and taxes etc.

Sr. No.	Capacity Range*	Benchmark Cost (Rs/KWp) other than special category states
1	1KW	47000
2	Above 1 KW to 2 KW	43000
3	Above 2 KW to 3 KW	42000
4	Above 3 KW to 10 KW	41000
5	Above 10 KW to up to 100 KW	38000
6	Above 100 KW to up to 500 KW	36000

***Capacity will be calculated based on inverter capacity or the SPV module array capacity which ever is lower.**

The above benchmark costs are excluding net-metering cost and battery backup cost.

NOTE-I: The above mentioned bench marks rates are for FY 2020-21. The rates discovered through this tender or MNRE benchmark rates for FY 2020-21, whichever is lower shall be considered for finalisation of L1 rates, for calculation CFA & all other related matters, etc.

Note-II: In the event that the discovered lowest price is higher than that the benchmark cost of MNRE for FY 2020-21, the benchmark cost for FY 2020-21 shall only be treated as lowest price for each capacity range.

6. Procedure for Finalization of Bid:

The Procedure for Finalization of Bid will be as follows:

- Part-I: First Fee stage bids i.e. Tender document cost & Earnest Money Deposit(EMD) shall be opened and evaluated.
- Part-II: Then the Technical & Commercial bids shall be opened and evaluated.
- Part-III: Then the price bid of technically qualified bidders shall be opened on a specified date and time (to be intimated to all technically qualified bidders).

7. Finalization of Empanelment:

- The lowest rate (i.e. L-1) for each capacity range received (and in turn approved by the competent authority) would be the "Approved Rate" for that particular capacity range.
- "Approved Rate" for each capacity range would be offered to other bidders (i.e. to L-2, L3 and so on) whose rates are within L1+25% (i.e. 25 % above the approved lowest rates) to work on lowest approved rates. Further, if total number of Empaneled agencies/bidders/firms are found to be less than 5 in a particular capacity range, then PSPCL may also include those agencies who fall in L1+25% +5% i.e.L1+30% (i.e. 30 % above the approved lowest rates), provided they agree to accept the approved lowest rates. In NO case the firms/bidders/ falling outside the above specified range i.e.25% or 30% as the case may be, of the L1 Rates will be considered.
- All Category –A bidders falling in L1 + 25% (or L1+30% as the case may be) zone will be initially allocated 250 KWp capacity for installation of Solar RTS system. This capacity allocation to



successful bidders in L1+25% range (or L1+30% as the case may be) may be increased/decreased depending upon the total capacity available/allocated by MNRE and total number of successful bidder in L1+25% range (or L1+30% as the case may be) . In category–B, the installation capacity by one firm/bidder shall be fixed at 100 KW initially. The decision of PSPCL with respect to any increase/decrease of capacity allocation from allocation as stated above, shall be final and binding to all. However, for any additional allocation to any vendor in both Category-A & B subject to utilized capacity out of total capacity allocated to PSPCL by MNRE for this tender, the decision of the office of Dy. Chief Engineer /IPC,PSPCL shall be final.

- d) The L1 bidder shall be allocated minimum capacity of 400 KW for installation of solar rooftops systems initially.
- e) All successful bidder(s) can get work directly from consumers of residential sectors subject to his capacity allocation.
- f) Training of the user will be provided by the firm/bidder/agency/vendor.
- g) If required, PSPCL reserves the right to negotiate with (lowest) L-1 bidder before finalization of the tender.
- h) PSPCL reserves the right to accept any bid and to reject any or all of the bids without assigning reasons thereof.

8. Notification of Empanelment:

List of successful Bidder(s) for each capacity range shall be displayed on PSPCL's website and shall be intimated in writing to the firm/Agency/bidders.

9. Issue of Letter of Empanelment:

After Submission of Empanelment fee, the name of successful bidder(s) will be displayed on website of PSPCL and Letter of Empanelment will be sent to the qualified bidder(s).The successful bidders have to submit requisite Security/Bank Guarantee within prescribed time limit otherwise their empanelment shall liable to be cancelled.

All the SPV Rooftop systems installed will be inspected by the representative of PSPCL/MNRE/third party within 20 days of receipt of Installation & Works completion report from beneficiaries/Empaneled agency. The applicable subsidy amount will be released only for the systems installed in compliance to the technical specification of MNRE/PSPCL. During the Inspection, if the system installed is found faulty (or) not in compliance to the technical specification, the cost for re-inspection by PSPCL/MNRE/third party after rectification /replacement shall be borne by the Empanelled Agency.

In case the systems are not as per standards, non-functional on account of poor quality of installation, or non-compliance of AMC/CMC, the PSPCL/MNRE reserves the right to blacklist the vendor.

Blacklisting may inter-alia include the following: -

- a.The Vendor/Firm/Agency will not be eligible to participate in tenders for Government supported projects for a specified period as decided by the competent authority.
- b.The EMD and security deposited/Bank Guarantees by the firm/vendor/agency will be forfeited.

--Sd--

Dy.Chief Engineer ,
Investment Promotion Cell
Shakti Vihar, PSPCL Patiala.



INTRODUCTION TO PROGRAMME:

MNRE made PSPCL as implementing agency for installation of Grid-connected Solar Rooftop Power Plants in Punjab under “**Grid connected Rooftop Solar Programme, Phase-2**” of MNRE. The generated solar power may be utilized for captive consumption and the surplus power may be fed to the grid as per the grid connectivity specified in PSERC guidelines on Net Metering.

PSPCL issues this tender notice to discover the rates of Grid connected Solar Rooftop System for various Capacity Ranges and for Empanelment of bidders for the installation of about 40 MW capacity or as allocated by MNRE for Grid Connected Rooftop Solar PV Power Plants. The above installation of solar power plants is under the CAPEX model by the beneficiary. The capacity is tentative depends on MNRE allocations of this tender, the final capacity will be as per MNRE allocation for the State. PSPCL hereby invites interested bidders to participate in the bidding process for installation of Grid connected Rooftop Solar Power Plants in Punjab.

All successful bidder(s) who participated in this tender and willing to execute the work at “Approved Rate” will be Empaneled to work in Punjab.

Availability of Central Financial Assistance (CFA)

Type of residential sector	CFA (as percentage of benchmark cost or cost discovered through competitive process, whichever is lower)
Residential sector (maximum up to 3 kW capacity)	40 % **
Residential sector (above 3 kW capacity and up to 10 kW capacity)*	40 % up to 3 KW** Plus 20% for Rooftop Solar System above 3 kW and up to 10 kW. No CFA beyond 10 KW CFA@20% for Group Housing Societies(GHS)/Residential Welfare Associations (RWA) capacity up to 500 KW(Limited to 10KW per house and total up to 500KW)

**The residential sector users may install RTS plant of even higher capacity as provisioned by respective State Electricity Regulations; however, the CFA will be limited up to 10 kWp capacity of RTS plant.*

*** CFA shall be on benchmark cost of MNRE for FY 2020-21 or lowest cost discovered through the tender, whichever is lower*

Mode of Execution of Programme:

The selected bidders shall identify beneficiaries to design, supply, install, and commission Solar Rooftop Systems and provide mandatory maintenance services/support for 5 years. To ensure effective operation and maintenance of the system during 5 years of comprehensive warranty and maintenance of system, the bidder should set up their Repair and Maintenance Centers as per requirement. Vendors shall, preferably, establish a service center in each District for supply and installation of the RTS. In case, if it is not economically viable for an individual vendor, then Group of vendors can establish Service Centre in each District. Their contact details will be made available on the website. These service centers have to provide services to the RTS owners within the timelines specified in the contract, free of cost for first five years (Warranty period) of commissioning of the RTS. Non-performing/Under-performing PV Panels will be replaced free of cost in the warranty period. Non-compliance of the service standards by the vendor will make it ineligible for future work orders by the Government and may be blacklisted.



The Programme shall be carried out as given hereunder:-

- (i) The bidders shall be allowed to install the systems conforming to the specifications mentioned in this tender document and MNRE guide lines after allocation of Capacity by PSPCL.
- (ii) For this PSPCL shall allocate capacity/targets to each selected bidders by empaneling them.
- iii) The work covers Consumer identification, Site selection, design, supply, installation, commissioning and comprehensive maintenance for five years.

CAPACITY DISTRIBUTION AND ELIGIBILITY CONDITIONS FOR BIDDERS:

Tentative allocation of 50 MW (subject to allocation to the PSPCL by MNRE) will be distributed among all the Eligible firms/bidders/agencies in all Capacities Ranges. Out of this 50 MW Capacity, PSPCL shall initially allocate tentative 28 MW amongst category-A bidder and 12 MW amongst category –B bidder. PSPCL shall allocate the remaining unallocated capacity of 10 MW (tentative) to bidders/vendors depending upon the performance of empanelled vendors. Any decision regarding allocation of quantity to bidders/vendors shall be sole discretion of PSPCL and binding to all. For any additional allocation/transfer of allocation to any vendor in both Category-A & B subject to unutilized capacity(by vendor) out of total capacity allocated to PSPCL by MNRE for this tender, the decision of the office of Dy. Chief Engineer /IPC,PSPCL shall be final and binding to all. During the execution of work, the allocated capacity/quantity can be altered keeping in view of performance of empanelled individual vendor. The decisions of office of Dy. Chief Engineer /IPC, PSPCL in this regard shall be final and binding to all.

In case a Successful Bidder is facing genuine difficulty in execution of project as per letter of allocation, PSPCL reserves the right to transfer the allocated capacity in full or part to the other Empanelled vendors Apart from this PSPCL shall review the progress in order to complete the work within stipulated period and if required the capacity allocation may change.

PSPCL at any point of time during execution of work can reduce or enhance/alter the allocated capacity of any empaneled vender. The decisions of PSPCL in this regard shall be final and binding to all. The above mentioned category wise allocation (28 MW to Category –A & 12 MW to category-B) is tentative only and PSPCL reserves the right to change in category wise allocation of capacity.

In addition to above it is intimated that PSPCL will grant technical feasibility approval to only those solar cases which are registered through PSPCL solar portal only. Offline applications or applications registered with any other agency shall not be entertained by PSPCL.

--Sd--

Dy. Chief Engineer ,
Investment Promotion Cell
Shakti Vihar, PSPCL Patiala.



GENERAL TERMS AND CONDITIONS:

1. Eligibility Criteria and other Terms & Conditions:

This invitation is open to all EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects who have not been debarred/black listed by any Govt./Semi Govt. organization for design, manufacture, supply, installation, testing and commissioning of different capacity Roof Top Solar Power Projects subject to adherence to following conditions.

- a. The offers shall be accompanied with set of complete technical literature, operation and maintenance manual of the product.
- b. Material shall be strictly as per laid down specifications and if there is any left out specification in the Information Document, the same shall be **considered as per the latest MNRE specifications and guidelines.**
- c. The solar photovoltaic technology (including all forms of photo voltaic) based RTS projects for generation of electricity will be deployed under the Programme. Project proponents to adhere to the national/ international standards specified by MNRE from time to time. **Being subsidized projects (i.e. residential projects) only indigenously manufactured PV panels (both cells and modules) should be used.**
- d. The individual SPV modules shall be warranted for 25 years and being subsidized, only indigenous manufactured PV panels(Both Cells & modules) shall be allowed. The complete SPV systems would be warranted by the manufacturer for five years from the date of commissioning of the Project. After Installation & Commissioning, Solar Rooftop Power Project shall be jointly visited by a committee of supplier/Empanelled agency, user and officer of PSPCL/MNRE within 20 working days.
- e. The companies should have their service network in Punjab and shall provide address of service centers in Annexure –F.
- f. All disputes relating to this work shall be subject to the jurisdiction of Patiala only.
- g. The bidder should also submit an undertaking on its letterhead that all the terms & conditions of the NIT are acceptable to the bidder as per Annexure-A.
- h. The validity of empanelment shall be 11 months from the date of issue of letter of empanelment or maximum upto 15 months from the date of allocation of capacity for installation of RTS systems to PSPCL by MNRE. However, PSPCL can extend /reduce this period as per prevailing conditions at that time and instructions of MNRE amended time to time.
- i. The Empanelled agency shall not claim any subsidy / incentive from MNRE / any other organization for the project sanctioned by PSPCL. PSPCL shall submit all subsidy claim details to MNRE, GOI.
- j. This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the tender document and submit their Bid accordingly. Tenders with any deviation to the bid conditions shall be liable for rejection.

2. Classification of Bidders:

There are two types of bidder categories to be Empanelled through this Tender i.e. Category-A & Category-B vendors. Bidder has to apply in any one of these categories. Under no circumstances, the category selected by the vendor at the time bid submission shall be allowed to change during bid processing/after empanelment. So bidders are required to apply under any category



as per eligibility and with firm decision. The categories are:

(i) **Category -A bidders**

(ii) **Category-B bidders**

Category “A” bidders: shall be those bidders who have experience of successful installation & commissioning of minimum aggregate capacity as detailed below of Grid connected Rooftop Solar in any sector viz. residential, social, industrial, commercial, government, under any other scheme of State Govt./PSU/GoI before scheduled date of submission of technical bid. Such experience should be of the bidder/firm, himself/itself.

Sr. No.	Capacity Range	Minimum financial turnover during any one of last three years	Minimum Capacity of single system or cumulative systems installed during last three years till the last date of tender submission.
	(1)	(2)	(3)
i	1KW	Rs. 20.00 Lac.	3KWp in single plant or 30KWp Cumulative
ii	More than 1 KW to 2 KW	Rs. 40.00 Lac.	5KWp in single plant or 60KWp Cumulative
iii	More than 2 KW to 3 KW	Rs. 60.00 Lac.	8KWp in single plant or 100 KWp Cumulative
iv	More than 3 KW to 10 KW	Rs. 150.00 Lac.	15KWp in single plant or 150 KWp Cumulative
v	More than 10 KW to up to 100 KW	Rs. 300.00 Lac.	120KWp in single plant or 400 KWp Cumulative
vi	More than 100 KW to up to 500 KW	Rs. 500.00 Lac.	400KWp in single plant or 1000KWp Cumulative

Bidder is required to submit the duly certified performance certificate by appropriate Authority or Joint Commissioning Reports or Experience certificate by State Nodal Agency's, for experience and eligibility. The bidder is also required to submit the Balance sheet along with CA certificate of turnover as per Annexure-C. Unaudited balance sheet will not be accepted.

Each Category-A bidder shall initially be allocated capacity of 250KW which can be enhanced at later stage. However, PSPCL reverses the right to allocate less/more than 250 KW to a single bidder depending upon the response in tender and subject to unutilized capacity from the total allocated capacity to PSPCL by MNRE.

Each category-A bidder shall quote capacity in the Annexure-G in the range of 250KW (Minimum) to 2000KW (Maximum).

Note: Bidders not meeting the minimum experience criteria & minimum financial turnover for particular Capacity Range as explained in above table shall not be considered for that particular capacity range. Bidders rejected in Category-A shall not be considered for empanelment under category-B.

Category “B” bidders: shall be those bidders who are new entrepreneur and/or those bidders who are not covered under Category A. These bidders will only be empanelled through this tender provided they agree



to Approved Rate (L1 Rates) and **shall not be required to submit the price bid/Part-III(Annexure-G).**

Note:

1. *Category B bidders shall be required to complete all the process of submitting tender related documents as mentioned in this document to make them qualified in technical bid evaluation process. Those bidders, who are technically qualified, shall be Empanelled subject to their willingness/acceptance to Approved Rate (L1 Rates) for the Capacity Range I,II,III & IV i.e. for 1 KWp, 1KWp to 2KWp, 2KWp to 3KWp & 3KWp to 10 KWp only. The installation capacity offered to one firm will be 100 KW. The decision of PSPCL with respect to allocation of any additional quantity shall be final and binding to all. For any additional allocation/transfer of allocation to any vendor in both Category- A & B subject to unutilized capacity out of total capacity allocated to PSPCL by MNRE for this tender, the decision of the office of Dy. Chief Engineer /IPC,PSPCL shall be final and binding to all.*
2. Maximum 120 vendors shall be empanelled under category-B. The short listing of vendors shall be made on the following criteria:
 - a) Preference shall be given to those who have previous experience in the installation and commissioning of Grid Connected Roof Top Solar Power Projects and short listing of vendors shall be made on basis of experience in installation and commissioning of Grid Connected RTS system.
 - b) The list shall be prepared based upon three factors as follows:
 - i) Previous experience of bidder
 - ii) Turnover of bidder
 - iii) Online submission of tender

A list of 120 no. category –B bidders shall be made based on past experience of installation & commissioning of RTS system and if 120 numbers of bidder are not available with experience then, the remaining list and waiting list shall be prepared on the basis of turnover of the firm (highest of last three Financial years i.e. 2017-18, 2018-19 & 2019-20). In case of tie of experience/turnover then all bidders with same amount of experience/turnover shall be eligible for issue of LOI and the maximum capping of 120 category bidders shall be relaxed. If still the list of 120 category –B bidder is not complete, then the remaining portion and waiting list shall be prepared on the basis of submission of online tender on e-procurement website i.e. “First Submit shall be considered First.”

 - c) If any number of bidder out of first 120 refused to get empanelled at L1 rates then the corresponding number of bidder in waiting list shall be given chance for empanelment subject to acceptance by the bidder to work at discovered L1 rates.
3. Price bid of only those category-A bidders will be opened in online bid opening process who have the experience of successful installation and commissioning of minimum aggregated capacity in KW of Grid connected Rooftop Solar Systems as explained in table (at page no.18) above and fulfill eligibility conditions & evaluation criteria of Tender and fall under Category-A.
4. Under no circumstances, the category selected by the vendor/bidder during bid submission shall be allowed to change during bid processing/after empanelment. So bidders are required to apply accordingly in any category as per eligibility and with firm decision.

Each Category-B bidder shall initially be allocated capacity of 100KW which can be enhanced at later



stage. However, PSPCL reverses the right to allocate less/more than 100 KW to a single bidder depending upon the response in tender and subject to unutilized capacity from the total allocated capacity to PSPCL by MNRE.

5. Any bidder/vendor irrespective of his category i.e. Category-A or B, who is selected for any capacity range shall be eligible for all lower capacity ranges from the capacity range in which he is selected subject to written consent to work at approved L1 rates.

3. Earnest Money:

- a) The Tenderer shall be required to submit Earnest Money for all Capacity Ranges via e-payment gateway on the e-tendering portal Rs.50000/- (Fifty Thousand Only).
- b) In case of Tender not accompanied by full amount of Earnest Money, the tender of such bidder shall be ignored/rejected.
- c) Earnest Money shall be forfeited in case of withdrawal/modification of an offer within the validity period of 120 days from the date of opening of tender, as required in the NIT/Tender Specification after opening of Tender.
- d) The full amount of EMD deposited by the firm will be refunded within 45 days of the issue of letter of empanelment to various successful bidders.
- e) Successful bidder has to submit Bank Guarantee for full amount of security deposit as prescribed in Clause 6 from any Scheduled Commercial Bank after issue of LOA/LOI.
- f) In case of Tenders not accepted, the Earnest Money shall be refunded within 45 days of the issue of letter of empanelment to various successful bidders.
- g) If a firm withdraws its bid before the due date of opening of Tender, the EMD of the firm shall be refunded within 45 days of the issue of letter of empanelment to various successful bidders subject to written request for withdrawal of Bid before the opening of Tender.
- h) No Interest shall be paid by PSPCL on EMD deposited by the tenderer/bidder

4. Price:

- a) Price in Rs____/ KWp are to be quoted online on e-procurement portal only by the bidders for the each Capacity Range as defined in eligibility criteria i.e.1 KWp, More than 1 KWp to 2KWp, More than 2 KWp to 3KWp, More than 3KWp to 10 KWp ; More than 10 KWp to 100 KWp; More than 100 KWp to 500 KWp.
- b) All tender offers shall be evaluated on the price in Rs____/KWp basis for each of the Rooftop SPV System Capacity Range inclusive of total system cost and its installation, testing, commissioning, transportation, insurance, five years AMC/CMC total system cost including Photo voltaic solar modules, inverters, balance of systems, including cables, switches/circuit – breakers/connectors/junction boxes, mounting structure, earthing, lightning arrestor, cost of meters (if any, other than net meter), local connectivity cost, cost of civil works, foundation etc. and its installation, testing, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years, applicable fees and taxes etc. for determining L1 rate in each Capacity Range. The above costs are excluding net-metering cost and battery backup cost.



- c) The rates quoted by the bidder will be inclusive of GST, or any other taxes applicable to such work. Any Change in law in respect of taxes shall be applicable as per guidelines issued by MNRE/GOI from time to time.
- d) The tenderer shall quote the rate both in figure as well as in words.
- e) The “Approved Lowest Rate”, discovered during the tender process, will become the basis for Central Finance Assistance (CFA) to be given to the eligible Consumers/ beneficiaries. In the event that the discovered lowest price is higher than that the benchmark cost of MNRE, the benchmark cost shall only be treated as lowest price.

5. **Fee for Empanelment:**

All successful bidders, who agree to work on approved L1 rate have to pay one time non-refundable Empanelment Fee as detailed Below:

Sr No	Category of Bidder	Capacity range	Empanelment fee (in Rs)	GST @18%	Total(in Rs)
1	Category A & B	1KW	10000	1800	11800
2	Category A & B	More than 1 KW to 2 KW	20000	3600	23600
3	Category A & B	More than 2 KW to 3 KW	30000	5400	35400
4	Category A & B	More than 3 KW to 10 KW	40000	7200	47200
5	Category A Only	More than 10 KW to up to 100 KW	50000	9000	59000
6	Category A Only	More than 100 KW to up to 500 KW	60000	10800	70800

Note: If any Bidder/ firm/agency is selected for multiple capacity ranges for empanelment, then he has to deposit the Empanelment Fee applicable only for highest capacity ranges in which the bidder/firm/agency is selected.

The empanelment fee shall be deposited to PSPCL in the form of DD in favour of Accounts officer/Thermal Design, PSPCL, Patiala with in 15 days from the issue of LOA/LOI or can be deposited online as per directions of PSPCL.

6. **Security Deposit/Performance Bank Guarantee:**

- a) The successful bidders who are selected for empanelment by PSPCL for the work shall have to furnish security amount only in the form of Bank Guarantee @ Rs. 2000 per KW subject to maximum of Rs 15,00,000/-(Fifteen Lac) with in prescribed time frame. The Bank Guarantee must be in favour of Dy. Chief Engineer /IPC, PSPCL Patiala. The amount of Performance Bank Guarantee/Security Deposit shall be as follows:

Sr No	Category	Minimum Allocated capacity (KW)	Minimum Security Amount (Rs)
1	Category A	250	5,00,000/-
2	Category B	100	2,00,000/-

In the event PSPCL allocate less/more than the above prescribed allocation, then security amount shall be calculated as per point 6(a) above subjected to maximum of Rs. 15,00,000/- (Fifteen lac). The Performance Bank Guarantee will be returned after successful completion of warranty period of 5 years from the last date of empanelment.

- b) The Bank Guarantee must be valid for a period of 66 months from last day of validity of empanelment.



If in any case the validity of empanelment is extended, then the bidder has to increase the validity of the Bank Guarantee to 66 months from the extended last date of empanelment. The Bank Guarantee may be issued by a scheduled commercial Bank. Bank Guarantee shall be in favour of " Dy.Chief Engineer /IPC, PSPCL Patiala". Account details for Bank guarantee are: as follows:

Name of Bank : State Bank of India.
 Account Number : 55124744442
 IFSC Code : SBIN0050012

- c) The aforesaid Bank Guarantee shall be furnished after issue of LOA/LOI within prescribed time limit, failing which the eligibility for empanelment is liable to be cancelled.
- d) The bidder has to submit the requisite Bank Guarantee as per allocation within the time limit specified by PSPCL. In the event of non-submission of Security amount/ Bank Guarantee within specified time frame, it is assumed that the Bidder is not interested in getting Empanelled and its allocation is liable to be rejected.
- e) Bidder has to be extra careful while asking for additional capacity from PSPCL as the capacity shall be the basis of amount of Security deposit/Bank Guarantee.
- f) In the event of assignment of extra work by PSPCL to any Empanelled vendor, the eligible vendor has to submit additional requisite security deposit/bank guarantee of prescribed validity within the timeframe provided by PSPCL. The bidders who has already deposited full Security deposit of Rs.15 Lakh (Fifteen lakh) against this tender as security shall not be required to deposit additional security/bank guarantee if extra work is allocated to them within empanelment period.
- g) The aforesaid BG's shall only be returned to empanelled vendor after completion of 5 years from the last date of Empanelment.
- h) The aforesaid BG's shall also not be refunded/ returned for unused capacity out of the total capacity allocated to any bidder/Empanelled vendor by PSPCL at any point of time.
- i) The aforesaid BG's are only applicable for works completed, installed and commissioned in this tender only.

7. TIME LINE FOR COMPLETION & PENALTY AGAINST NON PERFORMANCE

Each bidder has to abide by the time line as prescribed in below table, otherwise penalty for non performance will be imposed upon the bidder.

Sr No	Time line	Commissioning of work	Penalty (Rs)	GST @ 18 %	Total (Rs)
1	Full empanelment period	If More than or equal to 80 % of initial allocated capacity	NIL	NIL	NIL
		If Less than 80 % and up to 50% of initial allocated capacity	50,000/-	9000/-	59,000/-
		If Less than 50 % of initial allocated capacity	1,00,000/-	18,000/-	1,18,000/-

*Note: only installed (work completion report submitted) or inspected or commissioned (installation of bi-directional meters) plants shall be taken into account while taking decision regarding penalty.

The penalty shall be levied depending upon the capacity installation by vendor after full empanelment



period. To motivate Vendors and promote Solar rooftop projects under subsidy, NO Penalty shall be imposed on Empanelled vendor for not installing RTS projects w.r.t any additional allocated capacity on his request.

The penalty shall be deposited to PSPCL in the form of DD in favour of Accounts officer/Thermal Design, PSPCL, Patiala with in 15 days from the issue of letter of penalty or can be deposited online as per prevailing instructions of PSPCL . Empanelled vendor has to deposit the imposed penalty within 15 days from issue of letter, failing which the vendor will not be eligible for any future tenders and business dealing of all types with the vendor will be terminated as decided by PSPCL Management. Further, whole of the security amount/BG deposited with PSPCL shall be forfeited.

However, the time line can be extended in the case of force majeure situations and PSPCL is at liberty for any decision regarding waiving off/relaxation of penalty in the event of force majeure conditions.

--Sd—
Dy.Chief Engineer ,
Investment Promotion Cell
Shakti Vihar, PSPCL Patiala.



OTHER CONDITIONS:**1. SCOPE OF SUPPLY:**

The Rooftop SPV Power Plants should be supplied & installed by the companies as per specifications given in technical specifications which comply with the MNRE, GOI Guidelines. Following parts for each SPV project are broadly required to be supplied.

- a) SPV Module of capacity range from 250Wp and above.
- b) Power conditioning Unit (PCU) of 1KW and above.
- c) PVC insulated Copper cables as per BIS Codes for AC & DC inter-connections.
- d) Junction Boxes with Surge Protection Device (SPD).
- e) Structure for solar PV project -MS Galvanized / Aluminum/ Stainless Steel/ PosMAC
- f) AC Distribution Panel Board (ACDPB) with SPD and MCB/MCCB, Uni-directional solar meter and necessary protection as per CEI rules and safety regulations.
- g) Lightening Arrestor.
- h) Danger Board.
- i) Earthing as per BIS/ISI standards required for the SPV Power Plant.
- j) Remote monitoring system on all the system installed.
- k) O&M manual and warranty card. The manual shall include the all diagrams and instructions to operate and maintain the whole plant.
- l) The process and expenditure of meter testing and electrical inspection.
- m) Any other part as per site requirement.

2. COMPREHENSIVE MAINTENANCE CONTRACT DURING WARRANTY PERIOD OF FIVE YEARS:

- a) Visit to the site on call basis to provide maintenance services within three days of lodging of complaint.
- b) Corrective & remedial maintenance services to set right the malfunction of the SPV-projects include supply and replacement of all damaged parts/ components including electronics/ charge controller, Inter connected cables/ parts and fuse etc. with new parts.

3. OPERATION & MAINTENANCE MANUAL:

An Operation, Instruction and Maintenance Manual should be provided with the Solar PV projects. The following minimum details must be provided in the Manual:-

- a) Basic principles of Photovoltaic.
- b) A brief write-up (with a block diagram) on the Solar PV project - its components, PV module, inverter, junction boxes and expected performance shall be provided.
- c) Type, Model number, Voltage & capacity of inverter, used in the system.
- d) The make, model number, country of origin and technical characteristics of all the components are required to be provided.
- e) Clear instructions on regular maintenance and troubleshooting of the Solar PV Projects.
- f) DO's and DONT's.
- g) Name, address and Mobile No. of the contact person for repair and maintenance, in case of non-functionality of the SPV Projects

**4. INSPECTION AND TESTS:**

Duly authorized representative of PSPCL shall have, at all reasonable time, access to the beneficiary premises and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the works during installation and after commissioning.

5. WARRANTY:

- a) The Firm/Bidder/agency shall be solely responsible from commencement up to completion of the work. Bidder shall be responsible for any loss or damage happened at the work place or during the erection of the plant, commissioning & testing shall, at its own cost & vendor shall arrange for repair or compensation.
- b) The Firm/Bidder/agency shall warranty that the equipment used in installing the plant are new and unused.
- c) The Firm/Bidder/agency shall provide warranty, of the complete power plant towards any defect in design of the plant, equipment used including spare parts for a period of five(5)years from the date of Commissioning of the plant. The Warranty period shall be of 25 Years for the PV modules.
- d) Any defect noticed in the power plant during the period of five (5) years from the date of Commissioning of the power plant shall be rectified/replaced by the Firm/Bidder/agency/vendor on its own motion or on due intimation by the PSPCL or by the owner/beneficiary of the plant, as the case may be, free of charges.
- e) The PV module(s) shall be warranted for a minimum period of 25 years from the date of commissioning of the project. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty five (25)years.
- f) The replacement of the defective component at the cost of Firm/Bidder/agency shall be made with similar and/or equivalent make. The replaced components shall not, under any situation, reduce the performance of the plant.
- g) The Firm/Bidder/agency/vendor shall commence the replacement/rectification of the defect within three (3) days from the date of identification of such defect and shall rectify the defect within mutually agreed time; failure in doing so shall enable the PSPCL to rectify the defect at the expense of Firm/Bidder/agency/vendor.
- h) The Firm/Bidder/agency/vendor shall provide warranty certificate along with the Commissioning report to the Beneficiaries/PSPCL.
- i) Since the maintenance of the system may also be taken up by the Firm/Bidder/agency/vendor after expiry of 05 years of warranty period if the end user/"PSPCL" so desires, the Firm/Bidder/agency/vendor shall take up annual maintenance of the installed system.
- j) The Firm/Bidder/agency hand-over the respective plant to the user after its successful commissioning in excellent condition. At the time of handing over all the performance tests of the major equipment shall be demonstrated to the user and PSPCL to ensure Generation from the Solar Photovoltaic Power Plant. While handing over the plant, the Firm/Bidder/agency shall also hand over all technical documents, literature, instruction manuals, lists of spare part & tools &tackles.
- k) The Comprehensive Maintenance (within warranty period) may be executed by the firm themselves or



through the service center of the firm in the concerned district/Division with the consumer/beneficiary.

- l) The service personnel of the Successful Bidder will make routine quarterly maintenance visits. The maintenance shall include thorough testing & replacement of any damaged parts, apart from any complaint registered/ service calls received / faults notified in the report generated by the IVRS, should be attended to and the system should be repaired/ restored/ replaced within 3 days.
- m) Normal and preventive maintenance of the SPV Rooftop Power Plant systems will also be the duty of the deputed personnel during quarterly maintenance visits.
- n) During operation and maintenance period of the SPV Rooftop Power Plant systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the Firm/Bidder/agency shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.
- o) Vendors shall establish a Service Centre, preferably, in each District for supply and installation of the RTS. The vendor shall put contact details of Service Centre (at any suitable place) at every Project Site. In case, if it is not economically viable for an individual vendor, then Group of vendors can establish service Centre in each District. Their contact details will be made available on the website. These service centers have to provide services to the RTS owners within the timelines specified in the contract, free of cost for first five years (Warranty period) of commissioning of the RTS. Non-performing/Under-performing PV Panels will be replaced free of cost in the warranty period. Non-compliance of the service standards by the vendor will make it ineligible for future work orders by the Government and may be blacklisted.

6. PATENT RIGHT AND ROYALTIES:

The Firm/Bidder/agency/vendor shall indemnify the “PSPCL” against all third party claims of Infringement of patent, royalty's trademark or industrial design rights arising from use to the goods or any part thereof.

7. TERMINATION FOR INSOLVENCY:

PSPCL may, at any time, terminate the Empanelment by giving written notice to the Firm/Bidder/agency/vendor without compensation to the Firm/Bidder/agency/vendor, if it becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the “PSPCL”.

8. TERMINATION OF EMPANELMENT:

In addition to this, at any stage, if it is found that any empanelled agency is not commissioning/has not commissioned the projects as per PSPCL/MNRE guidelines or not adhering to terms and conditions of Tender or using /have used material /equipment which is not prescribed in PSPCL/MNRE guidelines , then the empanelment is liable to be cancelled along with blacklisting of the firm as decided by the competent authority.

9. VALIDITY OF EMPANELMENT:

The validity of empanelment under this tender shall be for 11 months from the date of issue of letter of empanelment or maximum upto 15 months from the date of allocation of capacity for installation of



RTS systems to PSPCL by MNRE. However, PSPCL can extend /reduce this period as per prevailing conditions at that time and instructions of MNRE amended time to time. PSPCL reserves the right to extend or to reduce the validity of empanelment period of the vendors without any extra cost or refund of empanelment fee.

10. EXTENSION AND PRE-TERMINATION OF EMPANELMENT:

The validity of the empanelment may be extended or pre terminated by PSPCL without any extra cost or refund of empanelment fee to the Empanelled vendor(s). The decision of Director/Generation in this regard shall be final and binding to all.

After extension or pre-termination of empanelment period, the security amounts shall be refunded after successful completion of warranty period of 5 years from the last date of empanelment period which is determined after extension or pre-termination.

In addition to this, the timeline for the calculation of penalty as per clause no.7 of general terms and conditions shall be amended in case of extension or pre-termination of empanelment by PSPCL. In the event of extension of validity of empanelment (i.e. extension in Last date for completion of Projects as per empanelment letter) penalty shall not be imposed as per Last date of Validity of empanelment but shall be imposed as per extended date of validity of empanelment, subject to conditions as per penalty clause no.7 of general terms and conditions. The decision of Director/Generation in this regard shall be final and binding to all.

No Penalty shall be levied in the event Pre-Termination of empanelment by PSPCL in case of Force Majeure circumstances.

11. ALLOCATION/ASSIGNMENT & REASSIGNMENT OF WORK BY PSPCL

PSPCL shall allocate the work and timeline for completion of work to all the Empanelled vendors based upon their performance and capacity quoted by respective bidder. It is full responsibility of the bidder only to complete the allocated capacity/work within the specified time frame. In the event of non-completion of work/unsatisfactory work/ slow progress of work/ denial of work, PSPCL can take action as per provisions of the tender and shall assign the work to other Empanelled vendors. The decision of PSPCL in this regard is final and binding to all.

In the event of reassignment/transfer of work, PSPCL shall not refund the part of security deposit/Bank guarantee of unutilized capacity of the Empanelled vendor. The security shall only be refunded after completion of requisite warranty period.

In the event any PSPCL electricity consumer want to install solar power plant in subsidy and approaches PSPCL, then the consumer will be referred to empanelled vendors of that particular district/ neighboring district or any other empanelled vendor as assigned by PSPCL. The decision of Dy.CE/IPC ,PSPCL in this regard is final and binding to all.



12. FORCE MAJURE

- a) Force Majeure” shall mean any event beyond the reasonable control of the Empanelled Vendor or Firm , as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following:
- i. war, hostilities or warlike operations (whether war be declared or not), invasion, act of foreign enemy and civil war,
 - ii. rebellion, revolution, insurrection, mutiny, usurpation of government, riot and civil commotion,
 - iii. earthquake, landslide, volcanic activity, flood or cyclone, or other inclement weather condition, nuclear and pressure waves or other natural or physical disaster,
- b) Notwithstanding the provisions of clauses contained in this NIT document, the contractor shall not be liable to forfeit (a) PBG for delay and (b) termination of contract, if he is unable to fulfill his obligation under this contract due to force majeure conditions.
- c) For purpose of this clause, "Force Majeure" means an event beyond the control of the Empanelled Vendor and not involving the Empanelled Vendor 's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes etc. Whether a “Force majeure” situation exists or not, shall be decided by DISCOM and its decision shall be final and binding on the Empanelled Vendor and all other concerned.
- d) In the event that the Empanelled Vendor is not able to perform his obligations under this Empanelment on account of force majeure, he will be relieved of his obligations during the force majeure period. In the event that such force majeure extends beyond six months, PSPCL has the right to terminate the Empanelment in which case, the proportional Performance Bank Guarantee of the unutilized capacity shall be refunded to the Empanelled Vendor.
- e) If a force majeure situation arises, the Empanelled Vendor shall notify PSPCL in writing promptly, not later than 14 days from the date such situation arises. The Empanelled Vendor shall notify PSPCL not later than 3 days of cessation of force majeure conditions. After examining the cases, PSPCL shall decide and grant suitable additional time for the completion of the work and relaxation/ waiving off penalty clause, etc, if required.
- f) The period of force majeure shall not be counted for levy of penalty and requisite extension in time shall be granted in the event of force majeure event subject to approval from MNRE/PSPCL management.

13. OTHERS:

- a) I-V curve of the each module, technical details such as V_{oc} , I_{sc} , FF, Cell Efficiency and P_{max} etc. shall be supplied along-with each consignment copy of same shall be handed over to Beneficiaries/PSPCL.
- b) The Firm/Bidder/agency/vendor will ensure the training to end users/beneficiary, focusing on main features, operation and maintenance of these systems.



- c) The Firm/Bidder/agency/vendor shall continue to provide spare parts after the expiry of warranty period at the end users/Beneficiary cost.
- d) It shall be the sole responsibility of the Firm/Bidder/agency/vendor to get verified the quality & quantity of the supplied material at the site of delivery.

14 POST COMMISSIONING ACTIVITIES:

On completion of work, the Firm/Bidder/agency/vendor shall submit all the documents related to the execution of contract and implementation of Rooftop Solar Photovoltaic Power Plants including,

- a) Detailed Project Report including layout and drawings of the commissioned plant.
- b) All the consent, clearance and approvals.
- c) Testing Certificate of Solar Module (including Serial No and other details), PCU and Battery from MNRE/ BIS /IEC /NISE or any other Govt. Authorized Test Center.
- d) Plant Charging/ Commissioning Certificate.
- e) Photograph of site before Installation and after Installation.
- f) Joint Inspection Report
- g) Geo Coordinates of the project location

15. PAYMENTS:

- a) Payment of the project cost, **excluding the MNRE Subsidy**, shall be paid by the beneficiaries directly to the Empanelled firm. The MNRE Subsidy shall be paid by **PSPCL (AUTHORISED BY MNRE)** to the Empanelled Firms on completion of the project, verification by PSPCL / third party inspector appointed by PSPCL and receipt/availability of the CFA/MNRE Subsidy as per MNRE guidelines.
- b) Copies of invoices after joint inspection shall also be uploaded to PSPCL/SPIN Solar Rooftop Web Portal along with Inspection Report, photographs and required documents as required by PSPCL.
- c) The eligible Central Financial Assistance (CFA) of MNRE shall be claimed as per MNRE/ PSPCL guidelines through online web portal by empaneled vendor by uploading all required documents by PSPCL. PSPCL shall release the eligible CFA to firm based on sanction received by MNRE/Government of India and availability of funds. Any delay in releasing of Subsidy/CFA by MNRE will not be attributed towards PSPCL.
- d) The office of Dy.Chief Engineer /IPC,PSPCL will issue orders for release Central financial assistance (CFA)/Subsidy to the Empanelled Vendor after getting the CFA/Subsidy from MNRE after proper checking of documents related to every subsidized solar RTS project. Thereafter, Accounts Officer/thermal design shall make payments to respective empanelled vendors.

16. PROJECT INSPECTION:

- a) Project(s) shall be inspected by concerned field offices of PSPCL.
- b) The projects may be got inspected by MNRE from any third party or MNRE itself. All the expenses for such third party/MNRE inspection shall be borne by the Firm/Bidder/agency/vendor only.
- c) PSPCL reserves the right to do sample inspection checks for the projects commissioned by the Bidder/Vendor.
- d) In case the systems are not as per standards, non-functional on account of poor quality of installation, or non-compliance of AMC, the PSPCL/MNRE reserves the right to blacklist the vendor.



13. INSURANCE:

- a) The Empanelled Vendor shall be responsible and take an Insurance Policy for transit cum-storage-cum-erection for all the materials to cover all risks and liabilities for supply and storage of materials at site, erection, testing and commissioning.
- b) The Empanelled Vendor shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/ material/ equipment/ properties during execution of the Work. The Empanelled Vendor will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder/vendor/installer.

--Sd--
Dy.Chief Engineer ,
Investment Promotion Cell
Shakti Vihar, PSPCL Patiala.



SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

A) Scope Of Work:

- a) Scope of work covers Design, Supply, Installation, Testing, Commissioning and five years Comprehensive Warranty, Maintenance and Operation of Grid Connected SPV Rooftop Plant under Net Metering as per the technical specifications of the Tender.
- b) Wiring up to Distribution Board from the SPV Rooftop system will be in the scope of the /vendor/firm agency.
- c) Performance testing of the complete system.
- d) The Empanelled Vendor will get work of its own from PSPCL consumers. The Invoice, technical details of Module, PCU etc. along with test reports, testing and commissioning report of plant, Joint Inspection Report, Net Metering, Work Completion & Synchronization Reports and Installed System Photographs have to be uploaded to PSPCL/SPIN rooftop website for release of CFA provided by MNRE.
- e) A leaflet containing the details of operation and address/contact details of the service centers shall be provided to each end user/beneficiary.
- f) The Firm/Bidder/agency/Vendor shall do necessary coordination with concerned agencies like DISCOM for procuring necessary approvals on behalf of the End User/ Beneficiary/consumer on request of End User/ Beneficiary/consumer.

B) Technical Specifications:

1. Solar Photovoltaic Modules:

Each Solar PV Plant Array Capacity should not be less than the capacity of the same SPV Plant capacity and it should comprise of solar Mono/Multi Crystalline/Bifacial Modules of minimum 250 watts. The Photovoltaic Modules must be tested & approved by one of the IEC authorized test centers, test Certificates can be from any of the NABL / BIS accredited testing / calibration laboratories. The module type must conform to IEC 61215 (Second Edition). In addition, PV modules must qualify to IEC 61730 Part I to II for safety qualification testing. SPV module conversion efficiency should not be less than 15.0% under STC.

The module shall have warranty of 25 years with degradation of power generated not exceeding 20% of the minimum rated power over the 25 years period and not more than 10% after 10 years period. Fulfillment of the warranty obligations of the complete solar system shall rest with System Integrator who in turn may claim the same from the component manufacturers.

2. Identification and Traceability:

Each PV module used in any solar power project must use a **RFI identification Tag (RFID)**, which must contain the following Information:

- a) Name of the manufacturer of PV Module
- b) Name of the manufacturer of Solar Cells
- c) Month and year of the manufacture (separately for Solar Cells and Modules).
- b) Country of Origin (separately for Solar Cells and Modules)
- c) I-V Curve for the Module
- d) Peak wattage , I_m , V_m and FF for the Module
- e) Unique Serial No and Model No of the Module
- f) Date and year of obtaining IEC PV module qualification certificate.



- g) Name of the test lab issuing IE Certificate

3. SPV Panel Array Structures:

The supplier shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. Such details shall include, but not limited to the following:

- a) Determination of “true south” at the site
- b) Array tilt angle to the horizontal, with permitted tolerance
- c) Details with drawings for fixing the modules
- d) Details with drawings of fixing the junction/terminal boxes
- e) Interconnection details inside the junction/terminal boxes
- f) Structure installation details and drawings
- g) Electrical grounding (earthing)
- h) Inter-panel/Inter-row distances with allowed tolerances and
- i) Safety precautions to be taken

The array structure shall support SPV modules at a given orientation to absorb and transfer the mechanical loads to the roof properly. The portion of array structure if any lying within the column shall be of superior quality MS Galvanized / Aluminum/ Stainless Steel/ PosMACas per scope of supply. All nuts and bolts shall be of very good quality stainless steel.

- a) Wherever required, Suitable number of PV panel structures shall be provided. Structures shall be of flat-plate design and can be a combination of I, C and L or any sections as per structure design requirement.
- b) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Wherever steel is used, galvanizing should meet ASTM A-123 hot dipped galvanizing or equivalent which provides at least spraying thickness of 70 microns as per IS5909.
- c) MS Galvanized / Aluminum/ Stainless Steel/ PosMAC Coated structures with adequate strength and in accordance with relevant BIS standards shall be used with proof that the design of the structure can withstand a wind speed up to 150KM per hour. The structure should be non - penetrating and low height.
- d) Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.
- e) Each structure should have angle of inclination as per the site conditions to take maximum insulation.
- f) The base plate and vertical section of the structure should be minimum of 3 mm thickness.
- g) Each panel frame structure be so fabricated as to be fixed on the rooftop column/wall structures. The structures shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. If prior civil work or support platform is absolutely essential to install the structures, the empanelled firm/bidder will make such arrangements as per suitability/standards. All nuts and bolts shall be of very good quality stainless steel except foundation bolts which will be of MS (GI Coated).
- h) If possible, 4ft. offset from boundary of rooftop from all sides should be kept while installing



structure for modules.

- i) The cost of civil work / grouting of structure shall be in the scope of the bidder only and no extra cost to be demanded by the empanelled vendor.
- j) **No damage in any way should be caused to the building rooftops while installation of SPV Power Plant. If any damage done it will wholly be the responsibility of the bidder and cost shall be recovered from the bidder.**
- k) In case the bidder installs SPV Power Plant on raised structure with lower edge at 7 feet and above, then the party shall submit Structure Safety Certificate from Chartered Structure Engineer/Architecture that structure is safe up to the wind speed of 150 km/hr.

4. Power Conditioning Unit (String Invertors):

The power conditioning units of different capacity SPV Power Plants should not be less than the capacity of SPV Power Plant and it should be provided to convert DC power produced by SPV modules, in to AC power. A multifunction power conditioning system combining the functionality of a grid interactive solar inverter with a highly efficient conversion unit is having following Technical Specifications of String Invertors:

Type	: Self-commuted, current regulated, high frequency IGBT based with Trench Gate Structure
Output voltage	: Single Phase, 230VAC & 3 Phase, 415VAC (+12.5% - 20%VAC)
Frequency	: 50 Hz \pm 1 Hz
Continuous rating	: Not less than system capacity individually
DC input Operating range	: Upto 1000 V nominal
Total Harmonic Distortion	: less than 3 %
Operating Temperature Range	: 0 ⁰ to 55 ⁰ deg C
Housing cabinet	: PCU to be housed in suitable cabinet with minimum IP65 standard
Inverter efficiency	: >95 % at full load.
Power Control	: MPPT

The Technical Specifications of Micro Inverters are as following:

Type	: Self-commuted, current regulated, high frequency FET / IGBT based
Output voltage	: Single Phase, 230V, AC/ 3 phase, AC can be produced by changing the topology of connections of Micro Inverters (+12.5%, - 20%V, AC) as per requirement.
Frequency	: 50 Hz \pm 1Hz
Continuous rating	: Not less than the max power output of modules
DC input Operating range	: It should in between 16V to 62 V
Total Harmonic Distortion	: less than 3%
Operating temperature Range	: 0 ⁰ to 55 ⁰ C
Housing cabinet	: PCU to be housed in suitable cabinet with minimum IP67 standard
Inverter efficiency	: >95 % at full load.
Power Control	: MPPT



In case of any fault in the PCU/Inverter during the CMC period of 5 years ,the bidder shall use the new & original parts only. In case the new & original part/parts are not available with the manufacturer of the PCU/Inverter (Based on certificate from the manufacturer), the bidder shall use the new parts of other standard brands available in the market or will use the repaired parts.

IEC Certificates required with Micro/String Inverters :

Sr. No.	IEC Certificates
1	Environmental Testing IEC 60068-2, all relevant clauses.
2	Efficiency Measurements IEC 61683:1999
3	Product Safety Standards IEC 62109-1 (2010) IEC 62109-2 (2011)
4	Grid Connectivity Standard/Utility Interface IEC 61727:2004
5	Test Procedure for Islanding prevention IEC 62116:2008 or IEEE 1547 & 1547.1
6	Electromagnetic Compatibility & Electromagnetic interface IEC61000-As applicable

Other Important Features/ Protections Required in the PCU (String/Micro):

- a) Authentic tracking of the solar arrays, maximum power point tracking (MPPT).
- b) Array ground fault detection.
- c) LCD and piezoelectric keypad operator interface Menu driven. Not required in case of Micro Inverter.
- d) Automatic fault conditions reset for all parameters like voltage, frequency and/or blackout.
- e) MOV and gas filled spark gap technology type Surge Arresters on AC and DC terminals for over voltage surge protection from any source.
- f) PCU should be rated to operate at 0 to 55 deg. centigrade above ambient temperature.
- g) All parameters should be accessible through an industry standard communication link.
- h) **The grid tie inverter must have the Anti-islanding protection feature which can detect loss of grid power in fractions of second and switch off the grid tie inverter automatically.** The PCU should go in sleep mode when there is no grid supply.
- i) The string inverter should have display of adequate size on its front panel to show various parameters.
- j) Since the PCU is to be used in Solar Photovoltaic Energy System, it should have high operational efficiency. The idling current at no load must not exceed 2% of the full-load current.
- k) A suitable Surge Protection Device separately at output (A.C. side) shall be provided for each SPV Power Plant.
- l) The PCU output shall be 230VAC for single phase and 415VAC, 50 Hz for 3 phase.
- m) 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. The self-protective features shall not allow signals from the PCU front panel to cause the PCU to be operated in a manner which may be unsafe or damaging. Faults due to malfunctioning within the PCU, including commutation failure, shall be cleared by the PCU protective devices and not by the existing site utility grid service circuit breaker. The PCU shall go to shut down/standby mode, with its contacts open, under the following



conditions before attempting an automatic restart after an appropriate time delay; in sufficient solar power output etc.

Insufficient Solar Power Input

When the power available from the PV array is insufficient to supply the losses of the PCU, the PCU shall go to a standby/shutdown mode. The PCU control shall prevent excessive cycling during rightly shut down or extended periods of insufficient solar radiation.

The power conditioning units / inverters should be as per applicable IEC/ equivalent BIS standard for efficiency measurement and environmental testing as per standard code IEC 61683 and IEC 60068 2(1,2,14,30). The junction boxes/ enclosures should be IP 65(for outdoor)/ IP 54 (indoor) and as per IEC 62208 specifications.

The PCU's should be tested from the MNRE approved test centers / NABL/BIS accredited testing-calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses. Party must supply and upload the test report of PCU /inverter along with the tender document.

Utility-Grid Over or Under Frequency

- a) The PCU shall restart after an over or under frequency shutdown when the utility grid voltage has returned within limits for minimum of two minutes.
- b) The PCU generated harmonics measures at the point of connection to the utility services when operating at the rated power shall not exceed a total harmonic current distortion of 3 percent, a single frequency current distortion of 3 percent and single frequency voltage distortion of 1 percent, when the first through the fiftieth integer harmonics of 50 Hz are considered.
- c) The PCU Power factor at the point of utility service connection shall be 0.95 lagging or leading when operating at above 25 percent of the rated output, but may be less than 0.95 lagging below 25 percent of the rated output.
- d) The high voltage and power circuits of the PCU shall be separated from the low-voltage and control circuits. All conductors shall be made of standard copper.
- e) The PCU shall withstand a high voltage test of $2000 V_{rms}$, between either the input or the output terminals and the cabinet(chassis).
- f) Full protection against accidental open circuit and reverse polarity at the input shall be provided.
- g) The PCU shall not produce Electromagnetic Interference (EMI) which may cause malfunctioning of electronic and electrical instruments including communication equipment, which are located within the facility in which the PCU is housed.
- h) The PCU shall have an appropriate display on the front panel to display the instantaneous AC power output and the DC voltage, current and power input. The display shall be visible from outside the PCU enclosure. Operational status of the PCU, alarms, trouble indicators and ac and the dc disconnect switch positions shall also be communicated by appropriate messages or indicator lights on the front cover of the PCU enclosure.



5. Electrical Safety, Earthing and Protection:

- a) Internal Faults: In built protection for internal faults including excess temperature, commutation failure, overload and cooling fan failure (if fitted) is obligatory.
- b) Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations in the grid itself and internal faults in the power conditioner, operational errors and switching transients.
- c) Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
- d) Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
- e) Fast acting semiconductor type current limiting fuses at the main bus- bar to protect from the grid short circuit contribution.
- f) The PCU shall include an easily accessible Emergency OFF button located at an appropriate position on the unit.
- g) The PCU shall include ground lugs for equipment and PV array grounding. The DC circuit ground shall be a solid single point ground connection in accordance with WEC69042.
- h) All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 10 years design life of the unit.
- i) The PCU enclosure shall be weatherproof and capable of surviving *climatic changes and should keep the PCU* intact under all conditions. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.
- j) Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.
- k) All doors, covers, panels and cable exists shall be gasketed or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks. All openings shall be provided with grills or screens with openings no larger than 0.95cm.
- l) The design and fabrication of the PCU, the site temperature (0° to 70° C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking, for blocking diodes and similar components.

6. Factory Testing:

- a) Preparation of all controls, protective and instrumentation circuits shall be demonstrated by direct test if feasible or by simulation operation conditions for all parameters that cannot be directly tested.
- b) Operation of start-up, disconnect and shutdown controls shall also be tested and demonstrated. Stable operation of the PCU and response to control signals shall also be tested and demonstrated.
- c) Factory testing shall include measurement of phase currents, efficiencies, harmonic content and power factor.
- d) A Factory Test Report (FTR) shall be supplied along with the unit. The FTR shall include detailed



description of all parameters tested qualified and warranted.

7. **Operating Modes:**

The following operating modes are to be made available.

- a) **Night or Sleep Mode:** Where the inverter is almost completely turned off, with just the timer and control system still in operation, losses should not exceed 2 watts per 5 kilowatt.
In case of Grid Failure, the PCU should go in sleep mode/ turned off immediately.
- b) **Standby Mode:** Where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 20 watts).
- c) **Operational or MPP Tracking Mode:** The control system continuously adjusts the voltage of the generator to optimize the power available. The power conditioner must automatically re-enter stand-by mode when input power reduces below the standby mode threshold. Front Panel display should provide the status of the PCU, including AC Voltage, Current, Power output & DC Current, Voltage and Power input, pf and fault Indication (if any).

8. **Harmonics Standard:**

As per the standard of IEEE 519, the permissible individual harmonics level shall be less than 3% (for both voltage and current harmonics) and Total Harmonics Distortion (THD) for both voltage and current harmonics of the system shall be less than 5%.

Technical and interconnection requirements:

Parameter	Reference	Requirement
Overall conditions of Service	State Distribution/Supply Code	State Distribution/Supply Code
Overall Grid Standards	Central Electricity Authority (Grid Standard) Regulations 2010	Central Electricity Authority (Grid Standard) Regulations 2010
Meters	Central Electricity authority (Installation & operation of meters) Regulation 2006 as amended time to time	Central Electricity authority (Installation & operation of meters) Regulation 2006 as amended time to time
Safety and supply	Central Electricity Authority(measures of safety and electricity supply) Regulations, 2010	Central Electricity Authority(measures of safety and electricity supply) Regulations,2010
Harmonic Requirements Harmonic Current	IEEE 519 CEA (Technical Standards for Connectivity of The Distributed Generation Resources) Regulations2013	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Synchronization	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Photovoltaic system must be equipped with a grid frequency synchronization device. Every time the generating station is synchronized to the electricity system. It shall not cause voltage fluctuation greater than +/- 5% at point of connection.
Voltage	IEEE 519 CEA (Technical Standards for Connectivity of the	The voltage-operating window should minimize nuisance tripping and should be under operating



	Distributed Generation Resources) Regulations 2013	range of 80% to 110% of the nominal connected voltage. Beyond a clearing time of 2 second, the photovoltaic system must isolate itself from the grid.
Flicker	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Operation of Photovoltaic system should not cause
Frequency	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	When the Distribution system frequency deviates outside the specified conditions (50.5 Hz on upper side and 47.5 Hz on lower side), There should be over and under frequency trip functions with a clearing time of 0.2seconds.
DC injection	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Photovoltaic system should not inject DC power more than 0.5% of full rated output at the interconnection point or 1% of rated inverter output current into distribution system under any operating conditions.
Power Factor	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 should operate.
Islanding and Disconnection	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	The photovoltaic system in the event of fault, voltage or frequency variations must island/disconnect itself within IEC standard on stipulated period.
Overload and Overheat	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013.	The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.
Paralleling Device	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013.	Paralleling device of photovoltaic system shall be capable of withstanding 220% of the normal voltage at the interconnection point.

The installation should be as per the technical compliance and latest installation practices of MNRE, PSPCL guidelines and all other statutory regulations specified. Any amendments / modifications issued time to time shall be applicable.

9. Energy Meter Configuration Options:

The Metering System for Rooftop Solar System, under Net-Metering arrangement, shall be as under:-

One Bi-directional Energy Meter as Main Meter and One No. Uni-directional Energy meter as solar meter with necessary CTs/PTs, as per requirement.

Other conditions/guidelines regarding Metering shall be as per ESIM-2018 (amended up to date) as detailed below:

1. The metering system shall be as per CEA (Installation and Operation of Meters) Regulations, 2006, as amended from time to time.
2. The solar meter (a unidirectional meter) is required to be installed as an integral part of the net



metering system at the point at which the electricity is generated by Solar Energy System and delivered to the main panel.

3. The net metering equipment (Bi-directional meters) and the Solar meter (unidirectional) as per CEA Regulations shall be installed and maintained by the distribution licensee at the cost of the eligible consumer: Provided the eligible consumer may procure the net meter/solar meter and present the same to the distribution licensee for testing and installation as per Regulation 21.2 of the Supply Code-2014. No meter rental shall be charged from the consumer. In case meters are provided by the distribution licensee, consumer shall be liable to pay meter rental as approved by the Commission. The location of the meter shall be as per CEA Metering Regulation.
4. The installed meters shall be jointly inspected and thereafter sealed by the distribution licensee in the presence of the consumer as per the procedure laid down in Supply Code: Provided that in case the eligible consumer is under the ambit of TOD Tariff, the meter compliant of recording time of day consumption/generation shall be installed
5. The meter reading taken by the distribution licensee shall form the basis of commercial settlement.

The Solar power generated at rooftops will be collected at one central point/one termination point in the same building from where it will be fed on LT side.

If required, any protection device/adaptor panel/breaker/switchgear/RMU to be provided to terminate the each SPV Power Plant output on LT side shall be provided by the vendor at its own cost. The bi-directional meter, if required, be installed by consumer on its own cost, but the technical guidance will be the provided by the Empanelled Agency/vendor.

10. ONLINE MONITORING:

The bidder will provide the online monitoring device for monitoring of Solar generation either by providing web enabled uni-directional solar meter or web enabled Solar inverter or separate remote monitoring device. The online monitoring device should be SIM/Wi-fi enabled and have GPRS facility through which the data will be transferred. The consumer shall be fully responsible for providing Wi-fi/ internet connection to inverter to enable effective monitoring through out the life cycle of the solar power plant.

11. Meter Testing & Electrical Clearance:

All installation work should be done as rules & regulations of Indian Electricity Act., PSPCL /MNRE and PSERC. The consumer shall have to take the clearance from PSPCL, as the case may be, at its own cost before connecting to the Grid.

12. Substation:

High power evacuation substation with Dry type/ Oil type, same or higher capacity transformer of the capacity of SPV Power Plant, 415V/11kV, 50Hz step up along with all protections, switchgears, required vacuum circuit breakers (630 Amps), RMU panel, Metering panel and cables etc. along with required civil work will be housed in prefabricated structure or Outdoor type as per requirement be provided for 100 kWp to upto 500 kWp, if required.

13. Surge Protection Device (SPD):



There should be a separate Array Junction Box with Metal Oxide Varistors (MOV) based Surge Protection Device with fuses to be provided for each string inverter on D.C. Side.

Further, on A.C. Side, the Surge Protection Device should be provided in ACDB, besides the existing SPD device in PCU.

In case, the inverter has provision of inbuilt array junction box, then the separate array junction box is not required but the surge protection device should be provided separately on D.C. and A.C. (both side) in addition to Inverters.

14. Common AC Distribution Panel Board(ACDPB):

Common AC Distribution Panel Board (DPB) shall control the AC power from inverter. AC Distribution panel (ACDP) should consist of appropriate size of MCB/MCCB with appropriate breaking capacity as incomer and suitable numbers of MCB/MCCB with appropriate size breaking capacity outgoing switches. The panel should have space for Energy Meter. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.

15. Cables:

- a) ISI marked **as per MNRE, GOI Guidelines**, PVC insulated Copper Cond. Cable of various sizes as per load requirement for connecting all the modules / arrays to Jn. Boxes and from Jn. Boxes to AJB and from AJB to inverter. Copper/ Aluminum **armored** Cables of appropriate size from Inverter onwards in A.C. side.
- b) Cabling: Cabling shall be carried out as per IE Rules. All other cabling above ground should be suitably mounted on cable trays with proper covers. Cables of appropriate size must be used and shall meet relevant IEC standards.
- c) Wires: Only copper wires of appropriate size **based on load requirements** of reputed make as specified by MNRE, GOI shall have to be used. However aluminum cables can be used on A.C side of transmission. However on D.C Side, only solar D.C. Cable should be used. PVC/XLPE insulated armoured sheathed cables required for the plant will be provided by the manufacturer.
- d) Cables Ends: All connections are to be made through suitable Cable/ lug/terminals; crimped properly & with use of Cable Glands.
- e) Cable Marking: All cable/wires are to be marked with proper manner by good quality ferrule or by other means so that the cable can be easily identified.
- f) All cable schedules/ layout drawings have to be got approved from the purchaser prior to installation.
- g) All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC cable size shall be 4.0 mm² copper; the minimum AC cable size shall be 4.0 mm² copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires. The suitable required size copper cable to be used from inverter to ACDB. 4 Core Aluminum/ Copper armored cables of required size in case of three phase inverter and 2 Core Aluminum/ Copper armored cables of required size in case of single phase inverter shall be used from ACDB to LT panel only. Individual single core cables are not permitted for AC termination as well as for earthing in the cables cores. Cable Should embossed with proper manufacture Name, Size and Dimension of Core.



- h) All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation.

16. Lightning Protection:

The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard and CEA safety Regulation as amended from time to time. The protection against induced high voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable and separate earthing such that induced transients find an alternate route to earth. The earthing conductor made up of dip galvanized steel, should be installed with GI strip insulator or 16 Sq mm or above copper conductor only.

There shall be the required number of suitable lightning arrestors installed in the array area. Lightning protection shall be provided by the use of metal oxide arrestors and suitable earthing such that induced transients find an alternate route to earth. Protection shall meet the safety rules as per Indian Electricity Act/ PSPCL. For capacities 20kWp and above Party will install ESE type LA.

17. Earthing Protection:

Each array structure of the PV yard should be grounded/ Earthing properly as per IS:3043-1987. In addition the lightning arrester/masts should also be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Act./IE Rules/PSPCL. Earth Resistance should be tested in presence of the representative of Department after earthing by calibrated earth tester. PCU and ACDB should also be earthed properly.

A minimum of three separate dedicated and interconnected earth electrodes must be used for the earthing of the solar PV system support structure with a total earth resistance not exceeding 5 Ohm.

The earth electrodes shall have a precast concrete enclosure with a removable lid for inspection and maintenance. The entire earthing system shall comprise noncorrosive components.

The cross-section area of the earthing conductor for PV equipment should not be less than 6 mm² if copper, 10 mm² if aluminium or 70 mm² if hot-dipped galvanized iron. For the earthing of lightning arrester, cross-section of the earthing conductor should not be less than 16 mm² of copper or 70 mm² if hot-dipped galvanized iron.

Total Nos. of Earth pits for Solar PV plant:

For Solar PV plant upto 25KW: 03 Nos. Earth pits: AC-01, DC-01, LA-01

For Solar PV plant above 25KW: 05 Nos. Earth Pits: AC-02, DC-02, LA-01 (double run of earthing conductors for AC & DC)

**18. Grid islanding:**

a) 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.

b) A manual disconnect 2-Pole/4-pole(as per requirement) isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

The isolation switch shall meet the following requirements:

- allow visible verification that separation has been accomplished
- include indicators to clearly show open and closed positions
- be capable of being reached quickly and conveniently twenty four hours a day by licensee's personnel without requiring clearance from the applicant
- be capable of being locked in the open position (LOTO);
- may not be rated for load break nor may have feature of over-current protection; and
- be located at a height of at least 2.44 m above the ground level.

19. Comprehensive Maintenance:

All the equipment shall be provided with comprehensive Maintenance for 5 years against unsatisfactory performance and/or break down due to defective design, workmanship of material(in case of SPV Modules the guarantee period is 25years). The equipment or components, or any part thereof, so found defective during Comprehensive Maintenance period shall be forthwith repaired or replaced free of cost to the satisfaction of the beneficiary.

20. Jet Pump 1/2 HP:

As per site requirement, minimum 1 No. 1/2 HP BIS approved surface pumps shall be installed for each SPV Power Plant for 50KWp and above. Suitable Nos. of water outlets shall be provided through B-class ISI Marked GI Pipes for cleaning of the modules.

21. Drawings & Manual:

One set of Engineering, Electrical drawings and installation and O&M manuals are to be supplied. Bidder/vendor/installer shall provide complete technical data sheets for each equipment giving details to the specifications along with makes.

22. Scope of CMC of SPV Power Plant for a Period of 5 years from date of Commissioning:

a) Proper CMC of the SPV Power Plant for a period of five years after commissioning along with supply of consumable items as and when necessary and submission of daily performance data of the power plant shall come, under the CMC contract. The break down maintenance of the entire system including supply of necessary spare parts, if any, are already under the coverage of warranty clause of the specific condition for a period of 60 months from date of commissioning of power plant. The CMC schedule of the SPV power plant during the 5 years contract period shall be as detailed below.



- b. The security of the power plant will rest with the supplier/agency till such time operation and maintenance of the power plant is not handed over to the purchaser/department.
- c. The deputed personnel shall be qualified and well trained so that they can handle any type of operation hazard quickly and timely.
- d. The deputed personnel shall be in a position to check and test all the equipment regularly, so that, preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any equipment shall be brought to the notice of Engineer-in-Charge immediately for appropriate action.
- e. The Preventive/ periodic maintenance of solar PV plant shall be carried out by the Empanelled vendor/ firm/ contractor/ agency to ensure minimum 14% average annual CUF of plant during five years of CMC/AMC. CUF below above prescribed limit shall be treated as poor performance of the bidder/vendor.
- f. During CMC period of 5 years of the power plant, if there is any loss or damage of any component of the power plant due to miss management/miss handling or due to any other reasons, what-so-ever, the supplier/firm shall be responsible for immediate replacement/rectification. The damaged component may be repaired, if it is understood after examination that after repairing, performance of the component shall not be degraded, otherwise the defective component shall have to be replaced by new one without any extra cost.

23. Confirmation to MNRE Technical Specifications and Standards:

The Tenderer should ensure that all components and systems used under this Scheme shall strictly adhere to the Technical Specifications and Guidelines issued by MNRE, and as amended from time to time.

24. Notes for bidders:

1. The installation should not be protruding outside the building and there should not be overhang type structure on any terrace
2. Location and area for inverter and other interconnecting equipment should be located in suitable and secure place.
3. Installation diagram and wiring from array to proposed location of inverter and interconnection should be clearly presented by the Empanelled bidder before work starts on the site if desired by the beneficiaries/Owner”
4. In addition to above it is intimated that PSPCL will grant technical feasibility approval to only those solar cases which are registered through PSPCL solar portal only. Offline applications or applications registered with any other agency shall not be entertained by PSPCL.

--Sd--
Dy.Chief Engineer,
Investment Promotion Cell
Shakti Vihar, PSPCL Patiala.



NOTE: All the annexure are required to be filled up with correct information and Submitted with the Tender Documents (EXCEPT PRICE BID ANNEXURE-G)

ANNEXURE-A

Tender conditions Undertaking

(To be submitted in ‘on-line’ and physical mode by Both ‘Category-A’ and ‘Category- B’ bidders/tenderers on the their letter head)

From:- (Full name of EOI Applicant)

Address of the Organization

Email ID:

PHONE /MOBILE NO.:

To

**The Dy.Chief Engineer
Investment Promotion Cell,
T-8, Thermal Design Complex, Shakti Vihar,
Punjab State Power Corporation Limited,
Patiala (PUNJAB)-147001.**

Sub: Tender Documents for Empanelment & discovering L1 rates for EPC companies, manufacturers, suppliers & system integrators of Solar PV Power Projects for design, manufacture, testing, supply, installation and commissioning of different capacity Grid Connected Roof Top Solar Power Projects varying from 1 KWp to 500 KWp, with Subsidy (Central Financial Assistance by MNRE, GOI) for Residential Premises and Residential Welfare Associations/Group Housing societies Premises in State of Punjab including comprehensive maintenance for 5 years against Tender Enquiry no.24/IPC/RTS/2020-21.

Dear Sir,

In connection with the above subject, I / We confirm the following:

1. I/We, the undersigned.....[insert name of the ‘Bidder’]having read, examined and understood in detail the Tender document hereby submit our Tender in full compliance with terms & conditions of the above referred Tender. A copy of the tender documents, except Price BID/Part-III duly signed on each page is also submitted as a proof of our acceptance of all specifications as well as terms/ Conditions. I/ We have submitted the Tender offer in electronic form on ON-LINE mode.
2. I/We have Applied in Category-.....(A/B whichever applicable) of the above tender and in NO circumstances I will change the my category. Any request from my/our firm will lead to cancellation of bid and forfeiture of EMD and other actions as per PSPCL terms & conditions.
3. I/We have paid the requisite amount of EMD and Tender cost. I/we understand that without payment of the EMD & Tender Cost by me/us, my/our offer shall out rightly be rejected.
4. If, I/we are selected and shortlisted for the empanelment, I/we agree to pay the non-refundable Requisite Empanelment Fee plus GST for the highest capacity range for which I/we got selected. I will also submit the required Bank Guarantee of requisite amount and validity for capacity allocation in stipulated time given by PSPCL, if selected for empanelment. I/We understand that I/we shall not be Empanelled if we fail to pay complete Empanelment fee in stipulated time.



5. I/We agree to treat the bid document and other records connected with the Works as secret and confidential documents and shall not communicate information described there into any person other than the person authorized by you or use the information in any manner prejudicial to the safety of the Works.
6. I/We understand that I/we are not bound to accept the lowest price discovered in the subject cited tender.
7. I/ We are participating, as Bidders, in not more than one Bid in this Bidding process.
8. I / We declare that our offer is strictly in line with Tender Document Specification and there is no deviation. Further, I/We also agree that additional conditions / deviations, if any, found in our offer, the offer shall be out rightly rejected without assigning any reason thereof. We shall ensure that we execute such Tender Documents as per the provisions of the Tender and provisions of such Tender Documents shall be binding on us. I/We confirm that we have not taken any deviation so as to be deemed non-responsive.
9. I/We hereby unconditionally and irrevocably agree and accept that the decision made by PSPCL in respect of any matter regarding or arising out of the Tender shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.
10. I/We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to execution of projects.
11. I / We hereby submit our offer and undertake to keep our offer valid for a period of 120 days from the date of opening of technical offer. I/We hereby further undertake that during the said period, I / We shall not vary/alter or revoke my/ our offer.
12. I/We are fully aware of all the requirements of the e-tender document &also agree/accept all terms & conditions of tender and will abide all the terms & conditions and provisions of the above mentioned Tender offer documents and there is no technical and commercial deviation from my/our side against the subject cited tender.
13. I/We undertake that the I/we/firm will not pay any commission etc. or engage any Commission Agent or Liason Agent for dealing with the PSPCL.
14. I/We undertake that I/We are capable of executing and completing the work as required in thee-tender with in the empanelment period or period as specified by PSPCL and accepts all risks and responsibilities directly or indirectly connected with the performance of thee-tender.
15. I/We undertake that I will install & commission any solar project(s)/ work(s) allocated by PSPCL to me/us with in stipulated time frame.
16. I/We undertake that I/We has no collusion with other Bidders, any employee of PSPCL or with any other person or firm in the preparation of the bid and I/We has not been influenced by any statement or promises of PSPCL or any of its employees, but only by the e-tender document
17. I/We are Financially solvent and sound to execute the work and has requisite experience in RTS installation.
18. I/We am/are familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein
19. I/We have not been debarred from similar type of work by PSPCL and or Government undertaking/Department.

(Signature of Tender Applicant bidder)
With Seal

ANNEXURE- B**SCHEDULE OF EXPERIENCE (Supply & Installation)****(To be filled by Category-A Bidder (Mandatory) and Category-B)****(To be submitted in 'on-line' and physical mode)****(Please attach certificates in support, from the concerned nodal agency /Govt.****Organization/ MNRE authorized Agency /joint commissioning report)**

Sr. No.	Details of SPV Systems installed during 2017-18, 2018-19& 2019-20 and till date of submission of BID.	Year	Deptt./Agency /Beneficiary for which work carried out	Size of Work in kW	Cost of works { Amt in Lakhs. }	Copy of performance certificate/ completion report/Joint commissioning report/ certificate from Nodal agency/ concerned Discom.
1.						
2.						
TOTAL :						

(SIGNATURE & SEAL OF BIDDER)

ANNEXURE-C**Format for Annual Turnover Certificate****(To be filled by Category-A Bidder (Mandatory) and Category-B)****(To be submitted in 'on-line' and physical mode)****TO BE SUBMITTED ON LETTER HEAD OF CHARTERED ACCOUNTANT****TO WHOMSOEVER IT MAY CONCERN**

We have verified the books of accounts and related record of M/s. _____ situated at Address of the factory/firm _____ and on verification of the records, we hereby certify that **average Turnover** of the this mentioned entity/firm during the last three financial years are as under:

Sr. No.	Financial Year	Total Turnover Rs. In lacs
1	2017-18	
2	2018-19	
3	2019-20	
Total		
Average Annual Turn Over of last three years		

Place:

Date:

Sign and seal of Chartered Accountant



AFFIDAVIT FOR NOT BEEN DEBARRED/ BLACKLISTED

(To be submitted in ‘on-line’ and physical mode by Both ‘Category-A’ and ‘Category- B’ bidders/tenderers on stamp paper of minimum Rs.100 denomination duly Notarized.)

TO WHOM IT MAY CONCERN

I/We..... (Name of proprietor/ Partners/ Directors) of(Name & Address of Firm) having GST no. do hereby solemnly affirm and declare as under:-

1. That I/We..... (Name of proprietor/ Partners/ Directors) am/are.....(Sole proprietor/ partners/ directors) of M/s.....(Name & address of Firm).
2. I/We hereby confirm and declare that I/we, M/s.....(Name of the firm) is not blacklisted/ De-registered/ debarred by any Government department/ Semi Government Organization/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.
3. I/We hereby confirm and declare that we, M/s.....(Name of the firm) is not involved in any criminal case or police case nor any enquiry is pending against my/our above mentioned firm and not been convicted in any offence by court of law anywhere in India.
4. That my/our above statement is true and correct and if it is found to be false at any stage I/We shall be liable for punishment under Law.

Deponent.

Verification:

Verified that above mentioned affidavit is true and correct to the best of my/our knowledge and belief and nothing has been concealed therein.

Date

Deponent.



POWER OF ATTORNEY

(To be filled by Both Category-A & Category-B Bidder/tenderer)

(To be on non-judicial stamp paper of Rs.100 or more denomination as per Stamp Act relevant to place of execution.)

Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory’s authority.

Know all men by these presents, We
(name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. (name& residential address) who is presently employed with us and holding the position of as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for implementation of grid connected Roof top solar PV scheme in selected States in India in response to the Tender BID DOCUMENT. No. 24/IPC/RTS/2020-21 dated 01.12.2020 issued by PSPCL, Patiala, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the PSPCL may require us to submit. The aforesaid Attorney is further authorized for making representations to the PSPCL, Patiala and providing information / responses to PSPCL, Patiala representing us in all matters before PSPCL, Patiala and generally dealing with PSPCL, Patiala in all matters in connection with this Bid till the completion of the bidding process as per the terms of the above mentioned BID DOCUMENT.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the BID DOCUMENT.

Signed by the within named

..... (Insert the name of the executants company) through the hand of Mr..... duly authorized by the Board(vide Board resolution No. _____) to issue such Power of Attorney Dated this day of

Accepted

Signature of Attorney
(Name, designation and address of the Attorney)

Attested

.....
(Signature of the executant)
(Name, designation and address of the executant)

.....
Signature and stamp of Notary of the place of execution Common seal of has been affixed in my/our presence Pursuant to Board of Director’s Resolution dated (Board of Director’s Resolution is also enclosed)



WITNESS

i).....(Signature)

Name.....

Designation

ii).....(Signature)

Name.....

Designation

Notes:

The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executants affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.



GENERAL PARTICULARS OF BIDDER

(To be filled by Both Category-A & Category-B Bidder/tenderer)

1	Name of Bidder					
2	Postal Address					
3	Mobile no.					
4	Telephone, Telex, Fax No					
5	E-mail					
6	Web site					
7	Pan No of the Bidder/firm					
8	GST no. of bidder/firm					
9	Legal Status of Company/ type of company i.e. Proprietorship/Partnership/Private/ Public/ L LP. Attach Proof of company registration along with a copy of the partnership deed/Article of Association/ memorandum of Association					
10	Name, designation and Mobile Phone No. of the representative of the Bidder to whom all references shall be made					
11	Name and address of the Indian/foreign Collaboration if any					
12	Have the Bidder ever been debarred By any Govt. Deptt./ Undertaking for undertaking any work?					
13	Details of Partners/Directors of Firm	Sr No	Name of partner/Director as applicable	Address	Mobile no.	Email/Fax no.
		1				
		2				
		3				
		4				
		5				
		6				
14	Bank Account Details of Firm/bidder:					
	a) Bank Name					
	b) Branch Name					
	c) IFSC Code of Bank					
	d) Account No.					
	e) Name of Account					
15	Details of service centre	Address			Contact no.	
	a.					
	b.					
	c.					
	d.					



ANNEXURE-G

Financial Bid/Price Bid

e-tender NO.24/IPC/RTS/2020-21

(To be filled by Category-A Bidder/tenderer ONLY)**Name of the Firm:****Quoted Capacity**.....KW (Min 250 KW to Max 2000KW)

Design, Supply, Installation, Testing and Commissioning of Grid Connected Rooftop Solar Photovoltaic Power Plant and power evacuation system and other necessary infrastructures including 5 years Comprehensive Warranty and Maintenance of Grid Connected Rooftop Solar Photovoltaic Power Plants and Power Evacuation system in various Districts in the State of Punjab as per technical specifications, Terms and Conditions of the tender document:-

Sr. No	Description	Cost of SPV Power plant per kWp including CMC for 5years (Rs/KWp)
1	1KW	
2	More than 1 KW to 2 KW	
3	More than 2 KW to 3 KW	
4	More than 3 KW to 10 KW	
5	More than 10 KW to up to 100 KW	
6	More than 100 KW to up to 500 KW	

NOTES:

1. Certified that rates quoted above are for the Rooftop Solar PV system as per MNRE guidelines/requirements/specifications, terms & condition mentioned in the e-tender document.
2. The rates are inclusive of total system cost including Photo voltaic solar modules, inverters, balance of systems, including cables, switches/circuit-breakers/connectors/junction boxes, mounting structure, earthing, lightening arrestor, cost of meters (if any, other than net meter), local connectivity cost, cost of civil works, foundation etc. and its installation, testing, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years, applicable fees and taxes etc. The above costs are excluding net-metering cost and battery backup cost.
3. MNRE has issued the current year i.e. FY 2020-21 bench mark price for solar rooftop systems, hence the price quoted should not be more than the benchmark price.
4. **In the event that the discovered lowest price is higher than that the benchmark cost for FY 2020-21 of MNRE, in such case the benchmark cost shall only be treated as lowest price.**

(Signature of Bidder)

With seal



BANK GUARANTEE PERFORMA

(TO BE EXECUTED ON A NON-JUDICIAL STAMP PAPER OF THE APPROPRIATE VALUE).

Bank Guarantee No.

Dated:

The bank of _____ hereby agree unequivocally and unconditionally to pay, within 48 hours, on demand in writing from the Dy. Chief Engineer / Investment Promotion Cell, Thermal Design Punjab State Power Corporation Ltd., Patiala (formerly Punjab State Electricity Board) or any Officer authorized by him on this behalf, of any amount up to and not exceeding Rs. _____ (In words Rs. _____) to the Punjab State Power Corporation Ltd. on behalf of M/s _____ Who have entered into a contract or who have unconditionally accepted the LOA/LOI No. _____ Dated _____ for empanelment to install RTS systems in residential/subsidized sector in State of Punjab.

1. This Guarantee shall be valid and binding on this Bank up to and including and shall not be terminable by any notice or on account of any change in the constitution of the Bank or the firm/Contractors/Agency or by any other reasons what-so-ever and our liability hereunder shall not be impaired or discharged by any extension of time or variation or alternations made, given, conceded or agreed with or without our knowledge or consent, by or between the parties to the said contract/Empanelment.

2. Our liability under this Guarantee is restricted to Rs. _____ (in words Rupees _____). Our Guarantee shall remain in force until _____ unless action to enforce a claim under the guarantee is filed against us within six months from that date i.e. _____ all your rights under the said guarantee shall be forfeited and we shall be released and discharged from all liabilities there under.

3. We hereby agree that any claim or dispute arising under this deed shall fall within the exclusive jurisdiction of competent courts at Patiala.

4. We hereby further declare that the deed has been executed by our lawfully constituted attorney legally, competent to sign and execute such deeds.

5.

Please mention here complete postal Address of the bank with Branch Code, Telephone and Fax Nos	Signature of the Bank's Authorized signatory with Official Round Seal.
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Witness:

1.

Witnesses should be Bank official of the issuing bank and witnesses the Bank Guarantee by putting their signatures along with service code & complete address

2.

NAME OF DESIGNATED BANKS:

1. All Nationalized Banks including Public Sector Banks IDBI Bank Ltd.
2. Private Sector Banks authorized by RBI to undertake the state Government business, which are (i) Axis Bank (ii) ICICI Bank (iii) HDFC Bank

Note: The banks shall be the Banks recognized / notified by the Finance Department, Government of Punjab from time to time