



PUNJAB STATE POWER CORPORATION LTD.

Regd. Office: PSEB Head Office, The Mall, Patiala-147001

Corporate Identification Number (CIN): U40109PB2010SGC033813

Website: www.pspcl.in

Bidding Document

FOR

Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages (*Package no. 1- DS North zone Jalandhar, Package no. 2- DS West zone Bathinda, Package no. 3- DS Centre Zone Ludhiana, Package no. 4- DS South zone Patiala, Package no. 5- DS Border Zone Amritsar, Package no. 6- GHTP Lehra Mohabat, Package no. 7-GGSSTP, Ropar*) under CAPEX Model.

RFS No.49/IPC/RTS/2023-24 dated 13.02.2024



(Superintending Engineer / Investment Promotion Cell, T8, Shakti Vihar, Thermal Complex, PSPCL, Patiala)

Telephone No.: 096461-23332, 096461-29246, E-mail: rts-ipc@pspcl.in, Website: www.pspcl.in

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Interpretations

1. Words comprising the singular shall include the plural & vice versa.
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
4. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
5. The table of contents and any headings or sub-headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement.

Disclaimer

1. Though adequate care has been taken while preparing the RFS document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within fifteen (15) days from the date of notification of RFS/ Issue of the RFS document, it shall be considered that the RFS document is complete in all respects and has been received by the Bidder.
2. Punjab State Power Corporation Limited reserves the right to modify, amend or supplement this RFS document.
3. While this RFS has been prepared in good faith, neither Punjab State Power Corporation Limited nor their employees make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this RFS, even if any loss or damage is caused by any act or omission on their part.

Place: Patiala

Date: 13.02.2024

PUNJAB STATE POWER CORPORATION LTD.

Regd. Office: PSEB Head Office, The Mall, Patiala-147001
Corporate Identification Number (CIN): U40109PB2010SGC033813
Website: www.pspcl.in

NOTICE INVITING TENDER

RFS No.49/IPC/RTS/2023-24 dated 13.02.2024

Punjab State Power Corporation Limited invites e-bids from eligible bidders to participate in Request for Selection (RFS) of bidder for Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid substations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages (*Package no. 1- DS North zone Jalandhar, Package no. 2- DS West zone Bathinda, Package no. 3- DS Centre Zone Ludhiana, Package no. 4- DS South zone Patiala, Package no. 5- DS Border Zone Amritsar, Package no. 6- GHTP Lehra Mohabat, Package no. 7-GGSSTP, Ropar*) under CAPEX Model through **E-tender web Portal of State e-procurement Portal (<https://eproc.punjab.gov.in>)**

The bidding process is for 7 no. packages for the aggregate capacity and locations shown against each package. The locations/addresses of buildings, tentative rooftop area, and proposed solar plant capacity for all 7 no. packages is given in Section III.

| Package no. | Name of Package | Total number of sites/ buildings | Total capacity (kW) | Estimated project cost in Rs (@ Rs 50072/ kW) |
|---------------|---|----------------------------------|---------------------|--|
| Package no.1 | North Zone under CE DS /North, Jalandhar | 199 | 5112.84 | 256010124.48 |
| Package no. 2 | West Zone under CE DS / West, Bathinda | 255 | 7409.72 | 371019499.84 |
| Package no. 3 | Centre Zone under CE DS / Centre, Ludhiana | 92 | 3018.73 | 151153848.56 |
| Package no. 4 | South Zone under CE DS / South, Patiala | 242 | 5823.10 | 291574263.20 |
| Package no. 5 | Border Zone under CE DS / Border, Amritsar | 185 | 5141.11 | 257425659.92 |
| Package no. 6 | Guru Hargobind Thermal Plant Lehra Mohabat, Distt. Bathinda | 30 | 4075.92 | 204089466.24 |
| Package no. 7 | Guru Gobind Singh Super Thermal Plant, Ropar | 10 | 788.94 | 39503803.68 |
| | Total | 1013 | 31370.36 | 1570776665.92 |

- 1) The NIT consists of 7 no. of packages and prospective bidders shall upload documents/bids (technical & financial bids in a single .pdf file) separately for each package in which the bidder intends to participate.
- 2) If any vendor submits its bid for more than one package then the financial eligibility criteria must be fulfilled by such Bidder for the sum total of the packages being offered by it in its Price Bids failing which all such bids shall be rejected at the time of techno-commercial evaluation.

- 3) The bidder is required to thoroughly go through the Bidding Document, BOQ & Scope of Work uploaded by PSPCL before quoting its bid. Any modification/ withdrawal of bid after opening of tender enquiry is not permissible.
- 4) The bidders are required to submit their queries (in writing) before due date of pre-bid meeting. Clarifications (if any) after pre-bid meeting shall not be entertained. In case of any dispute at any later stage, the decision of PSPCL shall be final and binding on the bidders.
- 5) In the price schedule (Price bid) sheet, the bidders are required to fill relevant details in the highlighted cells (i.e. total supply/material amount, total commissioning/labour amount and total AMC amount), while keeping in view the package-wise BOQ and package-wise scope of work uploaded by PSPCL.
- 6) Post bid changes shall not be permitted on contract conditions, technical specifications, scope of work etc.
- 7) After opening of package-wise price bid, Reverse Auction shall be held on the Package-wise Lowest Gross Total Amount quoted by the participating bidders.
- 8) Bidder shall submit bid proposal along with non-refundable tender document fee and refundable EMD as per the Bid Information Sheet. Techno-Commercial bids will be opened online as per the Bid Information Sheet in presence of authorized representatives of bidders who wish to be present online. Bid proposals received without the prescribed bid tender document fees and EMD shall automatically be rejected. In the event of any date mentioned in bid information is declared a Holiday, the next working day shall become operative for the respective purpose mentioned herein.
- 9) Bid documents which include Eligibility criteria, "**Technical Specifications**", various conditions of contract, formats, Annexures etc. can be downloaded from <https://eproc.punjab.gov.in>. Only the documents submitted at the time of Bid Submission shall be used in evaluation process. Bidders are advised to ensure that all supporting documents are submitted at the time of Bid Submission as no further clarification/amendments would be entertained in this regard.

Important events and their schedule for this E-Bid are as under:

| S. No. | Particulars | Date and time | Place |
|--------|----------------------------------|------------------------------------|--|
| 1 | Online Bid submission Deadline | Date: 14.03.2024 Time: 02:00 PM | O/o Superintending Engineer/ Investment Promotion Cell, PSPCL, T8, IPC, Thermal Design, Shakti Vihar, PSPCL, Patiala. |
| 2 | Physical submission of documents | Date: 14.03.2024 Time: 05:00 PM | |
| 3 | Date of Technical bids opening | Date: 15.03.2024 Time: 11.30 AM | Online, O/o Superintending Engineer/ IPC, PSPCL, T8, IPC, Thermal Design, Shakti Vihar, PSPCL, Patiala. |
| 4 | Date of Price bids opening | Date: 12.04.2024 Time: 11.00 AM | |

SCOPE OF WORK:

The scope of work shall essentially cover but not be limited to:

Site Survey, design, supply, erection, testing and commissioning including warranty and 05 years of comprehensive maintenance contract (CMC) of grid-connected rooftop solar PV plants. For the purpose of this tender, the components of a Grid Connected Rooftop Solar PV System shall essentially comprise but not be limited to ALMM compliant Mono-crystalline or bifacial solar PV Panels/modules of required number, Inverters/PCU, module mounting structures of minimum 300 mm ground clearance at the lowest point from the roof surface, total Cable/wiring, cable conduits, required array junction boxes, DC distribution box, AC distribution box, various connectors, nut-bolts, civil and mechanical works, Protection-Earthing, lightning, surges, drawling & manual and other miscellaneous works.

Execution of the work shall be carried out in an approved manner as per the technical specification of RFS. In case of any dispute, relevant MNRE/ BIS/ ISI/ NABL/ ISO/ IEC/ IS specification shall be followed and work shall be carried out to the reasonable satisfaction of the engineer in charge.

The vendor shall complete the work of Design, supply, civil work, erection, testing and commissioning of SPV grid connected Power Plant within **one year** from the issuance of the work order by PSPCL. In event of failure to install and commission the RTS system within the mentioned timeframe, the entire EMD/ Security deposit will be forfeited and may also lead to disqualification of the vendor at the sole discretion of Punjab State Power Corporation Limited.

All the material required for the installation of solar power plant as per the work order issued shall be kept at site in custody of the bidder, Punjab State Power Corporation Limited shall not be responsible for any loss or damage of any material during the installation. The bidder shall be responsible and take an insurance policy for transit-cum-storage-erection for all the materials.

Superintending Engineer/
Investment Promotion Cell, PSPCL Patiala

Bid Information Sheet:

| | | | | | | |
|--|---|-------------------------------|---------------------------------|----------------|------------------------------|--|
| Bid Description | Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages (Package no. 1- DS North zone Jalandhar, Package no. 2- DS West zone Bathinda, Package no. 3- DS Centre Zone Ludhiana, Package no. 4- DS South zone Patiala, Package no. 5- DS Border Zone Amritsar, Package no. 6- GHTP Lehra Mohabat, Package no. 7- GGSSTP, Ropar) under CAPEX Model. | | | | | |
| Downloading of RFS document | The Bid Document can be downloaded from the https://eproc.punjab.gov.in from 14.02.2024 to 14.03.2024 (02:00 pm). | | | | | |
| Pre-Bid Conference/ Clarification meeting (online) | Bidders interested to participate in the pre-bid meeting are required to get themselves registered on or before <u>23.02.2024</u> by sending an email to Superintending Engineer/ IPC at rts-ipc@pspcl.in with name, designation and mobile numbers of persons interested to participate. Further, Interested Bidders are requested to forward their queries (if any) as per format to PSPCL through email/letter along with soft copy. Pre-bid meeting will be held online on 23.02.2024. | | | | | |
| Site visit | Prospective Bidders are advised to visit the site to study the actual conditions and go through the plans/ drawings connected to the present scope of work etc. | | | | | |
| Online Bid submission Deadline | Date: 14.03.2024 Time: 02:00 PM | | | | | |
| Physical submission of documents | Date: 14.03.2024 Time: 05:00 PM | | | | | |
| Technical bid opening | Date: 15.03.2024 Time: 11.30 AM | | | | | |
| Financial bid opening | Date: 12.04.2024 Time: 11.00 AM | | | | | |
| Validity of Bid | Validity of bid shall be minimum 120 days from the last date of bid submission. | | | | | |
| Cost of Tender document | Nil | | | | | |
| EMD | Package no. | Name of package | Total number of sites/buildings | Total capacity | Estimated project cost in Rs | EMD (Rs) @ of 2% of project cost subject to max. 20 Lakh |
| | Package-1 | North Zone under CE DS /North | 199 | 5112.84 | 256010124.48 | 20,00,000 |

| | | | | | | |
|---|---|----------------------------------|-----|---------|--------------|-----------|
| | Package-2 | West Zone under CE DS / West | 255 | 7409.72 | 371019499.84 | 20,00,000 |
| | Package-3 | Centre Zone under CE DS / Centre | 92 | 3018.73 | 151153848.56 | 20,00,000 |
| | Package-4 | South Zone under CE DS / South | 242 | 5823.10 | 291574263.20 | 20,00,000 |
| | Package-5 | Border Zone under CE DS / Border | 185 | 5141.11 | 257425659.92 | 20,00,000 |
| | Package-6 | GHTP Lehra Mohabat | 30 | 4075.92 | 204089466.24 | 20,00,000 |
| | Package-7 | GGSSSTP, Ropar | 10 | 788.94 | 39503803.68 | 8,00,000 |
| Bid Process | Two Part (Techno-Commercial Bid & Price Bid) on https://eproc.punjab.gov.in . There will be reverse bidding as per procedure given in clause 16.2 of Part A under Section I. Reverse Auction shall be held on the Package-wise Lowest Gross Total Amount quoted by the participating bidders. | | | | | |
| Name, Designation, Address of Tender Inviting Authority | Superintending Engineer/ Investment Promotion Cell, PSPCL, T8, IPC, Thermal Design, Shakti Vihar, PSPCL, Patiala Mob: 96461-23332, 96461-29246 Email: rts-ipc@pspcl.in | | | | | |
| Important Note: Prospective bidders are requested to remain updated for any notices/amendments/clarifications etc. to the RFS document through the website: www.pspcl.in and https://eproc.punjab.gov.in . No separate notifications will be issued for such notices/ amendments/ clarification etc. in the print media or individually. All the information related to this RFS shall be updated in the website. | | | | | | |

Superintending Engineer /Investment Promotion Cell,
PSPCL, Patiala

SECTION-I

PART A: BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

PART B: CONDITIONS OF CONTRACT

PART A: BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

1. BID DETAILS

The bidding process is for 7 no. packages for Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid substations, hydel projects and thermal projects of PSPCL at different locations under these 7 no. packages (*Package no. 1- DS North zone Jalandhar, Package no. 2- DS West zone Bathinda, Package no. 3- DS Centre Zone Ludhiana, Package no. 4- DS South zone Patiala, Package no. 5- DS Border Zone Amritsar, Package no. 6- GHTP Lehra Mohabat, Package no. 7-GGSSTP, Ropar*) under CAPEX Model.

The number of sites and tentative capacity is shown below for each package.

| Package no. | Name of the package | Total number of sites/buildings | Total capacity (kW) | Estimated project cost in Rs (@ Rs 50072/ kW) |
|---------------|---|---------------------------------|---------------------|--|
| Package no.1 | North Zone under CE DS /North, Jalandhar | 199 | 5112.84 | 256010124.48 |
| Package no. 2 | West Zone under CE DS / West, Bathinda | 255 | 7409.72 | 371019499.84 |
| Package no. 3 | Centre Zone under CE DS / Centre, Ludhiana | 92 | 3018.73 | 151153848.56 |
| Package no. 4 | South Zone under CE DS / South, Patiala | 242 | 5823.10 | 291574263.20 |
| Package no. 5 | Border Zone under CE DS / Border, Amritsar | 185 | 5141.11 | 257425659.92 |
| Package no. 6 | Guru Hargobind Thermal Plant Lehra Mohabat, Distt. Bathinda | 30 | 4075.92 | 204089466.24 |
| Package no. 7 | Guru Gobind Singh Super Thermal Plant, Ropar | 10 | 788.94 | 39503803.68 |

The locations/addresses of buildings, tentative rooftop area, and proposed solar plant capacity for all 7 no. packages is given in Section III.

1.1. Components of Grid Connected Rooftop Solar PV System: The bidders shall quote price of the complete package essentially covering- Design, supply, erection, testing and commissioning including warranty and 05 years of comprehensive maintenance of grid-connected rooftop solar PV plant. For the purpose of this tender, the components of a Grid Connected Rooftop Solar PV System shall essentially comprise but not be limited to:

- a) ALMM compliant Mono-Crystalline or bifacial solar PV Panels/modules of capacity greater than or equal to 540 kWp, Inverters/PCU, module mounting structures of minimum 300 mm ground clearance at the lowest point from the roof surface, total Cable/wiring, cable conduits, required array junction boxes, DC distribution box, AC distribution box, various connectors, nut-bolts, civil and mechanical works, Protection-Earthing, lightning, surges, drawingling & manual and other

miscellaneous works.

- b)** The price quoted by the bidders shall be inclusive of GST (Goods and Services Tax).

1.2. It is pertinent to mention here that Tender Enquiry No: 32/IPC/RTS/2021-22 was floated by PSPCL on 28.04.2022 for empanelment of manufacturers, suppliers and system integrators of Grid connected Solar PV Power Projects of capacities varying from 1 kWp to 500 kWp for residential consumers in the State of Punjab as per MNRE, Govt. of India, guidelines issued vide office memo no. 318/331-2017-GCRT dated 20.08.2019. The discovered rates for capacity range 100kW to 500 kW (inclusive of GST) through e-tendering, for installation of RTS plant is as under:

| Capacity Range | Discovered rates <u>including</u> GST (INR/kW) |
|------------------|--|
| Above 100-500kWp | 50072 |

The above-mentioned 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, Lightning arrester, local connectivity cost, cost of civil works, foundations etc. and its installation, commissioning, transportation, insurance, comprehensive maintenance charges for five years, other applicable fees and taxes, if any. The above-mentioned costs are excluding net metering cost and battery back-up costs. **The above-mentioned rate (Rs 50072/- per kW) should be considered as the ceiling rate for bidding and the selection of bidder will be based on the discounted rate offered (in Rupees per kW) below this ceiling rate.**

2. INSTRUCTIONS TO THE BIDDERS

2.1. ELIGIBLE BIDDERS:

- a) Bidders should not be blacklisted from any of the agency with direct or indirect control of Central Government Ministries/ Departments/ Public Sector Units (PSUs)/ Institutions, State Government Departments/ Organizations /Institutions etc.
- b) Bidder should have valid PAN & GST Registration Numbers as per statutory requirement.
- c) Bidder must meet the eligibility criteria independently as Bidding Company or as a Bidding Consortium with one of the members acting as the Lead Member of the Bidding Consortium. Bidder will be declared as a Qualified Bidder based on meeting the eligibility criteria (Technical and Financial) and as demonstrated based on documentary evidence submitted by the Bidder during the bidding process.
- d) In case of a Bidding Consortium the Financial Eligibility criteria like Annual turnover or Net worth as indicated in **Clause 5.5**, shall be fulfilled by the Lead Member or Parent Company of the Lead Member while the Technical Eligibility Criteria shall be fulfilled by consortium members. In case bidder is a consortium, a Consortium Agreement along with Resolution shall be furnished as per the **Format-8**.

- e) Financial Consortium is not allowed in this Bidding Process. Consortium is only permitted for technical partnership as per **Format- 8**. Further in-case where the bidding company has used the financial eligibility criteria of its parent company then it needs to be ensured that no change in the controlling equity of the Bidding Company is done before 2 years from the date of commissioning of the sanctioned capacity, requires prior approval of Punjab State Power Corporation Limited. All members of the consortium should be registered under the Company Act.
- f) Bidder including its member of the consortium can submit only one bid against RFS.
- g) Bidder can however use the technical and financial strength of its Parent Company to fulfil the Technical and/or Financial Eligibility criteria. In such case, Bidders shall submit an Undertaking from the Parent Company as per **Format – 7** and also furnish a certificate of relationship of Parent Company or Affiliate with the Bidding Company as per **Format-6**, Company Secretary certificate towards shareholding pattern of the Parent Company and the Bidding Company along with a Board resolution from the Parent Company.

2.2. E-TENDER

Instructions to Bidders for E- Tendering General:

- a) E-Tendering is a new methodology for conducting Public Procurement in a transparent and secured manner. For conducting electronic tendering, Punjab State Power Corporation Limited has decided to use the portal designated State e-procurement portal/or any other dedicated portal for e-tendering process.
- b) To participate in bidding process, bidders must have 'Digital Signature Certificate (DSC)' as per Information Technology Act-2000 to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mention digital signature certificate from any approved vendors (CCA). Bidders, who already possess valid Digital Signature Certificates, need not to procure new Digital Signature Certificate.

3. LANGUAGE OF BIDDING

The Bid submitted by the Bidder, as well all correspondence and documents relating to the bid exchanged by the Bidder and the PSPCL, shall be written in English Language. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation or the relevant passages in English language, in which case, for purposes of interpretation of the bid, the translation shall govern.

4. COST OF BIDDING

The bidder shall bear all the costs associated with the preparation and submission of their offer, and the implementing agency will not be responsible or liable for those costs, under any conditions. The Bidder shall not be entitled to claim any costs, charges and expenses of and incidental to, or incurred by him, through or in connection with submission of bid even though Punjab State Power Corporation Limited may elect to modify/withdraw the invitation of Bid.

5. SUBMISSION OF BID-PARTS

- 5.1. Techno – Commercial documents: The bidders are required to submit the following documents in Offline (in Originals) and Online Modes (at State e-procurement Portal <https://eproc.punjab.gov.in>) during Technical Bid Submission.
- 5.2. The Bidder shall upload technical bid containing the scanned copy of all the following documents in single .pdf format duly signed and stamped on each page by the authorized person during Online Bid-Submission. Also, all these documents should be submitted offline in a Sealed Envelope, failing which the technical bids will not be opened.
- 5.3. The documents should be in the same sequence as given below, mentioning page number of documents in the Index.
- i. Index of documents **Format-1**.
 - ii. Covering letter **Format-2**
 - iii. General Particulars as per **Format-3**.
 - iv. Receipts of online payment against tender document fee and EMD.
 - v. Original Power of Attorney supplemented with Board resolutions (as per **Format-4**).
 - vi. Financial eligibility criterion (as per **Format -5**).
 - vii. Certificate for certificate of relationship of Parent Company or Affiliate with the Bidding Company (as per **Format -6**), if required.
 - viii. Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company (as per **Format -7**), if required.
 - ix. Original copy of the Consortium Agreement, if any (as per **Format-8**).
 - x. Share Holding certificate, if any (as per **Format -9**).
 - xi. Scanned copies of commissioning certificates for capacity as mentioned in the clause 5.5 for technical eligibility for On-Grid Solar Rooftops projects from any Govt organization/ undertaking, PSU/ Discom (Govt or Private), SNA.
 - xii. Scanned copies of commissioning certificates for On-Grid Solar Rooftops project(s) having installed capacity of 50 kW or more, from any Govt organization/ undertaking, PSU/ Discom (Govt or Private), SNA.
 - xiii. PAN & GST Registration, however State GST Registration is mandatory for MSME Bidders.
 - xiv. Certificate of incorporation and updated Memorandum of Association (MoA).
 - xv. Declaration on bidder's Letterhead for Non blacklisting from any Government Departments/ Public Sector Units (PSUs) / Distribution Companies etc (**Format-10**).
 - xvi. No Deviation Certificate (**Format-11**).

5.4. Special Note on Security and Transparency of Bids

Security related functionality has been rigorously implemented in e-procurement portal in a multidimensional manner. Starting with 'Acceptance of Registration by the Service Provider', provision for security has been made at various stages in Electronic Tender's software.

If variation is noted between the information contained in the Electronic Form and the 'Hard Copy', the contents of the Electronic Forms and details shall prevail. In such cases, if the information/declaration/details contained in the electronic forms is found to be false, forged, incomplete or in-eligible, the bid shall be summarily rejected and the tendering authority may initiate blacklisting/criminal/legal proceedings depending on the severity of the case.

In case of any discrepancy between the values mentioned in figures and in words, the value mentioned in words shall prevail.

Other Instructions

It shall be the sole responsibility of the bidders to regularly visit the website/tender portal/state portal for any amendment or update on the tender process of project.

5.5. ELIGIBILITY CRITERIA

a) General Condition

To meet the General Conditions of Eligibility Criteria, Bidders must have one of the following credentials:

Bidder should have one of the following:

The Bidder should be either a body incorporated in India **under the Companies Act, 1956 or 2013** including any amendment thereto.

Or

The Bidders should be a **Limited Liability Partnership firm.**

Or

The bidder should be a partnership firm registered under income tax act and GST act.

Or

The Bidders should be a **Proprietor firm.**

The Bidder should have valid PAN & GST registration certificate for General Bidder, however for MSMEs, State GST Registration is mandatory.

TECHNICAL ELIGIBILITY CRITERIA

the Bidder should have designed, supplied, installed & commissioned Grid connected

Solar PV Power Projects having aggregate capacity not less than **1000 kW (in last three years from the last date of bid submission) and at least one projects of 50 kW or higher capacity**, which should have been commissioned prior to submission of bids. Bidders must submit scanned copy of the Commissioning certificate from the Client/Owner.

The bids of only those bidders who qualify the minimum technical eligibility criterion shall be considered for determination of L-1 price.

FINANCIAL ELIGIBILITY CRITERIA

The Bidders should have minimum Average Annual Turn Over as indicated below to qualify under Financial Eligibility Criteria:

| Package no. | Name of the package | No. of sites/buildings | Proposed capacity kW | Average annual Turn over (Rs in Crores) | Net worth (Rs in Crores) |
|---------------|---|------------------------|----------------------|---|--------------------------|
| Package no.1 | North Zone under CE DS /North, Jalandhar | 199 | 4979.46 | 5 | 2.5 |
| Package no. 2 | West Zone under CE DS / West, Bathinda | 255 | 7409.72 | 8 | 4 |
| Package no. 3 | Centre Zone under CE DS / Centre, Ludhiana | 92 | 3018.73 | 3 | 1.5 |
| Package no. 4 | South Zone under CE DS / South, Patiala | 242 | 5823.10 | 6 | 3 |
| Package no. 5 | Border Zone under CE DS / Border, Amritsar | 185 | 4816.03 | 5 | 2.5 |
| Package no. 6 | Guru Hargobind Thermal Plant Lehra Mohabat, Distt. Bathinda | 30 | 4075.92 | 4 | 2 |
| Package no. 7 | Guru Gobind Singh Super Thermal Plant, Ropar | 10 | 788.94 | 1 | 0.5 |

The **Annual turnover** of Rupees as shown above for each package, in any one of the last 3 financial years preceding the Bid Deadline, subject to the **condition** that the Bidder should at least have completed one financial year.

OR

Net worth equals to or greater than as shown above for each package. The Computation of Net worth shall be based on unconsolidated audited annual accounts of the last financial year immediately preceding the Bid Deadline. Share premium can be included in the Net-worth calculation in case of listed companies in India only.

There are total 7 no. packages. Vendor can participate in one or more packages. If any vendor submits its bid for more than one package then the financial eligibility criteria must be fulfilled by such Bidder for the sum total of the packages being offered by it in its Price Bids failing which all such bids shall be rejected at the time of techno-commercial evaluation.

The formula of calculation of net-worth shall be as follows:

Net-worth = *(Paid up share capital) + {(Free reserves – Share premium) + Share premium of listed companies}* – *(Revaluation of reserves) – (Intangible assets) – (Miscellaneous expenditure to the extent not written off and carry forward losses).*

For the purposes of meeting financial requirements, only unconsolidated audited annual accounts shall be used. However, audited consolidated annual accounts of the Bidder may be used for the purpose of financial requirements provided the Bidder has at least twenty six percent (26%) equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

Bidders shall furnish documentary evidence as per the Format-7 (online as well as offline), duly certified by Authorized Signatory and the Statutory Auditor / Practicing Chartered Accountant of the Bidding Company in support of their financial capability.

6. BID SUBMISSION BY THE BIDDER

6.1. Bids are required to be submitted online and offline mode separately. The offline documents are to be submitted in a single sealed cover comprises the list of documents as per **Clause 5.3.**

6.2. The envelope should be super-scribed as **“Offline Documents for RFS -Tender Enquiry no.(Package no..../Package name.....)”** Along with following details:-

- i. Name and Address of the Firm.**
- ii. Tender Document fee details.**
- iii. EMD details.**

6.3. The Bidders can send Offline Documents either by registered post; or speed post; or courier; or by hand delivery, so as to reach Punjab State Power Corporation Limited by the Bid Deadline. Documents submitted by telex/telegram/fax/e-mail shall not be considered under any circumstances. Punjab State Power Corporation Limited shall not be responsible for any delay in receipt of the Bid. Any Bid received after the Bid Deadline shall be returned unopened. **It should be noted that Offline Document envelope shall not contain any information/document relating to Price Bid.** Punjab State Power Corporation Limited shall not be responsible for premature opening of the Price Bids in case of non-compliance of above.

6.4. All pages of the offline documents, and any other document executed on non-judicial stamp paper, forming part of the Bid and corrections in the Bid, if any, must be signed by the authorized signatory on behalf of the Bidder. No change or supplemental information to a Bid will be accepted after the Bid Deadline, unless the same is requested for by the bidder and acceptance of same by the Punjab State Power Corporation Limited.

6.5. Strict adherence to the formats wherever specified, is required. Wherever,

information has been sought in specified formats, the Bidder shall refrain from referring to brochures/pamphlets. Non-adherence to formats and / or submission of incomplete information may be a ground for declaring the Bid as non-responsive. Each format has to be duly signed and stamped by the authorized signatory of the Bidder then scanned and uploaded in the Techno- Commercial Bid Part.

- 6.6.** The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria as indicated in the RFS. Bidder shall also furnish unconsolidated/ consolidated audited annual accounts in support of meeting financial requirement, which shall consist of unabridged balance sheet, profit and loss account, profit appropriation account, auditor's report, etc., as the case may be of Bidding Company or Financially Evaluated Entity for any of the last three (3) financial years immediately preceding the Bid Deadline which are used by the bidder for the purpose of calculation of Annual Turnover or of last Financial Year in case of Net Worth.
- 6.7.** If the envelope (Covering Envelope) is not enclosed and not super scribed as per the specified requirement, Punjab State Power Corporation Limited will assume no responsibility for the Bid's misplacement or premature opening.

The sealed envelope shall be addressed to:

Superintending Engineer, Investment promotion Cell, Shed no. T-8, Shakti Vihar, Thermal Design Complex, PSPCL, Patiala (Punjab)-147001.

7. BID SUBMITTED BY A BIDDING COMPANY

The Bidding Company should designate one person to represent the Bidding Company in its dealings with Punjab State Power Corporation Limited. The person should be authorized to perform all tasks including, but not limited to providing information, responding to enquiries, signing of Bid etc. The Bidding Company should submit, along with Bid, a Power of Attorney in original (**as per Format-4**), authorizing the signatory of the Bid.

8. CLARIFICATIONS AND PRE-BID MEETING

- 8.1.** The Punjab State Power Corporation Limited will not enter into any correspondence with the Bidders, except to furnish clarifications on RFS Documents, if necessary. The Bidders may seek clarifications or suggest amendments to RFS online, also soft copy by e-mail to reach the designated officials of Punjab State Power Corporation Limited at the address, date and time mentioned in Bid information sheet. However, any amendment in the RFS shall be at the sole discretion of the tendering authority.
- 8.2.** The Bidder(s) or their authorized representative(s) is /are invited to attend pre-bid meeting(s), which will take place on date(s) as specified in Bid information sheet, or any such other date as notified by Punjab State Power Corporation Limited on its portal/website.
- 8.3.** The purpose of the pre-bid meeting will be to clarify any issues regarding the RFS including in particular, issues raised in writing and submitted by the Bidders.
- 8.4.** Punjab State Power Corporation Limited is not under any obligation to entertain/respond to suggestions made or to incorporate modifications sought for.

9. AMENDMENTS TO RFS BY PUNJAB STATE POWER CORPORATION LIMITED

- 9.1 At any time prior to the deadline for submission of Bids, Punjab State Power Corporation Limited may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFS document by issuing clarification(s) and/or amendment(s). However, any amendment in the RFS shall be at the sole discretion of the tendering authority.
- 9.2 The clarification(s)/ amendment(s) (if any) shall be notified on website and no separate communication in this regard would be sent to the bidders.
- 9.3 Punjab State Power Corporation Limited will not bear any responsibility or liability arising out of non-receipt of the information regarding Amendments in time or otherwise. Bidders must check the website for any such amendment before submitting their Bid.
- 9.4 In case any amendment is notified after submission of the Bid (prior to the opening of Techno-Commercial Bid), due date/time shall be extended and it will be for the Bidders to submit fresh Bids/supplementary bids by the revised date notified by the Punjab State Power Corporation Limited for the purpose.
- 9.5 All the notices related to RFS, which are required to be publicized, shall be uploaded on <https://eproc.punjab.gov.in> and website of Punjab State Power Corporation Limited.

a) BIDDING PROCESS

10.1 BID FORMATS

- a) The Bidders are advised to submit bids as in the manner provided in **Clause 6 of Section-I** and submit requisite document as per **Clause 5.3**.
- b) PRICE BID(S): The Bidder shall submit online Price Bid as per **Price schedule given for each package** under **SECTION-III**. Only online price bids shall be considered for evaluation, any offline submission shall be treated as non-responsive and shall be summarily rejected.

10.2 BID DUE DATE

The Bidder should submit the offline Bid documents so as to reach the address indicated below by on or before the date and time mentioned in the Bid information sheet.

Superintending Engineer, Investment Promotion Cell, Shed no. T-8, Shakti Vihar, Thermal Design Complex, PSPCL, Patiala (Punjab)-147001.

10.3 VALIDITY OF BID

Bids shall remain valid for the period of **120 days** from the last date of bid submission. A bid valid for a shorter period shall be rejected by the PSPCL as non-responsive. In exceptional circumstances, the PSPCL may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting its bid security. A

Bidder granting the request will not be required nor permitted to modify its bid.

- 10.4 EMD:** EMD shall be as under and is payable through e-payment gateway on the e-tendering portal of State e-procurement Portal (<https://eproc.punjab.gov.in>).

| Package no. | Name of the package | Total number of sites/buildings | Total capacity | Estimated project cost in Rs | EMD (Rs) @ of 2% of project cost subject to max. 20 Lakh |
|---------------|----------------------------------|---------------------------------|----------------|------------------------------|--|
| Package no. 1 | North Zone under CE DS /North | 199 | 5112.84 | 256010124.48 | 20,00,000 |
| Package no. 2 | West Zone under CE DS / West | 255 | 7409.72 | 371019499.84 | 20,00,000 |
| Package no. 3 | Centre Zone under CE DS / Centre | 92 | 3018.73 | 151153848.56 | 20,00,000 |
| Package no. 4 | South Zone under CE DS / South | 242 | 5823.10 | 291574263.20 | 20,00,000 |
| Package no. 5 | Border Zone under CE DS / Border | 185 | 5141.11 | 257425659.92 | 20,00,000 |
| Package no. 6 | GHTP Lehra Mohabat | 30 | 4075.92 | 204089466.24 | 20,00,000 |
| Package no. 7 | GGSSTP, Ropar | 10 | 788.94 | 39503803.68 | 8,00,000 |

The EMD of unsuccessful bidders shall be returned within 30 days from the date of issue of LOA. EMD of the successful bidder shall be converted into Security deposit and shall be adjusted against performance security to be retained for a period of five years against comprehensive maintenance contract of the rooftop solar plants.

Bidders quoting in more than one Package of NIT/Bid are required to submit bid security separately for each Package of Bid.

- 10.5** EMD/ security deposit shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to the plant under following circumstances:

- i. If a Bidder:
 - a) withdraws its bid during the period of bid validity specified in this document and in accordance with Clause 10.3 of Section-I.
 - b) Does not accept the correction of errors pursuant to **Clause 14 of Section-I**;
or
- ii. In case of a successful Bidder, if the Bidder fails to sign the Contract in accordance with **Clause 20.2 of Section-I**.

10.6 PERFORMANCE SECURITY AGAINST COMPREHENSIVE MAINTENANCE CONTRACT:

After the successful commissioning of the project, ten (10%) percent of the total project cost shall be retained by PSPCL at the time of final payment to bidder as Performance Security for Maintenance. The Performance Security shall be released after completion of the maintenance period of five years with the compliance of entire obligations in the contract.

11 OPENING OF BIDS: Offline Document Envelope, of the Bidders shall be opened at time and date as shown in the bid information sheet at the o/o Superintending Engineer/IPC, PSPCL, Shed no. T8, Shakti Vihar, Thermal Design Complex, Patiala in the presence of one representative from each of the Bidders who wish to be present. The bidders are required to submit the offline documents in a Sealed Envelope as per **clause 5.3** above, failing which the technical bids will be considered as non-responsive.

12 BID EVALUATION CRITERIA

12.1 BID EVALUATION: The evaluation process comprises the following four steps:

| | |
|-----------------|--|
| Step I | Responsiveness check of Techno Commercial Bid |
| Step II | Evaluation of Bidder's fulfilment of Techno-Financial Eligibility Criteria as per Clause 5.5 of Section-I |
| Step III | Evaluation of Price Bid for all Techno-Commercial Qualified Bidders |
| Step IV | Reverse auctioning and Successful Bidders selection |

12.2 RESPONSIVENESS CHECK OF TECHNO COMMERCIAL BID: The Techno-Commercial Bid submitted by Bidders shall be scrutinized to establish responsiveness to the requirements laid down in the RFS subject to **Clause 5.5 of Section-I**. Any of the following may cause the Bid to be considered "*non-responsive*", at the sole discretion of Punjab State Power Corporation Limited:

- i.** Bids that are incomplete, i.e. Not accompanied by any of the applicable formats, power of attorney supported by a board resolution, Tender Document fee, EMD etc.
- ii.** Bid not signed by authorized signatory and /or stamped in the manner indicated in this RFS.
- iii.** Material inconsistencies in the information /documents submitted by the Bidder, affecting the Eligibility Criteria.
 - a) Information not submitted in the formats specified in this RFS.
 - b) Bid being conditional in nature.
 - c) Bid not received by the Bid Deadline.
 - d) Bid having Conflict of Interest.
 - e) More than one Member of a Bidding Company using the credentials of the same Parent Company /Affiliate.
 - f) Bidder delaying in submission of additional information or clarifications sought by Punjab State Power Corporation Limited as applicable.
 - g) Bidder makes any misrepresentation.

Each Bid shall be checked for compliance with the submission requirements set forth in this RFS before the evaluation of Bidder's fulfilment of Eligibility Criteria is taken up. **Clause 5.5 of Section-I** shall be used to check whether each Bidder meets the stipulated requirement.

13 EXAMINATION OF BID DOCUMENT

13.1 The Bidder is required to carefully examine the Technical Specification, Terms and

Conditions of Contract, and other details relating to supplies as given in the Bid Document.

- 13.2** The Bidder shall be deemed to have examined the bid document including the agreement/ contract, to have obtained information on all matters whatsoever that might affect to execute the project activity and to have satisfied himself as to the adequacy of their bids. The bidder shall be deemed to have known the scope, nature and magnitude of the supplies and the requirements of material and labour involved etc. and as to all supplies, he has to complete in accordance with the Bid document.
- 13.3** Bidder is advised to submit the bid on the basis of conditions stipulated in the Bid Document. Bidder's standard terms and conditions if any will not be considered. The cancellation / alteration / amendment / modification in Bid documents shall not be accepted by Punjab State Power Corporation Limited.
- 13.4** Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respects with requirements and conditions referred in this bid document.
- 13.5** Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the supplier does not accept the correction of the errors, its bid will be rejected, and its bid security, may be forfeited.
- 13.6** The PSPCL may waive any minor informality, non-conformity or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.
- 14 RIGHT TO WITHDRAW THE RFS AND TO REJECT ANY BID**
- 14.1** This RFS may be withdrawn or cancelled by the Punjab State Power Corporation Limited at any time without assigning any reasons thereof. The PSPCL further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.
- 14.2** Punjab State Power Corporation Limited reserve the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the RFS and make its own judgment regarding the interpretation of the same. In this regard the Punjab State Power Corporation Limited shall have no liability towards any Bidder and no Bidder shall have any recourse to the Punjab State Power Corporation Limited with respect to the selection process. Punjab State Power Corporation Limited shall evaluate the Bids using the evaluation process, at its sole discretion. Punjab State Power Corporation Limited decision in this regard shall be final and binding on the Bidders.
- 14.3** Punjab State Power Corporation Limited reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance of bid by Punjab State Power Corporation Limited will

be full and final.

- 15 EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA:** Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed Formats and related documentary evidence in support of meeting the Eligibility Criteria as specified in **Clause 5.5 of Section-I**. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid non-responsive.

16 EVALUATION OF PRICE BID

- i. Bidders are required to quote for the Total Contract Price on the basis in cognizance with the Tender Terms & Conditions.
- ii. Bidder's quoted prices shall be strictly as per the Format included under this Section [i.e. Section-III]. Bidder shall quote the rates for the entire scope of work as per the Technical Specifications as defined under Section-II.
- iii. All the Columns of quoted items in the Schedule of Rates including currency (INR) must be filled with required information, as applicable.
- iv. Bidder must quote the price online as per enclosed format only. The format shall not be changed and/ or retyped.
- v. The Lumpsum Price shall be considered as Total Contract Price Which Purchaser agrees to pay and the Contractor agrees to accept as full compensation for the Contractor's full performance of the Work in accordance with the provisions of the Contract Documents. Contract Price shall not be subjected to any adjustment except in case of Change Order (an amendment in LOA issued by purchaser) or Statutory Variations in accordance with the provisions of the Contract.
- vi. The price quoted shall be price on Turnkey basis. Unless the basic parameter changes or additional/ extra requirements are made, total payments to be made to the contractor shall be limited to Lumpsum price, irrespective of the progressive payments made during execution based on the split up of price.
- vii. Contractor shall carry entire scope of work/ supplies as detailed in various sections of the Tender Document within the Lumpsum Price (Contract Price).
- viii. Prices quoted by the Bidder shall include cost of any other supplies/ work(s) not specifically mentioned in the Bidding Document but necessary for the efficient, trouble free commissioning & operation of the Plant and to make this package job complete. Quoted price is FIRM and fixed till complete execution of the entire order. Also, variation on account of Foreign Exchange rate is not to be payable extra.
- ix. Spares for start-up/ commissioning and mandatory spares (if any) required are in Contractor's Scope and deemed included in the quoted Prices.
- x. Bidder confirms that he has noted the contents of the Bid Document and quoted his Prices accordingly without any deviation.

16.1 Price Bid (s) of the Qualified Bidders shall be opened online in presence of the representatives of such Qualified Bidders, who wish to be present, on a date as may be intimated by Punjab State Power Corporation Limited to the Bidders through Punjab State Power Corporation Limited: website www.pspcl.in or rts-ipc@pspcl.in. The evaluation of Price Bid shall be carried out based on the information furnished in Financial Bid (Price Bid). The Price Bid submitted by the Bidders shall be scrutinized to ensure conformity with the RFS. Any Bid not meeting any of the requirements of this RFS may cause the Bid to be considered “**non-responsive**” at the sole decision of the Punjab State Power Corporation Limited. Following factors shall be considered for evaluation of Price Bids:

- i. Price per kW (AC) for all the Bidders shall be compared to determine the lowest Bid Value (L1) as quoted by bidders in the Price schedule/ Bid.
- ii. The per kW (AC) Price will be considered up to 2 decimal places only.
- iii. Bidder with lowest Price per kW (AC) will be L-1, Bidder with second lowest Price per kW (AC) shall be L-2 & so on.
- iv. The Total Evaluated Bid Value shall be inclusive of Goods & Service Tax (GST) as quoted by the bidder. The award shall be placed Inclusive of GST.
- v. Conditional discount, if offered, shall not be considered for evaluation.

16.2 REVERSE AUCTIONING (RA)

The following procedure and terms & conditions shall be applicable for Reverse Auction in PSPCL:-

- i. After opening of package-wise price bid, Reverse Auction shall be held on the Package-wise Lowest Gross Total Amount quoted by the participating bidders.
- ii. **In case the no. of bidders are more than 3, the H1 (Highest) bidder shall not be eligible to participate in further process of the tender and his tender shall be rejected.**
- iii. All the Bidders shall be assigned a unique user name and password by e-tendering agency of PSPCL. Bidders are advised to change the password after the receipt of initial password from PSPCL to ensure confidentiality. All bids made from Login IDs assigned to bidders shall be deemed to have been made by bidders/bidders' company/ bidders' authorized representatives.
- iv. Bidders shall be required to submit their acceptance to the stipulated terms and conditions before participating in the R.A.
- v. Online Reverse Auction shall be conducted by PSPCL on pre-specified date and time for duration of 1 Hour. The bidders may quote the bids from their own offices /place of their choice. Internet connectivity is to be ensured by bidders themselves.
- vi. All bidders are required to submit their price bid along with submission of Techno-commercial bid as per schedule. Only those bidders who submit their original bids within the scheduled time and who are considered technically and commercially eligible, shall be eligible to participate in RA process.
- vii. The 'Opening Price' i.e. start price for RA shall be decided by PSPCL. Bid Decrement shall be **0.1%** of L-1 Bid Price obtained against a particular tender package upon the opening of Price Bid of tender.

- viii. Bidders shall be able to view the following on their screen along with the necessary fields during Online Reverse Auction:-
- a) Start Price
 - b) Decrement Value
 - c) Rank of the bidder
 - d) Current Bid value of the Bidder (Total Bid Price)
 - e) Best bid in the Auction (Current L1 price)
 - f) Next Valid Bid (Total Bid Prices to be quoted in order to become L1)
 - g) Minimum Bid Price (Bidder to enter his minimum Bid Price here)
- ix. Bidder may become 'L1 Bidder' by offering a price equal to or lower than the 'Next Valid Bid' and this shall continue as an iterative process.
- x. **Auction Extension Time:** If a valid bid is placed within 5 minutes of End Time of the RA, then Reverse Auction duration shall get automatically extended for another 5 minutes from the existing end time. It may be noted that the auto extension will take place if a valid Bid comes in those last five minutes. If a bid does not get accepted as the lowest Bid, the auto-extension will not take place even if the bid might have come in last five minutes. The above process shall continue till no valid bid is received in last 5 minutes which shall mark the completion of reverse auction. The bidders are advised not to wait till the last moment to enter their bid so as to avoid complications related to internet connectivity, network problems, system crash down, Power failure etc. No request for extension in time period of RA due to any of the above reasons shall be entertained by PSPCL.
- xi. If no bid is received within the specified time duration of the online RA, then PSPCL shall reserve the rights to scrap the online RA process and proceed with the L-1 Bid Price received through e-tendering for further processing.
- xii. After completion of online Reverse Auction, the Closing Price (CP) shall be considered as L1 rate for further processing including negotiations (if required). Based on the final price quoted by bidders, the successful bidders shall be required to submit summary of Final Price in prescribed format (Summary of Final Price-Reverse auction, Uploaded by PSPCL in Excel Sheet) **within 2 working days** of conclusion of the RA. In case a bidder fails to submit the above Summary, then it may lead to cancellation of bid and call for action against the bidder which may include forfeiture of EMD/PEMD and suspension of business dealings etc.
- xiii. **Proxy Bids:-** Proxy bidding feature is a pro-bidder feature to safeguard the bidders' interest in event of internet failure or to avoid last minute rush. The proxy bidding feature allows bidder to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum bid price that the bidder is willing to offer. Here, the software shall automatically bid on behalf of the bidder who has quoted the lowest "Minimum Bid Price", the price which is one decrement less than the next bidder's bid price. This obviates the need for the bidder participating in the bidding process until the minimum bid amount is detrimentally reached by other bidders. When any bidder quotes a price lower than the existing lowest bid amount, the bidder (who had earlier submitted lowest proxy bid) has an option to once again start participating in the bidding process by quoting a price equal

to or lower than the next valid bid price. However, it may please be noted that if the current bid matches the minimum bid of the lowest bidder submitted earlier, the bid submitted by the lowest bidder will be recognized as the L1 at that instant.

During the course of bidding, the bidder shall not be able to delete or increase the proxy bid amount but can always reduce the same depending upon the amount quoted by other bidders. Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

xiv. The split up of Base Rate and GST shall be provided by the bidder as per requirement after completion of reverse auction.

xv. PSPCL shall reserve the rights to cancel/reschedule the RA process/ tender at any time, with due intimation to all concerned, without assigning any reason.

xvi. Other terms and conditions shall be as per bidder's Techno-Commercial offers and as per PSPCL's bidding documents and other up to date correspondence (if any).

Note: The procedure/system of "Proxy Bids" will only be followed if the e-tendering software system supports it.

17 ZERO DEVIATION

This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the Bid Document and submit their Bid accordingly. Tenders with any deviation to the bid conditions shall be liable for rejection.

18 AWARD OF CONTRACT

18.1 Post qualification

- i. In the absence of pre-qualification, the PSPCL will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in Clause 5.3 and Clause 5.5 of **section-I**.
- ii. The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the PSPCL deems necessary and appropriate.
- iii. An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the PSPCL will proceed to the next lowest evaluated bid to make a similar determination of that bidder's capabilities to perform satisfactorily.

18.2 AWARD CRITERIA

Subject to **Clause 14**, the PSPCL will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

19 NOTIFICATION OF AWARD

19.1 Prior to the expiration of the period of bid validity, the office of SE/IPC, PSPCL, Patiala will notify the successful Bidder in writing by issuing Letter Of Award (LOA), that its bid has been accepted.

19.2 The notification of award will constitute the formation of the Contract.

20 WORK ORDER AND SIGNING OF CONTRACT: Work Order and the Contract Form shall be issued by the concerned executing authority as mentioned below:

| S No | Zone/ Area/ Project | Work Order Issuing authority |
|------|-----------------------------|---|
| 1 | DS offices | Work order(s) will be issued by the office/authority designated by office of EIC/ CE/DS of the concerned zone. |
| 2 | 66 kV Grid substations | Work order(s) will be issued by the office/ authority designated by office of EIC/CE/ P&M, Ludhiana. |
| 3 | Buildings of Hydel Projects | Work orders will be issued (to the L1 vendor of the respective zone in which the location of project falls) by the office/authority designated by office of EIC/CE/Hydel. |
| 4 | GHTP Lehra Mohabat | Work order will be issued by the office/authority designated by office of EIC/CE/GHTP, Lehra Mohabat. |
| 5 | GGSSSTP, Ropar | Work orders will be issued by the office/authority designated by office of EIC/CE/GGSSTP, Ropar. |

- 20.1** At the same time as the PSPCL notifies the successful Bidder that its bid has been accepted, the concerned executing offices as mentioned above, will send the Bidder the Work Order and the Contract Form, incorporating all agreements between the parties as per terms and conditions of tender specifications.
- 20.2** Within thirty (30) days of receipt of the Work Order / Contract form, the successful Bidder shall sign and date the Contract and return it to the PSPCL. The signing of the Work Order cum contract agreement shall evidence the final acceptance of all terms and conditions and their due compliance by the successful bidder.
- 20.3** Failure of the successful Bidder to comply with the requirement of clause above mentioned clause (**Clauses 20.2 of Section-I, Part-A**), within the stated time periods shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD/ security deposit and PSPCL may consider the award to the next lowest evaluated bidder or call for new bids.

PART B: CONDITIONS OF CONTRACT

1. SCOPE OF WORK

- 1.1 The Bidders shall be obliged to complete the Work as per the articulated detailed Scope of work **and in accordance with the package of Grid Connected Rooftop Solar PV project defined above.**

2.PROJECT COST

- 2.1 The Project cost shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a “single responsibility” basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Maintenance for a period of 5 years, goods and services including spares required if any during Maintenance period. The Bidder has to take all permits, approvals and licenses, insurance etc., provide training and such other items and services required to complete the scope of work as mentioned above.
- 2.2 The Project cost is on lump sum turnkey basis and the bidder is responsible for the entire Scope of work as per RFS.
- 2.3 Prospective Bidders are advised to visit the site to study the actual conditions and go through the plans/ drawings connected to the present scope of work etc.
- 2.4 The Project cost shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.
- 2.5 The Project cost shall be **inclusive of cost of all components and duties/taxes/insurance during transit/purchase of materials.** The prices quoted by the firm shall be complete in all respect and no price variation/adjustment shall be payable by Punjab State Power Corporation Limited.
- 2.6 Operation & Maintenance of Solar PV Power Plant would include wear, tear, overhauling, machine breakdown, and replacement of defective modules, invertors / Power Conditioning Unit (PCU) spares, consumables & other parts for a period of 05 years.
- 2.7 The Bidder shall complete the Price Bid online and as per **Price Schedule format** only (**Section-III** furnished in the RFS Documents).

2.8 INSURANCE

- 2.8.1 The contractor in its own interest shall be responsible to take an insurance policy, if required, for all the materials to cover all risks and liabilities for supply and storage of materials at site, installation, testing and commissioning. However, this shall not

include any insurance of commissioned plant after handing over to PSPCL.

- 2.8.2 The PSPCL shall not be in any case liable for any third-party damages 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 contract/work. The Bidder will be solely responsible for against any damage, loss, injury or death of its employees and representatives arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder. The Bidder for its own interest is advised to take any insurance for any unforeseen circumstances.

The bidder shall take entire responsibility of electrical safety of the installations including connectivity with the grid and follow all the safety rules and regulations applicable as per Indian Electricity Act-2003 and prevailing CEA guidelines and amendments, it shall be responsibility of the bidder to take NOC from concerned authority and engage person as per provisions of CEA Rules and Regulations.

The bidder shall ensure proper safety of all the workmen, material, plants and equipment belonging to him/her. In case any accident occurs during the construction / erection or during guarantee period for work undertaken by bidder thereby causing any minor or major or fatal accident will be the responsibility of the bidder. The successful bidder shall follow and comply with the employer's safety rules relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment. The bidder shall also arrange all certificates and test reports of the module and inverter and other equipment. The bidder must adhere to the Operation and Maintenance procedure given in this document.

2.9 WARRANTIES AND GUARANTEES

The contractor shall provide warranty covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning for projects.

3. PAYMENTS AND TERMS OF PAYMENTS

- 3.1 The contractor shall submit all bills on the printed forms to be had on application at the office of the Engineer-in-Charge and the charges in the bills always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the tender at the rates hereinafter provided for such works. The payment shall be made to the contractor as per prevailing instructions of PSPCL as per details given below:
- 3.2 Sixty five percent (65%) of the total cost of each plant shall be paid after the joint inspection for installation, erection, successful acceptance of the plant facilities pursuant to successful installation and commissioning of the rooftop plant in total and ready for handing over to PSPCL including submission of all as-built drawings, O&M manual, bills, guarantees, warranties etc.

- 3.3 Twenty five percent (25%) of the total cost shall be paid after successful Final Site Acceptance Test regarding performance of the rooftop solar plant for continuous three months (excluding December-January) after the date of integration with the grid. The rooftop solar plant must generate total units at the rate of 375 units/kW in 90 days.
- 3.4 Ten percent (10%) of the total cost of each plant shall be paid after completion of the O&M period of five years with the compliance of entire obligations in the contract.
- 3.5 The price to be paid by the Purchaser to Contractor for the whole of the Work done and for the performance of all the obligations undertaken by the Contractor under the Contract shall be ascertained and payment to be made accordingly for the Work actually executed and approved by the site-in- Charge/Purchaser. The sum so ascertained shall constitute the sole and inclusive remuneration of the Contractor under the Contract and no further or other payment whatsoever shall be or become due or payable to the Contractor under the Contract.
- 3.6 Tax deductions will be made as per the rules and regulations in force in accordance with acts prevailing from time to time.

4. TIME FOR COMMISSIONING

The Time for Commissioning for the cumulative capacity Solar PV Power Plant at different sites along with other associated equipment as per this tender document in total shall be **one year** from the Date of issue of Work Order.

Further Contractor is also to provide AMC Contract of Solar Photo Voltaic Plant for a period of 5 (Five) years from the date of Operational Acceptance of the Plant.

The contractor shall submit the detailed schedule for the project clearly indicating the timelines for submission and approval of drawings, procurement, and transportation of materials to site, their installation at site, commissioning etc.

5. PENALTY/DAMAGES FOR DELAY IN COMMISSIONING OF PROJECT

The time allowed for carrying out the work as entered in the contract shall be strictly observed by the contractor and shall be reckoned from the date on which the order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of the contractor) and the contractor shall pay as penalty an amount equal to one half percent of the estimated cost of the un-commissioned rooftop solar plant capacities against particular Work Order/contract as shown in the contract for every week of the delay for which the work remains unfinished after the contract completion period, provided always that the entire amount of penalty to be paid under the provisions of this clause shall not exceed security deposit against that work order/contract.

6. EXTENSION IN TIME FOR COMMISSIONING

Any genuine delay in commissioning of the RTS plant solely attributable to PSPCL, will count towards extension of the completion period by corresponding period or as deemed fit by work order issuing authority other than admissible under Force Majeure

conditions, if any, substantiated by the supplier and duly accepted by the PSPCL. No extension in completion shall be granted in case of delay in payment.

7. NEGLIGENCE AND DEFAULT

- 7.1 In case of negligence on the part of Supplier/Contractor to execute the order/contract with due diligence & expedition to comply with any reasonable orders given in writing by the PSPCL in connection with the Purchase Order/Contract or any contravention in the provisions of the purchase order/Contract, the PSPCL may give 21 days' notice in writing to the supplier/contractor to make good the failure or neglect or contravention and if the supplier/contractor fails to comply with the notice within time considered to be reasonable by the PSPCL, he will suspend/terminate business dealings with the firm for specific period.
- 7.2 Further in case of such default by supplier/contractor the PSPCL may also suspend business dealings with the supplier/contractor apart from claiming reasonable compensation/damages, forfeiture of security etc.

8. TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

- 8.1 The design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/ Indian Standards as detailed in the **Section- II (Technical specifications)** of the bid document.
- 8.2 The specifications of the components should meet the technical specifications mentioned in **Section II**.
- 8.3 Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the SPV plant.

9. OPERATION & MAINTENANCE (O&M) GUIDELINES TO BE MANDATORILY FOLLOWED BY CONTRACTOR

- 9.1 The contractor shall be responsible for all the required activities for successful operation and maintenance of the Rooftop Solar PV system for a period of 5 years from the date of commissioning of the plant.
- 9.2 Below mentioned guidelines, shall be followed for O&M practices, which is not limited to **Annexure-B**.
 - i. O&M of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.
 - ii. Deputation of qualified and experienced personnel till the O&M period at project site as & when required.
 - iii. Quarterly checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.

- iv. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.
 - v. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacturer/supplier's recommendations.
 - vi. All the equipment testing instrument required for Testing, Commissioning and O&M for the healthy operation of the Plant shall be maintained by the Bidder. The testing equipment must be calibrated once every 2 years from NABL accredited labs and the certificate of calibration must be kept for reference as required.
 - vii. If negligence/ mal-operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired/ replaced by the Bidder free of cost.
 - viii. If any jobs covered in O&M Scope as per RFS are not carried out by the contractor/ Bidders during the O&M period, the designated Official shall take appropriate action as deemed fit. Punjab State Power Corporation Limited reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the O&M activities being carried out by the Bidder. ***Failure to adhere to above guidelines will result in penal action including debarring from participation in next tender.***
- 9.3 The Bidders should have their service network in Punjab and shall provide address of service centre in O&M manual. A copy of the same shall also be provided to the Punjab State Power Corporation Limited.
- 9.4 The bidder shall use the original parts in case of any fault in the PCU/Inverter during the AMC period of 5 years. In case the 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.
- 9.5 ***If Bidders fail to comply with the O&M guidelines, it may lead to forfeiture of Performance Security and subsequently debarring or blacklisting from the future State.***

10. METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the Solar Rooftop Plants under this scheme would be the responsibility of PSPCL in accordance with the terms and conditions laid down in bid document and prevailing guidelines/regulation of State Electricity Regulatory Commission (SERC)/ CERC /Central Electricity Authority (CEA) and issued amendments.

11. PLANT PERFORMANCE EVALUATION

The Bidder shall be required to meet minimum guaranteed generation with Site Acceptance test after successful installation and commissioning of the rooftop plant in total. During Site Acceptance Test the performance of the rooftop solar plant for continuous three months (excluding December-January) after the date of integration

with the grid will be observed. The rooftop solar plant must generate total units at the rate of 375 units/kW in 90 days during this test.

12. PROGRESS REPORT

The bidder shall submit the progress report to Punjab State Power Corporation Limited during the period of installation. PSPCL will have the right to depute its representatives to ascertain the progress of contract at the premises of works of the Bidder.

13. SUBMISSION OF O&M REPORT (OMR)

The bidder shall submit the quarterly O&M Report mandatorily to PSPCL as per the Format enclosed at **Annexure C**. Non submission of the report shall be considered as “Breach of Contract” and shall attract punitive actions as per the relevant provisions of the Contract. However, the decision of Engineer-in -charge shall be final in this regard.

14. CHANGE IN LAW

In the event a Change in Law results in any adverse financial loss/ gain to the Bidder then, in order to ensure that the Bidder is placed in the same financial position as it would have been had it not been for the occurrence of the Change in Law, the Bidder/ PSPCL shall be entitled to compensation by the other party, as the case may be, subject to the condition that the quantum and mechanism of compensation payment shall be determined and shall be effective from such date as decided by the Punjab State Power Corporation Limited.

In these Guidelines, the term Change in Law shall refer to the occurrence of any of the following events after the last date of the bid submission, including (i) *the enactment of any new law; or (ii) an amendment, modification or repeal of an existing law; or (iii) the requirement to obtain a new consent, permit or license; or (iv) any modification to the prevailing conditions prescribed for obtaining an consent, permit or license, not owing to any default of the bidder; or (v) any change in the rates of any Taxes which have a direct effect on the Project.* However, Change in Law shall not include any change in taxes on corporate income or any change in any withholding tax on income or dividends.

The bidders are required to study carefully the conditions of the tender document, the enclosed specifications and the relevant provision of the relevant BIS/IS/MNRE specifications wherever necessary before submitting the proposal. Technical particulars of the material offered must comply with the enclosed specifications and the relevant provisions of the BIS/IS/MNRE as far as possible.

Any changes in the constitution of the firm/company shall be notified forth with by the Bidder in writing to the Company and such change shall not relieve the tenderer from any liability under the contract.

Bidder will have to submit GST registration certificate number and GST clearance certificate from the competent authority concerned along with the proposal without which proposals may not be considered provided that the purchasing authority has

reason to believe (to be recorded in writing) that the bidder has not been able to submit clearance certificate of GST on bona-fide grounds, the authority may consider the tender asking the bidder to furnish the certificate later on but in any case before the execution of the agreement by the successful bidder.

The bidder shall sign on each page at the end in token of acceptance of all the terms and it would be attached /uploaded with the proposal along with the declaration. He should also sign at the bottom of each of the pages of his tender.

The authorisation for installing SPV system can be repudiated at any time by the PSPCL if the systems are not supplied and installed to its satisfaction. The reasons for repudiation shall be recorded by the PSPCL. In case of non-performance in any form and shape of the terms & conditions of the agreement Appropriate Authority, of the PSPCL has power to cancel the authorisation pertaining to the supply and installation of systems.

If a bidder imposes conditions, which are in addition to/or in contravention with the conditions mentioned herein, his tender is liable to be summarily rejected. In any case none of such conditions will be deemed to have been accepted unless specifically mentioned in the letter of authorisation issued by PSPCL.

15. PROJECT INSPECTION

The project can be inspected for quality at any time during commissioning or after the completion of the project by Punjab State Power Corporation Limited and/or any agency/ experts designated / authorized by Punjab State Power Corporation Limited from time to time. Punjab State Power Corporation Limited shall depute a technical person from its office or from list of empanelled experts/ agencies updated from time to time for inspection, third party verification, monitoring of system installed to oversee the implementation as per required standards. The cost of inspection at the time of commissioning shall be borne by the PSPCL. However, if the project is not found to be installed in an appropriate manner, all arrangement for the next visit of the authorized representative of the PSPCL shall be made by the Bidder. There shall be no separate charges/fees for the inspections. The inspection shall be broadly governed by the following mechanism.

- 15.1 After complete installation of the system, the Bidders shall immediately intimate to PSPCL in writing for such inspections. The PSPCL will complete the inspection of the PV system within 10 working days of the receipt of the intimation.
- 15.2 The material/installation found sub-standard or faulty is to be replaced by the bidder with new material as per the specifications. The systems shall be offered for inspection again after necessary rectification. Expenses for such re-inspection shall be borne by the Bidders. PSPCL at its discretion may also pick up samples from the lot of systems being supplied by the vendor at random from the warehouse for quality check only. The samples picked up will be tested for acceptance test as decided by PSPCL at MNRE/ Government approved laboratory in presence of representatives of supplier and PSPCL as per relevant IEC/IS/BIS/ PSPCL specifications.

- 15.3 The test results will be binding on the suppliers and PSPCL, in general will not allow re-sampling. If the material fails in any of the acceptance tests carried out, those components that fail the test shall be rejected, and the Bidder shall have to supply and install the new component as per the specifications.
- 15.4 The Bidders will offer Solar PV System for inspection at their site/warehouse by PSPCL or its authorized quality inspection agency. PSPCL may carry out random testing/inspection of SPV systems at the site. However, all costs towards such inspection shall be borne by PSPCL.

16. SETTLEMENT OF DISPUTE

16.1 All disputes and differences arising out of or under the contract including, however, without prejudice to the generality of the aforesaid, any question regarding the existence, validity or termination, in respect thereof, the parties at the first instance shall endeavour to resolve such dispute or differences amicably by mutual consultation.

16.2 If the parties fail to resolve, the disputes or differences amicably by mutual consent, within 45 days of its arising, the disputes or differences shall be referred to arbitration. Either party may refer the disputes or differences to arbitration as provided hereinafter, by giving notice in writing to the other party of its intention to refer the disputes or differences to arbitration and such arbitration proceedings shall commence with the receipt of the aforesaid notice by the other party.

i. **IN CASE THE CONTRACTOR IS A PUBLIC SECTOR ENTERPRISE OR A GOVERNMENT DEPARTMENT**

In case the Contractor is a Public Sector Enterprise or a Government Department, the dispute shall be referred by either party for Arbitration to the sole Arbitrator to be nominated by the **Secretary (Power)**, of the Punjab.

ii. **IN ALL OTHER CASES**

- a) In case the contractor is not a public sector enterprise or a Govt. Deptt. And in all other cases, any dispute referred to arbitration by a party shall be heard by an arbitration panel composed of three arbitrators, in accordance with the provisions as set forth below.
- b) The Punjab State Power Corporation Limited and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the two arbitrators do not succeed in appointing a third arbitrator within twenty (20) days after the latter of the two arbitrators has been appointed, the third arbitrator shall, at the request of either party, be appointed by the Appointing Authority for third arbitrator who shall be the Secretary (Power), of the State.
- c) If one party fails to appoint its arbitrator within thirty-two (32) days after the other party has named its arbitrator, the party which has named an arbitrator may request the Appointing Authority to appoint the second arbitrator.
- d) If for any reason an arbitrator is unable to perform its function, the mandate of the

Arbitrator shall terminate in accordance with the provisions of applicable laws and a substitute shall be appointed in the same manner as the original arbitrator.

- e) The venue of arbitration shall be Patiala or a place of mutual consent. The provisions of Arbitration and Conciliation Act, 1996, as amended from time to time shall govern the Arbitration proceedings conducted in respect of the disputes and the differences arising out of or under the contract, except to the extent, otherwise agreed herein by the parties.
 - f) The decision of a majority of the arbitrators (or of the third arbitrator chairing the arbitration panel, if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction as decree of the court. The parties thereby waive any objections to or claims of immunity from such enforcement.
 - g) The arbitrator(s) shall be given Honorarium as per the extant rules of the govt.
- 16.3 Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the agreement unless they otherwise agree.
- 16.4 Cost of arbitration shall be equally shared between the Parties.

17. **FORCE MAJEURE**

- 17.1 Notwithstanding the provisions of clauses contained in this RFS document; the contractor shall not be liable to forfeit (a) PBG for delay and (b) termination of contract; if he/she is unable to fulfil his obligation under this contract due to force majeure conditions.
- 17.2 For purpose of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions, Grid Problems/ shutdowns and fright embargoes etc. Whether a "Force majeure" situation exists or not, shall be decided by Punjab State Power Corporation Limited and MNRE and this decision shall be final and binding on the contractor and all other concerned.
- 17.3 In the event that the contractor is not able to perform his obligations under this contract 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 (06) months, Punjab State Power Corporation Limited has the right to terminate the contract in which case, the PBG shall be refunded to the bidder.
- 17.4 If a force majeure situation arises, the contractor shall notify Punjab State Power Corporation Limited in writing promptly, not later than 14 days from the date such situation arises. The contractor shall notify Punjab State Power Corporation Limited not later than 3 days of cessation of force majeure conditions. After examining the cases, Punjab State Power Corporation Limited shall decide and grant suitable additional time for the completion of the work, if required.

18. **LANGUAGE**

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other data shall be in English Language only. The contract agreement and all correspondence between the Punjab State Power Corporation Limited and the bidder shall be in English language. O&M manual and warranty card should be in English & local languages.

19. OTHER CONDITIONS

- 19.1 The Bidder shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party without the prior consent of Punjab State Power Corporation Limited in writing.
- 19.2 The Bidder shall not display the photographs of the work and not take advantage through publicity of the work without written permission of PSPCL.
- 19.3 The Bidder shall not make any other use of any of the documents or information of this contract, except for the purposes of performing the contract.
- 19.4 Punjab State Power Corporation Limited will not be bound by any Power of Attorney granted/ issued by the Bidder or its subcontractors or by any change in the composition of the firm made during or subsequent to the execution of the contract. However, recognition to such Power of Attorney and change (if any) may be given by Punjab State Power Corporation Limited after obtaining proper legal advice, the cost of which will be chargeable to the Bidder.

20. SUCCESSORS AND ASSIGNEES

In case the Punjab State Power Corporation Limited or bidder may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization & this contract is assigned to any entity(ies) partly or wholly, the contract shall be binding mutatis mutandis upon the successor entities & shall continue to remain valid with respect to obligation of the successor entities.

21. SEVERABILITY

It is stated that each paragraph, clause, sub-clause, schedule or annexure of this contract shall be deemed severable & in the event of the unenforceability of any paragraph, clause sub-clause, schedule or the remaining part of the paragraph, clause, sub-clause, schedule annexure & rest of the contract shall continue to be in full force & effect.

22. COUNTERPARTS

This contract may be executed in one or more counterparts, each of which shall be deemed an original & all of which collectively shall be deemed one of the same instruments.

23. RIGHTS & REMEDIES UNDER THE CONTRACT ONLY FOR THE PARTIES

This contract is not intended & shall not be construed to confer on any person other than the Punjab State Power Corporation Limited & Bidder hereto, any rights and / or remedies herein.

24. CORRESPONDENCE

Bidder requiring any Techno-Commercial clarification of the bid documents may contact in writing or by Fax /E Mail.

| Name & Designation | Contact Number | Email id |
|--|----------------------------|--|
| Superintending Engineer/IPC, PSPCL Patiala | 96461-23332 96461-29246 | rts-ipc@pspcl.in se.ipc.ppr@gmail.com |

Verbal clarifications and information given by the Punjab State Power Corporation Limited or its employees or its Representatives shall not be in any way entertained.

Superintending Engineer/
Investment Promotion Cell, PSPCL Patiala

SECTION-II

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below.

DEFINITION

A Roof Top Solar (RTS) Photo Voltaic (PV) system shall consist of following equipment/components:

1. Solar Photo Voltaic (SPV) modules consisting of required number of ALMM compliant Mono-Crystalline or bifacial PV modules
2. Inverter/PCU
3. Module Mounting structures
4. Energy Meter
5. Array Junction Boxes
6. DC Distribution Box
7. AC Distribution Box
8. Protections – Earthing, Lightning, Surge
9. Cables
10. Drawing & Manuals
11. Miscellaneous

1. Solar PV modules

- 1.1. The PV modules used must qualify to the latest edition of IEC standards or equivalent BIS standards, i.e., IEC 61215/IS14286, IEC 61853-Part I/IS 16170-Part I, IEC 61730 Part-1 & Part 2 and IEC 62804 (PID). For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701.
- 1.2. The rated power of solar PV module shall have maximum tolerance up to +3%.
- 1.3. The peak-power point current of any supplied module string (series connected modules) shall not vary by +1% from the respective arithmetic means for all modules and/or for all module strings (connected to the same MPPT), as the case may be.
- 1.4. The peak-power point voltage of any supplied module string (series connected modules) shall not vary by + 2% from the respective arithmetic means for all modules and/or for all module strings (connected to the same MPPT), as the case may be.
- 1.5. The temperature co-efficient power of the PV module shall be equal to or better than -0.45%/°C.
- 1.6. ALMM compliant Mono-Crystalline or bifacial Solar PV modules (manufactured by reputed firms) of minimum capacity 540 Wp or higher of the following manufacturers to be used.
 - a) Adani/Mudra solar
 - b) Waree
 - c) Vikram

- d) Goldi
 - e) Premier
 - f) Renewsys
- 1.7. The PV Module efficiency should be minimum 20 %.
 - 1.8. Solar PV modules of minimum fill factor 75%, to be used.
 - 1.9. All electrical parameters at STC shall have to be provided
 - 1.10. The PV modules shall be equipped with IP 65 or better protection level junction box with required numbers of bypass diodes of appropriate rating and appropriately sized output power cable of symmetric length with MC4 or equivalent solar connectors. The IP level for protection may be chosen based on following conditions:
 - i. An IP 65 rated enclosure is suitable for most outdoor enclosures that won't encounter extreme weather such as flooding.
 - ii. An IP 67 rated enclosure is suitable at locations which may encounter temporary submersion at depths of up to one meter.
 - iii. An IP 68 enclosure is recommended if there may exist situations of submergence for extended periods of time and at substantial depths.
 - 1.11. All PV modules should carry a performance warranty of >90% during the first 10 years, and >80% during the next 15 years. Further, module shall have performance warranty of >97% during the first year of installation—degradation of the module below 1 % per annum.
 - 1.12. The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of commissioning:
 - 1.13. Defects and/or failures due to manufacturing.
 - 1.14. Defects and/or failures due to quality of materials.
 - 1.15. Nonconformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option.
 - 1.16. PV modules must be tested and approved by one of the NABL accredited and BIS approved test centres.
 - 1.17. Modules deployed must use a RF identification tag laminated inside the glass. The following information must be mentioned in the RFID used on each module:
 - i. Name of the manufacturer of the PV module
 - ii. Name of the manufacturer of Solar Cells.
 - iii. Month & year of the manufacture (separate for solar cells and modules)
 - iv. Country of origin (separately for solar cells and module)
 - v. I-V curve for the module Wattage, I_m , V_m and FF for the module
 - vi. Unique Serial No and Model No of the module

- vii. Date and year of obtaining IEC PV module qualification certificate.
 - viii. Name of the test lab issuing IEC certificate.
 - ix. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.
 - x. Nominal wattage +3%.
 - xi. Brand Name, if applicable.
- 1.18. Other details as per IS/IEC 61730-1 clause 11 should be provided at appropriate place. In addition to the above, the following information should also be provided:
- i. The actual Power Output Pmax shall be mentioned on the label pasted on the back side of PV Module.
 - ii. The Maximum system voltage for which the module is suitable to be provided on the back sheet of the module.
 - iii. Polarity of terminals or leads (colour coding is permissible) on junction Box housing near cable entry or cable and connector.
- 1.19. Unique Serial No, Model No, Name of Manufacturer, Manufacturing year, Make in India logo and module wattage details should be displayed inside the laminated glass.

2. Inverter/PCU

- 2.1. Inverter of only the following manufacturers are to be installed:
- a) INVT
 - b) Growatt
 - c) Solis
 - d) Sungrow
 - e) Sofar
- 2.2. Inverters/PCU should comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683, IS 16221 (Part 2), IS 16169 and IEC 60068-2(1,2,14,30)/Equivalent BIS Std.
- 2.3. Maximum Power Point Tracker (MPPT) shall be integrated in the inverter/PCU to maximize energy drawn from the array. Charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS standard. The junction boxes/enclosures should be IP 65 or better (for outdoor)/IP 54 or better (indoor) and as per IEC 529 Specifications.
- 2.4. All inverters/PCUs shall be IEC 61000 compliant for electromagnetic compatibility, harmonics, Surge, etc.
- 2.5. The PCU/ inverter shall have overloading capacity of minimum 10%.
- 2.6. Typical technical features of the inverter shall be as follows-
- i. Switching devices: IGBT/MOSFET

- ii. Control: Microprocessor/DSP
 - iii. Nominal AC output voltage and frequency: as per CEA/State regulations
 - iv. Output frequency: 50 Hz
 - v. Grid Frequency Synchronization range: as per CEA/State Regulations
 - vi. Ambient temperature considered: -20°C to 60°C
 - vii. Humidity: 95 % Non-condensing
 - viii. Protection of Enclosure: IP-54 (Minimum) for indoor and IP-65(Minimum) for outdoor.
 - ix. Grid Frequency Tolerance range: as per CEA/State regulations
 - x. Grid Voltage tolerance: as per CEA/State Regulations
 - xi. No-load losses: Less than 1% of rated power
 - xii. Inverter efficiency (Min.): >93% (In case of 10 kW or above with in-built galvanic isolation) >97% (In case of 10 kW or above without inbuilt galvanic isolation)
 - xiii. Inverter efficiency (minimum): > 90% (In case of less than 10 kW)
 - xiv. THD: < 3%
 - xv. PF: > 0.9 (lag or lead)
 - xvi. Should not inject DC power more than 0.5% of full rated output at the interconnection point and comply to IEEE 519.
- 2.7. The output power factor of inverter should be suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustain fault in feeder line and against the lightning on feeder.
- 2.8. All the Inverters should contain the following clear and indelible Marking Label & Warning Label as per IS16221 Part II, clause 5. The equipment shall, as a minimum, be permanently marked with:
- i. The name or trademark of the manufacturer or supplier;
 - ii. A model number, name or other means to identify the equipment,
 - iii. A serial number, code or other marking allowing identification of manufacturing location and the manufacturing batch or date within a twelve-month time period.
 - iv. Input voltage, type of voltage (a.c. or d.c.), frequency, and maximum continuous current for each input.
 - v. Output voltage, type of voltage (a.c. or d.c.), frequency, maximum continuous current, and for a.c. outputs, either the power or power factor for each output.
 - vi. The Ingress Protection (IP) rating
- 2.9. Marking shall be located adjacent to each fuse or fuse holder, or on the fuse holder, or in another location provided that it is obvious to which fuse the marking applies, giving the fuse current rating and voltage rating for fuses that may be changed at the installed site.

- 2.10. In case the consumer is having a 3- ϕ connection, 1- ϕ /3- ϕ inverter shall be provided by the vendor as per the consumer's requirement and regulations of the State.
- 2.11. Inverter/PCU shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- 2.12. Integration of PV Power with Grid & Grid Islanding:
 - i. The output power from SPV would be fed to the inverters/PCU which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization.
 - ii. In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as "islands." Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided, if not available in inverter.
 - iii. MCB/MCCB or a manual isolation switch, besides 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.

3. Module Mounting Structure (MMS):

- 3.1. Supply, installation, erection and acceptance of module mounting structure (MMS) with all necessary accessories, auxiliaries and spare part shall be in the scope of the work.
- 3.2. Module mounting structures can be made from three types of materials. They are Hot Dip Galvanized Iron, Aluminium and Hot Dip Galvanized Mild Steel (MS). However, MS will be preferred for raised structure.
- 3.3. MMS Steel shall be as per latest IS 2062:2011 and galvanization of the mounting structure shall be in compliance of latest IS 4759. MMS Aluminium shall be as per AA6063 T6. For Aluminium structures, necessary protection towards rusting needs to be provided either by coating or anodization.
- 3.4. All bolts, nuts, fasteners shall be of stainless steel of grade SS 304 or hot dip galvanized, panel mounting clamps shall be of aluminium and must sustain the adverse climatic conditions. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts.
- 3.5. The module mounting structures should have angle of inclination as per the site conditions to take maximum insolation and complete shadow-free operation

during generation hours. However, to accommodate more capacity the angle of inclination may be reduced until the plant meets the specified performance ratio requirements.

- 3.6. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed. The PV array structure design shall be appropriate with a factor of safety of minimum 1.5.
- 3.7. The upper edge of the module must be covered with wind shield so as to avoid build air ingress below the module. Slight clearance must be provided on both edges (upper & lower) to allow air for cooling.
- 3.8. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed. The bidder shall be fully responsible for any damages to SPV System caused due to high wind velocity within guarantee period as per technical specification.
- 3.9. The structures shall be designed to allow easy replacement, repairing and cleaning of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Necessary testing provision for MMS to be made available at site.
- 3.10. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection, ease of installation, replacement, cleaning of panels and electrical maintenance.
- 3.11. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
- 3.12. The Rooftop Structures may be classified in three broad categories as follows (drawings at **Annexure-A**):
 - i. **Ballast structure**
 - a. The mounting structure must be Non-invasive ballast type and any sort of penetration of roof to be avoided.
 - b. The minimum clearance of the structure from the roof level should be in between 70-150 mm to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of terrace.
 - c. The structures should be suitably loaded with reinforced concrete blocks of appropriate weight made out of M25 concrete mixture.
 - ii. **Tin shed**
 - a. The structure design should be as per the slope of the tin shed.
 - b. The inclination angle of structure can be done in two ways-
 - b.1. Parallel to the tin shed (flat keeping zero-degree tiling angle), if the slope of shed in Proper south direction
 - b.2. With same tilt angle based on the slope of tin shed to get the maximum output.
 - c. The minimum clearance of the lowest point from the tin shade should be more than 100mm.

- d. The base of structure should be connected on the Purlin of tin shed with the proper riveting.
- e. All structure member should be of minimum 2 mm thickness.

iii. RCC Elevated structure: It can be divided into further three categories:

A. Minimum Ground clearance (300MM – 1000 MM)

- a. The structure shall be designed to allow easy replacement of any module and shall be in line with site requirement. The gap between module should be minimum 30MM.
- b. Base Plate – Base plate thickness of the Structure should be 5MM for this segment.
- c. Column – Structure Column should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- d. Rafter – Structure rafter should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side (y-axis) and 40MM in flange side (x-axis).
- e. Purlin – Structure purlin should be minimum 2MM in Lip section. The minimum section should be 60MM in Web side and 40MM in flange side in Lip section.
- f. Front/back bracing – The section for bracing part should be minimum 2MM thickness.
- g. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.
- h. For single portrait structure the minimum ground clearance should be 500MM.

B. Medium Ground clearance (1000MM – 2000 MM) (for reference only)

- a. Base Plate – Base plate thickness of the Structure should be Minimum 6MM for this segment.
- b. Column – Structure Column should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.
- c. Rafter – Structure rafter should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- d. Purlin – Structure purlin should be minimum 2MM in Lip section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.

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

C. Maximum Ground clearance (2000MM – 3000 MM) (for reference only)

- a. Base Plate – Base plate thickness of the Structure should be minimum 8 MM for this segment.
- b. Column – Structure Column thickness should be minimum 2.6MM in square hollow section (minimum 50x50) or rectangular hollow section (minimum 60x40) or 3MM in C-Channel section.
- c. Rafter – Structure rafter should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.
- d. Purlin – Structure purlin should be minimum 2MM in Lip section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.
- e. Front/back bracing – The section for bracing part should be minimum 3MM thickness.
- f. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

D. Super elevated structure (More than 3000 MM) (for reference only)

D.1. Base structure

- a. Base Plate – Base plate thickness of the Structure should be 10MM for this segment.
- b. Column – Structure Column minimum thickness should be minimum 2.9MM in square hollow section (minimum 60x60) or rectangular hollow section (minimum 80x40).
- c. Rafter – Structure Rafter minimum thickness should be minimum 2.9MM in square hollow section (minimum 60x60) or rectangular hollow section (minimum 80x40).
- d. Cross bracing – Bracing for the connection of rafter and column should be of minimum thickness of 4mm L-angle with the help of minimum bolt diameter of 10mm.

D.2. Upper structure of super elevated structure –

- a. Base Plate – Base plate thickness of the Structure should be minimum 5MM for this segment.
 - b. Column – Structure Column should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
 - c. Rafter – Structure rafter should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
 - d. Purlin – Structure purlin should be minimum 2MM in Lip section. The minimum section should be 60MM in Web side and 40MM in flange side in Lip section.
 - e. Front/back bracing – The section for bracing part should be minimum 2MM thickness.
 - f. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.
- D.3. If distance between two legs in X-Direction is more than 3M than sag angle/Bar should be provide for purlin to avoid deflection failure. The sag angle should be minimum 2MM thick, and bar should be minimum 12Dia.
- D.4. Degree – The Module alignment and tilt angle shall be calculated to provide the maximum annual energy output. This shall be decided on the location of array installation.
- D.5. Foundation – Foundation should be as per the roof condition; two types of the foundation can be done- either penetrating the roof or without penetrating the roof.
- a. If penetration on the roof is allowed (based on the client requirement) then minimum 12MM diameter anchor fasteners with minimum length 100MM can be used with proper chipping. The minimum RCC size should be 400x400x300 cubic mm. Material grade of foundation should be minimum M20.
 - b. If penetration on roof is not allowed, then foundation can be done with the help of 'J Bolt' (refer IS 5624 for foundation hardware). Proper Neto bond solution should be used to adhere the Foundation block with the RCC roof. Foundation J – bolt length should be minimum 12MM diameter and length should be minimum 300MM.

3.13. Material standards:

- i. Design of foundation for mounting the structure should be as per defined standards which clearly states the Load Bearing Capacity & other relevant parameters for foundation design (As per IS 6403 / 456 / 4091 / 875).
- ii. Grade of raw material to be used for mounting the structures so that it complies the defined wind loading conditions (As per IS 875 – III) should be referred as follows (IS 2062 – for angles and channels, IS 1079 – for sheet, IS 1161 & 1239 for round pipes, IS 4923 for rectangular and square hollow section)
- iii. Test reports for the raw material should be as per IS 1852 / 808 / 2062 / 1079 / 811.
- iv. In process inspection report as per approved drawing & tolerance should be as per IS 7215.
- v. For ascertaining proper welding of structure part following should be referred:
 - a. D.P. Test (Pin Hole / Crack) (IS 822)
 - b. Weld wire grade should be of grade (ER 70 S – 6)
- vi. For ascertaining hot dip galvanizing of fabricated structure following should be referred: -
 - a. Min coating required should be as per IS 4759 & EN 1461.
 - b. Testing of galvanized material
 - Pierce Test (IS 2633)
 - Mass of Zinc (IS 6745)
 - Adhesion Test (IS 2629)
 - CuSO₄ Test (IS 2633)
 - Superior High-Grade Zinc Ingot should be of 99.999% purity (IS 209) (Preferably Hindustan Zinc Limited or Equivalent).
- vii. Foundation Hardware – If using foundation bolt in foundation then it should be as per IS 5624.

4. Metering

- 4.1. A Roof Top Solar (RTS) Photo Voltaic (PV) system shall consist of following energy meters:
 - i. Net meter: To record import and export units
 - ii. Generation meter: To keep record for total generation of the plant.
- 4.2. The installation of meters including CTs & PTs, wherever applicable, shall be carried out by the respective DisComs as per the terms, conditions and procedures laid down by the concerned SERCs/DISCOMs.

5. Array Junction Boxes:

- 1.1 The junction boxes are to be provided in the PV array for termination of connecting cables. The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All

wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands. Suitable markings shall be provided on the bus-bars for easy identification and cable ferrules will be fitted at the cable termination points for identification.

- 1.2 Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP 65 or better standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry, Single /double compression cable glands should be provided.
- 1.3 Polyamide glands and MC4 Connectors may also be provided. The rating of the junction box shall be suitable with adequate safety factor to interconnect the Solar PV array.
- 1.4 Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.
- 1.5 Junction boxes shall be mounted on the MMS such that they are easily accessible and are protected from direct sunlight and harsh weather.

2. DC Distribution Box (DCDB):

- 2.1 May not be required for small plants, if suitable arrangement is available in the inverter.
- 2.2 DC Distribution Box are to be provided to receive the DC output from the PV array field.
- 2.3 DCDBs shall be dust & vermin proof conform having IP 65 or better protection, as per site conditions.
- 2.4 The bus bars are made of EC grade copper of required size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the inverter along with necessary surge arrestors. MCB shall be used for currents up to 63 Amperes, and MCCB shall be used for currents greater than 63 Amperes.

3. AC Distribution Box (ACDB):

- 3.1 AC Distribution Panel Board (DPB) shall control the AC power from inverter, and should have necessary surge arrestors, if required. There is interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- 3.2 All switches and the circuit breakers, connectors should conform to IEC 60947:2019, part I, II and III/ IS 60947 part I, II and III.
- 3.3 The isolators, cabling work should be undertaken as part of the project.
- 3.4 All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air -insulated, cubical type suitable for operation on $1-\phi/3-\phi$, 415 or 230 volts, 50 Hz (or voltage levels as per CEA/State regulations).
- 3.5 The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- 3.6 All indoor panels will have protection of IP 54 or better, as per site conditions. All outdoor panels will have protection of IP 65 or better, as per site conditions.

- 3.7 Should conform to Indian Electricity Act and CEA safety regulations (till last amendment).
- 3.8 All the 415 or 230 volts (or voltage levels as per CEA/State regulations) AC devices / equipment like bus support insulators, circuit breakers, SPDs, Voltage Transformers (VTs) etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions.
- i. Variation in supply voltage: as per CEA/State regulations
 - ii. Variation in supply frequency: as per CEA/State regulations
- 3.9 The inverter output shall have the necessary rated AC surge arrestors, if required and MCB/ MCCB. RCCB shall be used for successful operation of the PV system, if inverter does not have required earth fault/residual current protection.

4. Protections

The system should be provided with all necessary protections like earthing, Lightning, and Surge Protection, as described below:

4.1 Earthing Protection

- i. The earthing shall be done in accordance with latest Standards.
- ii. Each array structure of the PV yard, Low Tension (LT) power system, earthing grid for switchyard, all electrical equipment, inverter, all junction boxes, etc. shall be grounded properly as per IS 3043-2018.
- iii. All metal casing/ shielding of the plant shall be thoroughly grounded in accordance with CEA Safety Regulation 2010. In addition, the lightning arrester/masts should also be earthed inside the array field.
- iv. Earth resistance should be as low as possible and shall never be higher than 5 ohms.
- v. For 10 KW and above systems, separate three earth pits shall be provided for individual three earthing viz.: DC side earthing, AC side earthing and lightning arrester earthing.

4.2 Lightning Protection

- i. The SPV power plants shall be provided with lightning & over voltage protection, if required. The main aim in this protection shall be to reduce the overvoltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. Lightning arrester shall not be installed on the mounting structure.
- ii. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors (Las). Lightning protection should be provided as per NFC17-102:2011/IEC 62305 standard.
- iii. The protection against induced high-voltages shall be provided by the use of Metal Oxide Varistors (MOVs)/Franklin Rod type LA/Early streamer type LA.

- iv. The current carrying cable from lightning arrestor to the earth pit should have sufficient current carrying capacity according to IEC 62305. According to standard, the minimum requirement for a lightning protection system designed for class of LPS III is a 6 mm² copper/ 16 mm² aluminum or GI strip bearing size 25*3 mm thick). Separate pipe for running earth wires of Lightning Arrestor shall be used.

4.3 Surge Protection

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

5. CABLES

- 5.1 All cables should conform to latest edition of IEC/equivalent BIS Standards along with IEC 60227/IS 694, IEC 60502/IS 1554 standards.
- 5.2 Cables should be flexible and should have good resistance to heat, cold, water, oil, abrasion etc.
- 5.3 Armoured cable should be used and overall PVC type 'A' pressure extruded insulation or XLPE insulation should be there for UV protection.
- 5.4 Cables should have Multi Strand, annealed high conductivity copper conductor on DC side and copper/FRLS type Aluminum conductor on AC side. For DC cabling, multi-core cables shall not be used.
- 5.5 Cables should have operating temperature range of -10°C to +80°C and voltage rating of 660/1000 V.
- 5.6 Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop less than 2% (DC Cable losses).
- 5.7 The size of each type of AC cable selected shall be based on minimum voltage drop. However; the maximum drop shall be limited to 2%.
- 5.8 The electric cables for DC systems for rated voltage of 1500 V shall conform to BIS 17293:2020.
- 5.9 All cable/wires are to be routed in a RPVC pipe/ GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable is easily identified.
- 5.10 All cable trays including covers to be provided.
- 5.11 Thermo-plastic clamps to be used to clamp the cables and conduits, at intervals not exceeding 50 cm.
- 5.12 Size of neutral wire shall be equal to the size of phase wires, in a three-phase system.
- 5.13 The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e., 25 years.

6. DRAWINGS & MANUALS:

- 6.1 Operation & Maintenance manual/user manual, Engineering and Electrical Drawings shall be supplied along with the power plant.
- 6.2 The manual shall include complete system details such as array lay out, schematic of the system, inverter details, working principle etc.
- 6.3 The Manual should also include all the Dos & Don'ts of Power Plant along with Graphical Representation with indication of proper methodology for cleaning, Operation and Maintenance etc.
- 6.4 Step by step maintenance and troubleshooting procedures shall also be given in the manuals.
- 6.5 Vendors should also educate the consumers during their AMC period.

7. Miscellaneous:

- 7.1 Connectivity: The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the SERC regulation for Grid connectivity and norms of DISCOM and amended from time to time.
- 7.2 Safety measures: Electrical safety of the installation(s) including connectivity with the grid must be taken into account and all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA Safety Regulation 2010 etc. must be followed.
- 7.3 Shadow analysis: The shadow analysis report with the instrument such as Solar Pathfinder or professional shadow analysis software of each site should be provided and the consumer should be educated to install the system only in shadow free space. Lower performance of the system due to shadow effect shall be liable for f for lower performance.

Quality Certification, Standards and Testing for Grid-Connected Rooftop Solar PV Systems/Power Plants:

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

| Solar PV Modules/ Panels | |
|---------------------------------------|--|
| IEC61215 and IS14286 | Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV)Modules |
| IEC 61701:2011 | Salt Mist Corrosion Testing of Photovoltaic (PV)Modules |
| IEC 61853-1:2011/ IS16170-1:2014 | Photovoltaic (PV)module performance testing and energy rating–: Irradiance and temperature performance measurements, and power Rating. |
| IEC 62716 | Photovoltaic (PV)Modules–Ammonia (NH3) Corrosion Testing (as per the site condition like dairies, toilets etc) |
| IEC61730-1,2 | Photovoltaic (PV)Module Safety Qualification–Part1: Requirements for Construction, Part2: Requirements for Testing |
| IEC 62804 | Photovoltaic (PV) modules – Test method for detection of potential-induced degradation. IEC 62804-1: Part 1: Crystalline Silicon |
| Solar PV Inverters | |
| IEC62109or IS: 16221 | Safety of power converters for use in photovoltaic power systems –Part1: General requirements, and Safety of power converters for use in photovoltaic power systems Part2: Particular requirements for inverters. Safety compliance (Protection degreeIP65 or better for outdoor mounting,IP54 or better for indoor mounting) |
| IS/IEC61683latest (As applicable) | Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%,25%,50%,75%&90-100>LoadingConditions) |
| IEC 60068-2 /IEC62093 (As applicable) | Environmental Testing of PV System–Power Conditioners and Inverters |
| IEC 62116:2014/ IS16169 | Utility-interconnected photovoltaic inverters – Test procedure of islanding prevention measures |
| Fuses | |
| IS/IEC60947(Part | General safety requirements for connectors, switches, circuit |

| | |
|--|--|
| 1, 2 &3), EN50521 | breakers (AC/DC): 1)Low-voltage Switchgear and Control-gear, Part1: General rules 2)Low-Voltage Switchgear and Control-gear, Part2: Circuit Breakers 3)Low-voltage switchgear and Control-gear, Part3: Switches, disconnectors switch disconnectors and fuse-combination units 4) EN50521: Connectors for photovoltaic system-Safety requirements and tests. |
| IEC60269-6:2010 | Low-voltagefuses-Part6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems |
| Solar PV Roof Mounting Structure | |
| IS2062/IS4759/ AA6063 T6 | Material for the structure mounting |
| Surge Arrestors | |
| BFC17-102:2011/ NFC 102:2011/ IEC 62305 | Lightening Protection Standard |
| IEC 60364-5-53/ IS15086-5(SPD) IEC 61643- 11:2011 | Electrical installations of buildings-Part5-53: Selection and erection of electrical equipment-Isolation, switching and control Low-voltage surge protective devices-Part11: Surge protective devices connected to low-voltage power systems-Requirements and test methods |
| Cables | |
| IEC 60227/IS 694, IEC60502/IS 1554 (Part 1&2)/IEC69947(as applicable) | General test and measuring method for PVC (Polyvinylchloride) insulated cables (for working voltages up to and including 1100V, and UV resistant for outdoor installation) |
| BSEN 50618 | Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables |
| Earthing/Lightning | |
| IEC 62561/IEC 60634 Series (Chemical earthing) (As applicable) | IEC 62561-1: Lightning protection system components (LPSC) – Part: Requirements for connection components IEC 62561-2: Lightning protection system components (LPSC) – Part 2: Requirements for conductors and earth electrodes IEC 62561-7: Lightning protection system components (LPSC) – Part 7: Requirements for earthing enhancing compounds |
| Junction Boxes | |
| IEC 60529 | Junction boxes and solar panel terminal boxes shall be of the 55hermos-plastic type with IP 65 or better protection for outdoor use, and IP54 or better protection for indoor use |

SECTION III

- **The locations/addresses of buildings, tentative rooftop area, and proposed solar plant capacity for all 7 no. packages.**
- **Price Schedule (Price bid) of 7 nos. packages**

The locations/addresses of buildings, tentative rooftop area, and proposed solar plant capacity for all 7 no. packages.

The bidding process is for 7 no. packages for the aggregate capacity and locations shown against each package.

| Package no. 1, DS North zone, Jalandhar | | | | |
|--|--|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under DS North zone, Jalandhar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | Shakti Sadan, PSPCL , Jalandhar Near khalsa college G.T. road, jalandhar | 450 | 54.54 | 9646116900 |
| 2 | REHANA JATTAN S/D , DS ,PSPCL ,PAGWARA - HOSHIARPUR ROAD 220 KV SUBSTATION ,REHANA JATTAN | 450 | 54.54 | 9646116094 |
| 3 | SHAMCHURASI S/D , DS ,PSPCL ,SHAMCHURASI 66 KV SUBSTATION ,SHAMCHURASI | 390 | 47.52 | 9646116095 |
| 4 | Sub Divn. Hajipur Main GT road Talwara | 388 | 46.98 | 9646116104 |
| 5 | Sub Division Garhdiwala Garhdiwala | 375 | 45.36 | 9646116099 |
| 6 | AEE Sub Divn. Bhogpur no. 2 GT Road Bhogpur | 371 | 45.36 | 9646189351 |
| 7 | S/d Sub-Urban Garhshankar & Division Garhshankar Anandpur Road Garhshankar | 371 | 45.36 | 96461-47725 96461-16032 |
| 8 | S/D Phillaur Office Nawanshahar road, Village Garha | 370 | 44.82 | 96461-19966 |
| 9 | DS SUB DIVISION T-1 NEHRU GARDEN, PSPCL JALANDHAR NEAR JALANDHAR BYPASS /RERRU PATHANKOT CHOWK | 360 | 43.74 | 9646147544 |
| 10 | DS SUB DIVISION COMMERICAL NO-1, PSPCL JALANDHAR NEAR JALANDHAR BYPASS /RERRU PATHANKOT CHOWK | 360 | 43.74 | 9646116058 |
| 11 | EAST DIVISION JALANDHAR, PSPCL JALANDHAR NEAR JALANDHAR BYPASS /RERRU PATHANKOT CHOWK | 360 | 43.74 | 9646116011 |
| 12 | Haryana s/d Dasuya Road | 350 | 42.66 | 9646116151 |
| 13 | DS Division Cantt PSPCL Jalandhar. Vill Barringa | 340 | 41.04 | 9646116014 |
| 14 | Divn. Mukerian + Sub Divn. Mukerian SPN Hospital Mukerian | 312 | 37.8 | 9646116100 |
| 15 | DS Sub Division Civil Line PSPCL Jalandhar Pratap Bagh, Jalandhar | 304 | 36.72 | 9646116045 |
| 16 | CITY DIVISION, KAPURTHALA 132 KV POWER STATION NEAR AUJLA FATAK, KAPURTHALA | 300 | 36.18 | 96461-16017 |
| 17 | Circle office Nawanshahar Garhshankar rd nawanshahar | 300 | 36.18 | 96461-16007 |
| 18 | S/d Balachaur No. 1 & S/d Balachaur No. 2 Balachaur | 280 | 34.02 | 96461-16121 96461-16122 |
| 19 | S/D SU Goraya office Barapind road, Goraya | 270 | 32.94 | 96461-16154 |
| 20 | S/d Saroya Main Road Kukar Mazara | 270 | 32.94 | 96461-16123 |

| | | | | |
|----|--|--------|-------|-------------|
| 21 | DS Division West PSPCL Maqsudan Jalandhar Near Sabji Mandi Maqsudan Jalandhar. | 252 | 30.78 | 9646116013 |
| 22 | Tech Unit-2 Sub Urban Phagwara Near 66 KV Sub Station HSP Road | 240 | 29.16 | 9646146941 |
| 23 | Circle Office Hsp. Near 66 kv S/s Circle Office | 225 | 27 | 9646116006 |
| 24 | Sub Division Sub Urban Dasuya Dasuya | 192 | 23.22 | 9646116098 |
| 25 | KALA SANGHIAN S/D 66 KV KALA SANGHIAN S/S ON JALANDHAR ROAD | 190 | 23.22 | 96461-16068 |
| 26 | S/d City Garhshankar Anandpur Road Garhshankar | 185 | 22.14 | 96461-23140 |
| 27 | DS Sub Division Patel Chowk PSPCL Jalandhar Near Chik Chik House Jalandhar | 160 | 19.44 | 9646116047 |
| 28 | DIVISION BANGA Garshankar Road Banga | 160 | 19.44 | 96461-16031 |
| 29 | DS Division Model Town Jalandhar Village Boota pind Jalandhar | 150 | 17.82 | 9646116012 |
| 30 | Ae, Commercial Sub Division/Suvidha Center PSPCL Maqsudan Near Sabji Mandi Maqsudan Jalandhar. | 140 | 16.74 | 9646138271 |
| 31 | DS Sub Division Adampur PSPCL Jalandhar. Vill Adampur | 140 | 16.74 | 9646119917 |
| 32 | S/D City Goraya office GT road, Goraya | 140 | 16.74 | 96461-16739 |
| 33 | DS Sub Division Maqsudan PSPCL Jalandhar Near Sabji Mandi Maqsudan Jalandhar. | 138 | 16.74 | 9646116053 |
| 34 | S/D BEHRAM-1 Behram | 125 | 15.12 | 96461-16119 |
| 35 | S/D BEHRAM-2 Behram | 125 | 15.12 | 96461-16119 |
| 36 | AE, Commercial Sub Division/ Suvidha Center PSPCL Jalandhar Vill Barringa | 120 | 14.58 | 9646134992 |
| 37 | AEE Sub Divn. Bhogpur no. 1 GT Road Bhogpur | 110 | 12.96 | 9646118036 |
| 38 | S/D Bassi Kalan Bassi kalan/Chabbewal | 105.44 | 12.42 | 9646116109 |
| 39 | S/D Paldi Vill. Kot Fatuhi | 105.44 | 12.42 | 9646116110 |
| 40 | XEN office Divn. Bhogpur GT Road Bhogpur | 103.5 | 12.42 | 9646116027 |
| 41 | Divison Phagwara Banga Road | 100 | 11.88 | 9646116015 |
| 42 | Guest House Circle Office Near 66 kv S/s Circle Office | 100 | 11.88 | 9646116006 |
| 43 | city divn Parbhat chownk Parbhat chownk | 100 | 11.88 | 9646116023 |
| 44 | Division Dasuya Dasuya | 100 | 11.88 | 9646116025 |
| 45 | Sub Division Miani Miani | 100 | 11.88 | 9646116155 |
| 46 | Rahon Sub Division Mattewara rd rahon | 100 | 11.88 | 96461-16114 |
| 47 | Divn. Goraya Office GT road, Goraya | 100 | 11.88 | 96461-16033 |
| 48 | S/o Binewal Binewal | 92 | 10.8 | 96461-19962 |
| 49 | KHEDA MANDIR S/D NEAR RCF, KAPURTHALA TO SULTANPUR ROAD | 90 | 10.8 | 96461-92386 |
| 50 | Aur Sub Division Nawanshahar rd.Aur | 90 | 10.8 | 96461-47715 |
| 51 | Civilline s/d Parbhat chownk Parbhat chownk | 85 | 10.26 | 9646116089 |
| 52 | Model Town s/d Tanda Road Near circle office | 84 | 10.26 | 9646119273 |
| 53 | S/D CITY BANGA Garshankar Road Banga | 80 | 9.72 | 96461-47374 |
| 54 | S/D SUB URBAN BANGA Garshankar Road Banga | 80 | 9.72 | 96461-16117 |
| 55 | DS Sub Division Mai Hera Gate PSPCL Jalandhar Near Sabji Mandi Maqsudan Jalandhar. | 70 | 8.1 | 9646116051 |
| 56 | City s/d Near circle office | 70 | 8.1 | 9646121817 |

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| 57 | CITY-1 S/D KAPURTHALA OPPOSITE SBI BANK RAILWAY ROAD, FAWARA CHOWK | 50 | 5.94 | 96461-16065 |
| 58 | MUKANDPUR MUKANDPUR | 50 | 5.94 | 96461-16118 |
| 59 | S/D Saila Khurd Saila Khurd (Dadyal) | 46.45 | 5.4 | 9646116153 |
| 60 | Division office Nawanshahar Garhshankar rd nawanshahar | 46.45 | 5.4 | 96461-16030 |
| 61 | S/D Apra office Garhi road, Village Apra | 47 | 5.4 | 96461-13687 |
| 62 | Bullocal s/d Tanda Road | 45 | 5.4 | 9646116092 |
| 63 | S/D Rurka Kalan office Goraya road, Village Rurka kalan | 45 | 5.4 | 96461-16129 |
| 64 | S/O Dosanjh Kalan Office Banga road, Village Dosanjh Kalan | 37 | 4.32 | 96461-19963 |
| 65 | S/D MALSIAN OPPOSITE APS COLLAGE FOR NURSING | 30.5 | 3.24 | 9646146905 |
| 66 | S/D LOHIAN VILLAGE FATTUWAL | 25 | 2.7 | 9646116069 |

| Sr. no. | Address of Grid substations under P&M Circle PSPCL Jalandhar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
|---------|---|------------------------------|------------------------|--|
| 1 | 66KV S/Stn Tanda Road Jalandhar,main Highway of jalandhar to Amritsar near Tanda Bypass Chowk, Jalandhar, Punjab | 700 | 85.58 | |
| 2 | 66KV S/S Baringa, near MES & Power Colony Bringa,Jalandhar, Punjab | 632 | 77.27 | |
| 3 | 66 KV Sub-Station Maqsoodpur, New Sheetal Nagar, Maqsudan, Jalandhar, Punjab | 570 | 69.69 | |
| 4 | 66KV S/Stn Focal Point,near Water Tank,focal point jalandhar, Punjab | 542 | 66.27 | |
| 5 | 66KV S/Stn Sports & Surgical , Sports & Surgical Complex near Water tank & Ambica School,Jalandhar | 533 | 65.17 | |
| 6 | 66 KV S/Stn Parta, Near Govt High School,out side of Patra Village, Jalandhar | 487 | 59.54 | |
| 7 | 66KV S/S Nasrala, vill Nasrala, Distt Hoshiarpur | 476 | 58.20 | |
| 8 | 66 KV S/Stn Chitti, out side of Chitti village, Jalandhar | 475 | 58.08 | |
| 9 | 66KV S/S Sham-84, vill Sham-84, Distt Hoshiarpur | 460 | 56.24 | |
| 10 | 66 KV Hsp.Road Phagwara, Near Dana mandi, Phagwara, Punjab | 453 | 55.39 | |
| 11 | 66 KV S/S Radial opp. Railway Station near PSEB Colony & Central Store Jalandhar, Punjab | 425 | 51.96 | |
| 12 | 66KV S/S Bhattian jattan , vill Bhattian jattan, Distt Hoshiarpur | 400 | 48.91 | |
| 13 | 66KV S/S Hariana, vill Hariana, Distt Hoshiarpur | 372 | 45.48 | |
| 14 | 66KV S/Stn Kala Sangian, Jalandhar-Kala Sangiyan Road, Near Gurudwara Baba Kahan Dass, Village Kala Sangian, Kapurthala | 360 | 44.02 | |
| 15 | 66 KV S/S Rurka Kalan Jandiala- Goraya Road Jalandhar Punajb | 350 | 42.79 | |
| 16 | 66KV S/S Miani, vill Miani, Distt Hoshiarpur | 344 | 42.06 | |
| 17 | 66KV S/S Chabbewal , vill Chabbewal, Distt Hoshiarpur | 343 | 41.94 | |

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| 18 | 66KV S/Stn. Samrai VPO Samrai, Jalandhar | 340 | 41.57 | |
| 19 | 66 KV S/Stn Adampur,(khurdpur) Near International M.R School,jalandhar, Punjab | 320 | 39.12 | |
| 20 | 66 KV S/S Mukandpur Banga-Apra Road Village Mukandpur Nawanshahar ,Punjab | 300 | 36.68 | |
| 21 | 66 KV S/Stn Droli kalan,Near Focal Point Mandi,Village Droli, Jalandhar, Punjab | 300 | 36.68 | |
| 22 | 66KV S/S Garhdiwala, vill Garhdiwala, Distt Hoshiarpur | 288 | 35.21 | |
| 23 | 66 KV S/S Aur Nawanshahar to Phillaur Village Aur, Nawanshahar ,Punjab | 270 | 33.01 | |
| 24 | 66 KV S/Stn Daulatpur, Near Makhan Electrical, Village Daulatpur, Phagwara | 270 | 33.01 | |
| 25 | 66 KV Sub-Station Urban Estate, PSPCL, Jalandhar Cantt - Jandiala Rd, Phase 2, Urban Estate phase II, Jalandhar, Punjab | 260 | 31.79 | |
| 26 | 66 KV Sub-Station Leather Complex, PSPCL, Leather Complex Road, Opposite Multi Skill Development Centre Jalandhar, Punjab | 260 | 31.79 | |
| 27 | 66KV S/Stn Focal Point-II,near Water Tank,focal point jalandhar, Punjab | 252 | 30.81 | |
| 28 | 66 KV S/S Behram Phagwara Road Village Behram, Nawanshahar ,Punjab | 250 | 30.57 | |
| 29 | 66 KV S/S Dosanjh Kalan Mukandpur to Phagwara Road Dosanjh Kalan Jalndhar Punjab | 250 | 30.57 | |
| 30 | 66 KV S/S Muthada Khurad VPO Muthada Khurad Near Phillaur Road Jalandhar Punjab | 250 | 30.57 | |
| 31 | 66 KV S/S Garhshankar , Anadpur Sahib Road Garhshankar Hoshairpur ,Punjab | 248 | 30.32 | |
| 32 | 66 KV S/Stn Sarhali, Near Dana Mandi, Village Sarhali, Phagwara, Punjab | 230 | 28.12 | |
| 33 | 66KV S/Stn Paragpur, Opposite Saffron Tower, Jalandhar-Ludhiana Highway, Rama Mandi Jalandhar | 230 | 28.12 | |
| 34 | 66 KV Sub-Station Patel Chowk, PSPCL, New Grain market, near Jalvayu Vihar flats, Workshop Chowk, Jalandhar, Punjab | 228 | 27.88 | |
| 35 | 66 KV S/S Rahon Phillaur Road Rahon, Nawanshahar ,Punjab | 220 | 26.90 | |
| 36 | 66KV S/Stn 66KV S/S Dainwind, Vill. Dainwind, Distt. Kapurthala | 220 | 26.90 | |
| 37 | 66KV S/S Kot Ftuhi, vill Kot Ftuhi, Distt Hoshiarpur | 220 | 26.90 | |
| 38 | 66KV S/S Talwara, vill Talwara, Distt Hoshiarpur | 220 | 26.90 | |
| 39 | 66KV S/S Budhawar, vill Budhawar Distt Hoshiarpur | 220 | 26.90 | |
| 40 | 66KV S/S Attowal , vill Attowal, Distt Hoshiarpur | 216 | 26.41 | |
| 41 | 66KV S/S Kandhala Jattan, vill Kandhala Jattan, Distt Hoshiarpur | 215 | 26.29 | |
| 42 | 66 KV Sub-Station Babrik Chowk, PSPCL, Basti Shekh Darwesh, Near Satsang Ghar, Jalandhar, Punjab | 210 | 25.68 | |
| 43 | 66KV S/Stn 66KV S/S Shankar, Vill. Shankar, Distt. Jalandhar | 210 | 25.68 | |

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| 44 | 66 KV Sub-Station Chougitti, PSPCL,Ladhewali Rd, Near Railway Crossing, New Beant Nagar, Gulmarg Avenue, Jalandhar, Punjab 144007 | 205 | 25.06 | |
| 45 | 66KV S/Stn 66KV S/S Bilga, Vill. Bilga, Distt. Jalandhar | 205 | 25.06 | |
| 46 | 66KV S/S Soos, vill Soos, Distt Hoshiarpur | 204 | 24.94 | |
| 47 | 66KV S/S Saila Khurd, vill Saila Khurd, Distt Hoshiarpur | 204 | 24.94 | |
| 48 | 66 KV S/S Saroya , Anadpur Sahib Pur Sahib Road Village Saroya Nawanshahar, Punjab | 200 | 24.45 | |
| 49 | 66 KV S/S Balachaur Kangna Road Balachaur , Nawanshahar ,Punjab | 200 | 24.45 | |
| 50 | 66KV S/Stn 66KV S/S Bullath, Vill. Bullath, Distt. Kapurthala | 200 | 24.45 | |
| 51 | 66KV S/Stn 66KV S/S Lohian, Vill. Lohian, Distt. Jalandhar | 200 | 24.45 | |
| 52 | 66KV S/Stn 66KV S/S Surakhpur, Vill. Surakhpur, Distt. Kapurthala | 200 | 24.45 | |
| 53 | 66KV S/Stn 66KV S/S Bhagobhudha, Vill. Bhago Budda, Distt. Kapurthala | 200 | 24.45 | |
| 54 | 66KV S/Stn 66KV S/S Mallian, Vill. Mallian, Distt. Jalandhar | 200 | 24.45 | |
| 55 | 66KV S/S Bhangala , vill Bhangala, Distt Hoshiarpur | 200 | 24.45 | |
| 56 | 66KV S/S Khun Khun Kalan, vill Khun Khun Kalan, Distt Hoshiarpur | 200 | 24.45 | |
| 57 | 66 KV Sub-Station Charamandi, PSPCL,Dayal Nagar, Model House, Jalandhar, Punjab | 195 | 23.84 | |
| 58 | 66KV S/Stn 66KV S/S Talwan, Vill. Talwan, Distt. Jalandhar | 195 | 23.84 | |
| 59 | 66KV S/Stn 66KV S/S Bangiwal, Vill. Bangiwal, Distt. Jalandhar | 190 | 23.23 | |
| 60 | 66KV S/Stn 66KV S/S Gillan, Vill. Gillan, Distt. Jalandhar | 190 | 23.23 | |
| 61 | 66KV S/Stn 66KV S/S Ghug, Vill. Ghug, Distt. Jalandhar | 190 | 23.23 | |
| 62 | 66KV S/Stn 66KV S/S Kuharh Khurd, Vill. Kuharh Khurd, Distt. Jalandhar | 190 | 23.23 | |
| 63 | 66KV S/Stn 66KV S/S Lakhan Ke Paddey, Vill. Lakhan Ke Paddey, Distt. Kapurthala | 190 | 23.23 | |
| 64 | 66KV S/Stn 66KV S/S Mustfapur, Vill. Mustfapur, Distt. Jalandhar | 190 | 23.23 | |
| 65 | 66KV S/Stn 66KV S/S Nadala, Vill. Nadala, Distt. Kapurthala | 190 | 23.23 | |
| 66 | 66KV S/Stn 66KV S/S Naugajja, Vill. Naugajja, Distt. Jalandhar | 190 | 23.23 | |
| 67 | 66KV S/Stn 66KV S/S Pandori Jagir, Vill. Pandori jagir, Distt. Kapurthala | 190 | 23.23 | |
| 68 | 66KV S/Stn 66KV S/S Rupewal, Vill. Rupewal, Distt. Jalandhar | 190 | 23.23 | |
| 69 | 66KV S/Stn 66KV S/S Shamshabad, Vill. Shamshabad, Distt. Jalandhar | 190 | 23.23 | |
| 70 | 66KV S/Stn 66KV S/S Sidhwan Dona, Vill. Sidhwan Dona, Distt. Kapurthala | 190 | 23.23 | |

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| 71 | 66KV S/Stn 66KV S/S Sindhar, Vill. Sindhar, Distt. Jalandhar | 190 | 23.23 | |
| 72 | 66KV S/Stn 66KV S/S Sultanpur Lodhi, Vill. Sultanpur Lodhi, Distt. Kapurthala | 190 | 23.23 | |
| 73 | 66KV S/Stn 66KV S/S Talwandi Madho, Vill. Talwandi Madho, Distt. Jalandhar | 190 | 23.23 | |
| 74 | 66KV S/Stn 66KV S/S Ucha, Vill. Ucha, Distt. Kapurthala | 190 | 23.23 | |
| 75 | 66KV S/Stn 66KV S/S Mehrajwala, Vill. Mehrajwala, Distt. Jalandhar | 190 | 23.23 | |
| 76 | 66KV S/S Lachowal , vill Lachowal, Distt Hoshiarpur | 190 | 23.23 | |
| 77 | 66 KV S/S Karawar Balachaur Road Village Karawar Nawanshahar ,Punjab | 185 | 22.62 | |
| 78 | 66KV S/Stn 66KV S/S Begowal, Vill. Begowal, Distt. Kapurthala | 185 | 22.62 | |
| 79 | 66KV S/Stn 66KV S/S Khusropur, Vill. Khusropur, Distt. Kapurthala | 185 | 22.62 | |
| 80 | 66KV S/Stn 66KV S/S Mehsampur, Vill. Mehsampur, Distt. Jalandhar | 185 | 22.62 | |
| 81 | 66KV S/Stn 66KV S/S Nangal Naraingarh, Vill. Nangal Naraingarh, Distt. Kapurthala | 185 | 22.62 | |
| 82 | 66KV S/Stn 66KV S/S Shahkot, Vill. Shahkot, Distt. Jalandhar | 185 | 22.62 | |
| 83 | 66KV S/Stn 66KV S/S Tibba, Vill. Tibba, Distt. Kapurthala | 185 | 22.62 | |
| 84 | 66KV S/Stn 66KV S/S Parjian, Vill. Parjian, Distt. Jalandhar | 185 | 22.62 | |
| 85 | 66KV S/Stn 66KV S/S Khallu, Vill. Khallu, Distt. Kapurthala | 180 | 22.01 | |
| 86 | 66KV S/Stn 66KV S/S Malsian,Vill. Malsian, Distt. Jalandhar | 180 | 22.01 | |
| 87 | 66KV S/S Focal Point, vill Rahimpur, Distt Hoshiarpur | 180 | 22.01 | |
| 88 | 66KV S/S Mukerian, vill Mukerian, Distt Hoshiarpur | 180 | 22.01 | |
| 89 | 66KV S/S Circle office, city Hoshiarpur, Distt Hoshiarpur | 176 | 21.52 | |
| 90 | 66 KV S/S Kathgarh Chandigarh Road Village Kathgarh Nawanshahar ,Punjab | 175 | 21.40 | |
| 91 | 66 KV S/S Bansian Dhak Phiallur Road Bansian Dhak, Jalandhar Punjab | 175 | 21.40 | |
| 92 | 66KV S/S Kot Sadiqe near Canal Bridge kot Sadiqe,Jalandhar, Punjab | 175 | 21.40 | |
| 93 | 66KV S/Stn 66KV S/S Allewalli, Vill. Allewali, Teh. Nakodar, Distt. Jalandhar | 175 | 21.40 | |
| 94 | 66KV S/Stn 66KV S/S Jakopur, Vill. Jakopur, Distt. Jalandhar | 175 | 21.40 | |
| 95 | 66 KV S/S Apra Phillaur Road Apra | 170 | 20.78 | |
| 96 | 66KV S/Stn 66KV S/S Hothian, Vill. Hothian, Distt. Kapurthala | 170 | 20.78 | |
| 97 | 66KV S/Stn 66KV S/S Mehatpur, Vill. Mehatpur, Distt. Jalandhar | 170 | 20.78 | |
| 98 | 66kv S/S Mall Road, city Hoshiarpur, Distt Hoshiarpur | 170 | 20.78 | |

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| 99 | 66KV S/S Kalyanpur, vill Kalyanpur Distt Hoshiarpur | 170 | 20.78 | |
| 100 | 66 KV S/S Molawahidpur Near Molawahidpur Hoshairpur ,Punjab | 165 | 20.17 | |
| 101 | 66 KV S/S Bhaddi Noorpur Bedi Road Bhaddi Nawanshahar ,Punjab | 165 | 20.17 | |
| 102 | 66 KV S/S Dalewal Garhshankar to Nangal Road Dalewal Hoshairpur ,Punjab | 165 | 20.17 | |
| 103 | 66KV S/Stn 66KV S/S Hamira, Vill. Hamira, Distt. Kapurthala | 165 | 20.17 | |
| 104 | 66KV S/Stn 66KV S/S Talwandi chowdhrian, Vill. Talwandi Chowdrian, Distt. Kapurthala | 165 | 20.17 | |
| 105 | 66KV S/S Janouri, vill Janouri, Distt Hoshiarpur | 164 | 20.05 | |
| 106 | 66KV S/S Dasuya, vill Dasuya, Distt Hoshiarpur | 160 | 19.56 | |
| 107 | 66KV S/S Ghogra, vill Ghogra, Distt Hoshiarpur | 160 | 19.56 | |
| 108 | 66 Kv S/Stn Panchta near dera baba failana,out Side panchta Village,Phagwara,Dist kapurthala., Punjab | 158 | 19.32 | |
| 109 | 66KV S/S Amroh , vill Amroh, Distt Hoshiarpur | 155 | 18.95 | |
| 110 | 66 KV S/S Bheen Mahalon Road Bheen Nawanshahar ,Punjab | 150 | 18.34 | |
| 111 | 66 KV S/S Manak Wahid Phagwara-Pastan Road Manak Wahid Kaputhala ,Puunjab | 150 | 18.34 | |
| 112 | 66 KV S/S Bundala Rurka Kalan -Jandiala Road Jalndhar Punjab | 150 | 18.34 | |
| 113 | 66KV S/S Jaijon, vill Jaijon, Distt Hoshiarpur | 150 | 18.34 | |
| 114 | 66 KV Sub-Station TV Centre, PSPCL, Near TV Centre,Jawahar Nagar, Jalandhar, Punjab | 143 | 17.48 | |
| 115 | 66KV S/S Bullowal, vill Bullowal, Distt Hoshiarpur | 143 | 17.48 | |
| 116 | 66KV S/S Bham, vill Bham, Distt Hoshiarpur | 142 | 17.36 | |
| 117 | 66KV S/S Badla , vill Badla, Distt Hoshiarpur | 140 | 17.12 | |
| 118 | 66kv S/S Gaushala, city Hoshiarpur, Distt Hoshiarpur | 137 | 16.75 | |
| 119 | 66 KV S/S Blakipur Soondh Road Village Blakipur Nawanshahar ,Punjab | 135 | 16.51 | |
| 120 | 66KV S/S Sadhu Ashram, vill Bajwara, Distt Hoshiarpur | 130 | 15.89 | |
| 121 | 66 KV S/S Nawanshahar Banga Road Nawanshahar | 125 | 15.28 | |
| 122 | 66KV S/S Ajjowal , vill Ajjowal, Distt Hoshiarpur | 119 | 14.55 | |
| 123 | 66KV S/S Nangal Salala Kala Bakara Salala Road, Near Malli Nangal Fuel Collection Centre, VPO Nangal Salala, Jalandhar | 114 | 13.94 | |
| 124 | 66KV S/S Chownk Bajaj, vill Adda Bajaj, Distt Kapurthla | 114 | 13.94 | |
| 125 | 66KV S/S Hazipur, vill Hazipur, Distt Hoshiarpur | 110 | 13.45 | |
| 126 | 66 KV S/Stn G.T. Raod Opp. JCT Mill, Phagwara | 82 | 10.03 | |
| 127 | 66 KV S/Stn Chaheru, village madhopur road,Phagwara | 75 | 9.17 | |
| 128 | 66KV S/Stn Kala Bakra, Jalandhar-Pathankot Highway, village nizamdeen, Jalandhar | 60 | 7.34 | |

| Sr. no. | Hydel Projects under DS North Zone, Jalandhar | Rooftop area (Square meters) | Proposed capacity (kW) | |
|---------|--|------------------------------|------------------------|--|
| 1 | O&M Circle office MHP, Talwara | 271 | 32.94 | |
| 2 | A class rest house MHP Power colony Hajipur | 261 | 31.32 | |
| 3 | Control room of Power House no. 5 MHP Terkiana | 200 | 24.3 | |
| 4 | Dispensary building EB colony, Sector-3 Talwara | 196 | 23.76 | |
| 5 | Air handling unit Power house no. 5 MHP Terkiana | 176 | 21.06 | |

Total capacity for package no. 1 (DS North zone, Jalandhar) is 5112.84 kW

Total estimated cost Rs 256010124.48/-

| Package no. 2, DS North zone, Bathinda | | | | |
|---|---|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under DS West zone, Bathinda | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | SUWIDHA CENTRE PSPCL NCC Faridkot Talwandi Road Faridkot | 545 | 66.42 | |
| 2 | S/D No. 3 Abohar | 455 | 55.62 | |
| 3 | S/D Bikhi 66kv grid sub satation Bikhi budhlada road | 450 | 54.54 | |
| 4 | S/D Raman Raman | 375 | 45.36 | |
| 5 | Badhni Kalan Sub Division, 220 KV S/S Badhni Kalan Ferozepur GT Road Moga Near Barnala Bypass, Badhni Kalan, Moga | 372 | 45.36 | |
| 6 | S/D Talwandi Sabo Gurusar Road, Near Gaushala | 370 | 44.82 | |
| 7 | Divison Bhagta and S/D Bhagta Opposite Gaushala, nathana bhagta road | 360 | 43.74 | |
| 8 | S/D Bhairupa Near Bus Stand and 66 KV S/S Bhairupa | 332 | 40.50 | |
| 9 | khuian Sarwar Village Khuian Sarwar | 334 | 40.50 | |
| 10 | S/D City Mansa 66kv grid, Near Tinkoni, SDO city Mansa | 312 | 37.80 | |
| 11 | S/D KHUI KHERA NEAR SUGAR MILL KHUI KHERA | 271 | 32.94 | |
| 12 | NEAR BUS STAND, JAITO/ SUWIDHA CENTRE PSPCL JAITO. NEAR BUS STAND, JAITO. | 266 | 32.40 | |
| 13 | Sub Div Bhinder VPO bhinder kalan, jalabad road near dana mandi distt. Moga Vpo Bhinder Kalan District Moga | 243 | 29.70 | |
| 14 | circle ferozepur near 220 kv s/s | 232 | 28.08 | |
| 15 | Xen Suburban Division Moga ,132 KV Sub Station,Power colony Ludhiana GT Road,Moga Near Bhai ka, Petrol Pump Ludhiana GT Road,Moga | 232 | 28.08 | |
| 16 | PSPCL SUBURBAN sub division GT Road Malout ON Main GT Road Malout | 223 | 27.00 | |
| 17 | Sub Div south Moga,132 KV Sub Station,Power colony Ludhiana GT Road,Moga Near 132 kv Sub/Station Moga | 200 | 24.30 | |
| 18 | S/D No. 1 Abohar | 195 | 23.76 | |
| 19 | AEE (OP), City Sub-division Ferozepur Near 66KV Sub-Station Ferozepur City | 185.8 | 22.68 | |
| 20 | AE (OP), Sub-division Sherkhan Near 66KV Sub-Station Sandhe Hasham | 185.8 | 22.68 | |
| 21 | sub division office mamdot type 3 quarter s/d office | 185.8 | 22.68 | |
| 22 | sub division jhok tehal singh type 2 quarter s/d office | 185.8 | 22.68 | |
| 23 | suburban s/d ferozepur s/d office | 185.8 | 22.68 | |
| 24 | cantt no-1 s/d office | 185.8 | 22.68 | |
| 25 | jhokeharihar s/d office | 185.8 | 22.68 | |
| 26 | division office sub urban | 185.8 | 22.68 | |
| 27 | Sub Division Golewala Golewala Near 66 Kv S/S Golewala | 182 | 22.14 | |
| 28 | DS Division PSPCL Badal. Near Dashmesh Gril Collage, Mehna Road, V. Badal | 181 | 21.60 | |

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| 29 | Sub Division PSPCL, Dabwali Near Devi Lal Park, Mandi Killianwali, Tehsil, Malout Distt. Sri Muktsar Sahib. | 144 | 17.28 | |
| 30 | Division Abohar. Near Railway Crossing, opp. Tara estate colony, Kandwala-Ganganagar road Abohar. | 139 | 16.74 | |
| 31 | SUWIDHA CENTER FAZILKA FREEDOM FIGHTER ROAD FAZILKA | 139 | 16.74 | |
| 32 | PSPCL City sub division GT Road Malout ON Main GT Road Malout | 130 | 15.66 | |
| 33 | S/D BADAL Near Dashmesh Gril Collage, Mehna Road, V. Badal | 130 | 15.66 | |
| 34 | Sub Division PSPCL, Lambi Gidderbaha Road, Lambi, Teh.Malout Distt. Sri Muktsar Sahib. | 132 | 15.66 | |
| 35 | S.E. Office PSPCL Faridkot Talwandi Road Faridkot Near Dashmesh Public School, Faridkot. | 120 | 14.58 | |
| 36 | MALKE ROAD, BARGARI/ SUB DIVISION PSPCL BARGARI. MALKE ROAD BARGARI. | 122 | 14.58 | |
| 37 | Sub Division City Baghapurana Moga Road Baghapurana Moga Road Baghapurana | 121 | 14.58 | |
| 38 | CITY S/D FAZILKA NEAR 66 KV S/S FAZILKA | 92 | 10.80 | |
| 39 | S/D LADHUKA NEAR BUS STAND LADHUKA | 90 | 10.80 | |
| 40 | Addl. SE (OP), Division ZIRA NEAR 66KV SUB STATION ZIRA | 74.32 | 8.64 | |
| 41 | PSPCL SUB DIVISION ABUL KHURANA GT Road Malout to Dabwali | 75 | 8.64 | |
| 42 | S/D No. 2 Abohar | 70 | 8.10 | |
| 43 | SUB DIVISION CITY JALALABAD NEAR B.R.AMBEDKAR CHOWK | 65 | 7.56 | |
| 44 | DIVISION FAZILKA NEAR 66 KV S/S FAZILKA | 60 | 7.02 | |
| 45 | S/D City Rampura Near Mour Chowk, Rampura | 40 | 4.86 | |
| 46 | SUB DIVISION JALALABAD 132 KV GRID JALALABAD | 37 | 4.32 | |
| 47 | SUB DIVISION GURUHARSHAI IN FRONT OF D.A.V SCHOOL ON FARDIKOT ROAD | 37 | 4.32 | |
| 48 | SUB-URBAN S/D FAZILKA NEAR 66 KV S/S FAZILKA | 30 | 3.24 | |
| 49 | AEE (OP), Sub-division Mallanwala Near 66KV Sub-Station Mallanwala | 22.3 | 2.70 | |
| 50 | AEE (OP), Sub-division Talwandi Bhai Near Bus Statand Talwandi Bhai | 23.23 | 2.70 | |
| 51 | AEE (OP), Sub-division Makhu Near 66KV Sub-Station Makhu | 18.58 | 2.16 | |
| 52 | AEE (OP), Sub-division Zira Near 66KV Sub-Station Zira | 18.58 | 2.16 | |

| Sr. no. | Address of Grid substations buildings, P&M Circle Bathinda | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
|---------|--|------------------------------|------------------------|--|
| 1 | Patto hira singh P&M Division Kotkapura | 1384 | 169.21 | |
| 2 | Bilaspur P&M Division Kotkapura | 1200 | 146.72 | |
| 3 | Samalsar P&M Division Kotkapura | 1015 | 124.10 | |
| 4 | Dina sahib P&M Division Kotkapura | 935 | 114.32 | |
| 5 | Gajjanwala P&M Division Kotkapura | 930 | 113.71 | |
| 6 | 66 KV Makhu P&M Division Ferozepur | 674 | 82.41 | |
| 7 | 66 KV Kamalgarh P&M Division Ferozepur | 574.6 | 70.25 | |
| 8 | Focal Point Moga P&M Division Kotkapura | 542 | 66.27 | |
| 9 | Dala P&M Division Kotkapura | 527 | 64.43 | |
| 10 | 66 KV Chugatte Wala P&M Division Ferozepur | 515.62 | 63.04 | |
| 11 | 66 KV Alamwala P&M Division Fazilka | 483 | 59.05 | |
| 12 | Chuga Kalan P&M Division Kotkapura | 466 | 56.98 | |
| 13 | KotSukhia P&M Division Kotkapura | 464.51 | 56.79 | |
| 14 | Sukhanwala P&M Division Kotkapura | 464.51 | 56.79 | |
| 15 | 66 KV Baja Marar P&M Division Sri Muktsar Sahib | 447.2 | 54.68 | |
| 16 | Mansa P&M Division Mansa | 433 | 52.94 | |
| 17 | 66 KV Bhai ka Kehran P&M Division Fazilka | 428 | 52.33 | |
| 18 | 66 KV Kandwala Hazer Khan P&M Division Fazilka | 428 | 52.33 | |
| 19 | 66 KV ghattianwali Jattan P&M Division Fazilka | 428 | 52.33 | |
| 20 | 66 KV Kauni P&M Division Sri Muktsar Sahib | 420 | 51.35 | |
| 21 | 66 KV Danewala P&M Division Fazilka | 410 | 50.13 | |
| 22 | 66 KV Ladhuka P&M Division Fazilka | 390 | 47.68 | |
| 23 | 66 KV Sukhna Ablu P&M Division Sri Muktsar Sahib | 378 | 46.22 | |
| 24 | 66 KV Nureke P&M Division Fazilka | 361 | 44.14 | |
| 25 | 66 KV Midda P&M Division Fazilka | 360 | 44.02 | |
| 26 | kotshmir P&M Division Mansa | 359 | 43.89 | |
| 27 | Charik P&M Division Kotkapura | 352 | 43.04 | |
| 28 | 66 KV Ferozepur City P&M Division Ferozepur | 347.98 | 42.55 | |
| 29 | Chugawan P&M Division Kotkapura | 347 | 42.43 | |
| 30 | Bhikhi P&M Division MANSA | 344 | 42.06 | |
| 31 | 66 KV Zira P&M Division Ferozepur | 336 | 41.08 | |
| 32 | Vehniwal P&M Division Kotkapura | 334 | 40.84 | |
| 33 | 66 KV Guruharsahai P&M Division Fazilka | 330 | 40.35 | |
| 34 | bangi kalan P&M Division Mansa | 325 | 39.74 | |
| 35 | Zida P&M Division Kotkapura | 325 | 39.74 | |
| 36 | 66 KV Dhandi Qadim P&M Division Fazilka | 323 | 39.49 | |
| 37 | 66 KV Chinmewala P&M Division Fazilka | 322 | 39.37 | |
| 38 | jodhpur P&M Division Mansa | 321 | 39.25 | |
| 39 | 66 KV Ammiwala P&M Division Ferozepur | 321 | 39.25 | |
| 40 | 66 KV Wara Kishanpura P&M Division Sri Muktsar Sahib | 320.16 | 39.14 | |
| 41 | 66 KV Lubanianwali P&M Division Sri Muktsar Sahib | 319 | 39.00 | |
| 42 | 66 KV Rupana P&M Division Sri Muktsar Sahib | 318.78 | 38.98 | |
| 43 | 66 KV Kolianwali P&M Division Sri Muktsar Sahib | 317 | 38.76 | |
| 44 | burj dhilwan P&M Division Mansa | 316 | 38.64 | |

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|----|--|--------|-------|--|
| 45 | Nathuwala P&M Division Kotkapura | 315 | 38.51 | |
| 46 | 66 KV Lambi P&M Division Sri Muktsar Sahib | 311 | 38.02 | |
| 47 | 66 KV Pandori Khatrian P&M Division Ferozepur | 310 | 37.90 | |
| 48 | 66 KV Fatehgarh Sabhran P&M Division Ferozepur | 310 | 37.90 | |
| 49 | 66 KV Kot Ise Khan P&M Division Ferozepur | 310 | 37.90 | |
| 50 | 66 KV Fatehgarh Panjoor P&M Division Ferozepur | 310 | 37.90 | |
| 51 | 66 KV Daulatpura P&M Division Ferozepur | 310 | 37.90 | |
| 52 | 66 KV Dagra P&M Division Ferozepur | 310 | 37.90 | |
| 53 | 66 KV Kishanpura P&M Division Ferozepur | 310 | 37.90 | |
| 54 | Joga Ralla P&M Division MANSA | 302 | 36.92 | |
| 55 | 66 KV Gilzewala P&M Division Sri Muktsar Sahib | 300 | 36.68 | |
| 56 | Daudhar P&M Division Kotkapura | 297 | 36.31 | |
| 57 | 66 KV Zira Gate P&M Division Ferozepur | 294.58 | 36.02 | |
| 58 | 66 KV Abul Khurana P&M Division Sri Muktsar Sahib | 291 | 35.58 | |
| 59 | 66 KV Khosa Dal Singh P&M Division Ferozepur | 289.16 | 35.35 | |
| 60 | 66 KV Bhalaiana P&M Division Sri Muktsar Sahib | 287.75 | 35.18 | |
| 61 | 66 KV Mamdot P&M Division Ferozepur | 286 | 34.97 | |
| 62 | 66 KV Jiwan Arian P&M Division Fazilka | 285 | 34.85 | |
| 63 | 66 KV Karni Khera P&M Division Fazilka | 281 | 34.36 | |
| 64 | Mari Mustfa P&M Division Kotkapura | 280 | 34.23 | |
| 65 | 66 KV Ch. Veroke P&M Division Fazilka | 280 | 34.23 | |
| 66 | Dhipey P&M Division MANSA | 279 | 34.11 | |
| 67 | Jaito P&M Division Kotkapura | 277 | 33.87 | |
| 68 | Bargari P&M Division Kotkapura | 275 | 33.62 | |
| 69 | Rammuwala P&M Division Kotkapura | 272 | 33.26 | |
| 70 | 66 KV FCI Ferozepur P&M Division Ferozepur | 271.4 | 33.18 | |
| 71 | Dalel Singh Wala P&M Division MANSA | 271 | 33.13 | |
| 72 | Chaina P&M Division Kotkapura | 271 | 33.13 | |
| 73 | 66 KV Jhoke Tehal Singh P&M Division Ferozepur | 265.93 | 32.51 | |
| 74 | 66 KV Kheowali Dhab P&M Division Fazilka | 265 | 32.40 | |
| 75 | 66 KV Bhaloor P&M Division Ferozepur | 255 | 31.18 | |
| 76 | 66 KV Ch. Budho ke P&M Division Fazilka | 255 | 31.18 | |
| 77 | 66 KV Bhagsar P&M Division Sri Muktsar Sahib | 252 | 30.81 | |
| 78 | 66 KV Abohar P&M Division Fazilka | 250 | 30.57 | |
| 79 | 66 KV Arniwala P&M Division Fazilka | 250 | 30.57 | |
| 80 | jiwan singh wala P&M Division Mansa | 245 | 29.95 | |
| 81 | 66 KV Kallar Khera P&M Division Fazilka | 240 | 29.34 | |
| 82 | 66 KV Fattakera P&M Division Sri Muktsar Sahib | 239 | 29.22 | |
| 83 | 66 KV Thatha Sahib P&M Division Ferozepur | 233.25 | 28.52 | |
| 84 | 66 KV Fattanwala P&M Division Sri Muktsar Sahib | 230 | 28.12 | |
| 85 | 66 KV Amarpura P&M Division Fazilka | 230 | 28.12 | |
| 86 | 66 KV Sito Guno P&M Division Fazilka | 230 | 28.12 | |
| 87 | sekhu P&M Division Mansa | 228 | 27.88 | |
| 88 | 66 KV Phidde Khurad P&M Division Sri Muktsar Sahib | 227.69 | 27.84 | |
| 89 | 66 KV Jodha Bhaini P&M Division Fazilka | 226 | 27.63 | |
| 90 | 66 KV Lakhewali P&M Division Sri Muktsar Sahib | 225 | 27.51 | |
| 91 | 66 KV Ratta Tibba P&M Division Fazilka | 225 | 27.51 | |
| 92 | 66 KV Madheer P&M Division Sri Muktsar Sahib | 224.28 | 27.42 | |

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|-----|---|--------|-------|--|
| 93 | Bhinderkalan P&M Division Kotkapura | 222 | 27.14 | |
| 94 | Rauke kalan P&M Division Kotkapura | 221 | 27.02 | |
| 95 | Chauke P&M Division Mansa | 220 | 26.90 | |
| 96 | Dhalewan P&M Division MANSA | 213 | 26.04 | |
| 97 | Gamiwala P&M Division mansa | 212 | 25.92 | |
| 98 | 66 KV Sande Hasham P&M Division Ferozepur | 208.8 | 25.53 | |
| 99 | Golewala P&M Division Kotkapura | 206.24 | 25.22 | |
| 100 | 66 KV Nandgarh-Ghudda P&M Division Sri Muktsar Sahib | 205 | 25.06 | |
| 101 | Rode P&M Division Kotkapura | 204 | 24.94 | |
| 102 | 66 KV Malout Rd. Muktsar P&M Division Sri Muktsar Sahib | 202.08 | 24.71 | |
| 103 | 66 KV Bajেকে P&M Division Fazilka | 202 | 24.70 | |
| 104 | Alike P&M Division Mansa | 200 | 24.45 | |
| 105 | 66 KV Aulakh P&M Division Fazilka | 200 | 24.45 | |
| 106 | 66 KV Bhulerian P&M Division Fazilka | 200 | 24.45 | |
| 107 | 66 KV Kamala Middu P&M Division Ferozepur | 197.5 | 24.15 | |
| 108 | Malke P&M Division Kotkapura | 197.5 | 24.15 | |
| 109 | Janer P&M Division Kotkapura | 195 | 23.84 | |
| 110 | Bhadra P&M Division MANSA | 194 | 23.72 | |
| 111 | Jhoke Hari Har P&M Division Ferozepur | 193.92 | 23.71 | |
| 112 | Maur kalan P&M Division Mansa | 192 | 23.47 | |
| 113 | 66 KV Peer Bakash Chouhan P&M Division Fazilka | 192 | 23.47 | |
| 114 | 66 KV Behak Gujjaran P&M Division Ferozepur | 190.5 | 23.29 | |
| 115 | raman P&M Division Mansa | 190 | 23.23 | |
| 116 | chak alisher P&M Division mansa | 190 | 23.23 | |
| 117 | 66 KV Chak Shere Wala P&M Division Sri Muktsar Sahib | 190 | 23.23 | |
| 118 | Faridkot P&M Division Kotkapura | 188.4 | 23.03 | |
| 119 | Borawal P&M Division MANSA | 188 | 22.99 | |
| 120 | Danewala P&M Division Mansa | 187 | 22.86 | |
| 121 | Matta P&M Division Kotkapura | 185.88 | 22.73 | |
| 122 | kamalu P&M Division Mansa | 185 | 22.62 | |
| 123 | 66 KV Bheetiwala P&M Division Sri Muktsar Sahib | 184 | 22.50 | |
| 124 | 66 KV Pojo Ke P&M Division Ferozepur | 184 | 22.50 | |
| 125 | 66 KV Karmuwala P&M Division Ferozepur | 184 | 22.50 | |
| 126 | 66 KV Gurali P&M Division Ferozepur | 184 | 22.50 | |
| 127 | Maur P&M Division Kotkapura | 181 | 22.13 | |
| 128 | 66KV PHASE-3 P&M Division O & M BATHINDA | 180 | 22.01 | |
| 129 | Nangla Jourkian P&M Division Mansa | 180 | 22.01 | |
| 130 | 66 KV Mahatam Nagar P&M Division Fazilka | 180 | 22.01 | |
| 131 | Kahnewala P&M Division Mansa | 175 | 21.40 | |
| 132 | Fatehgarh Korotana P&M Division Kotkapura | 175 | 21.40 | |
| 133 | Sangrahur P&M Division Kotkapura | 174.19 | 21.30 | |
| 134 | Matti P&M Division MANSA | 173 | 21.15 | |
| 135 | 66 KV Churiwala Dhanna P&M Division Fazilka | 173 | 21.15 | |
| 136 | 66 KV Khuian Sarwar P&M Division Fazilka | 170 | 20.78 | |
| 137 | 66 KV Husner P&M Division Sri Muktsar Sahib | 168.52 | 20.60 | |
| 138 | 66 KV Mukandsinghwala P&M Division Sri Muktsar Sahib | 168 | 20.54 | |
| 139 | Kaler P&M Division Kotkapura | 167.22 | 20.45 | |

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|-----|--|--------|-------|--|
| 140 | 66 KV Mudki P&M Division Ferozepur | 167 | 20.42 | |
| 141 | Raipur P&M Division Mansa | 166 | 20.30 | |
| 142 | 66 KV Peori P&M Division Sri Muktsar Sahib | 165.68 | 20.26 | |
| 143 | 66 KV Tharajwala P&M Division Sri Muktsar Sahib | 163.52 | 19.99 | |
| 144 | 66 KV Kotbhai P&M Division Sri Muktsar Sahib | 162.01 | 19.81 | |
| 145 | 66KV CIVIL LINE P&M Division O & M BATHINDA | 160 | 19.56 | |
| 146 | datewas P&M Division mansa | 160 | 19.56 | |
| 147 | 66 KV Sanian Road Fazilka P&M Division Fazilka | 158 | 19.32 | |
| 148 | 66 KV Loppo P&M Division Fazilka | 157 | 19.20 | |
| 149 | Baba Sekh Farid P&M Division Kotkapura | 156.3 | 19.11 | |
| 150 | 66 KV Mallanwala P&M Division Ferozepur | 155.3 | 18.99 | |
| 151 | 66 KV Hanumangarh Road, Abohar P&M Division Fazilka | 155 | 18.95 | |
| 152 | Kothe ramsar P&M Division Kotkapura | 150.9 | 18.45 | |
| 153 | Sarawan P&M Division Kotkapura | 150.8 | 18.44 | |
| 154 | 66 KV Malout P&M Division Fazilka | 150 | 18.34 | |
| 155 | 66 KV Pakka Kale Wala P&M Division Fazilka | 148 | 18.10 | |
| 156 | 66 KV Dabwali/Killianwali P&M Division Sri Muktsar Sahib | 146.88 | 17.96 | |
| 157 | 66 KV Doda P&M Division Sri Muktsar Sahib | 146.16 | 17.87 | |
| 158 | kotli P&M Division Mansa | 145 | 17.73 | |
| 159 | 66 KV Panje Ke P&M Division Fazilka | 145 | 17.73 | |
| 160 | 66 KV Pathrala P&M Division Sri Muktsar Sahib | 144.76 | 17.70 | |
| 161 | 66 KV Sikhwala P&M Division Sri Muktsar Sahib | 144.5 | 17.67 | |
| 162 | 66 KV Mallan P&M Division Sri Muktsar Sahib | 144 | 17.61 | |
| 163 | 66 KV Banwala Anuka P&M Division Sri Muktsar Sahib | 141.1 | 17.25 | |
| 164 | 66 KV Phulewala P&M Division Sri Muktsar Sahib | 140.48 | 17.18 | |
| 165 | ghasokhana P&M Division Mansa | 140 | 17.12 | |
| 166 | 66 KV Bhuttiwala P&M Division Sri Muktsar Sahib | 136 | 16.63 | |
| 167 | 66 KV Teh Kalandar P&M Division Fazilka | 134 | 16.38 | |
| 168 | 66 KV Tibbi Khurd P&M Division Ferozepur | 131.25 | 16.05 | |
| 169 | Pakhi Kalan P&M Division Kotkapura | 130 | 15.89 | |
| 170 | 66 KV Banwala Hanvanta P&M Division Fazilka | 130 | 15.89 | |
| 171 | 66 KV Rao Ke P&M Division Ferozepur | 127.5 | 15.59 | |
| 172 | 66 KV Hamad P&M Division Ferozepur | 127.5 | 15.59 | |
| 173 | 66 KV Attari P&M Division Ferozepur | 127.5 | 15.59 | |
| 174 | 66 KV Lohgarh Thakaran P&M Division Ferozepur | 127.5 | 15.59 | |
| 175 | 66 KV Jhandiana P&M Division Ferozepur | 127.5 | 15.59 | |
| 176 | 66 KV Dhanna Sahid P&M Division Ferozepur | 127.5 | 15.59 | |
| 177 | 66 KV Sukhe Wala P&M Division Ferozepur | 127.5 | 15.59 | |
| 178 | 66 KV Kasoana P&M Division Ferozepur | 127.5 | 15.59 | |
| 179 | 66 KV Bhago Ke P&M Division Ferozepur | 127.5 | 15.59 | |
| 180 | 66 KV Khosa Kotla P&M Division Ferozepur | 127.5 | 15.59 | |
| 181 | 66 KV Dholle Wala P&M Division Ferozepur | 127.5 | 15.59 | |
| 182 | 66 KV Lohgarh P&M Division Ferozepur | 127.5 | 15.59 | |
| 183 | 66 KV Kot Mohamad P&M Division Ferozepur | 127.5 | 15.59 | |
| 184 | 66 KV Khuranj P&M Division Sri Muktsar Sahib | 123.75 | 15.13 | |
| 185 | 66 KV Dabwali Dhab P&M Division Fazilka | 120 | 14.67 | |
| 186 | 66 KV Gulabewala P&M Division Sri Muktsar Sahib | 119 | 14.55 | |

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|-----|---|--------|-------|--|
| 187 | 66 KV Chak Janisar P&M Division Sri Muktsar Sahib | 119 | 14.55 | |
| 188 | 66 KV Khuhi Khera P&M Division Fazilka | 119 | 14.55 | |
| 189 | 66 KV Malook Pura P&M Division Fazilka | 119 | 14.55 | |
| 190 | Tahlian P&M Division mansa | 118 | 14.43 | |
| 191 | 66 KV Masitan P&M Division Ferozepur | 115 | 14.06 | |
| 192 | kulrian P&M Division mansa | 114 | 13.94 | |
| 193 | 66 KV Tibbi Sahib Road P&M Division Sri Muktsar Sahib | 113.9 | 13.93 | |
| 194 | jaga ram tirth P&M Division Mansa | 112 | 13.69 | |
| 195 | kishangarh P&M Division mansa | 110 | 13.45 | |
| 196 | 66 KV Fatehpur Manian P&M Division Sri Muktsar Sahib | 106.68 | 13.04 | |
| 197 | 66 KV Rana P&M Division Fazilka | 106 | 12.96 | |
| 198 | 66 KV Jhariwala P&M Division Fazilka | 102 | 12.47 | |
| 199 | Baba Deep singh wala P&M Division Kotkapura | 92.9 | 11.36 | |
| 200 | 66 KV Fazilka P&M Division Fazilka | 90 | 11.00 | |
| 201 | Moosa P&M Division Mansa | 40 | 4.89 | |
| 202 | Semiautomatic Gurthari P&M Division MANSA | 29 | 3.55 | |
| 203 | 66 KV Sudh Singh Wala P&M Division Ferozepur | 9 | 1.10 | |

Total capacity for package no. 2 (DS West zone, Bathinda) is 7409.72 kW

Total estimated cost is Rs 371019499.84

| Package no. 3, DS Centre Zone Ludhiana | | | | |
|---|---|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under DS Centre Zone , Ludhiana | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | Mini Secritiate Building, Power Colony-1 | 600 | 72.9 | 96461-24834 |
| 2 | CS/Central Zone Building, Power Colony-1 | 400 | 48.6 | 96461-24834 |
| 3 | D/S Division Building Agar Nagar Divn., 220KV S/s Ferozepur Road Ludhiana | 325 | 39.42 | 96461-24834 |
| 4 | Zonal Knowledge Centre, Power Colony-2 | 250 | 30.24 | 96461-24834 |
| 5 | SCADA Control Room Building, Poer Colony-2 | 145 | 17.28 | 96461-24834 |

| Sr. No. | Address of Grid Substation buildings under P&M Circle Ludhiana | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
|----------------|--|-------------------------------------|-------------------------------|---|
| 1 | 66 Kv s/stn Nurewal kaakowal Road (Op) Divn sunder Nagar divn ludhiana | 832 | 101.72 | |
| 2 | 66 Kv S/stn gill Road (Op)PSPCL Divn janta Nagar Divn ludhiana | 787 | 96.22 | |
| 3 | 66 Kv s/stn Giaspura (Op)PSPCL Divn Estatev Divn ludhiana | 741 | 90.60 | |
| 4 | 66 Kv S/stn GT Road Near Choni Mahalla OP PSPCL city center Divn ludhiana | 618 | 75.56 | |
| 5 | 66 Kv s/stn Millerganj Near Nahar Group Ludhiana | 562 | 68.71 | |
| 6 | 66 Kv S/stn F/P nahar Factory Ludhiana (Op)PSPCL Divn Focal point Divn ludhiana | 529 | 64.68 | |
| 7 | 66 Kv S/stn Kanganwal Villagr kanganwal near Hindustan tyre Ludhiana | 496 | 60.64 | |
| 8 | 66 Kv S/stn Haibowal kichlu Nagar ludhiana | 468 | 57.22 | |
| 9 | 66 KV S/S Kutba, Village Kutba, Near Dana Mandi, Barnala. | 450 | 55.02 | |
| 10 | 66 KV Badali ala singh, village badali ala singh Tehsil & District Fatehgarh sahib | 450 | 55.02 | |
| 11 | 66 Kv S/stn Amaltas Jalandhar Byee Pass near Duke Factory Ludhiana | 418 | 51.11 | |
| 12 | 66 KV S/S Chawa, village Bija, Tehsil samrala, District Ludhiana | 406 | 49.64 | |
| 13 | 66 KV S/Stn Raikot, Near Hari singh Nalwal Chauk Raikot, Ludhiana. | 405 | 49.52 | |
| 14 | 66 Kv S/stn Model town near Gurduwara Model town Extensen Ludhiana | 404 | 49.39 | |
| 15 | 66 KV Mega Food Park, Near Punjab Agro Ladowal, Ludhiana. | 403 | 49.27 | |
| 16 | 66 KV S/S Grain market, Bhadla road Ram nagar, Tehsil Amloh District fatehgarh sahib | 389 | 47.56 | |
| 17 | 66 KV Nandpur kloud, Village nandpur kloud, Tehsil Bassi, District Fatehgarh sahib | 374 | 45.73 | |

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| 18 | 66 S/Stn SUDHAR, Village Budail, GT Road Sudhar, Ludhiana. | 372 | 45.48 | |
| 19 | 66 KV S/S Jarg, village jarg, Tehsil Payal, District Ludhiana | 367 | 44.87 | |
| 20 | 66 Kv S/stn Dholewal Chonk Ludhiana near maruti Agency | 366 | 44.75 | |
| 21 | 66 KV S/S Agwar Lophon, Village Agwar Lophon, Tehsil Jagraon, Ludhiana. | 356 | 43.53 | |
| 22 | 66 KV S/Stn Sihar, Village Sihar, Near Thath Sahib Road, Dhoul Majra Road Ludhiana. | 351 | 42.91 | |
| 23 | 66 KV S/S Talwara, near RIMT college village Talwara, Mandi Gobindgarh, District Fatehgarh sahib. | 350 | 42.79 | |
| 24 | 66 KV S/Stn Lakha, Jhoraran Road, Village Lakha, Tehsil Jagraon Ludhiana. | 346 | 42.30 | |
| 25 | 66 KV S/Stn Maloud, Village Maluod, Dudhal Road, Near wear Haouse, Ludhiana. | 343 | 41.94 | |
| 26 | 66 KV S/S Khanna near SSP Office GT Road Khanna district Ludhiana | 337 | 41.20 | |
| 27 | 66 KV S/S Bharri, Village Bharri, Tehsil Khamano, District fatehgarh sahib. | 333 | 40.71 | |
| 28 | 66 KV S/Stn Aalamgir, Village Alamgir, Near Manji Sahib Gurudwar, Ludhiana. | 331 | 40.47 | |
| 29 | 66 KV S/S Payal, Village payal Tehsil Payal district Ludhiana. | 329 | 40.22 | |
| 30 | 66 Kv S/stn Chaura bazar near Akal Garh Market ganta gar Chonk Lidhiana | 313 | 38.27 | |
| 31 | 66 KV S/S Focal point near Super milk plant, village ajnali, Mandi gobindgarh, District Fatehgarh sahib | 306 | 37.41 | |
| 32 | 66 KV S/Stn Narangwal, Village Narangwal, Pakhowal Road, Ludhiana. | 300 | 36.68 | |
| 33 | 66 Kv s/stn South City near Sunview Colony south city Ludhiana | 298 | 36.43 | |
| 34 | 66 Kv S/stn Dugri Near urban estate Dugri Phase 2 Ludhiana | 286 | 34.97 | |
| 35 | 66 kv S/stn Basant park near Park Sat guru Ram singh mamorial industrial Area Ludhiana | 277 | 33.87 | |
| 36 | 66 KV S/S Attewali, village Attewali, Tehsil Sirhind, District Fatehgarh sahib | 277 | 33.87 | |
| 37 | 66 KV S/S Badinpur, Village Badinpur Tehsil Amloh, district Fatehgarh sahib | 272 | 33.26 | |
| 38 | 66 KV Chourwala, village Chourwala Tehsil & District Fatehgarh sahib | 269 | 32.89 | |
| 39 | 66 KV Bhagrana, village bhagrana Tehsil & District Fatehgarh sahib | 254 | 31.06 | |
| 40 | 66 Kv S/stn Dhandari near SK Bike Factory dhandari kala Ludhiana | 252 | 30.81 | |
| 41 | 66 KV S/S Hargana, Village Hargana, Tehsil Khamano, District fatehgarh sahib. | 250 | 30.57 | |
| 42 | 66 Kv S/stn palm garden Village pawa & Red mango Sahnewal Ludhiana | 246 | 30.08 | |

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| 43 | 66 Kv s/stn Ph +8 Jiwan nagar Gold star road near Water Tank Ludhiana | 244 | 29.83 | |
| 44 | 66 KV S/S Tanda badha, Village Tanda badha kalan, Tehsil Amlloh, District Fatehgarh sahib | 214 | 26.16 | |
| 45 | 66 KV S/S Sirhind, near Jugnu palace, GT road sirhind, City Sirhind, District Fatehgarh sahib | 210 | 25.68 | |
| 46 | 66 Kv s/stn Sarabha Nagar near Durgamatta mandhir PSPCL Colony sarabha nagar Ludhiana | 208 | 25.43 | |
| 47 | 66 KV S/Stn Roomi, Village Roomi, Jagraon Road, Ludhiana. | 204 | 24.94 | |
| 48 | 66 Kv S/stn Ballokee near haibowal kalan Dairy Farm Ludhiana | 202 | 24.70 | |
| 49 | 66 KV S/Stn Rasoolpur, Village Rasulpur Daudhar Raod, Ludhiana. | 202 | 24.70 | |
| 50 | 66 KV S/S Bahomajra, village bahomajra near water treatment plant, district Ludhiana. | 201 | 24.58 | |
| 51 | 66 KV S/S Bhadson, village bhadson opposite Forest deparment bhadson, District Patiala | 200 | 24.45 | |
| 52 | 66 Kv s/stn Pau University PAU Ludhiana | 197 | 24.09 | |
| 53 | 66 Kv S/stn Old Jail road near Civil Hosptal & old jail Ludhiana | 187 | 22.86 | |
| 54 | 66 KV S/S Central Near Bus stand, Gandhi nagar, Mandi Gobindgarh District Fatehgarh sahib | 187 | 22.86 | |
| 55 | 66 KV S/Stn Latala, Village Latala, Raikot- Ahmedgarh Road, Ludhiana. | 182 | 22.25 | |
| 56 | 66 KV S/S Doburji, village doburji Teshil Payal, District Ludhiana | 174 | 21.27 | |
| 57 | 66 KV Barmi, Village Barmi, Near Senior Scondary School Barmi, Ludhiana | 167 | 20.42 | |
| 58 | 66 KV Jallah, Village jallah, Bhadson-Sirhind road, Tehsil & District Fatehgarh sahib | 167 | 20.42 | |
| 59 | 66 KV S/S Mallewal village mallewal, Tehsil Nabha, District Patiala | 160 | 19.56 | |
| 60 | 66 KV S/S Agoul village agoul, near grain market agoul, Tehsil Nabha, District Patiala | 156 | 19.07 | |
| 61 | 66 KV S/S Diwana, Village Diwana, Near Chanduana Sahib Gurudwara, Barnala. | 151 | 18.46 | |
| 62 | 66 Kv S/stn Tajpur Road near jail road Ludhiana | 146 | 17.85 | |
| 63 | 66 KV S/S Jalalpur, near Jawahlal nehru Govt college village Tooran, Mandi Gobindgarh, District Fatehgarh sahib. | 143 | 17.48 | |
| 64 | 66 Kv s/stn Sahnewal Village sahnewal Ludhiana | 140 | 17.12 | |
| 65 | 66 KV S/Stn Sidhwanbet, Village Sidhwanbet, Near Sidhwan Kanal, Nakodar Road Ludhiana. | 135 | 16.51 | |
| 66 | 66 KV S/Stn Galibkalan, Village Galib Kalan near Dana Mandi, Ludhiana. | 135 | 16.51 | |
| 67 | 66 KV S/S Apparel park, village Barmalipur Tehsil Payal district Ludhiana. | 134 | 16.38 | |
| 68 | 66 KV S/S Tohra, village Tohra, near grain market Tohra, Tehsil Nabha, District Patiala | 133 | 16.26 | |

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| 69 | 66 KV S/S Shamshpur, village shamshpur, near grain market shamshpur, Tehsil Amloh, District Fatehgarh sahib | 133 | 16.26 | |
| 70 | 66 kv S/stn Fountain Chonk Ludhiana Near Pavilion mall Ludhiana | 131 | 16.02 | |
| 71 | 66 Kv S/stn Rajguru Nagar wave Cienma & Opp Sacred Heart school Ludhiana | 130 | 15.89 | |
| 72 | 66 KV S/stn STP near Tajpur road Ludhiana | 130 | 15.89 | |
| 73 | 66 Kv S/stn Indera park Jiwan nagar chonk Bajaj Sons Factory Ludhiana | 128 | 15.65 | |
| 74 | 66 Kv S/stn Dc Complex Near FZR Gandhi market near Civil Court Ludhiana | 127 | 15.53 | |
| 75 | 66 Kv Dhannsu near village Bounker Dhannsu Ludhiana | 125 | 15.28 | |
| 76 | 66 Kv S/stn CHD Road near 32 Sec Mohni Resort ludhiana | 120 | 14.67 | |
| 77 | 66 KV S/S Bhundree. Sidhwanbet-Ludhiana Raod, Village Bhundri, Ludhiana. | 113 | 13.82 | |
| 78 | 66 Kv S/stn Transport nagar BSNL Exchange transport nagar Ludhiana | 110 | 13.45 | |
| 79 | 66 KV S/S Shahjahanpur, Village Shajhanpur, Bassian-Nathowal Road Ludhiana. | 110 | 13.45 | |
| 80 | 66 KV S/S Heran, Village Heran, Guru Govind Marg, Ludhiana. | 108 | 13.20 | |
| 81 | 66 KV S/S Rayieawal, village rayieawal, Tehsil Amloh, District Fatehgarh sahib | 100 | 12.23 | |
| 82 | 66 Kv s/stn Meharban rahoo road HDFC Bank Ludhiana | 99 | 12.10 | |
| 83 | 66 KV S/S Pabbian, Village Pabbian, Ludhaiana. | 99 | 12.10 | |
| 84 | 66 KV S/stn Basant Avenue Pakowal Road Near manav rachna School Ludhiana | 83 | 10.15 | |
| 85 | 66Kv s/stn Baharduke mahaveer industrial Estate Gali no6 near FCI gudam ludhiana | 18 | 2.20 | |
| 86 | 66 Kv S/ stn Singla cycle Giaspura Ludhiana | 16 | 1.96 | |
| 87 | 66 KV Jalaldiwal, Village Jalaldiwal, Khalsa Raod Ludhiana. | 13.37 | 1.63 | |

Total capacity for package no. 3 (DS Centre zone, Ludhiana) is 3018.73 kW
Total estimated cost is Rs 151153848.56

| Package no. 4, DS South Zone, Patiala | | | | |
|--|--|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under DS South zone Patiala | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | Operation Sub Division Sukhrampur, Power Colony (Ropar) | 450.00 | 54.54 | 9646110109 |
| 2 | Divn.Dhuri, M K Road Near Bagrian Chowk Dhuri (Sangrur) | 444.00 | 54.00 | 96461-10022 |
| 3 | S/D KALYAN, NEAR SUGAR MILL RAKHRA (Patiala) | 400.00 | 48.60 | 9646110042 |
| 4 | Operation Sub Division Mianpur, Rangilpur (Ropar) | 375.00 | 45.36 | 7888807387 |
| 5 | Operation Sub Division bela, Near Bela Bus Stand (Ropar) | 375.00 | 45.36 | 9646110112 |
| 6 | Operation Sub Division Ghanauli, Vill Ghanauli (Ropar) | 360.00 | 43.74 | 9646124449 |
| 7 | Model Town, Patiala, Near Tagore Theatre (Patiala) | 260.00 | 31.32 | 9646115384 |
| 8 | Division Office, Rajpura, Division Office (Patiala) | 250.00 | 30.24 | 9646110015 |
| 9 | Chief Engineer/Distribution (South), Shed D1 and D2, Shakti Vihar Patiala, Near Phatak Number Shakti Vihar Patiala (-) | 200.00 | 24.30 | 9646110883 |
| 10 | DS Sub Division Handesra, kv Handesra (Mohali) | 200.00 | 24.30 | 9646110137 |
| 11 | City Sub Division, City Sub Division (Patiala) | 200.00 | 24.30 | 9646110067 |
| 12 | Commerical Sub Division,, Near Division Office (Patiala) | 200.00 | 24.30 | 9646110069 |
| 13 | Division Malerkotla Office, Div Office Satta Chowk Malerkotla (Barnala) | 192.00 | 23.22 | 9646111133 |
| 14 | Sub Urban Sub Division,, Focal Point Rajpura (Patiala) | 175.00 | 21.06 | 9646110065 |
| 15 | Sarai Banjara Sub Division,, Vill Sarai Banjara (Patiala) | 175.00 | 21.06 | 9646110068 |
| 16 | Operation Divison(Spl),Mohali,Plot No A-2,Phase-1,Industrial Area Mohali, Mohali Phase Industrial Area (Mohali) | 170.00 | 20.52 | 96461-10032 |
| 17 | Dy. CE, Op Circle Patiala, 66kv Grid Colony, Near Veer Haqiqat rai School (Patiala) | 157.94 | 18.90 | 9646101201 |
| 18 | East Division, Near Veer Haqiqat rai School (Patiala) | 157.94 | 18.90 | 9646111070 |
| 19 | DS Sub Division Saidpura, kv Saidpura (Mohali) | 150.00 | 17.82 | 9646110133 |
| 20 | S/D BHAWANIGARH, PSTCL GRID (Sangrur) | 150.00 | 17.82 | 9646110074 |
| 21 | DS Division Dirba 66 Kv Grid Janal road Dirba, Kv Grid Janal road Dirba (Sangrur) | 150.00 | 17.82 | 96461-10021 |

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|----|---|--------|-------|---------------------------|
| 22 | Mullanpur Garibdass Sub Divison Office, Office near Ratwara Sahib in Mullanpur (Mohali) | 140.00 | 16.74 | 96461-10032 / 96461-10803 |
| 23 | Machhiwara, Kohara Road Machhiwara Near Govt College (Ropar) | 140.00 | 16.74 | 9646110125 |
| 24 | S/D CITY SANGRUR, SOHIAN ROAD SANGRUR (Sangrur) | 130.64 | 15.66 | 9646110071 |
| 25 | DS Sub Divison City Dirba Janal road, Kv Grid Janal road Dirba (Sangrur) | 125.00 | 15.12 | 96461-10082 |
| 26 | DS Sub Divison Sub Urban Dirba Janal road, KV Grid Dirba (Sangrur) | 125.00 | 15.12 | 96461-10083 |
| 27 | DS Sub Division Nadampur, Nadampur (Sangrur) | 125.00 | 15.12 | 96461-10085 |
| 28 | DS Sub Div. City Nabha, Near kv old Gird Nabha (Patiala) | 120.00 | 14.58 | 9646110054 |
| 29 | S/D CITY BARNALA, DHANAULA ROAD BARNALA (Barnala) | 112.00 | 13.50 | 9646110097 |
| 30 | Addnl. SE Office Kharar, Near KV Kharar (Ropar) | 111.46 | 13.50 | 96461-10028 |
| 31 | Khamano, Mansurpur Road (Ropar) | 112.00 | 13.50 | 9646110124 |
| 32 | S/D City Dhuri, KV G S S Dhuri (Sangrur) | 108.00 | 12.96 | 96461-10086 |
| 33 | DS Circle office Mohali, Phase industrial Area (Mohali) | 100.00 | 11.88 | 9646110006 |
| 34 | SUB DIVISION CITY SAMANA, SAMANA (Patiala) | 100.00 | 11.88 | 96461-10059 |
| 35 | Assistant Executive Engineer, Sub Urban Kharar, Near KV Kharar (Ropar) | 95.00 | 11.34 | 96461-10114 |
| 36 | DS Sub Division Mubarikpur, kv Mubarikpur (Mohali) | 92.00 | 10.80 | 9646110149 |
| 37 | SUBDIVISION, BADSHAHPUR, VILL BADSHAHPUR (Patiala) | 80.00 | 9.72 | 96461-19617 |
| 38 | DS Division Lehragaga, DS Division Lehragaga (Sangrur) | 83.71 | 9.72 | 9646110020 |
| 39 | Assistant Executive Engineer, Kurali, KV S stn Morinda (Ropar) | 70.75 | 8.64 | 96461-10117 |
| 40 | DS DIVISION SAMANA, SAMANA (Patiala) | 70.00 | 8.10 | 96461-10013 |
| 41 | SUB DIVISION SUB URBAN SAMANA, SAMANA (Patiala) | 70.00 | 8.10 | 96461-10060 |
| 42 | S/D Sherpur-2, KV G S S Village Katron (Sangrur) | 67.50 | 8.10 | 96461-10180 |
| 43 | S/D City-1 Malerkotla, S D Office Satta Chowk Malerkotla (Barnala) | 60.00 | 7.02 | 9646110091 |
| 44 | S/D Rangian, KV G S S Village Rangian (Sangrur) | 56.25 | 6.48 | 96461-24435 |
| 45 | Assistant Engineer, Majra, KV S stn Morinda (Ropar) | 30.00 | 3.24 | 96461-10018 |

| s no | Address of buildings of hydel projects under DS zone south | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned official |
|------|--|------------------------------|------------------------|----------------------------------|
| 1 | Field hostel, power colony Anandpur sahib | 522.11 | 63.72 | 9646112392 |
| 2 | Office building, Dy CE/ASHP, power colony, Anandpur Sahib | 491.54 | 59.40 | 9646112392 |
| 3 | VIP Guest house Power Colony Anandpur sahib | 491.26 | 59.40 | 9646112392 |
| 4 | Barota Pumping Station | 105.00 | 12.42 | 9646112392 |
| 5 | Regulation hut at Ganguwal | 45.29 | 5.40 | 9646112392 |
| 6 | Regulation hut at Nakkian | 45.29 | 5.40 | 9646112392 |
| 7 | Regulation hut at Lohand Escape | 43.15 | 4.86 | 9646112392 |
| 8 | Regulation hut at Nangal | 43.15 | 4.86 | 9646112392 |
| 9 | Debut Pumping Station | 43.15 | 4.86 | 9646112392 |

| Sr. No. | Information of Roof-Top area of Sub-Stations for solar plant under P&M Circle Patiala | Rooftop area (Square meters) | Capacity in KW | Mobile no. of concerned officer/ remarks |
|---------|---|------------------------------|----------------|--|
| 1 | JANDEYALI | 950.00 | 116.15 | |
| 2 | 66KV NABHA OLD | 511.24 | 62.51 | |
| 3 | 66KV AMARGARH | 464.77 | 56.82 | |
| 4 | CHOUNTA | 450.00 | 55.02 | |
| 5 | 66 KV Dhakoli | 450.00 | 55.02 | |
| 6 | 66 KV DHAULA | 406.17 | 49.66 | |
| 7 | Aspal kalan | 385.54 | 47.14 | |
| 8 | kattu | 385.54 | 47.14 | |
| 9 | 66 KV BADHOUR | 383.69 | 46.91 | |
| 10 | 66 KV Kurali | 378.00 | 46.22 | |
| 11 | Badshahpur | 378.00 | 46.22 | |
| 12 | 66 KV SANDORE | 366.41 | 44.80 | |
| 13 | Bahadurgarh | 350.60 | 42.87 | |
| 14 | Balbehra | 350.00 | 42.79 | |
| 15 | 66 KV Airport | 332.00 | 40.59 | |
| 16 | Old Rajpura | 320.00 | 39.12 | |
| 17 | Rangia | 312.15 | 38.16 | |
| 18 | 66KV GURDITPURA | 306.74 | 37.50 | |
| 19 | 66 KV BARNALA | 306.58 | 37.48 | |
| 20 | Katron | 301.93 | 36.92 | |
| 21 | Gajjumajra | 289.00 | 35.33 | |
| 22 | 66KV SULAR | 288.15 | 35.23 | |
| 23 | 66 KV THIKRIWAL | 283.35 | 34.64 | |
| 24 | 66 KV KUTHALA | 283.35 | 34.64 | |
| 25 | 66 KV BANBOURA | 283.35 | 34.64 | |
| 26 | Bhasaur | 282.42 | 34.53 | |
| 27 | 66 KV Purkhali | 279.00 | 34.11 | |
| 28 | 66KV NABHA NEW | 278.86 | 34.09 | |

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|----|--------------------------|--------|-------|--|
| 29 | 66KV LONGOWAL | 275.51 | 33.68 | |
| 30 | 66KV SAMUNDGARH | 269.56 | 32.96 | |
| 31 | 66 KV Mohi Kalan | 269.00 | 32.89 | |
| 32 | 66 KV Haripur Kura | 268.00 | 32.77 | |
| 33 | 66 KV Derri | 265.00 | 32.40 | |
| 34 | 66KV MANGWAL | 260.27 | 31.82 | |
| 35 | PHASE-1 | 260.00 | 31.79 | |
| 36 | Baran | 260.00 | 31.79 | |
| 37 | 66 KV PAKHON | 258.83 | 31.65 | |
| 38 | 66 KV MANVI | 253.81 | 31.03 | |
| 39 | 66KV SUNAM | 253.76 | 31.03 | |
| 40 | 66KV BHALWAN | 253.22 | 30.96 | |
| 41 | 66 KV CHANNANWAL | 251.95 | 30.80 | |
| 42 | 66 KV DASONDA SINGH WALA | 251.95 | 30.80 | |
| 43 | 66KV NAGRA | 250.97 | 30.68 | |
| 44 | Kanjla | 250.84 | 30.67 | |
| 45 | Dakala | 250.00 | 30.57 | |
| 46 | 66KV UBHAWAL | 245.39 | 30.00 | |
| 47 | Samana | 243.00 | 29.71 | |
| 48 | 66 KV TALLEWAL | 242.94 | 29.70 | |
| 49 | 66 KV SEHNA | 242.94 | 29.70 | |
| 50 | 66 KV TALWANDI | 242.94 | 29.70 | |
| 51 | 66 KV SEHNA | 242.85 | 29.69 | |
| 52 | PHASE-7 | 240.00 | 29.34 | |
| 53 | Shergarh | 240.00 | 29.34 | |
| 54 | Noshehra | 240.00 | 29.34 | |
| 55 | 66 KV Mubarkpur | 239.00 | 29.22 | |
| 56 | 66 KV Ramgarh Bhudda | 237.00 | 28.98 | |
| 57 | 66KV HATHAN | 236.99 | 28.98 | |
| 58 | 66KV CHHAJLI | 234.52 | 28.67 | |
| 59 | 66KV KAPIAL | 233.08 | 28.50 | |
| 60 | 66 KV Majra | 233.00 | 28.49 | |
| 61 | 66 KV SUKHPURA | 230.30 | 28.16 | |
| 62 | KHAMANO | 230.00 | 28.12 | |
| 63 | 66 KV GUARA | 227.15 | 27.77 | |
| 64 | 66 KV MALERKOTLA | 227.15 | 27.77 | |
| 65 | GEHLEWL | 225.00 | 27.51 | |
| 66 | 66 KV KUP-KALAN | 223.43 | 27.32 | |
| 67 | 66 KV Nurpur Bedi | 223.00 | 27.26 | |
| 68 | Dhuri | 222.97 | 27.26 | |
| 69 | 66 KV Samgoli | 222.00 | 27.14 | |
| 70 | 66 KV Boormajra | 219.00 | 26.78 | |
| 71 | 66 KV CHEEMA JODHPUR | 217.58 | 26.60 | |
| 72 | GHUNGRALI | 215.00 | 26.29 | |
| 73 | 66 KV THULIWAL | 214.29 | 26.20 | |
| 74 | 66KV CHEEMA | 210.26 | 25.71 | |

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|-----|--------------------------|--------|-------|--|
| 75 | Shutrana | 210.00 | 25.68 | |
| 76 | FP Patiala | 210.00 | 25.68 | |
| 77 | Gurbaxpura | 209.03 | 25.56 | |
| 78 | 66 KV Alamgir | 202.00 | 24.70 | |
| 79 | NIS | 201.00 | 24.58 | |
| 80 | 66 KV LASOI | 200.67 | 24.53 | |
| 81 | BEHLOLPUR | 200.00 | 24.45 | |
| 82 | Arno | 200.00 | 24.45 | |
| 83 | Moonak | 200.00 | 24.45 | |
| 84 | Sarai banjara | 200.00 | 24.45 | |
| 85 | 66KV SOHIAN ROAD SANGRUR | 199.85 | 24.43 | |
| 86 | Badbar | 199.74 | 24.42 | |
| 87 | 66KV KANAKWAL | 199.38 | 24.38 | |
| 88 | karamgarh | 199.00 | 24.33 | |
| 89 | Ghanori kalan | 197.88 | 24.19 | |
| 90 | Joramajra | 197.00 | 24.09 | |
| 91 | Raidharana | 195.00 | 23.84 | |
| 92 | 66 KV Bhabat | 192.00 | 23.47 | |
| 93 | Benra | 184.41 | 22.55 | |
| 94 | Ghagga | 184.00 | 22.50 | |
| 95 | PHASE-9 | 180.00 | 22.01 | |
| 96 | Lehragaga | 180.00 | 22.01 | |
| 97 | Hassanpur | 176.00 | 21.52 | |
| 98 | Bhunerheri | 174.00 | 21.27 | |
| 99 | BHAINI SAHIB | 171.00 | 20.91 | |
| 100 | SUNNY ENCLAVE | 170.00 | 20.78 | |
| 101 | 66 KV Handesra | 170.00 | 20.78 | |
| 102 | 66KV MODEL TOWN (SHERON) | 169.64 | 20.74 | |
| 103 | 66 KV Nangal | 168.00 | 20.54 | |
| 104 | 66 KV Bajrur | 168.00 | 20.54 | |
| 105 | 66 KV Bhartghar | 168.00 | 20.54 | |
| 106 | 66 KV Teur | 168.00 | 20.54 | |
| 107 | 66 KV Khizrabad | 168.00 | 20.54 | |
| 108 | 66KV KHILLRIAN | 167.31 | 20.46 | |
| 109 | 66KV SATOJ | 167.31 | 20.46 | |
| 110 | Jhaloor | 166.30 | 20.33 | |
| 111 | Sailwala | 166.00 | 20.30 | |
| 112 | 66KV DHADRIAN | 165.27 | 20.21 | |
| 113 | SECTOR-68 | 165.00 | 20.17 | |
| 114 | 66KV LOHATBADDI | 164.90 | 20.16 | |
| 115 | Fatehmajri | 162.00 | 19.81 | |
| 116 | 66KV JAKHEPAL | 161.74 | 19.78 | |
| 117 | 66KV SHERON | 161.74 | 19.78 | |
| 118 | Kohrian | 161.00 | 19.68 | |
| 119 | SECTOR-88 | 160.00 | 19.56 | |
| 120 | Ladbanjara | 160.00 | 19.56 | |

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| 121 | 66 KV NODHARANI | 159.33 | 19.48 | |
| 122 | 66KV BAKHOPEER | 158.02 | 19.32 | |
| 123 | 66KV BHARO | 158.02 | 19.32 | |
| 124 | 66KV F.P NABHA | 158.02 | 19.32 | |
| 125 | 66KV BADRUKHAN | 158.02 | 19.32 | |
| 126 | Bhasmara | 155.50 | 19.01 | |
| 127 | Chaunth | 153.00 | 18.71 | |
| 128 | 66KV HERON KALAN | 152.25 | 18.61 | |
| 129 | Sanauri Adda | 151.00 | 18.46 | |
| 130 | SECTOR-71 | 150.00 | 18.34 | |
| 131 | 66KV NADAMPUR | 148.72 | 18.18 | |
| 132 | Thapar | 147.00 | 17.97 | |
| 133 | 66KV GEHLAN | 146.86 | 17.96 | |
| 134 | 66 KV Baltana | 145.00 | 17.73 | |
| 135 | Rajindra | 144.00 | 17.61 | |
| 136 | BAHERAMPUR BET | 141.00 | 17.24 | |
| 137 | GHARUAN | 140.00 | 17.12 | |
| 138 | PHASE-8B | 140.00 | 17.12 | |
| 139 | ANSAL | 140.00 | 17.12 | |
| 140 | Seonk | 140.00 | 17.12 | |
| 141 | 66 KV Nalhoti | 140.00 | 17.12 | |
| 142 | Karoda | 140.00 | 17.12 | |
| 143 | 66KV KANOI | 139.43 | 17.05 | |
| 144 | 66KV GUJJRAN | 139.43 | 17.05 | |
| 145 | 66 KV Jolla Khurd | 137.00 | 16.75 | |
| 146 | Munshiwala (Sihal) | 136.00 | 16.63 | |
| 147 | Banarasi | 135.00 | 16.51 | |
| 148 | Kheri | 134.71 | 16.47 | |
| 149 | 66 KV Shekpur Kalan | 134.00 | 16.38 | |
| 150 | Gajju Khera | 133.00 | 16.26 | |
| 151 | IT CITY | 130.00 | 15.89 | |
| 152 | Dyalgarh Jejian | 130.00 | 15.89 | |
| 153 | 66KV CHATTHA NANHERA | 129.94 | 15.89 | |
| 154 | Dharamgarh | 127.00 | 15.53 | |
| 155 | Loh Simbli | 125.00 | 15.28 | |
| 156 | 66KV KALOUDI | 124.00 | 15.16 | |
| 157 | Urban Estate | 122.60 | 14.99 | |
| 158 | Randhawa | 121.00 | 14.79 | |
| 159 | 66KV ACHAL | 120.13 | 14.69 | |
| 160 | MULLAPUR | 120.00 | 14.67 | |
| 161 | Bhattiwal | 120.00 | 14.67 | |
| 162 | Dugal | 120.00 | 14.67 | |
| 163 | Ghamoorghat | 120.00 | 14.67 | |
| 164 | Bhatal Kalan | 120.00 | 14.67 | |
| 165 | Khandebad | 120.00 | 14.67 | |
| 166 | Chottian | 120.00 | 14.67 | |

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|-----|------------------------|--------|-------|--|
| 167 | Balran | 120.00 | 14.67 | |
| 168 | Sekhuwas | 120.00 | 14.67 | |
| 169 | Gidriani | 120.00 | 14.67 | |
| 170 | Daska | 120.00 | 14.67 | |
| 171 | Ganduan | 120.00 | 14.67 | |
| 172 | Mandvi | 120.00 | 14.67 | |
| 173 | Hamirgarh | 120.00 | 14.67 | |
| 174 | Sarajpur | 120.00 | 14.67 | |
| 175 | 66KV LOHAKHERA | 118.60 | 14.50 | |
| 176 | 66KV BAKSIWALA | 118.60 | 14.50 | |
| 177 | Makror Sahib | 117.00 | 14.30 | |
| 178 | 66KV KULAR KHURAD | 116.19 | 14.21 | |
| 179 | 66 KVChandiala Soodan | 115.00 | 14.06 | |
| 180 | GILLCO VELLY | 110.00 | 13.45 | |
| 181 | Kularan | 105.00 | 12.84 | |
| 182 | 66KV DUGGAN | 102.24 | 12.50 | |
| 183 | MACHHIWARA | 100.00 | 12.23 | |
| 184 | Lang | 90.00 | 11.00 | |
| 185 | MORINDA | 80.00 | 9.78 | |
| 186 | 66 KV PACL | 74.00 | 9.05 | |
| 187 | 66KV BUS STAND SANGRUR | 67.85 | 8.30 | |
| 188 | Matoli | 24.00 | 2.93 | |

Total capacity for package no. 4 (DS South Zone, Patiala) is 5823.10 kW

Total estimated cost is Rs 291574263.20

| Package no. 5, DS Border zone, Amritsar | | | | |
|--|---|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under DS Border Zone, Amritsar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | S/D Model Town Near Bus Stand Batala | 850 | 103.68 | 9646113143 |
| 2 | S/D Dera baba nanak DERA BABA NANAK | 632.32 | 77.22 | 9646113120 |
| 3 | S/D Aliwal PSPCL Aliwal | 505.85 | 61.56 | 9646113122 |
| 4 | Kalanaur S/D Kalanaur | 454 | 55.08 | 9646125999 |
| 5 | SUB DIVISION CITY PATTI CUM SUVIDHA CENTRE PATTI NEAR 66 KV SUB STATION OLD KAIRON ROAD PATTI | 450 | 54.54 | 96461-13088 |
| 6 | PSPCL DIVISION GURDASPUR OPP CENTRAL JAIL | 442 | 54 | 9646113028 |
| 7 | S/D KSM KSM | 373 | 45.36 | 9646113121 |
| 8 | SDO CHOGAWAN AMRITSAR TO CHOGAWAN ROAD , NEAR CHOGAWAN ADDA , AMRITSAR | 300 | 36.18 | 9646113071 |
| 9 | PURANA SHALLA NEAR POLICE STATION PURANA SHALLA | 280 | 34.02 | 9646113101 |
| 10 | Ajnala Divn. 66KV Sub Station Ajnala | 280 | 34.02 | 96461-13135 |
| 11 | Ramdass Sub Divn. 66KV Sub Station Ramdass | 280 | 34.02 | 96461-13067 |
| 12 | SDO HARIKE PATTI ROAD | 276 | 33.48 | 9646113142 |
| 13 | SUVIDHA CENTRE GURDASPUR OPP CENTRAL JAIL | 265 | 32.4 | 9646113564 |
| 14 | SUB URBAN GURDASPUR OPP CENTRAL JAIL | 265 | 32.4 | 964613097 |
| 15 | Sub FGC Sub Divn. 220 KV Sub Station FGC | 250 | 30.24 | 96461-13066 |
| 16 | NJ Singh Distt Pathankot NJ Singh Distt Pathankot | 240 | 29.16 | 9646113778 |
| 17 | City Division Batala, Aliwal Road Batala 66 KV S/S Focal Point Batala | 228 | 27.54 | 9646113033 |
| 18 | Division Sub urban Batala 132 KV Colony | 228 | 27.54 | 9446113034 |
| 19 | Udhanwal S/D, Shri Hargobindpur Road 66 KV S/S Udhanwal | 205 | 24.84 | 9646113145 |
| 20 | Sub Division Dhar kalan Near forest rest house | 200 | 24.3 | 9646113779 |
| 21 | ADDL SE WEST DIVISION OPP OCM MILL KHANDWALA AMRITSAR | 200 | 24.3 | 9646113019 |
| 22 | S/D City FGC FatehGarh Chudian | 186 | 22.68 | 9646113065 |
| 23 | Majitha - 1 Majitha | 186 | 22.68 | 96461 25971 |
| 24 | Majitha - 2 Majitha | 186 | 22.68 | 96461 13062 |
| 25 | JAUAR CHATTRA DERA BABA NANAK ROAD | 185 | 22.14 | 9646113109 |
| 26 | Panjgarian S/D, Shri Hargobindpur Road 66 KV S/S Pangarian | 185 | 22.14 | 9646113144 |
| 27 | DIVISION XEN Office 66 KV S/S Beas | 180 | 21.6 | 96461-13025 |
| 28 | SDO focal Point Tarn Taran 66 KV S/Stn Focal Point T/Taran | 160 | 19.44 | 96461-13085 |
| 29 | Mirthal Distt Pathankot Near Mirthal Bus Stand | 150 | 17.82 | 9646113202 |
| 30 | SDO Mehta Chowk 66 KV S/S Mehata Chowk | 150 | 17.82 | 96461-13093 |
| 31 | SDO N/Pannuan 66 KV S/Stn N/Pannuan | 150 | 17.82 | 96461-25985 |
| 32 | CITY GURDASPUR OPP CITY THANA | 136 | 16.2 | 9646125995 |
| 33 | SDO Nagoke 66 KV S/S Nagoke | 130 | 15.66 | 96461-13092 |

| | | | | |
|----|--|-------|-------|-------------|
| 34 | SDO KHASA GT ROAD KHASA AMRITSAR | 125 | 15.12 | 9646126111 |
| 35 | SDO Chabhal 66 KV S/Stn Chabhal | 120 | 14.58 | 96461-13084 |
| 36 | SDO S.A.Khan 66 KV S/Stn S.A.Khan | 120 | 14.58 | 96461-13083 |
| 37 | SDO Fatehabad 66 KV S/Stn Fatehabad | 120 | 14.58 | 96461-13086 |
| 38 | SDO Manochal 66 KV S/Stn Manochal | 110 | 12.96 | 96461-13081 |
| 39 | Sujanpur, Near Bridge No. 5 Near Bridge No. 5 NH 1A | 100 | 11.88 | 9646113104 |
| 40 | SDO Gohalwar 66 KV S/Stn Gohalwar | 100 | 11.88 | 96461-13660 |
| 41 | SDO Sur Singh 66 KV S/Stn Sur Singh | 100 | 11.88 | 96461-13082 |
| 42 | SDO Khadoor Sahib 66 KV S/Stn Khadoor Sahib | 100 | 11.88 | 96461-13777 |
| 43 | SDO SARHALI SARHALI | 99 | 11.88 | 9646113151 |
| 44 | Suburban Division Amritsar | 92 | 10.8 | 96461 13017 |
| 45 | SDO KAIRON Near 66 KV SUB STATION KAIRON | 90 | 10.8 | 9646113141 |
| 46 | SUBURBAN CIRCLE KOTHI NO : 7 | 84 | 10.26 | 96461-13005 |
| 47 | Kathu Nangal Kathu Nangal | 74 | 8.64 | 96461 13063 |
| 48 | Sub Division Dinanagar Taragarh Morh Near SBI Dinanagar | 65 | 7.56 | 9646126031 |
| 49 | Suvidha Center, Gurdaspur Road Batala Near 66 KV S/S City Batala | 50 | 5.94 | 9646113118 |
| 50 | Complaint Center Balmik Chowk Jandiala Guru | 50 | 5.94 | 96461 13074 |
| 51 | SUBURBAN CIRCLE KOTHI NO : 2 | 42 | 4.86 | 96461-13005 |
| 52 | SUBURBAN CIRCLE KOTHI NO : 5 | 42 | 4.86 | 96461-13005 |
| 53 | DORANGLA GAHLARI ROAD NEAR DALA PETROL PUMP | 36 | 4.32 | 9646113150 |
| 54 | Udhoke Udhoke | 30 | 3.24 | 96461 13780 |
| 55 | PSPCL Division Qadian Division PSPCL Qadian/Sub Division Qadian | 16.65 | 1.62 | 9646113010 |

| Sr. No. | Address of grid sub station buildings under P&M Circle, PSPCL, Amritsar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
|---------|---|------------------------------|------------------------|--|
| 1 | 66 KV Dinanagar O&M Divn, Gurdaspur | 519 | 63.46 | |
| 2 | 66 KV Manochahal O&M Divn, Tarn Taran | 483 | 59.05 | |
| 3 | 66 KV Srail Amanat Khan O&M Divn, Tarn Taran | 467 | 57.10 | |
| 4 | 66 KV Brahmpura O&M Divn, Tarn Taran | 459 | 56.12 | |
| 5 | 66 KV Focal Point TarnTaran O&M Divn, Tarn Taran | 455 | 55.63 | |
| 6 | 66 KV Harchowal O&M Divn, Gurdaspur | 454 | 55.51 | |
| 7 | 66 KV Ranipur O&M Divn, Gurdaspur | 453 | 55.39 | |
| 8 | 66 KV Goindwal Sahib O&M Divn, Tarn Taran | 450 | 55.02 | |
| 9 | 66 KV Harsha Chinna O&M Divn-1, Amritsar | 444.6 | 54.36 | |
| 10 | 66 KV Ajnala O&M Divn-1, Amritsar | 406.5 | 49.70 | |
| 11 | 66 KV Sur Singh O&M Divn, Tarn Taran | 390 | 47.68 | |
| 12 | 66 KV Panj Gariyan O&M Divn, Gurdaspur | 384 | 46.95 | |
| 13 | 66 KV Chabal O&M Divn, Tarn Taran | 383 | 46.83 | |
| 14 | 66 KV Jhander O&M Divn-1, Amritsar | 367.5 | 44.93 | |
| 15 | 66 KV Sujanpur O&M Divn, Gurdaspur | 366 | 44.75 | |
| 16 | 66 KV Amarkot O&M Divn, Tarn Taran | 360 | 44.02 | |

| | | | | |
|----|---|--------|-------|--|
| 17 | 66 KV Sarhali O&M Divn, Tarn Taran | 357 | 43.65 | |
| 18 | 66 KV Ranjit Avenue O&M Divn-1, Amritsar | 350 | 42.79 | |
| 19 | 66 KV Aliwal O&M Divn, Gurdaspur | 344 | 42.06 | |
| 20 | 66 KV Kot Mohamand Khan O&M Divn, Tarn Taran | 342 | 41.81 | |
| 21 | 66 KV Qadian O&M Divn, Gurdaspur | 340 | 41.57 | |
| 22 | 66 KV Dehriwal O&M Divn, Gurdaspur | 336 | 41.08 | |
| 23 | 66 KV Kalanaur O&M Divn-II, Amritsar | 336 | 41.08 | |
| 24 | 66 KV Jaura Chhattran O&M Divn, Gurdaspur | 333 | 40.71 | |
| 25 | 66 KV Dyal Bharang O&M Divn-1, Amritsar | 329.04 | 40.23 | |
| 26 | 66 KV Mudhal O&M Divn-1, Amritsar | 322 | 39.37 | |
| 27 | 66 KV Gahlari O&M Divn, Gurdaspur | 318 | 38.88 | |
| 28 | 66 KV Kahnuwan O&M Divn, Gurdaspur | 316 | 38.64 | |
| 29 | 66 KV BEAS O&M Divn-II, Amritsar | 300 | 36.68 | |
| 30 | 66 KV Sathaila O&M Divn-II, Amritsar | 288 | 35.21 | |
| 31 | 66 KV Manawala O&M Divn-1, Amritsar | 284.66 | 34.80 | |
| 32 | 66 KV Tarsika O&M Divn-II, Amritsar | 280 | 34.23 | |
| 33 | 66 KV Boparai O&M Divn, Tarn Taran | 280 | 34.23 | |
| 34 | 66 KV Naushehra Pannuann O&M Divn, Tarn Taran | 278 | 33.99 | |
| 35 | 66 KV Dental College O&M Divn-1, Amritsar | 278 | 33.99 | |
| 36 | 66 KV Ghariyala O&M Divn, Tarn Taran | 277 | 33.87 | |
| 37 | 66 KV Dehriwal Pathankot O&M Divn, Gurdaspur | 276 | 33.74 | |
| 38 | 66 KV Lohka O&M Divn, Tarn Taran | 270 | 33.01 | |
| 39 | 66 KV Rajataal O&M Divn-1, Amritsar | 269.24 | 32.92 | |
| 40 | 66 KV Sabhran O&M Divn, Tarn Taran | 267 | 32.64 | |
| 41 | 66 KV Narli O&M Divn, Tarn Taran | 261 | 31.91 | |
| 42 | 66 KV Focal Point Batala O&M Divn, Gurdaspur | 260 | 31.79 | |
| 43 | 66 KV Rasulpur O&M Divn, Tarn Taran | 251 | 30.69 | |
| 44 | 66 KV Hall Gate O&M Divn-1, Amritsar | 251 | 30.67 | |
| 45 | 66 KV Toot O&M Divn, Tarn Taran | 250 | 30.57 | |
| 46 | 66 KV Kacha Pakka O&M Divn, Tarn Taran | 250 | 30.57 | |
| 47 | 66 KV Rajoa O&M Divn, Gurdaspur | 237 | 28.98 | |
| 48 | 66 KV Fatehbad O&M Divn, Tarn Taran | 236 | 28.85 | |
| 49 | 66 KV New Manwal O&M Divn, Gurdaspur | 233 | 28.49 | |
| 50 | 66 KV Kakkar O&M Divn-1, Amritsar | 232.07 | 28.37 | |
| 51 | 66 KV Nawapind O&M Divn-II, Amritsar | 232 | 28.37 | |
| 52 | 66 KV Dhadhe O&M Divn-II, Amritsar | 232 | 28.37 | |
| 53 | 66 KV Jhamka O&M Divn, Tarn Taran | 228 | 27.88 | |
| 54 | 66 KV Ramdas O&M Divn-1, Amritsar | 225 | 27.51 | |
| 55 | 66 KV Pandori Talibpur O&M Divn, Gurdaspur | 224 | 27.39 | |
| 56 | 66 KV Kala Afgana O&M Divn-II, Amritsar | 220 | 26.90 | |
| 57 | 66 KV Pringri O&M Divn, Tarn Taran | 220 | 26.90 | |
| 58 | 66 KV Kalsian O&M Divn, Tarn Taran | 215 | 26.29 | |
| 59 | 66 KV Focal Point ASR O&M Divn-1, Amritsar | 213 | 26.04 | |
| 60 | 66 KV Lakhna O&M Divn, Tarn Taran | 208 | 25.43 | |
| 61 | 66 KV Mehta Chowk O&M Divn-II, Amritsar | 207 | 25.31 | |
| 62 | 66 KV Veela Teja O&M Divn-II, Amritsar | 203 | 24.82 | |
| 63 | 66 KV Gobindsar O&M Divn, Gurdaspur | 200 | 24.45 | |
| 64 | 66 KV Ghuman O&M Divn, Gurdaspur | 198 | 24.21 | |

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|-----|---|--------|-------|--|
| 65 | 66 KV Gaggobhua O&M Divn, Tarn Taran | 196 | 23.96 | |
| 66 | 66 KV OCM O&M Divn-1, Amritsar | 195 | 23.85 | |
| 67 | 66 KV Dalla O&M Divn-1, Amritsar | 190 | 23.23 | |
| 68 | 66 KV Jagdev kalan O&M Divn-1, Amritsar | 187.26 | 22.90 | |
| 69 | 66 KV Mohleke O&M Divn-1, Amritsar | 186.53 | 22.81 | |
| 70 | 66 KV Bharath O&M Divn, Gurdaspur | 184 | 22.50 | |
| 71 | 66 KV Thatha O&M Divn-II, Amritsar | 184 | 22.50 | |
| 72 | 66 KV Bagga Kalan O&M Divn-1, Amritsar | 178.16 | 21.78 | |
| 73 | 66 KV Jaura Singha O&M Divn, Gurdaspur | 176 | 21.52 | |
| 74 | 66 KV Bhaini Mia Khan O&M Divn, Gurdaspur | 175 | 21.40 | |
| 75 | 66 KV Batala City O&M Divn, Gurdaspur | 174 | 21.27 | |
| 76 | 66 KV Kotli Washwa Singh O&M Divn, Tarn Taran | 174 | 21.27 | |
| 77 | 66 KV Islamabaad O&M Divn-1, Amritsar | 174 | 21.26 | |
| 78 | 66 KV Hoshiar Nagar O&M Divn-1, Amritsar | 172.29 | 21.06 | |
| 79 | 66 KV Jalalpura O&M Divn-II, Amritsar | 170 | 20.78 | |
| 80 | 66 KV Gawal Mandi O&M Divn-1, Amritsar | 170 | 20.78 | |
| 81 | 66 KV Civil Hospital Batala O&M Divn, Gurdaspur | 167 | 20.42 | |
| 82 | 66 KV Urban Estate GSP O&M Divn, Gurdaspur | 167 | 20.42 | |
| 83 | 66 KV Gande Ke Chone O&M Divn, Gurdaspur | 167 | 20.42 | |
| 84 | 66 KV Bani Lodhi O&M Divn, Gurdaspur | 165 | 20.17 | |
| 85 | 66 KV Lidhar O&M Divn-II, Amritsar | 164.65 | 20.13 | |
| 86 | 66 KV Shehzada Kalan O&M Divn-II, Amritsar | 163.76 | 20.02 | |
| 87 | 66 KV Bahmani O&M Divn, Gurdaspur | 163 | 19.93 | |
| 88 | 66 KV Wadala veerum O&M Divn-II, Amritsar | 157 | 19.20 | |
| 89 | 66 KV Gohalwarh O&M Divn, Tarn Taran | 156 | 19.07 | |
| 90 | 66 KV Shahpur Goraya O&M Divn-II, Amritsar | 153 | 18.71 | |
| 91 | 66 KV Harike O&M Divn, Tarn Taran | 153 | 18.71 | |
| 92 | 66 KV Wadala Bhattewad O&M Divn-1, Amritsar | 153 | 18.71 | |
| 93 | 66 KV Sohian Kalan O&M Divn-1, Amritsar | 150.5 | 18.40 | |
| 94 | 66 KV Kacheri Chowk O&M Divn-1, Amritsar | 150 | 18.34 | |
| 95 | 66 KV Mattewal O&M Divn-II, Amritsar | 148.75 | 18.19 | |
| 96 | 66 KV Bura Kreempura O&M Divn, Tarn Taran | 148 | 18.10 | |
| 97 | 66 KV Nag Kalan O&M Divn-II, Amritsar | 147.4 | 18.02 | |
| 98 | 66 KV Said-Mubarak O&M Divn, Gurdaspur | 146 | 17.85 | |
| 99 | 66 KV Gharota O&M Divn, Gurdaspur | 145 | 17.73 | |
| 100 | 66 KV Bhangali Kalan O&M Divn-II, Amritsar | 144 | 17.61 | |
| 101 | 66 KV N. Majha Singh O&M Divn, Gurdaspur | 143 | 17.48 | |
| 102 | 66 KV Golden Temple O&M Divn-1, Amritsar | 143 | 17.45 | |
| 103 | 66 KV Saidpur O&M Divn-II, Amritsar | 142.5 | 17.42 | |
| 104 | 66 KV Deo-Bath O&M Divn, Tarn Taran | 140 | 17.12 | |
| 105 | 66 KV Rangar Nangal O&M Divn, Gurdaspur | 136 | 16.63 | |
| 106 | 66 KV Butala O&M Divn-II, Amritsar | 136 | 16.63 | |
| 107 | 66 KV Shahpur Jajan O&M Divn-II, Amritsar | 135 | 16.51 | |
| 108 | 66 KV Gandiwind O&M Divn, Tarn Taran | 135 | 16.51 | |
| 109 | 66 KV Guruwali O&M Divn-1, Amritsar | 134 | 16.36 | |
| 110 | 66 KV Dhar O&M Divn, Gurdaspur | 133 | 16.26 | |
| 111 | 66 KV Buchenangal O&M Divn, Gurdaspur | 127 | 15.53 | |
| 112 | 66 KV Bijliwal O&M Divn, Gurdaspur | 126 | 15.41 | |

| | | | | |
|-----|---|--------|-------|--|
| 113 | 66 KV Gagomahal O&M Divn-1, Amritsar | 125 | 15.28 | |
| 114 | 66 KV Patti O&M Divn, Tarn Taran | 123 | 15.04 | |
| 115 | 66 KV Dubli O&M Divn, Tarn Taran | 120 | 14.67 | |
| 116 | 66 KV Udhanwal O&M Divn, Gurdaspur | 119 | 14.55 | |
| 117 | 66 KV Taragarh O&M Divn, Gurdaspur | 114 | 13.94 | |
| 118 | 66 KV Manwal O&M Divn, Gurdaspur | 113 | 13.82 | |
| 119 | 66 KV Chak Dogra O&M Divn-1, Amritsar | 112.56 | 13.76 | |
| 120 | 66 KV Baserke Gilan O&M Divn-1, Amritsar | 102.33 | 12.51 | |
| 121 | 66 KV Sangna O&M Divn-1, Amritsar | 100 | 12.24 | |
| 122 | 66 KV Chahal kalan O&M Divn, Gurdaspur | 98 | 11.98 | |
| 123 | 66 KV Improvement Trust Gurdaspur O&M Divn, Gurdaspur | 90 | 11.00 | |
| 124 | 66 KV Bandala O&M Divn-1, Amritsar | 15.5 | 1.90 | |

| Sr. No. | Address of Hydel Project buildings under DS Border, zone , Amritsar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
|---------|---|------------------------------|------------------------|--|
| 1 | Power house no. 1 stage 1 UBDC Project Malikpur (Madhopur, Pathankot) | 802 | 97.74 | |
| 2 | Power house no. 2 stage 1 UBDC Project Malikpur (Sujanpur, Pathankot) | 802 | 97.74 | |
| 6 | Power house no. 3 stage 1 UBDC Project Malikpur (Sarna, Pathankot) | 324 | 39.42 | |
| 9 | Power house no. 3 stage 2 UBDC Project Malikpur (Sarna, Pathankot) | 258 | 31.32 | |
| 10 | Power house no. 1 stage 2 UBDC Project Malikpur (Madhopur, Pathankot) | 255 | 30.78 | |
| 11 | Power house no. 2 stage 2 UBDC Project Malikpur (Sujanpur, Pathankot) | 234 | 28.08 | |

Total capacity for package no. 5 (DS Border zone, Amritsar) is 5141.11 kW

Total estimated amount is Rs 257425659.92

| Package no. 6, GHTP, Lehra Mohabat | | | | |
|---|--|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under GHTP Lehra Mohabat | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | Station Building Stage-I & II | 9720 | 1188 | |
| 2 | Electrical Workshop and Mechanical Workshop | 3526 | 430.92 | |
| 3 | Office Block (5 nos) | 2500 | 305.64 | |
| 4 | School Building | 1394 | 170.1 | |
| 5 | Service Building | 1360 | 165.78 | |
| 6 | AHP Control Room Stage-I | 1123 | 136.62 | |
| 7 | 220 kV Control Room | 1025 | 125.28 | |
| 8 | Field Hostel (Rooms and Reception) | 938 | 114.48 | |
| 9 | CW PUMP HOUSE STAGE-I | 920 | 112.32 | |
| 10 | CHP Control Room | 872 | 106.38 | |
| 11 | ___ Rest House | 800 | 97.74 | |
| 12 | Loco Shed | 695 | 84.78 | |
| 13 | AHP Control Room Stage-II | 686 | 83.7 | |
| 14 | CW PUMP HOUSE STAGE-II | 668 | 81 | |
| 15 | AHP Control Room Stage-I | 641 | 77.76 | |
| 16 | FODPH631 | 631 | 76.68 | |
| 17 | Buldozer Shed | 628 | 76.14 | |
| 18 | PAP Barracks | 575 | 70.2 | |
| 19 | Officers' Club | 576 | 70.2 | |
| 20 | Admin Block | 565 | 68.58 | |
| 21 | Car Parking 2 nos. (near O.B. 1 & 4) | 545 | 66.42 | |
| 22 | Community Centre | 540 | 65.88 | |
| 23 | AHP Control Room Stage-II | 534 | 64.8 | |
| 24 | MCC-III | 464 | 56.16 | |
| 25 | TXR Building | 317 | 38.34 | |
| 26 | Car Parking Near Admin Block | 275 | 33.48 | |
| 27 | Ash Recovery Building Stage-I | 271 | 32.94 | |
| 28 | Coal Sampling Room | 268 | 32.4 | |
| 29 | MCC-IV | 247 | 29.7 | |
| 30 | Ash Recovery Building Stage-II | 113 | 13.5 | |

Total capacity in kW for package no. 6 (GHTP, Lehra Mohabat) is 4075.92 kW

Total estimated amount is Rs 204089466.24

| Package no. 7, GGSSTP, Ropar | | | | |
|-------------------------------------|---|-------------------------------------|-------------------------------|---|
| Sr. No. | Name and address of building under GGSSTP, Ropar | Rooftop area (Square meters) | Proposed capacity (kW) | Mobile no. of concerned officer/ remarks |
| 1 | 220 KV | 1066 | 130.14 | |
| 2 | CWPH II | 902 | 110.16 | |
| 3 | CWPH III | 902 | 110.16 | |
| 4 | DM III | 880 | 107.46 | |
| 5 | FIRE BID | 855 | 104.22 | |
| 6 | CANTEEN | 520 | 63.18 | |
| 7 | SG III | 440 | 53.46 | |
| 8 | SG II | 357 | 43.2 | |
| 9 | DG SET II | 275 | 33.48 | |
| 10 | DG SET III | 275 | 33.48 | |

Total capacity for Package no. 7 (GGSSTP, Ropar) is 788.94 kW

Total estimated amount is Rs 39503803.68

Price Schedule of all (7 nos.) packages

Price schedule Format-Package-1, DS North zone Jalandhar (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|-------------------------|-------------------------|--|---|--|--|--|--|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | Price schedule | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW in words) |
| Package-1 | DS North zone Jalandhar | 5112.84 | 256010124.48 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-2, DS West zone Bathinda (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|-----------------------|-------------------------|--|---|--|--|--|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-2 | DS West zone Bathinda | 7409.72 | 371019499.84 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-3, DS Centre Zone Ludhiana (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|-------------------------|-------------------------|--|---|--|--|--|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-3 | DS Centre Zone Ludhiana | 3018.73 | 151153848.56 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-4, DS South zone Patiala (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|-----------------------|-------------------------|--|---|--|--|---|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC) | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-4 | DS South zone Patiala | 5823.10 | 291574263.20 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-5, DS Border Zone Amritsar (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|-------------------------|-------------------------|--|---|--|--|---|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC) | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-5 | DS Border Zone Amritsar | 5141.11 | 257425659.92 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-6, GHTP Lehra Mohabat (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|---------------------|-------------------------|--|---|--|--|---|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC) | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-6 | GHTP Lehra Mohabat | 4075.92 | 204089466.24 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

Price schedule Format-Package-7, GGSSTP, Ropar (To be submitted online only)

| Tender inviting authority: Superintending Engineer/ IPC, PSPCL, Patiala | | | | | | | | |
|---|---------------------|-------------------------|--|---|--|--|---|---|
| Name of work: Site Survey, Design, Supply, Installation, Testing, Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems of various capacities at various office buildings, 66 kV grid sub-stations, hydel projects and thermal projects of PSPCL at different locations under 7 no. packages, under CAPEX Model. | | | | | | | | |
| Contract number: Tender Enquiry no.: 49/RTS/IPC/2023-24 | | | | | | | | |
| Name of the bidder/ Bidding Firm/ Company: | | | | | | | | |
| Price schedule | | | | | | | | |
| Text# | Text# | Number | Number | Number | Number | Number | Number | Text# |
| Package Number | Name of the Package | Tentative capacity (kW) | Total estimated amount in Rs. (Inclusive of GST) | Per kW rate for Supply/Material Part (Rs/kW): <i>For providing the Ex Works-supply, material including mandatory spares and any other supplies specified in the Tender Documents inclusive of packing & forwarding charges, Goods & services tax under the scope of Supply.</i> | Per kW rate for Service/labour Part (Rs/kW): <i>For all services i.e., Storage, Handling at Site, freight and insurance, insurance at site, Civil Works, Design, engineering, Erection, Installation, Testing and Commissioning including Performance Testing in respect of all the Equipment's supplied and/or erected under the scope of Supply and any other services specified in the Contract Documents</i> | Per kW rate (Rs/kW) for providing Comprehensive annual maintenance of the Solar PV plant for Five (5) years from the date of Operational Acceptance (Serial no. 3 above), as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc. | TOTAL Rate (Rs/kW) quoted by the bidder: (Supply + Service + Comprehensive AMC) | TOTAL Rate quoted by the bidder: (Supply + Service + Comprehensive AMC) (Rs/kW, in words) |
| Package-7 | GGSSTP, Ropar | 788.94 | 39503803.68 | | | | | |
| Lumpsum amount in Rs (shall be calculate multiplying the rate per kW quoted by the bidder and tentative capacity.) | | | | | | | | |
| Lumpsum amount in words | | | | | | | | |

SECTION IV

FORMATS FOR SUBMITTING RFS & CHECKLIST

Format-1**Index of Documents-cum-Check list**

RFS No.49/IPC/RTS/2023-24 dated 13.02.2024 by PSPCL

Package name:.....

The bidders are required to submit the following documents in Offline (in Originals) and Online Modes (at State e-procurement Portal <https://eproc.punjab.gov.in>) during Technical Bid Submission. The Bidder shall upload technical bid containing the scanned copy of all the following documents in single .pdf format duly signed and stamped on each page by the authorized person during Online Bid-Submission. Also, all these documents should be submitted offline in a Sealed Envelope, failing which the technical bids will not be opened. The documents should be in the same sequence as given below, mentioning page number of documents in the Index.

| S. No. | Documents Details | Attac hed (Yes/ No) | Pa ge no. |
|---------------|---|--|--------------------------|
| 1. | Covering letter Format-2. | | |
| 2. | General Particulars as per Format-3. | | |
| 3. | Receipt of online payment against tender document fee and EMD as per bid information sheet. | | |
| 4. | Original Power of Attorney supplemented with Board resolutions (as per Format-4). | | |
| 5. | Financial eligibility criterion (as per Format -5). | | |
| 6. | Certificate for certificate of relationship of Parent Company or Affiliate with the Bidding Company (as per Format -6), if required. | | |
| 7. | Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company (as per Format -7), if required. | | |
| 8. | Original copy of the Consortium Agreement, if any (as per Format-8). | | |
| 9. | Share Holding certificate (Format -9). | | |
| 10. | Scanned copies of commissioning certificates for on grid solar rooftops projects from any Govt organization/ undertaking, PSU/ Discom (Govt or Private), SNA. | | |
| 11. | PAN, GST Registration and GST clearance certificate. | | |
| 12. | Certificate of incorporation and updated Memorandum of Association (MoA). | | |
| 13. | Declaration on bidder's Letterhead for Non blacklisting | | |

| | | | |
|-------|---|--|--|
| | from any Government Departments/ Public Sector Units (PSUs) / Distribution Companies etc (Format-10). | | |
| 14. | No Deviation Certificate (Format-11). | | |
| 15. * | Any other document required as per tender specification. | | |

**Important Note: The above checklist is indicative only, bidders should upload/attach all the documents as per tender specification.*

Signature and stamp

Format-2

Covering Letter

(The covering letter should be on the Letter Head of the Bidding Company)

Ref. No. _____

Date:

From: _____ *(Insert name and address of Bidding Company)*

Tel.#: Fax#:

E-mail address#

To,

Superintending Engineer,
Investment promotion Cell,
Shed no.T-8, Shakti Vihar,
Thermal Design Complex,
PSPCL, Patiala.

Sub: Bid for Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Maintenance of Roof Top Solar PV Power Systems against RFS No.49/IPC/RTS/2023-24 dated 13.02.2024
Package name.....

Dear Sir,

1. We, the undersigned....*[insert name of the 'Bidder']* having read, examined and understood in detail the RFS no.for subject cited projects, hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid RFS.
2. We give our unconditional acceptance to the RFS no. and RFS Documents attached thereto, issued by Punjab State Power Corporation Limited, as amended. As a token of our acceptance to the RFS documents, No Deviation Certificate has been enclosed with the bid. We shall ensure that we execute such RFS as per the provisions of the RFS and provisions of such RFS Documents shall be binding on us.
3. Tender Document fee and EMD details:
4. We have submitted our Price Bid strictly as per Section III of this RFS, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s) and our bid shall remain valid for 120 days from the last date of bid submission.

5. Acceptance:

We hereby unconditionally and irrevocably agree and accept that the decision made by Punjab State Power Corporation Limited in respect of any matter regarding or arising out of the RFS shall be binding on us. We hereby expressly waive any and all claims

in respect of Bid process.

We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regards to execution of projects of capacity offered by us.

6. Familiarity with Relevant Indian Laws & Regulations

We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this Bid and execute the RFS Documents, in the event of our selection as successful bidder. We further undertake and agree that all such factors as mentioned in RFS have been fully examined and considered while submitting the Bid.

7. Contact Person

Details of the contact person are furnished as under:

Name :

Address :

Phone Nos. :

Fax No. :

E-Mail :

- 8. We are enclosing herewith the Envelope containing Index, covering letter, tender document fee and EMD etc., as per **clause No. 10.4 of Section-I** of the RFS and Techno-Commercial documents through offline and online, and Price Bids (through online only) containing duly signed formats, each one duly sealed separately, in one original as desired by you in the RFS for your consideration.

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFS and subsequent communications from Punjab State Power Corporation Limited. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFS and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period as specified in the RFS. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the day of,

Yours faithfully,

Signature:

Name:

Designation with Seal

Name, Designation and Signature of Authorized Person in whose name Power of Attorney/Board Resolution/Declaration.

Format-3**General Particulars of the bidder**

(RFS No.49/IPC/RTS/2023-24 dated 13.02.2024 by PSPCL)

Package number and package Name:.....

| S. No. | Particulars | Details |
|---------------|---|----------------|
| 1. | Name of the Company | |
| 2. | Registered Office Address | |
| 3. | E-mail ID | |
| 4. | Web site | |
| 5. | Authorized Contact Person(s) with name, designation Address and Mobile Phone No., E- mail address/ Fax No. to whom all references shall be made | |
| 6. | Year of Incorporation | |
| 7. | Have the bidder/Company ever been debarred by any Govt. Dept. / Undertaking for undertaking any work | |
| 8. | Reference of any document information attached by the Bidder other than specified in the RFS. | |
| 9. | Details of the Ownership structure (Details of persons owning 10% or more of the Total Paid up equity of the Bidding Company in the Format as below | Yes/No |
| 10. | Whether the Company has valid GST Registration Number (Enclose a Copy) | |
| 11. | PAN number (enclosed a copy) | |
| 12. | Bank Account Details | |

Please strike-off whichever is not applicable.

Signature:**Name:****Designation with Seal:**

Format-4

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

(a) 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 in response to the RFS No. dated issued by Punjab State Power Corporation Limited, 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 Punjab State Power Corporation Limited may require us to submit. The aforesaid attorney is further authorized for making representations to the Punjab State Power Corporation Limited, and providing information / responses to Punjab State Power Corporation Limited, representing us in all matters before Punjab State Power Corporation Limited and generally dealing with Punjab State Power Corporation Limited in all matters in connection with Bid till the completion of the bidding process as per the terms of the above-mentioned RFS.

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 RFS.

Signed by the within named

..... (Insert the name of the executant’s company) through the hand of

Mr.

duly authorized by the Board 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.....

Witness:

| | |
|--|---|
| b) Signature Designation Name and Address | c) Signature Designation Name and Address |
|--|---|

Notes:

- i. 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 executant 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.
- ii. The person authorized under this Power of Attorney, in the case of the Bidding Company / Lead Member being a public company, or a private company which is a subsidiary of a public company, in terms of the Companies Act, 1956, with a paid-up share capital of more than Rupees Five crores, should be the Managing Director / whole time director/manager appointed under section 269 of the Companies Act, 1956. In all other cases the person authorized should be a director duly authorized by a board resolution duly passed by the Company.
- iii. Also, wherever required, the executant(s) should submit for verification the extract of the chartered documents and documents such as a Board resolution/ power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

Format -5**FINANCIAL ELIGIBILITY CRITERIA REQUIREMENT****(AS PER CLAUSE 5.5 of Section-I)***(To be submitted on the letterhead of Bidding Company)*

To,

Superintending Engineer,
Investment promotion Cell,
Shed no.T-8, Shakti Vihar,
Thermal Design Complex,
PSPCL, Patiala.

Sub: Bid for Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Operation and Maintenance of Roof Top Solar PV Power Systems against RFS No.49/IPC/RTS/2023-24 dated 13.02.2024

Package name:.....

Dear Sir,

We submit our Bid for the subject cited tender for which details of our Financial Eligibility Criteria Requirements are as follows.

We certify that the Financially Evaluated Entity(ies) had an Annual Turnover as follows:
The Annual turnover of ...*[Insert the amount]* per kW of the capacity offered in its Bid in any one of the last 3 financial years preceding the bid deadline subjected to the condition that the bidder should at least have completed one financial year.

OR

Net worth (strike out whichever is not applicable) of Rs.....Crore computed as per instructions provided in **Clause 5.5** of this RFS based on unconsolidated audited annual accounts (refer Note below) any of the last 3 Years immediately preceding the Bid Deadline.

| Name of Financially Evaluated Entity* | Relationship with Bidding Company* | Financial year | Year of Incorporation | Annual Turnover (Rs. Crore) | Net worth as per Clause 5.5 (in Rs. Crore) |
|---------------------------------------|------------------------------------|----------------|-----------------------|-----------------------------|---|
| | | | | | |

* The Financially Evaluated Entity may be the Bidding Company itself.

** The column for "Relationship with Bidding Company" is to be filled in only in case financial capability of Parent Company and/or Affiliate has been used for meeting Qualification Requirements.

Yours faithfully

(Signature and stamp (on each page) of Authorized Signatory of Bidding Company.

Name:
Date:
Place:

(Signature and stamp (on each page) of Chartered Accountant/Statutory Auditors of Bidding Company.

Name:
Date:
Place:

Notes:

- i. Audited consolidated annual accounts of the Bidder may also be used for the purpose of financial criteria provided the Bidder has at least 26% equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.*

Format-6**Format for certificate of relationship of Parent Company or Affiliate with the Bidding Company.**

To,

Superintending Engineer,
Investment promotion Cell,
Shed no.T-8, Shakti Vihar,
Thermal Design Complex,
PSPCL, Patiala.

Sub: Bid for Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Operation and Maintenance of Roof Top Solar PV Power Systems against RFS No.49/IPC/RTS/2023-24 dated 13.02.2024, Package name:.....

Dear Sir,

We hereby certify that M/s.....,M/s.....,M/s.....are the Affiliate(s) /Parent Company of the Bidding Company as per the definition of Affiliate/Parent Company as provided in this RFS and based on details of equity holding as on seven (7) days prior to the Bid Deadline.

The details of equity holding of the Affiliate/Parent Company/Bidding Company or vice versa as on seven (7) days prior to the Bid Deadline are given as below:

| Name of Bidding Company | Name of the Affiliate of the Bidding Company/ Name of the Parent Company of the Bidding Company | Name of the Company having common control on the Affiliate and the Bidding Company | Percentage of Equity Holding of Parent Company in the Bidding Company |
|-------------------------|---|--|---|
| | | | |

*Strike out whichever is not applicable.

.....

(Insert Name and Signature of Statutory Auditor or practicing Company Secretary of the Bidder)

Format-7

**Undertaking from the Financially Evaluated Entity or its Parent Company/
Ultimate Parent Company**

*(On the Letter Head of the Financially Evaluated Entity or its Parent
Company/Ultimate Parent Company)*

Name:

Full Address:

Telephone No.:

E-mail

address:

Fax/No.:

To,

Superintending Engineer,
Investment promotion Cell,
Shed no.T-8, Shakti Vihar,
Thermal Design Complex,
PSPCL, Patiala.

Dear Sir,

We refer to the RFS No.48/IPC/RTS/2023-24 dated 13.02.2024, Package name:..... for Roof Top Solar project”.

“We have carefully read and examined in detail the RFS, including in particular, Clause Of the RFS, regarding submission of an undertaking, as per the prescribed Format at Annexure..... Of the RFS.

We confirm that M/s..... (Insert name of Bidding Company/) has been authorized by us to use our financial capability for meeting the Financial Eligibility as specified in Clause.... Of the RFS referred to above.

We have attached hereto certified true copy of the Board Resolution Whereby the Board of Directors of our Company has approved issue of this Undertaking by the Company.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the RFS.

Signature of Authorized Signatory

Common seal of Has been affixed in my/our presence pursuant to Board of Director's Resolution dated.....

WITNESS

..... (Signature)

Name.....

Designation.....

(Signature).....

Name.....

Designation.....

Format-8**CONSORTIUM AGREEMENT**

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution)

THIS Consortium Agreement (“Agreement”) executed on this ____ day of ____ between M/s [insert name of Lead Member] ____ a Firm / Company incorporated under the laws of ____ and having its Registered Office at ____ (hereinafter called the “Lead Member”, which expression shall include its successors, executors and permitted assigns) And M/s ____ a Firm / Company incorporated under the laws of ____ and having its Registered Office at ____ (hereinafter called the “Technical Member”, which expression shall include its successors, executors and permitted assigns), which expression shall include its successors, executors and permitted assigns) WHEREAS, each Member individually shall be referred to as the “Member” and both the Members shall be collectively referred to as the “Members” in this Agreement.

WHEREAS the Superintending Engineer, Investment promotion Cell, Shed no.T-8, Shakti Vihar, Thermal Design Complex, PSPCL, Patiala (hereinafter called Punjab State Power Corporation Limited, Company incorporated under the Company’s Act, 1956 has invited response to RFS No. Number and dated ____ for Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Operation and Maintenance of Roof Top Solar PV Power Systems.

WHEREAS the RFS documents stipulates that the Lead Member may enter into a Technical Consortium Agreement with another Company / Corporate entity to fulfil the Technical Eligibility Criteria as stipulated in the RFS document. The Members of the Bidding Consortium will have to submit a legally enforceable Consortium Agreement in a format enclosed with the RFS document.

NOW THEREFORE, THIS AGREEMENT WITNESSTH AS UNDER:

In consideration of the above premises and agreements all the Members in this Consortium do hereby mutually agree as follows:

1. We, the Members of the Consortium and Members to the Agreement do hereby unequivocally agree that (M/s_____), shall act as the Lead Member as defined in the RFS for self and agent for and on behalf of Technical Member _____.
2. The Lead Member is hereby authorized by the Technical Member of the Consortium to bind the Consortium and receive instructions for and on their behalf.
3. The Lead Member shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging

all of their respective obligations. Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.

4. Subject to the terms of this Agreement, the technical member shall be responsible for providing technical knowledge for installation and commissioning of Grid connected Roof Top Solar System.
5. In case of any breach of any commitment by any of the Consortium Members, the Lead Member shall be liable for the consequences thereof.
6. This Agreement shall be construed and interpreted in accordance with the Laws of India and courts at Punjab alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.
7. It is hereby further agreed that in case of being shortlisted, the Members do hereby agree that they shall abide by the terms & conditions of the RFS document.
8. It is further expressly agreed that this Agreement shall be irrevocable and shall form an integral part of the RFS submitted to Punjab State Power Corporation Limited and shall remain valid till completion of the job assigned to the Contractor.
9. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to RFS.
10. It is hereby expressly understood between the Members that no Member at any given point of time, may assign or delegate its rights, duties or obligations under this agreement without the explicit permission of Punjab State Power Corporation Limited.
11. This Agreement:
 - d) Has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each such Member;
 - e) Sets forth the entire understanding of the Members hereto with respect to the subject matter hereof; and
 - f) May not be amended or modified except in writing signed by each of the Members and with prior written consent of Punjab State Power Corporation Limited.

IN WITNESS WHEREOF, the Members have, through their authorized representatives, executed these presents on the Day, Month and Year first mentioned above.

For M/s----- [Lead Member] -----

(Signature, Name & Designation of the person authorized vide Board Resolution Dated)

Witnesses:

1) Signature----- 2) Signature -----

Name: Name:

Address: Address:

For M/s----- [Technical Member]

(Signature, Name & Designation of the person authorized vide Board Resolution

Dated

Witnesses:

1) Signature----- 2) Signature -----

Name: Name:

Address: Address:

Format-9**(Shareholding Certificate)**

| Name of the Equity holder | Type and Number of shares owned | % Of equity holding | Extent of Voting rights |
|---------------------------|---------------------------------|---------------------|-------------------------|
| | | | |
| | | | |
| | | | |

(Signature of Authorized Signatory) With Stamp

(Signature of Company Secretary/Director/Chartered Accountant)

Format-10

**Declaration on bidder's Letterhead for Non blacklisting from any Government
Departments/ Public Sector Units (PSUs) / Distribution Companies etc.**

To

Superintending Engineer (IPC)
Punjab State Power Corp Ltd.
T-8, Thermal Designs, Shakti
Vihar
PSPCL, Patiala-147001

Tel No. 0175-2921547
Email: rts-ipc@pspcl.in

Sub: Declaration for Non blacklisting from any Government Departments/ Public Sector Units (PSUs) / Distribution Companies etc.

Ref: RFS No.49/IPC/RTS/2023-24 dated 13.02.2024 Package name:.....

Dear Sir,

We hereby confirm and declare that we, M/s -----, is not blacklisted/ De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.

For -----

Authorized Signatory

Date:

Format-11**No Deviation Certificate**

[On Stamp Paper of appropriate value as per Stamp Act relevant to place of execution, duly notarized]

To

Superintending Engineer/Investment Promotion Cell
 Punjab State Power Corp. Ltd.
 Thermal Designs, T-8,
 Shakti Vihar, PSPCL, Patiala-147001
 Tel: +91 9646123210,
 Email: rts-ipc@pspcl.in

Sub: **Bid for** Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Operation and Maintenance of Roof Top Solar PV Power Systems against RFS No.49/IPC/RTS/2023-24 dated 13.02.2024, Package name:.....

Dear Sir/Madam,

With reference to above, this is to confirm that, we have read and understood the provisions of tender document along with its subsequent Amendment(s) /Clarification(s)/Corrigenda and further confirm that our Bids (i.e. both Technical Bid and Financial Bid) are strictly in conformity with the provisions of the tender Document including its Amendments /Clarifications/Corrigenda thereof and we have not taken any deviation from tender document clauses. We agree to all the terms and conditions of the tender and tender Documents and its corrigenda, if any. We hereby convey our unqualified acceptance to the terms and conditions as stipulated in the tender and its corrigenda, if any.

We confirm that in the event of observance of any deviation/variation/additional conditions to the provisions of tender Document read with its Amendment(s)/Clarification(s)/ Corrigenda in any part of our offer at a later date, whether implicit or explicit, the deviations shall stand null and void without any cost implication whatsoever to the PSPCL, failing which the EMD be forfeited.

Further, we agree that the entire work for Site Survey, Design, Supply, Installation, Testing and Commissioning including Warranty and 5 years of Comprehensive Operation and Maintenance of Roof Top Solar PV Power Systems shall be performed as per the provisions of tender document including Technical specifications.

We hereby confirm that our Technical Bid does not contain any Financial/Price content entry. However, if anything is contained, we shall be solely responsible for any implication. Further, we confirm that our Financial Bid does not contain any matter in respect of Technical and / or Commercial aspects other than the details specifically sought in the Financial Bid.

Thanking you,

Yours faithfully,

Place: (Name of authorized representative of the
bidder)
Date: (Signature and
Seal)

SECTION V
ANNEXURES

Annexure A

Rooftop Structure Drawing

Attached separately

Annexure B**Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants**

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

| Solar PV Modules/Panels | |
|-------------------------------------|--|
| IEC 61215/ IS 14286 | Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules |
| IEC 61701 | Salt Mist Corrosion Testing of Photovoltaic (PV) Modules |
| IEC 61853- Part 1/ IS 16170: Part 1 | Photovoltaic (PV) module performance testing and energy rating: Irradiance and temperature performance measurements, and power rating |
| IEC 62716 | Photovoltaic (PV) Modules – Ammonia (NH ₃) Corrosion Testing (As per the site condition like dairies, toilets) |
| IEC 61730-1,2 | Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing |
| IEC 62804 | Photovoltaic (PV) modules – Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC) |
| IEC 62759-1 | Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units |
| Solar PV Inverters | |
| IEC 62109-1, IEC 62109-2 | Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting) |

| | |
|---|--|
| IEC/IS 61683 (As applicable) | Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions) |
| BS EN 50530 (As applicable) | Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered. |
| IEC 62116/ UL 1741/ IEEE 1547 (as applicable) | Utility-interconnected Photovoltaic Inverters – Test Procedure of Islanding Prevention Measures |
| IEC 60255-27 | Measuring relays and protection equipment – Part 27: Product safety requirements |
| IEC 60068-2 (1, 2, 14, 27, 30 & 64) | Environmental Testing of PV System – Power Conditioners and Inverters a) IEC 60068-2-1: Environmental testing – Part 2-1: Tests – Test A: Cold b) IEC 60068-2-2: Environmental testing – Part 2-2: Tests – Test B: Dry heat c) IEC 60068-2-14: Environmental testing – Part 2-14: Tests – Test N: Change of temperature d) IEC 60068-2-27: Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock e) IEC 60068-2-30: Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle) f) IEC 60068-2-64: Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance |
| IEC 61000 – 2,3,5 (As applicable) | Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PV Inverters |
| Fuse | |

| | |
|---|--|
| IS/IEC 60947 (Part 1, 2 & 3), EN 50521 | General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests |
| IEC 60269-6 | Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems |
| Surge Arrestors | |
| IEC 62305-4 | Lightning Protection Standard |
| IEC 60364-5-53/ IS 15086-5 (SPD) | Electrical installations of buildings – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control |
| IEC 61643-11:2011 | Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods |
| Cables | |
| IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947 | General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation) |
| BS EN 50618 | Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables |
| Earthing /Lightning | |
| IEC 62561 Series (Chemical earthing) | IEC 62561-1: Lightning protection system components (LPSC) – Part 1: Requirements for connection components IEC 62561-2: Lightning protection system components (LPSC) – Part 2: Requirements for conductors and earth electrodes IEC 62561-7: Lightning protection system components (LPSC) – Part 7: Requirements for earthing enhancing compounds |
| Junction Boxes | |
| IEC 60529 | Junction boxes and solar panel terminal boxes shall be of the thermos-plastic type with IP 65 protection for outdoor use, and |

| | |
|---|---|
| | IP 54 protection for indoor use |
| Energy Meter | |
| IS 16444 or as specified by the DISCOMs | A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements) |
| Solar PV Roof Mounting Structure | |
| IS 2062/IS 4759 | Material for the structure mounting |

Note: Equivalent standards may be used for different system components of the plants.

Annexure C**OPERATION AND MAINTENANCE GUIDELINES OF GRID CONNECTED PV PLANTS**

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis. All the components should be kept clean. It should be ensured that all the components are fastened well at their due place. Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

1. Solar Panels

Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

- i. The panels are cleaned at least once every fifteen days.
- ii. Any bird droppings or spots should be cleaned immediately.
- iii. Use water and a soft sponge or cloth for cleaning.
- iv. Do not use detergent or any abrasive material for panel cleaning.
- v. Iso-propyl alcohol may be used to remove oil or grease stains.
- vi. Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
- vii. Wipe water from module as soon as possible.
- viii. Use proper safety belts while cleaning modules at inclined roofs etc.
- ix. The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
- x. Check if there are any shade problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place.
- xi. Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
- xii. Never use panels for any unintended use, e. g. drying clothes, chips etc.
- xiii. Ensure that monkeys or other animals do not damage the panels.

2. Cables and Connection Boxes

- i. Check the connections for corrosion and tightness.
- ii. Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
- iii. There should be no vermin inside the box.
- iv. Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire
- v. If the wire is outside the building, use wire with weather-resistant insulation.
- vi. Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
- vii. If some wire needs to be changed, make sure it is of proper rating and type.

3. Inverter

- i. The inverter should be installed in a clean, dry, and ventilated area which is

- separated from, and not directly above, the battery bank.
- ii. Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- iii. Check that vermin have not infested the inverter. Typical signs of this include
- iv. Spider webs on ventilation grills or wasps' nests in heat sinks.
- v. Check functionality, e.g., automatic disconnection upon loss of grid power supply, at least once a month.
- vi. Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

4. Shutting down the system

- i. Disconnect system from all power sources in accordance with instructions for all other components used in the system.
- ii. Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- iii. To the extent possible, system shutdown will not be done during daytime or peak generation.

5. Inspection and maintenance schedule:

| Component | Activity | Description | Interval | By |
|-----------|-----------------------------------|---|---|-----------------|
| PV Module | Cleaning | Clean any bird droppings/ dark spots on module | Immediately | PSPCL |
| | Cleaning | Clean PV modules with plain water or mild dishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents. | Fortnightly or as per the site conditions | PSPCL |
| | Inspection (For plants > 100 kWp) | Use infrared camera to inspect for hot spots; bypass diode failure | Annual | Technician |
| PV Array | Inspection | Check the PV modules and rack for any damage. Note down location and serial number of damaged modules. | Annual | User/Technician |
| | Inspection | Determine if any new objects, such as vegetation growth, are causing shading of the, array and move them if possible. | Annual | User/Technician |
| | Vermin Removal | Remove bird nests or Vermin from array and rack area. | Annual | User/Technician |

| | | | | |
|----------------------|------------|--|-----------|---------------|
| Junction Boxes | Inspection | Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required. Check position of switches and breakers. Check operation of all protection devices. | Annual | Electrician |
| Wiring | Inspection | Inspect cabling for signs of cracks, defects, loose connections, overheating, arcing, short or open circuits, and ground faults. | Annual | Electrician |
| Inverter | Inspection | Observe | Quarterly | Electrician |
| | | Instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required. | | |
| Inverter | Service | Clean or replace any air filters. | As needed | Electrician |
| Instruments | Validation | Spot-check monitoring instruments (pyranometer etc.) with standard instruments to ensure that they are operational and within specifications. | Annual | PV Specialist |
| Transformer | Inspection | Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc. | Annual | Electrician |
| Tracker (If present) | Inspection | Inspect gears, gear boxes, bearings as required. | Annual | Technician |
| | Service | Lubricate tracker mounting bearings, gearbox as required. | Bi-annual | Technician |
| Plant | Monitoring | Daily Operation and Performance Monitoring | Daily | PSPCL |
| Inverter | Inspection | Observe instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required. | Quarterly | Electrician |
| Inverter | Service | Clean or replace any air filters. | As needed | Electrician |

| | | | | |
|----------------------|---------------|---|------------|----------------|
| Instruments | Validation | Spot – check monitoring instruments (pyranometer etc.) with standard instruments to ensure that they are operational and within specifications. | Annual | PV Specialist |
| Transformer | Inspection | Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc. | Annual | Electrician |
| Tracker (If present) | Inspection | Inspect gears, gear boxes, bearings as required. | Annual | Technician |
| | Service | Lubricate tracker mounting bearings, gearbox as required. | Bi-annual | Technician |
| Plant | Monitoring | Daily Operation and Performance Monitoring | Daily | PSPCL |
| Spare Parts | Management | Manage inventory of spare parts. | As needed | Site in charge |
| Logbook | Documentation | Document all O&M activities in a workbook available to all service personnel | Continuous | Site in charge |

6. Operation and Maintenance Guidelines of Grid Connected PV Plants

- i. The bidder shall intimate the proper technique for cleaning solar modules.
- ii. O&M of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.
- iii. Periodic checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.
- iv. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.
- v. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacturer/supplier's recommendations.
- vi. All the equipment testing instrument required for Testing, Commissioning and O&M for the healthy operation of the Plant shall be maintained by the Bidder. The testing equipment must be calibrated once every 2 years from NABL accredited labs and the certificate of calibration must be kept for reference as required.
- vii. If negligence/ mal operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired/ replaced by the Bidder free of cost.
- viii. If any jobs covered in O&M Scope as per RFS are not carried out by the contractor/ Bidders during the O&M period, the Engineer-In-Charge shall take appropriate action as deemed fit.
- ix. *Punjab State Power Corporation Limited* reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the O&M activities being carried out by the Bidder. Failure to adhere to above guidelines will result in penal action including debarring from participation in next tender.

7. Quarterly O&M report

Month and year:

Name of the bidder:

RFS ref no.:

Project Capacity:

Address of the site:

| Component | Activity | Description | Date | Name / Signature | *Remarks |
|----------------|-----------------------------------|--|------|------------------|----------|
| PV Module | Cleaning | Immediately clean any bird droppings/dark spots on module. | | | |
| | Cleaning | Clean PV modules with plain water or mild dishwashing detergent. | | | |
| | Inspection (for plants > 100 kWp) | Infrared camera inspection for hot spots; bypass diode failure. | | | |
| PV Array | Inspection | Check the PV modules and rack for any damage. | | | |
| | Inspection | If any new objects, such as vegetation growth etc., are causing shading of the array. Remove if any. | | | |
| | Vermin Removal | Remove bird nests or vermin from array and rack area. | | | |
| Junction Boxes | Inspection | Inspect electrical boxes for corrosion, intrusion of water or vermin. Check position of switches and breakers. Check status of all protection devices. | | | |
| Wiring | Inspection | Inspect cabling for signs of cracks, defects, loose connections, corrosion, overheating, arcing, short or open circuits, and ground faults. | | | |
| Inverter | Inspection | Observe instantaneous operational indicators on the faceplate. Inspect Inverter housing or shelter for any physical maintenance. Check for connection tightness. | | | |

| | | | | | |
|-------------|---------------|---|--|--|--|
| Inverter | Service | Clean or replace any air filters. | | | |
| Instruments | Validation | Verify monitoring instruments (pyranometer etc.) with standard instruments to verify their operation within tolerance limits. | | | |
| Transformer | Inspection | Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc. | | | |
| Plant | Monitoring | Daily Operation and Performance Monitoring. | | | |
| Spare Parts | Management | Manage inventory of spare parts. | | | |
| Logbook | Documentation | Maintain daily log records. | | | |

*Provide details of any replacement of systems/components, damages, plant/inverter shut down (planned/forced), breakdown, etc under remarks.