

ALIGARH SMART CITY LIMITED

“Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.” (2nd Call)

Request for Proposal (RFP)
RFP No: 29/ ASCL/2020 -21

Issued By :
Chief Executive Officer,
Aligarh Smart City Limited

DISCLAIMER

The information contained in this Request for Proposal (“RFP”) document or subsequently provided to bidders, verbally or in documentary or any other form by or on behalf of the Aligarh Smart City Limited (here forth referred to as ASCL in this document) or any of its employees or advisers, is provided to bidders on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is not an invitation by the Employer to the prospective bidder(s) or any other person. The purpose of this RFP is to provide interested bidders with information that may be useful to them in the formulation of their Proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Employer in relation to the Work. Such assumptions, assessments and statements do not purport to contain all the information that each bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Employer, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources. Information provided in this RFP to the bidder (contractor) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Employer accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

The ASCL and its employees and advisers make no representation or warranty and shall have no liability to any person including any bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

The ASCL also accepts no liability of any nature whether resulting from negligence or otherwise however caused arising from reliance of any bidder upon the statements contained in this RFP.

The ASCL may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP. The issue of this RFP does not imply that the Employer is bound to select a bidder or to appoint the selected bidder, as the case may be, for the execution of work and the ASCL reserves the right to reject all or any of the Proposals without assigning any reasons whatsoever.

The bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to Site visit, carrying out study/due diligence, preparation, copying,

postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the ASCL or any other costs incurred in connection with or relating to its Proposal.

All such costs and expenses will remain with the bidder and the ASCL or its advisors/employees/consultants shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a bidder in preparation or submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

Sd/

Chief Executive Officer

Aligarh Smart City Limited

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Online Financial Bid

Aligarh Smart City Limited (ASCL)
Manasi Ganga Building, Baraula By Pass,
Near Shanti Lodge Aligarh, Uttar Pradesh 202001, India

Notice Inviting e-Tender (National Competitive Bidding)

RFP NO.: 29/ASCL/2020-21

Chief Executive Officer on behalf of Aligarh Smart City Limited invites Bids on two bid system through e-procurement for the following work:-

Name of Work	Estimated Cost Put to tender	Earnest Money/Bid Security	Period of completion	Date of Pre-Bid Meeting	Date & Time for Publication of RFP	Last Date & Time for submission of bid (Bid Due date)	Date of Technical Bid Opening
Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2 nd Call)	Rs. 72.00 Lakh	Rs. 72,500/-	180 days for commissioning and after this 5 years of O&M	15-Dec-2020 at 3 PM (ASCL Office)	05-Dec-2020	27-Dec-2020 upto 3 pm	27-Dec-2020 at 3.30

A non refundable amount of Rs.16,992/- to be paid as Tender Fee.

The detailed RFP is available at the website <https://etender.up.nic.in>

Apart from the other conditions mentioned in the RFP, Bidder must also fulfil the criteria mentioned in GOI Office Memorandum number F.No. 6/18/2019-PPD dated 23rd July 2020 issued by Ministry of Finance, Department of Expenditure, Public Procurement division. Bid would be summarily rejected in case of non-fulfillment of aforesaid Office Memorandum dated 23rd July'20 and EMD shall be forfeited for those bidders.

Sd/-
Chief Executive Officer

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.(2nd Call)

Invitation For Bid (IFB)

INVITATION FOR BID (IFB)

NATIONAL COMPETITIVE BIDDING

NIT No.

1. The undersigned, on behalf of the Aligarh Smart City Limited (ASCL), Aligarh invites bids for the work mentioned in table below through e-Procurement from eligible bidders. The bid shall be submitted online in the website <https://etender.up.nic.in>. The bidder(s) should have necessary portal enrolment with their own Digital Signature Certificate

NIT No:		
1.	Name of the work	Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call)
	Capacity and Location	Total Cumulative Capacity: 168 KWp , Multiple Govt. Buildings (5 Nos)
2	Scope of Work	Please refer Section-5 of RFP
3	Mode of Bid Submission	e-tendering
4	Estimated Cost Put to Tender (Rs.)	Rs. 72 Lakh
5	Period of Completion	180 days for commissioning and after this 5 year of O&M
6	Tender Fee amount	Rs.16,992/(Rupees Sixteen Thousand Nine Hundred Ninety Two only). This includes GST of 18%.
7	EMD/Bid Security amount	Rs. 72,500/- (Rupees Seventy Two Thousand Five Hundred Only)
9	Date / Time of Publication of Tender on e-Proc Website	As per NIT
10	Last Date / Time for Bid Submission	As per NIT
11	Last Date / Time of Submission of Tender Fee & EMD	As per NIT

12	Date of Bid Opening	As per NIT
13	Bid Inviting Officer's address	Chief Executive Officer, Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass, Near Shanti Lodge Aligarh, Uttar Pradesh 202001, India

2. Eligibility of intending bidders shall be assessed by fulfilling the “**Qualifying Criteria**” as given in **Annexure-I, Section-2** of bid document.
3. The intending bidder must read the terms and conditions of Biddocument carefully. The bidders should only submit their bid if they consider them self eligible and are in possession of all the required documents.
4. Invitation for bid posted on website shall form part of bid document.
5. Complete bid document can be seen and downloaded from website <https://etender.up.nic.in>
6. But the bid can only be submitted after uploading the mandatory scanned documents such as Tender Fee and Earnest Money Deposit (EMD) and other documents as mentioned in para 15 below.
7. Those bidders not registered on the website mentioned above, are required to get registered beforehand.
8. Bidders in order to participate in the on line bidding process have to get ‘Digital Signature Certificate (DSC)’ as per Information Technology Act-2000.This Certificate will be required for digitally signing the bid. Bidders can get the above mentioned digital signature certificate from any vendor approved by Controller of Certifying Authorities (CCA). Bidders, who already possess valid Digital Certificates, need not procure new Digital Certificate. Bidders should submit their bids online in electronic format with digital signature. Bids without Digital Signature will not be accepted
9. Deleted.
10. Bidders can upload documents in the form of **JPG** format and **PDF** format.
11. Bidders must ensure to quote their price bid both in words and figures. Price Bid will be deemed to include all plant, labour, supervision, materials, transport, all temporary works, erection, operation, maintenance, taxes and duties, contractor's profit and establishment/overheads, together with preparation of design and drawings, proof checking from third party, all general risks, insurance liabilities, compliance of labour laws and obligations set out or implied in the contract
12. The Technical bid shall be opened first on due date and time as mentioned above. The time and date for opening of financial bid of bidders qualifying the technical bid shall be informed later on.

13. Pre Bid conference shall be held at the location, date & time as mentioned in the RFP to clear the doubt of intending bidders, if any.
14. ASCL reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified bidders to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
15. **List of Documents to be scanned and uploaded within the period of bid submission:**

A) In the Technical bid folder

- I. Demand draft as **Tender fee (non-refundable)** from any Nationalized/ Scheduled Bank in favour of “Chief Executive Officer, Aligarh Smart City Limited”. Original Demand draft against Tender Fee to be submitted in the office of Chief Executive Officer, Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass Road, Near Shanti Lodge, Aligarh, Uttar Pradesh 202001, India on or before the bid due date. Copy of the DD to be scanned and uploaded in eprocurement website. Alternatively, bidder may also use NEFT/RTGS/Net banking facility to submit the tender fee. Name, beneficiary details are below : Aligarh Smart City Limited, Account no: 0294001100000818, IFSC: PUNB0001000, MICR Code: 202024002
MSMEs are exempted from paying Tender Fee. Please refer ITB Clause 16 for detail
- II. Fixed Deposit Receipt (FDR)/Bank Guarantee from any Nationalized/ Scheduled Bank against **Earnest Money Deposit (EMD)**/Bid security in favour of “Chief Executive Officer, Aligarh Smart City Limited”. Original Bank Guarantee against EMD is to be submitted in the office of Chief Executive Officer, Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass Road, Near Shanti Lodge, Aligarh, Uttar Pradesh 202001, India on or before the bid due date. Format of Bank guarantee is provided in the RFP. Copy of the EMD to be scanned and uploaded in eprocurement website. Alternatively, bidder may also use NEFT/RTGS/Net banking facility to submit the EMD. Name, beneficiary details are below: Aligarh Smart City Limited, Account no: 0294001100000818, IFSC: PUNB0001000, MICR Code: 202024002
MSMEs are exempted from paying EMD. Please refer ITB Clause 16 for detail.
- III. Form F1 to F20 of Section-II (Qualification Information) RFP document along with supporting details, duly filled, signed and stamped by the authorized signatory of the firm.
- IV. GST Registration Certificate of the State in which the work is to be taken up, if already obtained by the bidder. If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following under taking along with other bid documents.
“If work is awarded to me, I/we shall obtain GST registration Certificate of the State, in

which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by the Employer, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by Employer or GST department in this regard.,

Bid of the bidder, whom original Tender Fee and EMD (for those who have not submitted tender and emd through neft/rtgs) are not received before scheduled time of submission of bid, their bid will not be opened and evaluated further.

B) In the Financial bid folder (To be submitted online ONLY)

Financial Proposal" (**to be submitted in online in the** format provided in the eprocurement website) shall comprise inclusive of all statutory and applicable all cess, taxes,duties,levies, royalties etc.

16. The bid submitted shall become invalid if the bidder doesn't upload all the documents as stipulated above (Technical Bid and Financial Bid Folders).

Each uploading shall be digitally signed by the bidder.

For & on behalf of
Aligarh Smart City Limited

Chief Executive Officer,

Section 1 - Instructions to Bidders

A. General

- 1. Scope of Bid**
 - 1.1 Aligarh Smart City Limited, (referred to as “ASCL” in these documents) invites bids through e-procurement for Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call) (Hereafter called as Work). Scope of work is provided in Section-3 of RFP document.
 - 1.2 The successful bidder will be expected to complete the whole works within 6 (five) months from the date of commencement of work. However, bidder need to meet the intermediate milestones as defined in this RFP. Post completion of Construction work, bidder need to operate and maintain the ‘Work’ for 5 year.
 - 1.3 Throughout these RFP document, the terms ‘bid’ and ‘tender’ and their derivatives (bidder/tender, bidding/tendering, etc.) are synonymous.

Throughout these bidding documents, the terms ‘Employer’, ASCL and ‘Authority’ are synonymous

Throughout these bidding documents, the terms ‘Engineer’ and ‘Authority Engineer’ are synonymous
 - 1.4 Throughout this RFP Document:
 - (a) the term “in writing” means communicated in written form or by paper mail, fax, facsimile or electronic mail;
 - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
 - (c) “day” means calendar day.
 - 1.5 ASCL may appoint an Engineer who will be looking after project related activities.
 - 1.6 Throughout these RFP document, the terms ‘Authority’ and their derivatives are synonymous.
- 2. Source of Funds**
 - 2.1 The expenditure on this project will be met from fund allocated to Aligarh Smart City Limited from Govt. of Uttar Pradesh and Govt. of India under Smart City Mission.
- 3. Eligible Bidders**
 - 3.1 This invitation for Bid under National Competitive Bidding open only to eligible competent Bidders with sound technical and

financial capabilities and meeting the criteria as given in the **Annexure-I of Section 2, Qualification Information.**

3.2 Joint venture/ consortium shall NOT be permitted.

4. Qualification of the Bidder

4.1 All bidders shall provide the information required as per forms in Section 2, Qualification Information.

The technical bid of the bidders received online shall be first evaluated to ascertain whether the bidder fulfills the requirements of evaluation criteria as indicated in bid document. The financial bids of only those bidders shall be opened who qualify through the set out parameters of Evaluation Criteria.

4.2 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in the Bid Document.

4.3 Base year for qualification purpose shall be taken as 2018-19 . Enhancement factors have to be used for updating the cost of works executed to bring to a common base as mentioned in Annexure I of section 2:

Applicant should incorporate the above enhancement factors to the actual amount of the works executed by them clearly indicating the calculations.

In case the financial figure and value of completed works are in foreign currency, the above enhanced factors will not be applied. Instead, actual amount in the foreign currency shall have to be converted into equivalent Indian Rupees (INR) at the State Bank of India BC selling rate as on date 28days prior to the last date of submission, clearly indicating the calculations.

5. One bid per bidder

5.1 Each bidder shall submit only one bid for one package. A bidder who submits or participates in more than one Bid (other than as a subcontractor) will cause all the proposals with the Bidder's participation to be disqualified

6. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the ASCL will in no case be responsible and liable for those costs.

7. Site Visit

7.1 The Bidder, at the Bidder's own responsibility and risk is advised and encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense. It will be presumed that the bidder has quoted his rates after getting himself acquainted with all the site conditions.

B. Bidding Document

- 8. Content of Bidding Documents**
- 8.1 The set of bidding documents comprises the documents listed below, and addenda issued in accordance with Clause 10. The Request for Proposal (RFP) consists of :
- NIT, Information to Bidder (IFB)**
- Section I: Instruction to Bidders (ITB)**
- Section II: Qualification Information and Forms**
- Section III : General Conditions of Contract**
- Section IV : Special Conditions of Contract**
- Section V : Scope of Work and Technical Specification**
- Section VI : Forms and Formats**
- Online Financial Bid -Price Bid BOQ**
- 8.2 The Bidder is expected to examine carefully all instructions, Scope of Work, Technical Specifications, Conditions of Contract, Annexure etc in the Bid Document. Failure to comply with the requirement of Bid Documents shall be at the bidder's own risk. Pursuant to clause 26 hereof, bids which are not substantially responsive to the requirements of the Bid Document shall be rejected.
- 8.3 The works under this Contract shall be carried out in accordance with the bidding document constituting the contract and shall consist of various salient items as generally described in Section 3 of RFP.
- 9. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting**
- 9.1 A prospective Bidder requiring any clarification of the Bidding Document may notify the ASCL in writing or by paper mail, telex, or electronic mail at the ASCL's address Chief Executive Officer Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass, Near Shanti Lodge, Aligarh, Uttar Pradesh 202001, India, PIN Code: 202001, Electronic mail address: aligarhsmartcityltd@gmail.com. The ASCL will respond to any request for clarification, which he receives from a bidder 2 days before scheduled Pre-bid meeting. Copies of the ASCL's/ Engineer's response will be posted on the website <http://www.smartcityaligarh.com/> and/or <https://etender.up.nic.in>. The bidders have to keep a vigil on the website for the same and they have no claim whatsoever for any ignorance in such case.
- 9.2 Deleted.
- 9.3 The Bidder and any of its personnel or agents will be granted permission by the ASCL to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the ASCL and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss,

damage, costs, and expenses incurred as a result of the inspection.

- 9.4 The Bidder's designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 9.5 The Bidder is requested, to submit any questions in writing, to reach the Engineer before or during the pre-bid meeting as per Clause 9.1.
- 9.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be posted on the aforementioned website . Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the ASCL exclusively through the issue of an addendum pursuant to ITB 10 and not through the minutes of the pre-bid meeting.
- 9.7 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

10. Amendment of Bidding Document

- 10.1 At any time prior to the deadline for online submission of bids, the ASCL may amend the Bidding Document by issuing addenda/corrigenda.
- 10.2 Any addendum published on <http://www.smartcityaligarh.com/> and/or <https://etender.up.nic.in> website shall be part of the Bidding Document. The bidders have to keep a vigil on the aforesaid website for the same & they shall have no claim whatsoever for any ignorance in such case. Without prejudice to the order of preference as specified in bid document, the provisions in such addendum shall take priority over Invitation for Bid and Bid Document uploaded previously.
- 10.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the ASCL may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 20.2

C. Preparation of Bids

11. Language of Bid

- 11.1 The Bid, as well as all correspondence and documents relating to the bid exchanged/uploaded by the Bidder and the ASCL, shall be written in the English language . Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language , in which case, for purposes of interpretation of the Bid, such translation shall govern.

- 12. Documents Comprising the Bid** As mentioned in Para-15 of Invitation for Bid (IFB).
- 13. Bid Prices**
- 13.1 The contract shall be for the whole works as described in Sub-Clause 1.1 as per the price bid.
 - 13.2 The bidder shall fill in rates both in figure and words. In case of any difference, the rate quoted in words will be taken as the quoted rate.
 - 13.3 All royalties, duties, taxes and other levies shall be included in rates/prices to be deemed included in total Bid Price submitted by the Bidder. The selected Bidder shall furnish their actual liability towards Tax (GST) as applicable during the period of execution of various items as per the approved Govt. notification for consideration during payment. However, in no case, the total cost of payment shall exceed the Lump Sum Contract Value for which the agreement is signed except change in scope, compensation, change of law etc. as mentioned in the conditions of contract.
 - 13.4 Unless otherwise provided in the RFP, the prices quoted by the Bidder shall be fixed. The rates and prices quoted by the bidder shall be fixed for the entire duration of the Contract and shall not be subject to adjustment on any account and to be completed in a time bound manner.
- 14. Currencies of Bid and Payment** 14.1 The currency(ies) of the bid and payment shall be in Indian Rupees Only.
- 15. Period of Validity of Bids**
- 15.1 Bids shall remain valid for the period of 180 days after the bid submission deadline (bid due date) prescribed by the ASCL. A bid valid for a shorter period shall be rejected by the ASCL as non-responsive.
 - 15.2 In exceptional circumstances, prior to the expiration of the bid validity period, the ASCL may request that the bidder may extend the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security for a period of the extension, and in compliance with ITB 16 in all respects.
- 16. Tender Fee & Bid Security** 16.0 All the bidder shall submit tender fee in the form of Demand Draft from any Nationalized/ Scheduled Bank against Tender fee for an amount of Rs.16,992/(Rupees Sixteen Thousand Nine Hundred Ninety Two only) in favour of "**Chief Executive Officer, Aligarh Smart City Ltd, Aligarh**". Original Demand draft against Tender Fee to be submitted in the office of Chief Executive Officer, Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass Road, Near Shanti Lodge Aligarh, Uttar Pradesh 202001, India on or before the bid due (deadline) date and time of submission of bid and upload

a scanned copy of the same in eprocurement website. Copy of the DD to be scanned and uploaded in eprocurement website. Alternatively, bidder may also use NEFT/RTGS/Net banking facility to submit the tender fee. Name, beneficiary details are below : Aligarh Smart City Limited, Account no: 0294001100000818, IFSC: PUNB0001000, MICR Code: 202024002

Bidder shall submit bid security/EMD in original (those who have not made payment through neft/rtgs) , as part of his bid. The same shall be submitted in the office of Chief Executive Officer, Aligarh Smart City Limited, Manasi Ganga Building, Baraula By Pass Road, Near Shanti Lodge Aligarh, Uttar Pradesh 202001, India on or before the bid due (deadline) date and time of submission of bid and upload a scanned copy of the same in eprocurement website. **The bid security (EMD) amount is Rs. 72,500/- (Rupees Seventy-Two Thousand Five Hundred Only) and may be submitted in following forms:**

- a. FDR/Bank Guarantee from a Nationalized/ Scheduled Bank approved by Reserve Bank of India in the name of Chief Executive Officer, Aligarh Smart City Limited. Prescribed format of Bank Guarantee is enclosed as **APPENDIX-I. The bid security shall remain valid** till 30 days beyond bid validity period i.e **210 days from bid due date/last day (deadline date) for submission of bid.**
- b. Net Banking: Name: Aligarh Smart City Limited, Account no: 0294001100000818, IFSC: PUNB0001000, MICR Code: 202024002

Note :

Micro and Small Enterprises and Industrial Co-operatives within State which are certified as such by the Commissioner and Director of Industries or by Deputy Commissioner, District Industries Centre, are **exempted from furnishing earnest money deposit and Tender Fee.**

Micro and Small Enterprises registered with the National Small Industries Corporation Limited, New Delhi (NSIC) and in respect of which competency certificates are issued by the NSIC will also be exempted from furnishing **earnest money deposit and Tender Fee.**

Sub Note:

1) In case bidder is submitting financial eligibility (including turnover) of it's Parent company for qualification purpose, then waiver of EMD and Tender Fee shall only be applicable if both i.e bidder as well it's Parent company are registered as MSME.

2)Certificate/document depicting the MSME recognized status to be enclosed along with the Bid to get the benefit of EMD and Tender Fee waiver.

Exemption is **only for EMD and Tender Fee**. All other conditions stated in the RFP shall remain same.

That in the event of, MSME became the L-1 bidder and not signed the contract agreement or furnished the required performance security as stated in RFP, in such case MSME/bidder shall be backlisted for 3 years.

- 16.1 Subject to confirmation of the Bid security by the issuing bank, the Technical Bid with already received valid Bid Security will be taken up for further evaluation.
- 16.2 Any bid without an acceptable Bid Security and not secured as indicated in ITB 16.1 above shall be rejected by the ASCL and will not be evaluated further.
- 16.3 The bid Security of all the bidders except the selected bidder would be refunded not later than the expiry of stipulated bid validity period as stipulated in ITB 15.1 or immediately after acceptance of the successful bidder.
- 16.4 The Bid security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- 16.5 The Bid Security shall be forfeited;
 - (a) If the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
 - (b) If the Bidder does not accept the correction of the Bid Price, pursuant to ITB 27;
 - (c) If the bidder submits forged documents/information or
 - (d) in the case of a successful Bidder, if the Bidder fails within the specified time limit to;
 - (i) Sign the Contract Agreement;
 - (ii) Furnish a performance security; or
 - (iii) Accept corrections of arithmetic errors or modification of unrealistic rate of any particular BOQ/head.

17. Deleted

17.1 ----Deleted-----.

18. Format and Signing of Bid

- 18.1 The Bidder shall submit the requisite documents online as described in Para-15 of Invitation for Bid (IFB).
- 18.2 Instruction to Bidders to be followed. Bids submitted online should be digitally signed by the bidder.

D. Submission of Bids

- 19. Submission of Bids** 19.1 The Bidder shall submit the Technical Bid and Financial bid online as per the Invitation for Bid (IFB) and Instructions to Bidders (ITB).
19.2 –Deleted--
- 20. Deadline for Submission of Bids** 20.1 Bids will be received by the ASCL through e-procurement website not later than the time and date as mentioned in the RFP and will be opened on the date and time as mentioned in the RFP.
20.2 ASCL may extend the deadline for submission of bids by issuing an amendment in accordance with ITB 10, in which case all rights and obligations of the ASCL and the bidders previously subject to the original deadline will then be subject to the new deadline.
- 21. Deleted** 21.1 ----deleted----
- 22. Modification and Withdrawal of Bids** 22.1 Bidders may modify/resubmit or withdraw their bids before the deadline prescribed in ITB 20.
22.2 –Deleted---
22.3 –Deleted-.
22.4 Bidders may resubmit & modify his bid any number of times before the deadline of submission of bid .

E. Bid Opening and Evaluation

- 23. Bid Opening** 23.1 Bid opening shall be carried out in two stages. Firstly, ‘Technical Bid’ of all the bids received online, shall be opened on the date and time, mentioned in Clause 20. ‘Financial Bid’ of only those bidders whose ‘Technical Bid’ has been determined to be substantially responsive shall be opened, at later date.
23.2 Opening of Technical Bids
23.2.1 The ASCL will open the “Technical Bid”, of all the bidders received pursuant to Clause 22, online. The response of receipt of bid can be seen on the aforementioned website. In the event of specified date of bid opening being declared as a holiday for the ASCL, the bids will be opened at the appointed time and location on the next working day.
23.2.2 -Deleted--
23.3 Opening of Financial Bids
23.3.1 The ASCL will open the ‘Financial bid’ of those bidders whose Technical Bid has been determined to be substantially responsive in accordance with Clause 26 hereof, on the date which will be

intimated to such bidders. In the event of specified date of bid opening being declared a holiday for ASCL, the 'Financial Bids' shall be opened at the appointed time on the next working day.

23.3.2 -Deleted---

24. Process to be Confidential

24.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced.

24.2 Any attempt by a Bidder to influence the ASCL in the evaluation of the bids or Contract award decisions may result in the rejection of its Bid.

25. Clarification of Bids

25.1 To assist in the scrutiny, evaluation and comparison of bids, ASCL may, at its discretion, ask some or all Bidders for clarifications with regards to their Bid. The request for such clarifications and the response will necessarily be in writing (by speed post/courier / email). Failure of a Bidder to submit additional information or clarification as sought by ASCL within the prescribed period will be considered as non-compliance and the Proposal may get evaluated based on the limited information furnished along with the bids.

25.2 Subject to sub-clause 25.1, no Bidder shall contact the ASCL on any matter relating to its bid from the time of the bid opening to the time the contract is awarded.

25.3 Any effort by the Bidder to influence the ASCL in the bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder's bid. Provided that nothing in this section will prevent the ASCL from exploring possibility of arriving at reasonable rates in a manner considered suitable.

26. Deviations, Reservations, and Omissions

26.1 After opening of 'Technical Bid' in accordance with Clause 23.2 above, the ASCL will determine whether each bid (a) has been digitally signed; (b) is complete (c) meets the eligibility and qualification criteria defined in Clauses 3 and 4; (d) is accompanied securities in accordance with Clause 16; and (e) is substantially responsive to the requirements of the 'Bidding Document'. Scoring of technical bids (of responsive bids) will be done in manner stated in clause 29.1

26.2 The technical bid of the bidders shall be first evaluated to ascertain whether the bidder fulfills the requirements of evaluation criteria as indicated in Annexure-1 of Section 2, Qualification Information of bid document. The financial bids of only those bidders shall be opened who qualify through the set out parameters of Evaluation Criteria.

26.3 After opening of 'Financial Bid' in accordance with Clause 23.3, the ASCL will determine whether each bid (a) has been digitally

signed; and (b) is substantially responsive to the requirements of 'Bidding Documents'.

26.4 A substantially responsive Technical or Financial Bid is one which confirms to all the terms, conditions and specifications of the Bidding Document, without material deviation or reservation. A material deviation or reservation is (a) which affects in any substantial way the scope, quality or performance or Works; (b) which limits in any substantial way, inconsistent with the Bidding document, the ASCL's rights or the Bidder's obligations under the contract; and (c) whose rectification would affect unfairly the competitive position of the Bidders presenting substantially responsive Bids.

26.5 If a 'Technical Bid' or 'Financial Bid' is not substantially responsive, the bid will be rejected by the ASCL/Engineer and may not subsequently be made responsive by correction or withdrawal of non-conforming deviation or reservation.

26.6 The 'Financial Bid' of those bidders whose 'Technical Bid' has been determined to be **non-responsive** shall not be opened.

27. Correction of Errors

27.1 'Financial Bids' determined to be substantially responsive will be checked by the ASCL for any arithmetical errors. Errors will be corrected by the ASCL as follows:

(a) where there is a discrepancy between the rates in figures and in word, the rate in words will govern; and

(b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern

27.2 The amount stated in the Bid will be adjusted by the ASCL in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Sub – Clause 16.6 (b).

28. Evaluation and Comparison of Bids

28.1 The ASCL will evaluate and compare only the Bids determined to be substantially **responsive** in accordance with Clause 26.

28.2 The ASCL reserves the right to accept or reject any variation, deviation or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the bidding document or otherwise result in unsolicited benefits for the Contractor shall not be taken into account in Bid evaluation.

28.3 If the bid of a successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed

under the contract, the ASCL may request the bidder to produce detailed price analyses for any or all items of the Bill of Quantities/considered in arriving the price bid, to demonstrate the internal consistency of those prices (taking into account prevailing market rates) with the construction methods and schedule proposed. After evaluation of the price analyses, the ASCL may require that the amount of the performance security set forth in ITB 32 be increased at the expense of the successful Bidder to a level sufficient to protect the ASCL against financial loss in the event of default of the successful Bidder under the Contract. In that case, Bidder has to provide extra performance security as per following (in accordance with G.O. No. 622/23-12-2012-2 AUDIT/08 tc-2 Dated 08-06-2012):

- i. @0.5% of each percent below if his tender rates are up to 10% below and
- ii. @1% each percent below if his rates are more than 10% below .

28.4 Deleted.

28.5 Deleted.

28.6 Deleted.

F. Award of Contract

29. Award Criteria

29.1 Financial Bids of Technically qualified bidders shall be opened who meet the qualification as called in clause 3 and 4 of ITB. ASCL will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the Bidding document and who has offered the lowest evaluated and acceptable Bid Price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 3, and (b) qualified in accordance with the provisions of Clause 4. Class-I Local supplier will get purchase preference over the other bidders in accordance with provisions made in Office order No P-45021/2/2017-PP (BE-II) dated 4th June'2020, issued by Ministry of Commerce and Industry, Department of Promotion of Industry and Internal Trade, (Public Procurement Section), Government of India. Copy of the order is enclosed with the RFP.

30. ASCL's Right to Accept/Reject any or all Bids

30.1 Notwithstanding Clause 29, the ASCL reserves the right to accept or reject any Bid/all Bids, and to cancel the Bidding process at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the ASCL's action.

31. Notification of Award and Signing of Agreement

31.1 The Bidder whose Bid has been accepted will be notified of the award by the ASCL prior to expiration of the Bid validity period by registered letter or telex facsimile or electronic mail. This letter (hereinafter and in the Conditions of Contract called the "Letter of

Acceptance/award”) will state the sum that the ASCL will pay the contractor in consideration of the execution, completion, and maintenance of the Works by the contractor as prescribed by the contract (hereinafter and in the Contract called the “Contract Price/Contract Value”).

31.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 32.

31.3 The successful bidder within 10 days of issue of Letter of Acceptance shall submit power of Attorney(s) and Board Resolution. In case of any change than submitted along with Bid submittals for signing of Contract Agreement.

31.4 After receipt of documents as per 31.3 and confirmation of issuance of performance security by the issuing bank, the ASCL will direct the successful bidder to attend ASCL’s office on a date determined by ASCL for signing the Contract Agreement. Stamp duty amount for execution of Contract to be paid by the successful bidder.

31.5 Deleted.

32. Performance Guarantee

32.1 Within 21 days of issue of the Letter of Acceptance, the successful Bidder shall deliver to the ASCL a Performance Guarantee (Security) in the form of a bank guarantee as per the format given in the Condition of contract or a Fixed Deposit Receipt in the name of “Chief Executive Officer, Aligarh Smart City Ltd, Aligarh” for an amount equivalent to 5% of the Contract price as per the Conditions of Contract. In case, clause 28.3 of ITB is applicable, enhanced Performance Guarantee (Security) over and above of 5%, shall be submitted in accordance with the provisions stated at clause 28.3 of ITB

32.2 The performance guarantee (security) provided by the successful Bidder shall be issued by a Nationalized/Scheduled Indian Bank approved by Reserve Bank of India.

32.3 Failure of the successful Bidder to comply with the requirements of Sub-Clause 32.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security (Earnest Money Deposit).

33. Advance Payment and Security

33.1 The ASCL will not provide any Advance Payment under this contract.

34. Corrupt or Fraudulent Practices

34.1 The ASCL will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with ASCL

34.2 If, at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contractor, or in execution.

- i) “corrupt practice” means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- ii) “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive ASCL of the benefits of free and open competition.

SECTION II

QUALIFICATION INFORMATION

(All bidders are required to submit the information under the prescribed format given here)

F-1: Copy of Tender/Bid Document fee (Original to be submitted at the Office of ASCL before bid due date and time. Copy to be enclosed. In case tender fee made through NEFT/RTGS, upload the payment receipt)

F-2: Copy of EMD/Bid Security fee (Original to be submitted at the Office of ASCL before bid due date and time. Copy to be enclosed. In case emd paid through NEFT/RTGS, upload the payment receipt)

F 3: (on Bidders' Letter head)

Date:

To,

The CHIEF EXECUTIVE OFFICER,

Aligarh Smart City Limited

Manasi Ganga Building, Baraula By

Pass Road, Near Shanti Lodge,

Aligarh,

Uttar Pradesh 202001, India

Subject: Submission of the bid for “DESIGN, ENGINEERING, PROCUREMENT & SUPPLY, CONSTRUCTION & ERECTION, TESTING & COMMISSIONING AND COMPREHENSIVE OPERATION & MAINTENANCE FOR 05 YEARS OF DIFFERENT CAPACITY ROOF TOP SOLAR PV POWER PROJECTS UNDER NET METERING WITH ZERO EXPORT POLICY IN ALIGARH CITY ON TURNKEY BASIS along with associated Electrical & Civil Works ” under implementation of Smart City Mission. (2nd Call)

Dear Sir,

We, the undersigned, have considered and complied with the "Instructions to Bidders" and have accepted the terms stipulated in the RFP documents. The scope of work shall include but not be limited to “**DESIGN, ENGINEERING, PROCUREMENT & SUPPLY, CONSTRUCTION & ERECTION, TESTING & COMMISSIONING AND COMPREHENSIVE OPERATION & MAINTENANCE FOR 05 YEARS OF DIFFERENT CAPACITY ROOF TOP SOLAR PV POWER PROJECTS UNDER NET METERING WITH ZERO EXPORT POLICY IN ALIGARH CITY ON TURNKEY BASIS along with associated Electrical & Civil Works** ” under implementation of Smart City Mission (2nd Call)

Also we have familiarized ourselves with the proposed area and metrological, climatological and environmental conditions which may exist in the installations area. In full cognizance and compliance with these aforesaid conditions and the regulations of local government authorities, we the undersigned do hereby offer for the subject project using PV technology on a turnkey basis in Aligarh for which we have Bid. The work covered under the Bid shall be completed to the entire satisfaction of yourselves or your representative in conformity with the RFP documents at the prices accompanying this Bid.

It is a term of our Bid that the Project shall be handed over installed, interconnected, tested, commissioned and shall achieve Commissioning for 168 KW not later than (180) One Hundred and Eighty Days from the date of issue of NTP/LOI as per the completion schedule

mentioned under SCC Clause 8. This shall be the essence of the Contract between us.

We further agree and stipulate as follows:

1. Until the final Contract Documents are prepared and executed, the RFP documents, with any modifications, additions, deletions agreed with the Employer and your written acceptance thereof, shall constitute a binding Contract between us, upon terms contained in aforesaid documents and the Financial Proposal accompanying the Bid.
2. That the Employer will not supply any material. In all respects we shall be fully self-sufficient in the Performance of the work.
3. I/ We understand that you are not bound to accept the lowest of the Bid you may receive.
4. I/ We shall make available to the Employer any additional information it may find necessary or require to supplement or authenticate the qualification statement.
5. I/ We acknowledge the right of the Employer to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/ We understand that you may cancel the bidding process at any time and that you are neither bound to accept any Application that you may receive nor to invite the Applicants to Bid for the Project, without incurring any liability to the Applicants.
7. I/ We further certify that in regard to matters relating to security and integrity of the country, we or any of our Associates have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.
8. I/ We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our directors/ managers/ employees.
9. I/ We undertake that in case due to any change in facts or circumstances during the bidding process, we are attracted by the provisions of disqualification in terms of the provisions of this RFP; we shall intimate the Employer of the same immediately.
10. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Employer in connection with the selection of Applicants, selection of the Bidder, or in connection with the selection/ bidding process itself, in respect of the above mentioned Project and the terms and implementation thereof.
11. I/ We agree and undertake to abide by all the terms and conditions of the RFP document.
12. We agree to keep the bidding valid for acceptance for a period of 180 days from the date of Rooftop the Bid (hereinafter referred to as validity period) and the Bid shall not be withdrawn on or after the opening of bidding till the expiration of the validity period or any extension thereof.
13. We also undertake not to vary/ modify the Bid during the validity period or any extension thereof.
14. We represent that we have fully satisfied ourselves as to the nature and location of the Project having in mind the general and local conditions and other factors incidental to the Performance of the works and the costs thereof.
15. We further represent that from our own investigation of the Site of the Project we

have fully satisfied ourselves as to the character, quality other soil conditions to be encountered in the Performance of the works and we understand and represent that any failure to acquaint ourselves in respect of these matters and the other factors and conditions as set forth shall not relieve us from any responsibility for estimating properly the difficulty and cost of successfully performing the works.

16. We also acknowledge and accept that you shall not pay for any discontinuance or low Performance rate resulting from malfunction of /or inadequacy of our equipment, instruments or personnel.
17. We agree to return to you all reports and technical data provided for our use in preparing this Bid and in the subsequent conduct of the works. We undertake that we will not use the same for any other work/purpose.
18. We further represent that we have familiarized ourselves with all the terms and provisions of the various parts of the bidding documents and that in making our Bid, we do not rely upon any representation made by any agent or employee of yourselves in respect of the terms of the bidding documents or the nature of the Performance of the works.
19. We submit this Bid with the full understanding that our Bid fully complies with all the terms and conditions of the RFP documents including Bid evaluation criteria and that no deviation/exception to the RFP documents have been taken by us. We also agree that in case we have taken any exceptions/ deviations to the RFP documents, the Employer will be free to reject our offer on account of such exceptions/deviations.
20. We agree to guarantee following minimum Plant Performance parameters: Performance Ratio (PR) not less than 75% at the time of Operational Acceptance and end of first year from the date of Operational Acceptance and further 0.75% degradation in module output for successive years from second year onwards for remaining O&M period.

Dated this day of 2020

Signature:

In the capacity of: _

Duly authorized to sign Tenders for and on behalf of (Name & Address)

—

—

Witness

Seal

F-4. Particulars of the Bidder

#	Description	• Details (to be filled by the Bidder)
1.	• Name of the Bidder	
2.	• Official address • Phone No. and Fax No. • Corporate Headquarters Address • Phone No. and Fax No. • Web Site Address	
3.	• Contact Details of officials : Name Title Email ID: Mobile Number :	
4.	State Whether bidder is a Class-I Local Supplier or Class-II local supplier as defined in Office order No P-45021/2/2017- PP (BE-II) dated 4th June'2020, issued by Ministry of Commerce and Industry, Department of Promotion of Industry and Internal Trade, (Public Procurement Section), Government of India.	
5.	State whether bidder is from a country which shares a land boundary with India. If yes, whether the bidder is registered with the "competent authority". Definition of country which shares a land boundary with India and Competent authority would be in accordance with Office Memorandum number F.No. 6/18/2019-PPD dated 23rd July 2020 issued by Ministry of Finance, Department of Expenditure, Public Procurement division, Government of India.	
6.	Details of Company's Registration (Please enclose copy of the company registration document)	
7.	Name of Registration Authority	
8.	Registration Number and Year of Registration	

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission. (2nd Call)

Section -II- Qualification information

9.	<p>GST registration No. GST Registration No of the state: (attach copy)</p> <p>(If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following under taking along with other bid documents. "If work is awarded to me, I/we shall obtain GST registration Certificate of the State, in which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by the Employer, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by Employer or GST department in this regard)</p>	
10.	PAN Number (Copy enclosed)	

F5 : Power Plant Performance Guarantee Test

- Performance Ratio as determined through the PR Test Procedure specified here should not be less than 75% for Operational Acceptance.
- However, as the SPV Plant is installed under Net Metering with Zero Export Scheme, instantaneous PR shall be calculated at full load and shall be considered for assessment of the performance of the SPV Plant.
- Module degradation of 2% in first year and degradation of 0.75% from second year onwards for the remaining O&M period shall be factored in calculation of PR.
- PR is to be demonstrated at the installed DC capacity only. Table 5A: Solar
- Plant Performance Parameters

Particulars	Proposal
Solar PV module Technology proposed	
Capacity Proposed (in kW)	
MMS proposed	
PR at the time of Operational Acceptance	75%

Note:

- Table 5A: Solar Plant Performance Parameters, shall be submitted for consolidated capacity as well as for individual locations.
- PR will be calculated monthly & annually from the date of Operational Acceptance of the Facilities.
- PR should be determined as per the formula and procedure specified in Clause 7 of Section V: Technical Specifications.

F6 Guaranteed Technical Particular data Sheet for Solar PV Module

(To be furnished by the bidder for each location separately i.e Collectorate meeting hall-45 KW, Nagar Nigam-49 KW, Treasury Office-25 KW, CMO Office-42 KW and NIC Center-7 KW)

Note: Please refer “Scope of Work & Technical Specification” of RFP regarding minimum technical requirement. **Bidder offering services/equipment less than the minimum technical requirement/specification mentioned in the RFP shall be summarily rejected and bid will not be evaluated further.**

S.No.	Particulars	Unit	Type/value
1	PV Module Manufacture (Name & Country) :		
2	PV Module type (Crystalline- Mono/ Multi)		
3	Product Code (commercial)		
4	No. of PV cells per Module	cells	72
5	Mounting arrangement for Solar Module		
6	Solar Module frame material (if framed)		
7	Module dimensions		
8	Output Cables (viz., Polarized Weather Proof DC rated multi-contact connector)		
9	Availability of Reverse Blocking Diode and Bypass Diode		
10	Construction: Front glass description and thickness Back sheet details Encapsulating details		72
11	Cell efficiency	%	
12	Module efficiency	%	
13	Nominal Wattage (P _{nom})	W	
14	Power Tolerance ($\leq +5W$)	W	
15	Peak power voltage (V _{mp})	V	
16	Peak power current (I _{mp})	A	
17	Open circuit voltage (V _{oc})	V	
18	Short circuit current (I _{sc})	A	
19	Weight of each module	kg	
20	Fill Factor	%	
21	Standards/Approvals from International Agencies	IEC 61215 IEC 61730 IEC 61646 IEC 61701 IEC 62716 Others	
22	Module is suitable to operate up to 50° ambient temp	Yes/No	

F-7 Technical Particular Data Sheet for Power Conditioning Unit

(To be furnished by the bidder for each location separately i.e Collectorate meeting hall-45 KW, Nagar Nigam-49 KW, Treasury Office-25 KW, CMO Office-42 KW and NIC Center-7 KW)

Note : Please refer “Scope of Work & Technical Specification” of RFP regarding minimum technical requirement. **Bidder offering services/equipment less than the minimum technical requirement/specification mentioned in the RFP shall be summarily rejected and bid will not be evaluated further.**

Particulars	Unit	Value
Make		
Capacity		
Origin		
AC Side		
Nominal AC power @ 25 °C	kW	
Nominal AC power @ 50 °C	kW	
Output AC voltage	V	
Output AC Current	A	
Frequency (and Variation)	Hz	
Total Harmonic Distortion (< 3%)	%	
AC over/under voltage, over/under frequency protection		
Phase shift (cos phi)		
DC Side		
Maximum Input DC power	kW	
Maximum DC voltage	V	
MPPT voltage range	V	
Maximum DC current	A	
DC over voltage protection		
DC voltage ripple	%	
Others		
Maximum Efficiency	%	
Euro Efficiency	%	
Ambient temperature range	°C	
Humidity (non-condensing)	RH	
Quiescent power	kW	
Degree of protection	IP	
Dimensions approx. (H x W x D)	mm	
Weight	kg	
Compliances (Reference Standards)		

F-8. Format for Power of Attorney for signing the Bid

(On INR 100.00 Non judicial Stamp Paper and duly

notarized) KNOW ALL MEN BY THESE

PRESENTS,

We _____ (*name of the firm and address of the registered office*) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms. (*name*), _____ son/daughter/wife of _____ and _____ presently residing at _____, who is presently employed with us and holding the position of

_____, as our true and lawful attorney (*hereinafter referred to as the "Attorney"*) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our application for qualification and submission of our bid for the Project _____ (*name of the Project*) of Aligarh Smart City Limited (the "client") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in pre-applications and other conferences and providing information/ responses to the client, representing us in all matters before the client, signing and execution of all contracts including the Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the client in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/ or till the entering into of the Agreement with the client.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, _____, THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF ____.

For _____

(Signature, name, designation and address) Witnesses:

1.

(Notarized)

2.

Accepted

(Signature, Name, Title and Address of the

Attorney) Notes:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
- Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
- In case the bid is signed by an authorized Director / Partner or Proprietor of the Bidder, a certified copy of the appropriate board resolution / document conveying such authorization to client may be enclosed in lieu of the Power of Attorney.

F-9 .Format for Self-Certification on Local Content (On Letter Head of the Bidder)

I/We hereby certify and confirm that, I/We..... (name of the bidder) having it's registered office at..... am/are a Class-I Local Supplier/ Class-II Local supplier (select the

appropriate one) as defined in Office order No P-45021/2/2017-PP (BE-II) dated 4th June'2020, issued by Ministry of Commerce and Industry, Department of Promotion of Industry and Internal Trade, (Public Procurement Section), Government of India.

Items offered under this RFP meets the local content requirement for Class-I Local Supplier/ Class-II Local supplier (select the appropriate one).

Local value addition has been done at the following locations:

Location	Address

That in the event of, information provided above found to be false or misleading at any time during the tenure of the work, I/We will be backlisted for two years and EMD/Bid Security/Performance Security shall be forfeited by ASCL.

(Signature of the Bidder)

Printed

Name

Designation

Seal

Date:

Place:

Business Address:

F-10 Undertaking from Bidder regarding On Gol Office Memorandum dated 23rd July'2020

I/We hereby confirm that, I/We have read the Office Memorandum number F.No. 6/18/2019-PPD dated 23rd July 2020 issued by Ministry of Finance, Department of Expenditure, Public Procurement division, Government of India and the clause regarding restrictions on procurement from a bidder of a country which shares a land boundary with India, I/We hereby certify that this bidder is not from such country or, if from such a country, has been registered with competent authority . I/We hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered.

(Signature of the Bidder)

Printed

Name

Designation

Seal

Date:

Place:

Business Address:

F-11 Declaration of Non-Blacklisting

(Over Company letter head)

Place

Date

To,
Chief Executive
Officer Aligarh Smart
City Limited

Subject: Self Declaration of not been blacklisted in response to the bid "Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission

Dear Sir,

We confirm that our company or firm, _____ having registered office at is currently not blacklisted in any manner whatsoever by any Government/Semi Government Organization/funding agencies/PSU in India.

(Signature of the

Bidder) Printed

Name Designation

Seal

Dat

e:

Place:

Business Address:

F-12 No Deviation Certificate

Place

Date

To,
Chief Executive
Officer Aligarh Smart
City Limited
Manasi Ganga Building, Baraula By Pass
Road,
Near Shanti Lodge, Aligarh, Uttar Pradesh
202001, India

Subject: Self Declaration for No Deviation in response to the RFP for Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call)

Dear Sir,

This is to certify that our offer is exactly in line with your tender enquiry/RFP (including amendments) no.____ dated_. This is to expressly certify that our offer contains no deviation either Technical (including but not limited to Scope of Work, Business Requirements Specification, Functional Requirements Specification, Hardware Specification and Technical Requirements Specification) or Commercial in either direct or indirect form.

(Authorized Signatory)

Printed Name

Designation

Seal

Date:

Place:

Business Address:

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission. (2nd Call)

F 13: Total Responsibility Certificate

(To be provided on the Company letter head)

Place

Date

To,
Chief Executive
Officer Aligarh Smart
City Limited
Manasi Ganga Building, Baraula By
Pass Road, Near Shanti Lodge,
Aligarh,
Uttar Pradesh 202001, India

Subject: Self Declaration for Total Responsibility in response to RFP “Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call)”.

Dear Sir,

This is to certify that we undertake the total responsibility for the defect free operation of the proposed solutions as per the requirement of the RFP for the duration mentioned in this RFP.

(Authorized Signatory)

Printed Name

Designation

Seal

Date:

Place:

Business Address:

F- 14 Anti-Collusion Certificate

[Certificate should be provided by Bidder on letter head]

To,
Chief Executive
Officer Aligarh Smart
City Limited
Manasi Ganga Building, Baraula By
Pass Road, Near Shanti Lodge,
Aligarh,
Uttar Pradesh 202001, India

Subject: Anti-Collusion Certificate in response to RFP “Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call)

Dear Sir,

We hereby certify and confirm that in the preparation and submission of our Bid for the subject work, We have not acted in concert or in collusion with any other Bidder or OEM or other person(s) and also not done any act, deed or thing, which is or could be regarded as anti-competitive. We further confirm that we have not offered nor will offer any illegal gratification in cash or kind to any person or organization in connection with the bid.

(Signature of the Lead Bidder)

Printed

Name

Designation

Seal Date:

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission. (2nd Call)

Place:

Business Address:

F- 15 Details of Contracts of Similar Nature and Complexity Completed during last seven years ending previous day of last date of submission of tenders

Project Description	Installed Capacity	Work carried as “Main Contractor” or JV Partner (IN case of JV, provide copy of JV agreement)	Name of Client & Address	Contact Details	Experience Certificate and Work Order to be attached

Bidder should have successfully/satisfactorily designed, procured, supplied, erected and commissioned of Solar Photo Voltaic (SPV) based grid connected power plant(s) of cumulative installed capacity of 300 KW or above and out of which at least one plant should have been of 100 KW capacity or above

F- 16 ANNUAL FINANCIAL DATA

(To be signed by Chartered Accountant/ Statutory auditor)

Name of Bidder:

ANNUAL FINANCIAL DATA

Financial Details (in Indian Rupees)	Financial Year				
	2018-19	2017-18	2016-17	2015-14	2014-15
Annual financial turnover					
Net worth					
Profit/loss					

OR (in case audited data for FY 19-20 is available)

Financial Details (in Indian Rupees)	Financial Year				
	2019-20	2018-19	2017-18	2016-17	2015-14
Annual financial turnover					
Net worth					
Profit/loss					

Note:

1. In case of turnovers in foreign currency, the figures are to be given in relevant currency and Figures in INR may be worked out as per SBI BC selling rates prevalent at that time, clearly indicating the calculations.
2. The bidder should not have incurred any loss in more than two years during available last five consecutive balance sheets, duly certified and audited by the Chartered Accountant.

F-17

SOLVENCY CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s_____or Shri_____ a customer of our Bank is respectable and can be treated as good for any up to a limit of _____ engagement (Rupees_____Rs.

This certificate is issued without any guarantee or responsibility on the Bank or any of its Officers.

(Signature)

for the

Bank.

Note:

1. This certificate may be issued on **the letter head of the Bank and should not more than six month old from one day before the last date of submission of bid.**

F-18

AFFIDAVIT*

I, _____ S/o Sh. _____ authorized representative of M/s

_____ with its office at _____ solemnly affirm and declare as under on behalf of the firm:-

1. I/We is/are submitting Bid for _____ (Name of Work)
2. I/We, the undersigned, do hereby certify that all the statements as contained in the Bid and annexure thereto are true and correct.
3. I/We, the undersigned, also hereby certify that neither our firm M/s _____ nor any of its constituent partners have abandoned any work/ contract awarded to us for which the reasons are attributable to the non-performance of the contractor.
4. I/We, the undersigned, also hereby certify that no criminal proceedings are pending/ ongoing in any court of law regarding any project executed by our firm.
5. I/We, the undersigned, also hereby certify that our firm has not been debarred/ blacklisted by any Government/ Semi Government Organization/financial institutions.
6. The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by ASCL to verify this statement or regarding my (our) competence and general reputation.
7. I/We, the undersigned, understand and agree that further qualifying information may be requested, and agrees to furnish any such information at the request of Employer/Engineer.

[Deponent]

Signed by an Authorized Officer of the Bidder

Title of Officer

Name of Bidder

VERIFICATION

Date

I/We, the above named deponent do hereby solemnly affirm that the information contained in para 1 to 7 above are true and correct as per my knowledge and records and nothing material has been concealed there from.

Verified on _____, 2020 at _____.

Deponent]

*** To be given on Non-judicial stamp paper of Rs.100/- duly notarized.**

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

F-19

UNDERTAKING FROM THE PARENT COMPANY

(On the Letter Head of the Parent Company)

Name:
Full Address:
Telephone No.:
E-mail address:
Fax/No.:

To,

The CHIEF EXECUTIVE OFFICER,
Aligarh Smart City Limited
Manasi Ganga Building, Baraula By Pass Road,
Near Shanti Lodge, Aligarh,
Uttar Pradesh 202001, India

Dear Sir,

We refer to the RFP Nofor “Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call).”

We have carefully read and examined in detail the RFP, including Addendum and Corrigendum, Pe Bid Query reply.

We confirm that M/s(**Insert name of Bidding Company having its registered office at.....**) has been authorized by us to use our financial capability for meeting the Financial Eligibility as specified in Clause 1.3 (Turnover) and 1.4 (Financial Capability) of the RFP referred to above.

We have also noted the amount of the Performance Guarantee required to be submitted as stated in the RFP shall be submitted by (Insert the name of the Bidding Company) in the event of it being selected as the Successful Bidder”.

We hereby undertake to you and confirm that in the event of failure of(Insert name of the Bidding Company) to submit the Performance Guarantee in full or in part at any stage, as specified in the Rfp, we shall submit the Performance Guarantee not submitted by(Insert name of the Bidding Company)”.

We,.....(name of the parent company) also confirm that :

- 1) Neither We or any other affiliated company (except the bidding company) is participating in this bid.
- 2) We are not be debarred/blacklisted by any Government/Semi Government Organization/funding agencies/PSU at any time till last date for submission of bid (except in cases where such blacklisting/ banning has been withdrawn by Competent Authority or reasons other than non-performance, such as rescinding of joint venture due to most experienced partner of joint venture pulling out or debarment/blacklisting has ceased on the deadline for submission of the bids, for which satisfactory evidence is to be produced).
- 3) We have not suffered bankruptcy/insolvency or is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of bids or thereafter till finalization of bids.
- 3) No criminal proceedings are pending/ ongoing against us in any court of law regarding any project executed by the us.

That in the event of, information provided above found to be false or misleading at any time during the tenure of the work, We both (.....Name of the Parent company and bidding company) will be backlisted for two years and EMD/Bid Security/Performance Security shall be forfeited by ASCL.

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 RfP.

Signature of Authorised Signatory

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

WITNESS

..... (Signature) Name.....

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Designation.....

(Signature) Name.....

Designation.....

Encl : certified true copy of the Board Resolution Whereby the Board of Directors of our Company has approved issue of this Undertaking by the Company

F-20

FORMAT FOR CERTIFICATE OF RELATIONSHIP OF PARENT COMPANY OR AFFILIATE WITH THE BIDDING COMPANY

To,

The CHIEF EXECUTIVE OFFICER,
Aligarh Smart City Limited
Manasi Ganga Building, Baraula By Pass Road,
Near Shanti Lodge, Aligarh,
Uttar Pradesh 202001, India

Sub: Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission (2nd Call)

Dear Sir,

We hereby certify that M/s..... having registered office at is the Parent Company of the Bidding Company as per the definition of Parent Company as provided in this RFP (including any Addendum and Corrigendum) and based on details of equity holding as on seven (7) days prior to the Bid Deadline.

The details of equity holding of the 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

.....

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

Annexure -1

QUALIFYING CRITERIA

The evaluation of Technical Bid will be based on Bidders meeting all the following minimum pass/fail criteria and other relevant information furnished by the Bidder:

1 Qualifying Criteria

1.1 General

This Bid is a National competitive bid and open **ONLY for Class-I Local Supplier & Class-II local supplier** as defined in Office order No P-45021/2/2017-PP (BE-II) dated 4th June'2020, issued by Ministry of Commerce and Industry, Department of Promotion of Industry and Internal Trade, (Public Procurement Section), Government of India. A copy of office order is attached for bidder's reference and compliance.

Local Content means the amount of value added in India which shall ,unless otherwise prescribed by the Nodal Ministry ,be the total item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent

Class –I local supplier means a supplier or service provider, whose goods ,services or works offered for procurement has local content equal to more than 50 %, as defined above.

Class-II local supplier means a supplier or service provider whose goods, services or works offered for procurement has local content more than 20 % but less than 50%, as defined above.

It may also be noted that any “bidder from a country which shares a land boundary with India” will only be eligible to bid in this RFP if the bidder is registered with the “competent authority”.

Definition of “Bidder from a country which shares a land boundary with India” and “Competent authority” would be in accordance with the Office Memorandum number **F.No. 6/18/2019-PPD dated 23rd July 2020** issued by Ministry of Finance, Department of Expenditure, Public Procurement division, Government of India. A copy of Office Memorandum is attached for bidder's reference and compliance.

1.2 Particular Experience

A) The Bidder shall provide documentary evidence that it has **successfully/satisfactorily designed, procured, supplied, erected and commissioned of Solar Photo Voltaic (SPV) based grid connected power plant(s) of cumulative installed capacity of 300 KW or above and out of which at least one plant should have been of 100 KW capacity or above** during the last 7 years ending previous day of last date of submission of tenders :

Note:

1. The Bidder should submit completion certificate Issued by the Client duly signed by Authorized Signatory not below the rank of Executive Engineer or equivalent (for Govt. clients) or authorised representative in case of public listed company, clearly indicating the nature / scope of work done, actual completion cost and actual date of completion. Copy of Work order/ Contract clearly highlighting the scope of work, Bill of Material and value of the contract/order should also submit.
2. Work experience certificate issued by Public listed company having average annual turnover of Rs. 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay stock Exchange, incorporated/ registered at least 5 years prior to the date of opening of RFP, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issued such certificates.

In case Bidder submits work experience certificate issued by public listed company, it shall also submit along with work experience certificate, the relevant copy of work order, bill of material, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

It is to clarify that, contracts executed by bidder as subcontractor with end client as Government, Semi Government, PSU, Railway etc. shall also be considered as project executed as government client. Completion Certificate of both bidder's work as well it's immediate client also need to be submitted. TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate also to be submitted.

3. Projects for which Construction is completed, and project/s are under operation stage will be considered subjected to other conditions stipulated in the RFP.

Similar works may have been executed by the Applicant as prime contractor or as Lead member of joint venture. In case a project has been executed as Joint Venture by two or more firms, weightage towards experience in the project would be given to JV partners in proportion to their participation in the Joint Venture which is presented for evaluation. In case the partnership in JV is not substantial (i.e. <26%) no weightage shall be considered.

In case the similar work, as described above, is only a part of a composite/bigger project, the certificate from Employer should also indicate the cost of similar work out of the total project cost of composite/bigger project and its completion in full along with as applicable O&M period.

Base Year and Escalation

The following enhancement factors have to be used for updating the cost of works

executed to bring to a common base:

Year before	Multiplying Factor
Base year (2018-19)	1.00
One	1.07
Two	1.14
Three	1.23
Four	1.31
Five	1.40
Six	1.50
Seven	1.61

Applicant should incorporate the above enhancement factors to the actual amount of the works executed by them clearly indicating the calculations.

In case the financial figure and value of completed works are in foreign currency, the above enhanced factors will not be applied. Instead, actual amount in the foreign currency shall have to be converted into equivalent Indian Rupees (INR) at the State Bank of India BC selling rate as on the date one weeks prior to the last date of submission, clearly indicating the calculations.

B. Bidder should have successfully carried out Operation and Maintenance of any similar work in India during the last 7 years ending previous day of last date of submission of tenders. Work Order along with O&M Phase Completion Certificate to be submitted. O&M phase completion certificate should be for a minimum period of 2 years.

1.3 Turnover

The Bidder shall have achieved, during last three years (years to be considered shall be 2016-17, 2017-18 & 2018-19 or 17-18,18-19 or 19-20, based on availability of audited balance sheets) a financial average annual turnover of at least 1.5 Crs.

1.4 Financial capability

1.4.1 Solvency*

The Bidder should submit a solvency certificate, certified by his Bankers, of at least 40% of estimated cost of work put to tender. Solvency Certificate should not be more than six month old from one day before the date of submission of bid.

1.4.2 Profit / loss*

The bidder should have positive net worth and should not have incurred any loss (profit after tax should be positive) in more than two years during available last five consecutive balance sheets (i.e. 2014-15, 2015-16, 2016-17, 2017-18 & 2018-19 or 2015-16,2016-17,17-18,18-19 & 19-20) duly certified and audited by the Chartered Accountant/Statutory Accountant.

*Note:

Bidder may use it's parent organization credential for meeting the turnover (CI 1.3), solvency (1.4.1) and Profit/loss criteria (1.4.2). In such case, Bidders shall submit an Undertaking from the Parent Company as per the format attached (F-19) and also furnish a Certificate of relationship of Parent Company with the Bidding Company (as per F-20

attached) towards Shareholding Pattern of the Parent Company and the Bidding Company along with a Board resolution from the Parent Company.

Sub Note:

- 1) "Parent Company" shall mean a company that holds more than 50% percent of the paid-up equity capital directly or indirectly in the Bidding Company as the case may be.
- 2) Parent Company or any other affiliated company (except the bidding company) are not allowed to participate in this bid.
- 3) Parent Company should not be debarred/blacklisted by any Government/Semi Government Organization/funding agencies/PSU at any time till last date for submission of bid, except in cases where such blacklisting/ banning has been withdrawn by Competent Authority or reasons other than non-performance, such as rescinding of joint venture due to most experienced partner of joint venture pulling out or debarment/blacklisting has ceased on the deadline for submission of the bids, for which satisfactory evidence is to be produced.
- 4) Parent company should not have suffered bankruptcy/insolvency or it is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of bids or thereafter till finalization of bids.
- 5) No criminal proceedings are pending/ ongoing against the parent company in any court of law regarding any project executed by the Bidder.

1.5 Disqualification

Even though the Bidder meets the above criteria, he is subject to be disqualified if Bidder has:

- made misleading or false representation in the forms, statements and attachments submitted; or
- any criminal proceedings are pending/ ongoing in any court of law regarding any project executed by the Bidder.
- has been debarred/blacklisted by any Government/Semi Government Organization/funding agencies/PSU at any time till last date for submission of bid, except in cases where such blacklisting/ banning has been withdrawn by Competent Authority or reasons other than non-performance, such as rescinding of joint venture due to most experienced partner of joint venture pulling out or debarment/blacklisting has ceased on the deadline for submission of the bids, for which satisfactory evidence is to be produced.
- The bidder or any of its constituents has suffered bankruptcy/insolvency or it is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of bids or thereafter till finalization of bids.
- records of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non-performance of the Bidder, inordinate delays in completion, consistent history of litigation / arbitration awarded against the Bidder or any of its constituents or financial failure due to bankruptcy, etc.
- any near relative posted in ASCL in any capacity (any breach of this condition by the bidder would render him liable to be debarred for taking up works in ASCL).

The near relatives include wife, husband, partners, grand-parents, children, grandchildren, brothers, sisters, uncles, aunts, cousins, and their corresponding in-laws.

- Bidder is associated, directly or indirectly, with the Consultant or any other entity that has prepared the tender design, specifications and other documents for the Project or being proposed as Project Manager/Engineer for the Contract/Work
- Is under a declaration of ineligibility for corrupt or fraudulent practice

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section VI-Forms and Formats

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission. (2nd Call)

Section III : General Conditions of Contract

Section - III

General Conditions of Contract

A. CONTRACT AND INTERPRETATION

1. Definitions and Abbreviations

The following words and expressions shall have the meanings hereby assigned to them:

“Adjudicator” means the person or persons named as such in the SCC to make a decision on or to settle any dispute or difference between the Employer and the Contractor.

“Applicable Law” means any statute, law, regulation, ordinance, notification, rule, regulation, judgment, order, decree, bye-law, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision of, or determination by, or any interpretation or administration having the force of law in the Republic of India and the State Government, by any Government Authority or instrumentality thereof, whether in effect as of the date of this Contract or thereafter.

“Affected Party” means Employer or the Contractor whose performance has been affected by an event of Force Majeure.

“Bid” shall mean the Techno Commercial and the Financial Proposal submitted by the Bidder along with all documents/credentials/attachments annexure etc., in response to this IFB, in accordance with the terms and conditions hereof.

“Bidder” shall mean Bidding Company submitting the Bid including its successors, executors and permitted assigns.

“CEA” shall mean Central Electricity Authority.

“Chartered Accountant” shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949;

“Commissioning” A project shall be considered commissioned if all equipment as per rated capacity has been installed and energy has flown into grid.

“Completion of facilities” means that the Facilities (or a specific part thereof where specific parts are specified in the SCC) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of Pre-commissioning of the Facilities or such specific part thereof has been completed; and Commissioning has been attained as per Technical Specifications.

“Contract” means the Contract Agreement entered into between the Employer and the Contractor, together with the Contract Documents referred to therein; they shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly.

“Contract Documents” means the documents listed in the Form of Contract Agreement.

“Contract Value” means the firm value of the quoted price by the successful bidder specified in its financial proposal as the sum of individual contract value of supply, erection, civil works and O&M under different work packages specified in the financial proposal, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract including taxes, duties levies etc., as applicable.

“Contractor” means the Bidder whose bid to perform the Contract has been accepted by the Employer and is named as such in the Contract Agreement, and includes the legal successors or permitted assigns of the Contractor.

“Contractor’s Equipment” means all plant, facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, completion and maintenance of Facilities that are to be provided by the Contractor, but does not include Plant and Equipment, or other things intended to form or forming part of the Facilities.

“Contractor’s Representative” means any person nominated by the Contractor and approved by the Employer to perform the duties delegated by the Contractor.

“Day” means calendar day of the Gregorian calendar.

“Month” means calendar month of the Gregorian calendar.

“Defect Liability Period” means the period of twenty four (24) months from the date of completion of the Facilities or a part thereof, during which the Contractor must repair any defect identified by the Project Manager / Engineer In charge after commissioning of the plant. All the expenses to repair the defects shall be borne by the contractor and no additional cost charged to the Employer.

“Effective Date” means the date of issue of LOI/ NTP/ Date mentioned in contract agreement from which the Time for Completion shall be determined.

“Employer” means ASCL, Aligarh and includes the legal successors or permitted assigns of the Employer and also its authorized representative.

“Facilities” means the Plant and Equipment to be supplied and installed, as well as all the Installation Services including all infrastructure as mention in scope of works mentioned in detail under Section V: Technical Specification of this IFB, to be carried out by the Contractor under the Contract.

“Final Acceptance” means acceptance of Facilities by the Employer at the end of O&M period, as stated in this RFP, from the date of Commissioning or demonstration of minimum annual CUF whichever comes later which certifies the Contractor’s fulfilment of the Contract in respect of Functional and Plant Performance Guarantees of the Facilities.

“GCC” means the General Conditions of Contract hereof.

“GHI” means Global Horizontal Irradiance

“GSS” means grid sub-station.

“Guarantee Test(s)” means the test(s) specified in the Technical Specifications to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified in the Technical Specifications.

“IEC” means International Electro-technical Commission

“Installation Services” means all those services ancillary to the supply of the Plant and Equipment for the Facilities, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance (s), inspection, expediting, site preparation works (including the provision and use of Contractor’s Equipment and the supply of all use structural and construction materials required), installation including civil and allied works etc., testing, pre-commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training of Employer’s Personnel etc.

“kWh” means Kilo-Watt-hour.

“kWp” means Kilo-Watt Peak.

“kW” means Kilo-Watt.

“LOI” means Letter of Intent.

“MW” means Mega-Watt.

“MWp” means Mega-Watt Peak.

“NIT” means Notice inviting Tender.

“NTP” means Notice to Proceed.

“O&M” means Comprehensive Operation and Maintenance of the Facilities

“Operational Acceptance” means the acceptance by the Employer of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in parts), which certifies the Contractor’s fulfilment of the Contract in respect of Functional and Plant Performance Guarantees of the Facilities. O&M period shall commence after Operational Acceptance of the Facilities by the Employer.

“Plant and Equipment” means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Facilities by the Contractor under the Contract (including the spare parts), but does not include Contractor’s Equipment.

“PR” means Performance Ratio.

“Pre-commissioning” means the testing, checking and other requirements specified in the Technical Specifications that are to be carried out by the Contractor in preparation for Commissioning.

“Project Manager/Engineer-in-Charge (EIC)” means the person appointed by the Employer to perform the duties delegated by the Employer.

“RFP” means Request for Proposal.

“SCC” means the Special Conditions of Contract.

“Site” means the area and other places upon which the Facilities are to be installed, and such other area or places as may be specified in the Contract as forming part of the Site.

“Subcontractor” including vendors, means any person to whom execution of any part of the Facilities, including preparation of any design or supply of any Plant and Equipment, is sub-contracted directly or indirectly by the Contractor, and includes its legal successors or permitted assigns.

“Tax” means the GST/ duties/ levies/ octroi etc. as applicable and put in force by the state Government / central Government/ Local Bodies/ Statutory bodies etc. from time to time.

“Time for Completion” means the time within which Completion of the Facilities as a whole (or of a part of the Facilities where a separate Time for Completion of such part has been prescribed) is to be attained in accordance with the stipulations in the SCC and the relevant provisions of the Contract.

“TS” means Technical Specifications

2. Use of Contract Documents & Information

- 2.1. All documents, as mentioned in the GCC Clause 57, forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.
- 2.2. The Contract (s) will be signed in three (3) originals and the Contractor shall be provided with one signed original and the rest will be retained by the Employer.
- 2.3. The Contractor shall provide/ submit, free of cost to the Employer all the engineering data, drawings and descriptive materials with the bid, in at least two (2) copies to form a part of the Contract immediately after LOI.
- 2.4. The Contractor shall not, without the Employer’s prior written consent, disclose the Contract or any provision thereof or any specification, plan, drawing, pattern therewith to any person other than person employed by the Contractor in Performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend strictly for purpose of Performance only.
- 2.5. The Contractor shall not, without Employer’s prior written consent, make use of any document or information except for purpose of performing the Contract. Any document other than the Contract itself, shall remain the property of the Employer.

3. Interpretation

3.1. Language

The bid prepared by the Bidder and all correspondence and documents related to the bid exchanged between the Bidder and the Employer shall be written in English language, provided that any printed literature furnished by the Bidder may be written in another language, as long as such literature is accompanied by a translation of its pertinent passages in English language in which case, for purposes of interpretation of the bid, the translation shall govern.

3.2. Singular and Plural

The singular shall include the plural and the plural the singular, except where the context otherwise requires.

3.3. Headings

The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.

3.4. Persons

Words importing persons or parties shall include firms, corporations and government entities.

3.5. Entire Agreement

The Contract constitutes the entire agreement between the Employer and Contractor with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract. The various documents forming the Contract are to be taken as mutually explanatory.

3.6. Amendment

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party hereto.

3.7. Independent Contractor

3.7.1. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties hereto.

3.7.2. Subject to the provisions of the Contract, the Contractor shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Sub contractors engaged by the Contractor in connection with the Performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the Employer. Nothing contained in the Contract or in any subcontract awarded by the Contractor shall be construed to create any contractual relationship between any such employees, representatives or Sub-contractors and the Employer.

3.7.3. Under no circumstances the sub-contractor shall claim or shall put any binding to the Employer and at all times the sub-contractor must be managed by the Contractor. The Employer shall not be responsible for any claims at any time by the Contractor in relation to the sub-contractor.

3.8. Non-Waiver

3.8.1. Subject to GCC Clause 3.9.2 below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

3.8.2. Any waiver of a party's rights, powers or remedies under the Contract must be in

writing, must be dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

3.9. Severability

- 3.9.1. If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.
- 3.9.2. 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

3.10. Country of Origin

"Origin" means the place where the materials, equipment and other supplies for the facilities are mined, grown, produced or manufactured and from which the services are provided.

4. Notices

- 4.1. Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, facsimile or e-mail to the address of the relevant party by the authorized representative of the party set out in contract coordination procedure to be finalized and mutually agreed for the execution of the contract and all the communication pertaining to project shall be in accordance with the procedure with the following provisions.
 - 4.1.1. Any notice sent shall be confirmed within two (2) days after receipt.
 - 4.1.2. Any notice sent by facsimile or e-mail shall be deemed to have been delivered on date of its dispatch and personal delivery deemed to have been delivered on date of delivery.
 - 4.1.3. Either party may change its postal, cable, telex, facsimile or e-mail address or addresses for receipt of such notices by ten (10) days' notice to the other party in writing.
- 4.2. Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.

5. Governing Laws

- 5.1. The Contract shall be governed by and interpreted in accordance with laws in force in India. The Courts of Aligarh shall have exclusive jurisdiction in all matters arising under the Contract.
- 5.2. The contract must be interpreted and read under the influence of Indian Contracts Act, 1872 and all amendments as on date.

6. Settlement of Disputes

6.1. Dispute resolution

- 6.1.1. Any dispute, difference or controversy of whatever nature howsoever arising under
- 6.1.2. or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 6.1.3 and 6.1.4 I.
- 6.1.3. The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.
- 6.1.4. In the event of any Dispute between the Parties, either Party may call upon an officer
- 6.1.5. of the Authority, not below the rank of CEO, as the case may be, or such other person as the Parties may mutually agree upon (the "Conciliator") to conciliate and assist the Parties in arriving at an amicable settlement thereof. Conciliator need to arrive a decision within 120 days or extended date agreed by both the parties
- 6.1.6. Any Dispute which is not resolved amicably by conciliation, as provided in Clause 6.1.3, shall be finally decided by a civil court of applicable jurisdiction by way of civil suit and not by arbitration.
- 6.1.7. Deleted
- 6.1.8. Deleted.
- 6.2. Deleted
- 6.3. Not with standing any reference to the dispute herein,
- 6.3.1. The parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.
- 6.3.2. The Employer shall pay the Contractor any payment due to the Contractor.

B. Subject Matter of Contract:

7. Scope of Facility

- 7.1. Unless otherwise expressly limited in the Technical Specifications, the Contractor's obligations cover the provision of all Plant and Equipment including spares and the Performance of all services required for the design, the manufacture (including procurement, quality assurance, construction, installation, associated civil, structural and other construction works, Pre- commissioning and delivery) of the Plant and Equipment and the installation, commissioning, completion of facilities and carrying out guarantee tests for the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Technical Specifications. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labour, materials, equipment, spare parts (as specified in GCC Sub-Clause 7.3 below) and accessories; Contractor's Equipment; construction utilities and supplies; temporary materials, structures and facilities; transportation (including, without limitation, loading, unloading and hauling to, from and at the Site); insurance and storage, except for those supplies, works and services that will be provided or performed by the Employer, as set forth in GCC Clause 9.

- 7.2. The Contractor shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Completion of the Facilities as if such work and/or items and materials were expressly mentioned in the Contract.
- 7.3. Bidder is requested to provide the list of all the spares required to maintain the facility for O&M period. Contractor agrees to supply such spare parts, as recommended or otherwise required for the effective and hassle free operation and maintenance of the Facilities. However, the contractor, with its previous experience, is to provide a list of spares including specifications, supplier details and indicative price, as recommended by him and OEM. The contractor shall keep and maintain the inventory of such spares for the hassle free operation during the complete O&M period without additional cost to Employer. Also, at the end of penultimate year of the O&M contract, contractor shall supply a list of all recommended spares as per the operational requirement of the plant and with reference to the mean time between failures (MTBF), along with detailed specifications, supplier details and tentative cost for future purchase. The price of such spare parts shall include the breakup of taxes and duties as applicable towards purchase and supply of spare parts. Employer, at its discretion, will purchase the spare as required for future operation.

8. Contractor's responsibility

- 8.1. The Contractor shall design, procure, manufacture (including associated purchases and/or subcontracting), install, commission and complete the Facilities, carry out the Guarantee tests with due care and diligence in accordance with the Contract including the O&M for the prescribed period.
- 8.2. The contractor shall pay fees for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located for the plant establishment, which such authorities or undertakings require the Employer to obtain them in the Employer's name, are necessary for the execution of the Contract (they include those required for the Performance by both the Contractor and the Employer of their respective obligations under the Contract), including those specified in "Scope of Works and Supply by the Employer" at the Contract Agreement on providing the proper demand note letter. However, such demand notes must be provided to the Employer at least 7 days prior to the submission.
- 8.3. The Contractor confirms that it has entered into this Contract on the basis of proper examination of the data relating to the Facilities provided by the Employer and assessed by himself at the site location, after proper due diligence relating to the Facilities prior to bid submission. The Contractor acknowledges that any failure to obtain or acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Scope of Work.
- 8.4. The Contractor shall acquire, on behalf of Employer, in the employers' name, all permits, approvals and/or licenses from all local, state or national government

authorities or public service undertakings in the country where the Site is located that are necessary for the setting up of the plant mentioned under the Contract, including, but not limited to, entry permits for all imported Employer's Equipment (if any). In this regard, any document required from Employer shall be intimated at least 10 days prior to submission. Contractor has to ensure safe keeping of the documents and diligent use. It is the responsibility of the contractor to safe keep and return all the approvals, permits, licenses, certificates and other relevant document generated as a result of the setting up of project and O&M process to the Employer.

- 8.5. The Contractor shall acquire in its name all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located that are necessary for the Performance of the Contract, including, but not limited to, the right of way for the access to site and for evacuation of power generated and net metering with Zero Export Policy related works as applicable, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals and/or licenses that are not the responsibility of the Employer under GCC Sub-Clause 9 hereof and that are necessary for the Performance of the Contract.
- 8.6. Contractor shall also seek for any exemption applicable for the project as per the orders released from GOI time to time. In this regard, contractor shall be responsible to take all necessary certificates as a proof of exemptions on behalf of Employer. However, all the documents required from Employer, as needed for the process, will be provided by Employer. The demand of such documents shall be made to the Employer in at least 10 days advance.
- 8.7. The Contractor shall comply with all laws in force at the place, where the Facilities are installed and where the Installation Services are carried out. The laws will include all national, provincial, municipal or other laws that affect the Performance of the Contract and binding upon the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GCC Sub-Clause 9.1 hereof.
- 8.8. Any plant, material, spares & spares inventory and services that will be incorporated in or be required for the facilities and other supplies shall have their origin as defined under GCC Clause 3.11 (Country of Origin)
- 8.9. Unless otherwise specified in the Contract or agreed upon by the Employer and the Contractor, the Contractor shall provide/ deploy sufficient, properly qualified operating and maintenance personnel; shall supply and make available all raw materials, spares, other materials and facilities; and shall perform all work and services of whatsoever nature, to properly carry out Pre-commissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of "Scope of Works and Supply by the Employer" to the Contract Agreement at or before the time specified in the program furnished by the Contractor under GCC Clause 18 hereof and in the manner thereupon specified or as otherwise agreed upon by the Employer and the Contractor.

9. Employer's responsibility

- 9.1. The Employer shall be responsible for acquiring and providing legal and physical possession of the Site thereto required for the proper execution of the Contract. The Employer shall give full possession or phased possession of site and accord all rights of access thereto on or before the date(s) of LOI/ NTP or as agreed in contract agreement. In case of delay in doing so, Contractor would be entitled for suitable extension of time. However, no cost compensation would be payable due to delay in possession of land (in part of full).
- 9.2. The Employer shall facilitate the contractor in obtaining all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located for the plant establishment, which such authorities or undertakings require the Employer to obtain them in the Employer's name, are necessary for the execution of the Contract (they include those required for the Performance by both the Contractor and the Employer of their respective obligations under the Contract), including in those specified in "Scope of Works and Supply by the Employer" at the Contract Agreement on providing the proper demand note letter. However, such demand notes must be provided to the Employer at least 7 days prior to the submission.
- 9.3. If requested by the Contractor and up- on Employer's sole discretion, the Employer shall use its best endeavours to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings that such authorities or undertakings required for the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, as the case may be, to obtain.
- 9.4. The Employer shall be responsible for the operation of the Facilities after Completion and proper hand over of the site by contractor, in accordance with GCC Clause 26 and 27. However, the Contractor, under the O&M Contract, shall be responsible for the care and custody of the facility as per GCC Clause 26.9.

C. Payments

10. Contract Price

- 10.1. The contract price mentioned under Appendix 5: Format for Financial proposal shall be firm and shall not be subject to price variation.
- 10.2. Subject to GCC Sub-Clauses 8.2 and 9.1 hereof, the Contractor shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.
- 10.3. Contract price will be, if needed, adjusted in accordance with the provisions of GCC Clause 29.

11. Terms of Payment

- 11.1. The terms of Payment shall be as specified in SCC Clause 14. The procedures to be followed in making application for and processing payments shall be those outlined

in the same SCC Clause.

- 11.2. No payment made by the Employer herein shall be deemed to constitute acceptance by the Employer of the Facilities or any part(s) thereof.

12. Bank Guarantees

12.1. Issuance of Bank Guarantees

The Contractor shall provide the Bank Guarantees specified below in favor of the Employer at the times, and in the amount, manner and form specified below.

12.2. Mobilization Advance Bank Guarantee

12.2.1. The Contractor shall, if required, provide a Bank Guarantee in an amount of 110% to the advance mobilization payment calculated in accordance with ITB Clause 1.2.3 of this RFP, and in the currency mentioned in ITB Clause 2.9.2, with an initial validity of up to 365 days from the date of request for the Facilities in accordance with GCC Clause 26. However, in case of delay in completion of facilities under the package, the validity of the security shall be extended by the period of such delay.

12.2.2. The security shall be in the form of an unconditional and irrevocable bank guarantee as per the Format provided in "Appendix 12 (a): Format of Bank Guarantee for Mobilization Advance". The Mobilization Advance shall be interest bearing. The rate of interest being the One percent more than SBI base rates prevailing on the date of disbursement. The Mobilization Advance against Bank Guarantee shall be reduced pro-rata from every Running Account Bill/ Stage Payment under the Contract based on the value of equipment/ facilities received. The total amount of mobilization advance, including the interest levied, shall be deemed to be adjusted from the running bills on pro-rata basis till the commissioning of the Project as specified in SCC Clause 14. It should be clearly understood that adjustment in the value of Bank Guarantee for Mobilization Advance shall not in any way dilute the Contractor's responsibility and liabilities under the Contract including in respect of the Facilities for which the adjustment in the value of Bank Guarantee is allowed.

12.2.3. The Bank Guarantee submitted against the Mobilization advance shall be essentially from any of the Banks listed at "Schedule - 1: List of Banks" supplemented at SCC of the Bidding Documents

12.3. Performance Bank Guarantee during execution phase

12.3.1. The Contractor shall, within twenty one (21) days of the issue of LOI/LOA, provide Bank Guarantee(s) for the due Performance of the Contract for an amount and validity mentioned under ITB Clause 32. Initially Performance security shall be valid for 210 days. However, in case of delay in completion of project or demonstration of the Performance Test (PR test) and Operational Acceptance, the validity of all the contract Performance Bank Guarantees shall be extended by the period of such delay plus ninety days.

12.3.2. The Performance Bank Guarantee shall be denominated in the Indian currency

and shall be in the form of unconditional and irrevocable bank guarantee in the prescribed Format provided in Appendix 12(c): Format of bank guarantee for Performance security during EPC under Section-VI: Forms and formats.

12.3.3. The Bank Guarantee submitted against the Performance Bank Guarantee shall be essentially from any of the Banks listed at "Schedule - 1: List of Banks" supplemented at SCC of the Bidding Documents.

12.4. Performance Bank Guarantee during O&M or "O&M Bank Guarantee"

12.4.1. The contractor shall, at the time of Operational Acceptance and at the starting of the O&M phase, provide Bank Guarantee for the due performance under the Operation and Maintenance of the plant. The value and validity of the O&M Bank Guarantee shall be 25% of the total contract value. The Bank Guarantee must be submitted in the "Format 12(d): Format of Bank Guarantee for the Performance during O&M" specified under Section VI: Forms and Formats.

12.4.2. The Bank Guarantee submitted against the O&M Bank Guarantee shall be essentially from any of the Banks listed at "Schedule - 1: List of Banks" supplemented at SCC of the Bidding Documents.

13. Taxes and Duties

13.1. Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Sub-contractor or their employees by all municipal, state or national government authorities in connection with the Facilities in and outside of the country where the Site is located.

13.2. The Contractor shall further ensure that he endorses the GR/LR/RR in the name of Employer during transit of the equipment before the delivery of equipment is taken by Employer.

13.3. All taxes, duties and levies on Works Contract or civil works, if any, shall be to the contractor's account and no separate claim in this regard will be entertained by the Employer.

13.4. GST shall be to the contractor's account and no separate claim in this regard will be entertained by the employer. Same is to be considered in price bid.

13.5. Any variation in GST after the date of techno - commercial bid opening shall be adjusted, paid/reimbursed by the employer subject to submission of requisite documentary evidence by the bidder.

13.6. As regards the income tax, surcharge on income tax and any other corporate tax; the employer shall not bear any tax liability whatsoever. The Contractor shall be liable and responsible for payment of such tax, if attracted under the provisions of the law present or future and employer will make deductions at source as applicable. Any kind of Cess like Building and Other Construction worker's Cess etc to be borne by the contractor.

D. Intellectual Property

14. Copyright & Patent

14.1. The copyright in all drawings, documents and other materials containing data and information furnished to the Employer by the Contractor herein shall remain vested

in the Contractor or, if they are furnished to the Employer directly or through the Contractor by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party. The Employer shall however be free to reproduce all drawings, documents, specification and other material furnished to the Employer for the purpose of the contract including, if required, for operation and maintenance of the facilities.

- 14.2. The Contractor shall indemnify the Employer against third party claims of infringement of patent, trademark or industrial design rights arising from use of goods or any part thereof in India.

15. Confidential Information

- 15.1. The Employer and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this GCC Clause 15.
- 15.2. The Employer shall not use such documents, data and other information received from the Contractor for any purpose other than the operation and maintenance of the Facilities. Similarly, the Contractor shall not use such documents, data and other information received from the Employer for any purpose other than the design, procurement of Plant and Equipment, construction or such other work and services as are required for the Performance of the Contract.
- 15.3. The obligation of a party under GCC Sub-Clauses 15.1 and 15.2 above, however, shall not apply to that information which
- 15.3.1. Now or hereafter enters the public domain through no fault of that party
- 15.3.2. Can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party hereto.
- 15.3.3. Otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.
- 15.4. The above provisions of this GCC Clause 15 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Facilities or any part thereof.
- 15.5. The provisions of this GCC Clause 15 shall survive termination, for whatever reason, of the Contract.

16. Geological discoveries

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site where the services are performed, be deemed to be the absolute property of the Employer. The Contractor shall take reasonable precautions to prevent the personnel or any other persons from

removing or damaging any such article or thing and shall immediately upon the discovery thereof and, before removal, acquaint the Employer of such discovery any carry out, at the expense of the Employer, the Employer's orders as to the disposal of the same.

17. Representatives

17.1. Project Manager / Engineer- In -Charge (EIC):

If the Project Manager/ EIC is not named in the Contract, then within seven (7) days of the Effective Date, the Employer shall appoint and notify the Contractor in writing of the name of the Project Manager/ EIC. The Employer may from time to time appoint some other person as the Project Manager/ EIC in place of the person previously so appointed, and shall give a notice of the name of such other person to the Contractor without delay. The Employer shall take reasonable care, unless unavoidable to see that no such appointment is made at such a time or in such a manner as to impede the progress of work on the Facilities. The Project Manager/EIC shall represent and act for the Employer at all times during the currency of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager/ EIC, except as herein otherwise provided. All notices, instructions, information and other communications given by the Contractor to the Employer under the Contract shall be given to the Project Manager/ EIC, except as herein otherwise provided.

17.2. Contractor's Representative & Construction Manager

17.2.1. If the Contractor's Representative is not named in the Contract, then within seven (07) days of the Effective Date, the Contractor shall appoint the Contractor's Representative and shall request the Employer in writing to approve the person so appointed. If the Employer makes no objection to the appointment within seven (07) days of submission, the Contractor's Representative shall be deemed to have been approved. If the Employer objects to the appointment within seven (07) days giving the reason therefor, then the Contractor shall appoint a replacement within seven(07) days of such objection, and the foregoing provisions of this GCC Sub- Clause 17.2.1 shall apply thereto.

17.2.2. The Contractor's Representative shall represent and act for the Contractor at all times during the tenure of the Contract and shall give to the Project Manager/ EIC all the Contractor's notices, instructions, information and all other communications under the Contract.

17.2.3. All notices, instructions, information and all other communications given by the Employer or the Project Manager/ EIC to the Contractor under the Contract shall be given to the Contractor's Representative or, in its absence, its deputy, except as herein otherwise provided.

17.2.4. The Contractor shall not revoke the appointment of the Contractor's Representative without the Employer's prior written consent, which shall not be unreasonably withheld. If the Employer consents thereto, the Contractor shall appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GCC Sub-Clause 17.2.1.

17.2.5. The Contractor's Representative may, subject to the approval of the Employer

(which shall not be unreasonably withheld), at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Employer and the Project Manager/EIC.

- 17.2.6. Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GCC Sub-Clause 17.2.5 shall be deemed to be an act or exercise by the Contractor's Representative.
- 17.2.7. Notwithstanding anything stated in GCC Sub-clause 17.1 and 17.2.1 above, for the purpose of execution of contract, the Employer and the Contractor shall finalize and agree to a Contract Co-ordination Procedure and all the communication under the Contract shall be in accordance with such Contract Co-ordination Procedure.
- 17.2.8. From the commencement of installation of the Facilities at the Site until Final Acceptance, the Contractor's Representative shall appoint a suitable person as the construction manager (hereinafter referred to as "the Construction Manager"). The Construction Manager shall supervise all work done at the Site by the Contractor and shall be present at the Site throughout normal working hours except when on leave, sick or absent for reasons connected with the proper Performance of the Contract. Whenever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as his or her deputy.
- 17.2.9. The Employer may by notice to the Contractor object to any representative or person employed by the Contractor in the execution of the Contract who, in the reasonable opinion of the Employer, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations and safety. The Employer shall provide evidence of the same, whereupon the Contractor shall remove such person from the Facilities.
- 17.2.10. If any representative or person employed by the Contractor is removed in accordance with GCC Sub-Clause 17.2.4, the Contractor shall, where required, promptly appoint a replacement.

18. Project Implementation

18.1. Work Schedule

Within fourteen (14) days after the date of Issue of LOI/LOA/ NTP, the Contractor shall prepare and submit to the Project Manager/ EIC a detailed program of Performance of the Contract, made in the form of PERT Chart and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and pre-commission the Facilities. The program so submitted by the Contractor shall accord with the Time Schedule indicated in SCC and any other dates and periods specified in the Contract. The Contractor shall update and revise the program as and when appropriate or when required by the Project Manager/EIC, but without modification in the Time for Completion given in the SCC and any extension granted in accordance with clause for extension of time, and shall submit all such revisions to

the Project Manager/ EIC.

18.2. Progress Report

- 18.2.1. The Contractor shall monitor progress of all the activities specified in the work schedule referred in GCC Sub-Clause 18.1 above, and submit the progress report to the Project Manager as per the Contract Co-ordination procedure.
- 18.2.2. The progress report shall be in a form acceptable to the Project Manager/EIC and shall also indicate: (a) percentage completion achieved compared with the planned percentage completion for each activity; and (b) where any activity is behind the program, giving comments and likely consequences and stating the corrective action being taken.
- 18.2.3. If at any time the Contractor's actual progress falls behind the scheduled program, or it becomes apparent that it will so fall behind, the Contractor shall, at the request of the Employer or the Project Manager/ EIC, prepare and submit to the Project Manager/ EIC a revised program, taking into account the prevailing circumstances, and shall notify the Project Manager/ EIC, of the steps being taken to expedite progress so as to attain Completion of the Facilities within the Time for Completion. If any extension thereof entitled under GCC Sub-Clause 54.1, or any extended period as may otherwise be agreed upon between the Employer and the Contractor, Contractor shall submit the revised plan for completion of Facility accordingly.

18.3. Maintenance of Records of Weekly Progress Review Meeting at Site

The Contractor shall be required to attend all weekly site progress review meetings organized by the 'Project Manager/ EIC' or his authorized representative. The deliberations in the meetings shall inter-alia include the weekly program, progress of work (including details of manpower, tools and plants deployed by the Contractor vis-à-vis agreed schedule), inputs to be provided by Employer, delays, if any and recovery program, specific hindrances to work and work instructions by Employer. The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the 'Project Manager/ EIC' or his authorized representative. These recordings shall be jointly signed by the 'Project Manager/ EIC' or his authorized representative and the Contractor and one copy of the signed records shall be handed over to the Contractor.

19. Subcontracting

- 19.1. The Contractor shall not, without the prior consent in writing of the Employer, assign or sublet or transfer its Contract in whole or in part, its obligations to perform under the Contract or a substantial part thereof, other than raw materials, or for any part of the work of which makers are named in the Contract, provided that any such consent shall not relieve the Contractor from any obligation, duty or responsibility under the Contract.
- 19.2. The Contractor shall notify the Employer in writing of all sub contracts awarded under the Contract if not already specified in his Bid. Such notification in its original Bid or

later shall not relieve the Contractor from any liability or obligation under the Contract.

- 19.3. In case, the Contractor engages any Sub-Contractor to carry out a part of the work, the Sub- Contractor should have requisite Government License for carrying out such part of the work.

20. Design and Engineering

20.1. Specifications and Drawings

- 20.1.1. The Contractor shall execute the basic and detailed design and engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good and sound engineering practice.
- 20.1.2. The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager/ EIC or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Employer.
- 20.1.3. The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designated by or on behalf of the Employer, by giving a notice of such disclaimer to the Project Manager/EIC.

20.2. Codes and Standards

Wherever references are made in the Contract to codes and standards in accordance with which the Contract shall be executed, the edition or the revised version of such codes and standards current at the date of bid submission shall apply unless otherwise specified.

20.3. Approval / Review of Technical Documents by Project Manager

The Contractor shall prepare list of documents as per technical specifications and furnish to the Project Manager for Approval of the same and Review of work schedule. Any part of the Facilities covered by or related to the documents to be approved by the Project Manager shall be executed only after the Project Manager's approval thereof.

- 20.3.1. Within ten (10) days after receipt by the Project Manager of any document requiring the Project Manager's approval, the Project Manager shall either return one copy thereof to the Contractor with its approval endorsed thereon or shall notify the Contractor in writing of its disapproval thereof and the reasons therefor and the modifications that the Project Manager proposes.
- 20.3.2. The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with some specified provision of the Contract or that it is contrary to good engineering practice.
- 20.3.3. If the Project Manager disapproves the document, the Contractor shall modify the document and resubmit it for the Project Manager's approval. If the Project Manager approves the document subject to modification(s), the Contractor shall

- make the required modification(s), and upon resubmission with the required modifications the document shall be deemed to have been approved.
- 20.3.4. The procedure for submission of the documents by the Contractor and their approval by the Project Manager shall be as per the Contract Co-ordination procedure.
- 20.3.5. If any dispute or difference occurs between the Employer and the Contractor in connection with or arising out of the disapproval by the Project Manager of any document and/or any modification(s) thereto that cannot be settled between the parties within a reasonable period, then such dispute or difference may be settled in accordance with GCC Clause 6.0 (Settlement of Dispute) hereof. If such dispute or difference is referred as per GCC clause 6.0, the Project Manager shall give instructions as to whether and if so, how, Performance of the Contract is to proceed. The Contractor shall proceed with the Contract in accordance with the Project Manager's instructions, provided that if the Arbitration upholds the Contractor's view on the dispute, then the Contractor shall be reimbursed by the Employer for any additional costs incurred by reason of such instructions and shall be relieved of such responsibility or liability in connection with the dispute and the execution of the instructions as the Arbitration shall decide, and the Time for Completion shall be extended accordingly.
- 20.3.6. The Project Manager's approval, with or without modification of the document furnished by the Contractor, shall not relieve the Contractor of any responsibility or liability imposed upon it by any provisions of the Contract except to the extent that any subsequent failure results from modifications required by the Project Manager.
- 20.3.7. The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Project Manager an amended document and obtained the Project Manager's approval thereof, pursuant to the provisions of this GCC Sub-Clause 20.3.
- 20.3.8. If the Project Manager requests any change in any already approved document and/or in any document based thereon, generally shall be taken care by the contractor if the change is not causing any major financial impact.

21. Procurement

21.1. Plant and Equipment

The Contractor shall procure and transport all the Plant and Equipment in an expeditious and orderly manner to the Site to achieve completion of activities as per schedule to enable commissioning of the Project by the scheduled commissioning date.

21.2. Transportation

The contractor shall ensure that all the plant and equipment required to complete the Facility at site, are procured and dispatched on FOR site basis. The Contractor shall at its own risk and expense transport all the Plant and Equipment and the Contractor's Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances.

21.3. Packing and Marking

- 21.3.1. The Contractor shall be responsible for securely protecting and packing the plant & equipment as per prescribed standards in force to withstand the journey and ensuring safety of materials and also arrival of materials at destination in original condition and good for contemplated use. Packing case size & weight shall take into consideration the remoteness of the goods final destination and absence of heavy material handling facilities at all points in transit.
- 21.3.2. Packing lists of materials shall be provided in each package to facilitate checking up of the contents at the destination.
- 21.3.3. In order to import any items, associated with the Solar PV Power Project, from abroad or from any other state in India, Contractor shall have to arrange any clearance, permission, if required at his own risk, from any Government (Government of State & Government of India) or any Government (Government of State & Government of India) controlled organization for transportation of materials from manufacturing shop to delivery at Site. Necessary certificates, if so required, shall be issued by the Employer within reasonable time after getting written request from the Contractor along with the necessary documents substantiating necessity of such approvals. Contractor shall take necessary insurances to ensure safe transit. All packing material is the property of the Employer and shall be immediately deposited by the Contractor to the Employer's Store at project Site.

21.4. Storage of Equipment

The plant and equipment thus procured under the scope of the contract must be kept in safe custody till put under operation. All the spares, as required for the trouble free O&M of plant, must be kept under secure storage during O&M period.

22. Materials and Workmanship

- 22.1. All materials shall be of the best quality and workmanship capable of satisfactory operation under the operating and climatic conditions as may be specified. Unless otherwise specified, they shall conform in all respect to the latest edition of the relevant IS codes specifications wherever Indian specifications apply or IEC codes or equivalent internationally accepted standards.
- 22.2. The Contractor shall supply & deliver all equipment and materials for installation at site. The Contractor shall arrange for transportation, loading & unloading and safe storage of materials at project site at his own cost & risk.
- 22.3. If the Contractor offers equipment manufactured in accordance with other international well recognized standards (mentioned above), he shall, in that case, supply a copy in English of the Standard Specification adopted and shall clearly mention in what respect such standard specification differs from Indian Standard Specifications. The Plant, equipment, and materials offered by the Contractor should comply with one consistent set of Standards only to make the system compatible and work in harmony as far as possible, except if mentioned otherwise.

23. Installation

23.1. Tools & Tackles

The Contractor shall provide technically suitable tools and tackles for installation & erection of Plant & Machineries conforming to relevant BIS safety and technical standards for proper execution of work. The Employer, in no way, shall be responsible for supply of any tools and tackles for implementation of the work and also to carry out operation & maintenance activities.

23.2. Setting up/Supervision/Labour

23.2.1. Bench Mark:

The Contractor shall be responsible for the true and proper setting-up of the Facilities in relation to bench marks, reference marks which are mutually agreed upon by the contractor and employer. If, at any time during the progress of installation of the Facilities, any error shall appear in the position, level or alignment of the Facilities, the Contractor shall forthwith notify the Project Manager of such error and, at its own expense, immediately rectify such error to the satisfaction of the Project Manager.

23.2.2. Contractor's Supervision:

The Contractor shall give or provide all necessary superintendence during the installation of the Facilities, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand.

23.2.3. Labour: The Contractor shall provide and employ on Site in the installation of the Facilities such skilled, semi- skilled and unskilled labor as is necessary for proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills. Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation, first aid facility and catering of all labor, local or expatriate, required for the execution of the Contract and for all payments in connection therewith. The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labour and personnel to be employed by contractor on the Site. The Contractor shall at all times during the progress of the Contract use its best endeavours to prevent any unlawful, riotous or disorderly conduct or behaviour by or amongst its employees and the labour of its Subcontractors. The Contractor shall, in all dealings with its labour and the labour of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.

23.3. Contractor's Equipment

23.3.1. All equipment brought by the Contractor onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The

Contractor shall not remove the same from the Site without the Project Manager's consent that such Contractor's Equipment is no longer required for the execution of the Contract.

23.3.2. Unless otherwise specified in the Contract, upon completion of the Facilities, the Contractor shall remove from the Site all Equipment brought by the Contractor onto the Site.

23.4. Site Regulations and Safety

The Contractor shall have to provide necessary and adequate safety measures including personal protective equipment and precautions to avoid any accident, which may cause damage to any equipment / material or injury to workmen. The contractor, if required, will provide necessary safety training to workmen. The Employer shall not be responsible for any such accidents. Also, contractor shall engage sufficient security guards to protect Facility from any theft and unauthorized access to Site.

23.5. Site Clearance

23.5.1. Site Clearance in Course of Performance

In the course of carrying out the Contract, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or remove any surplus materials, clear away any wreckage, packaging material, rubbish & debris and temporary installations from the Site, and remove any Contractor's Equipment no longer required for execution of the Contract.

23.5.2. Site Clearance after Completion

After Completion of all parts of the Facilities, the Contractor shall clear away and remove all wreckage, packaging material, rubbish & debris and temporary works & installations of any kind from the Site, and shall leave the Site and Facilities clean and safe.

23.5.3. Disposal of Scrap

The Contractor shall with the agreement of the Employer promptly remove from the site any 'Scrap' generated during Performance of any activities at site in pursuance of the Contract. The term 'Scrap' shall refer to scrap/ waste/ remnants arising out of the unpacking of equipment, construction debris, breakage of modules, fabrication of structural steel work and piping work at the project site in the course of execution of the contract and shall also include any wastage of cables during the termination process while installing the cables. The disposal of such Scrap shall vest with the Contractor for the items supplied by the Contractor and issued by Employer under this contract for installation and construction without any additional cost to the Employer. The removal of scrap shall be subject to the Contractor producing the necessary clearance from the relevant authorities (Custom, Excise etc.), if required by the law, in respect of disposal of the scrap. The liability for the payment of the applicable taxes/duties shall be that of the Contractor. The Contractor shall also indemnify

to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap. The Indemnity Bond shall be furnished by contractor as per Format enclosed as Appendix 17 of Section- VI: Forms and Formats. Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the scrap to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.

23.5.4. Watch & Ward and Lighting

The Contractor shall provide and maintain at its own expense all lighting, fencing, watch and ward wherever necessary for the proper execution and the protection of the Facilities, or for the safety of the owners and occupiers of adjacent property and for the safety of the public.

24. Inspection & Testing

- 24.1. The Employer or its authorized representative shall have, at all time, access to the Contractor's premises and also shall have the power, at all times, to inspect and examine the materials and workmanship of project work during its manufacture, shop assembly and testing. If part of the plant is required to be manufactured in the premises other than the Contractor's, the necessary permission for inspection shall be obtained by the Contractor from the Employer or his duly authorized representative.
- 24.2. The Employer shall have the right to serve notice in writing to the Contractor on any grounds of objections, which he may have in respect of the work. The Contractor has to forthwith take necessary actions to remove the cause to the complete satisfaction of the Employer otherwise, the Employer at its liberty may reject all or any component of plant or workmanship connected with such work.
- 24.3. The Contractor shall issue request letter to the Employer or its authorized representative for testing of any component of the plant, which is ready for testing at least 07 days in advance from the date of actual date of testing at the premises of the Contractor or elsewhere. However, the Employer at its own discretion may waive the inspection and testing in writing under very special circumstances. In such case, the Contractor may proceed with the tests which shall be deemed to have been made in the Employer presence, and it shall forthwith forward two sets of duly certified copies of test results and certificates to the Employer for approval. The Contractor, on receipt of written acceptance from the Employer, may dispatch the equipment for erection & installation.
- 24.4. For all tests to be carried out, whether in the premises of the Contractor or any Sub-Contractor, the Contractor, shall provide labor, materials, electricity, fuel, water, stores, apparatus and instruments etc. free of charge as may reasonably be demanded to carry out such tests of the plant in accordance with the Contract. The Contractor shall provide all facilities to the Employer or its authorized representative to accomplish such testing.
- 24.5. The Employer or his authorized representative shall have the right to carry out inward inspection of the items on delivery at Site and if the items have been found to be not in line with the approved specifications, shall have the liberty to reject the same.

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- 24.6.** If Employer desires, testing of any component(s) of the plant be carried out by an independent agency. The inspection fee, if any, shall be paid by the employer. However, the contractor shall render all necessary help to Employer whenever required free of charge.
- 24.7.** The Contractor has to provide the necessary testing reports to the Employer as and when required.
- 24.8.** Neither the waiving of inspection nor acceptance after inspection by the Employer shall, in anyway, absolve the Contractor of the responsibility of supplying the plant and equipment strictly in accordance with specification and drawings etc.

25. Authorized Test Centre's for test certificates

The PV modules/ inverters/ cables and other Balance of system equipment deployed in the solar PV power plant shall have valid test certificates for their qualification as per above specified IEC/ IS Standards by one of the NABL Accredited Test Centers in India. In case of module types/ equipment for which such Test facilities may not exist in India, test certificates from reputed ILAC Member body accredited Labs in abroad (with proof of accreditation) will be acceptable.

26. Commissioning and Completion of the Facilities

- 26.1.** As soon as installation of the Facilities has, in the opinion of the Contractor, been complete as specified in the Technical Specifications, excluding minor items not materially affecting the operation or safety of the Facilities, the Contractor shall so notify the Employer (Project Manager/ EIC) in writing to witness the pre-commissioning of the facility.
- 26.2.** As soon as all works in respect of Pre-commissioning are completed and, in the opinion of the Contractor, the Facilities is ready for Commissioning, the Contractor shall so notify the Project Manager in writing. The Contractor shall commence Commissioning of the facilities as per the GCC Sub - Clause 26.3.
- 26.3.** Commissioning of the Facilities shall be completed by the Contractor as per procedures detailed in the Technical Specifications and in the presence of the Project Manager or the representatives of the employer.
- 26.4.** If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies, and shall repeat the procedure described in GCC Sub- Clause 26.2.
- 26.5.** If the Project Manager is satisfied that the Facilities have reached Completion, the Project Manager shall, within seven (7) days after receipt of the Contractor's repeat notice, issue a Completion Certificate stating that the Facilities have reached Completion as at the date of the Contractor's repeat notice.
- 26.6.** If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeat notice, and the above procedure shall be repeated.
- 26.7.** If the Project Manager fails to issue the Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 26.2 or within seven (7) days after

receipt of the Contractor's repeated notice under GCC Sub-Clause 26.3, or if the Employer makes use of the Facilities, then the Facilities shall be deemed to have reached Completion as of the date of the Contractor's notice or repeated notice, or as of the Employer's use of the Facilities, as the case may be.

- 26.8. As soon as possible after Completion, the Contractor shall complete all outstanding minor items so that the Facilities are fully in accordance with the requirements of the Contract, failing which the Employer will undertake such completion and deduct the costs thereof from any monies owing to the Contractor.
- 26.9. Upon Completion, commissioning and successful demonstration of the PR test, the contractor shall be responsible for the care and custody of the Facilities, together with the risk of loss or damage thereto, and shall thereafter take over the Facilities or the relevant part thereof for the agreed duration of operation and maintenance as stipulated and mutually agreed terms and conditions.

27. Guarantee Test and Operational Acceptance

27.1. Functional Guarantees

- 27.1.1. The Contractor guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees specified under Technical Specifications, subject to and upon the conditions therein specified.
- 27.1.2. If, for reasons attributable to the Contractor, the guaranteed level of the Functional Guarantees specified under Technical Specifications are not met either in whole or in part, the Contractor shall, within a mutually agreed time, at its cost and expense make such changes, modifications and/ or additions to the Plant or any part thereof as may be necessary to meet such Guarantees. The Contractor shall notify the Employer upon completion of the necessary changes, modifications and/or additions, and shall seek the Employer's consent to repeat the Guarantee Test. If the level of the specified Functional Guarantee parameters, as demonstrated even during repeat of the Guarantee Test(s), are outside the acceptable shortfall limit, the Employer may at its option, either
- Reject the Equipment and advise immediate replacement to suit the provisions of Technical Specification without any additional cost or;
 - Reject the Equipment and recover the payments already made, or;
 - Terminate the Contract and recover the payments already made, or;
 - Accept the equipment after levy of liquidated damages in accordance with the provisions specified.

27.2. Plant Performance Guarantee Test

The plant Performance Guarantee (as mentioned in TS) Test shall be conducted by the Contractor after Commissioning of the Facilities to ascertain whether the Facilities or the relevant part(s) can attain the Functional Guarantees specified in the Contract Documents. The Contractor's and Project Manager's advisory personnel shall attend the Guarantee Test. The Employer shall promptly provide the Contractor with such information as the Contractor may reasonably require in relation to the conduct and results of the Guarantee Test (and any repeats thereof). The detailed procedure for Performance Guarantee Test shall be carried out as per procedure laid down in

Section V - Technical Specifications.

27.3. Operational Acceptance

27.3.1. Operational Acceptance shall occur in respect of the Facilities when:

- The Plant Performance Guarantee Test (PR Test) in accordance with the procedure specified in Section V - Technical Specifications has been successfully completed and the Functional Guarantees are met; or
- The Contractor has paid the liquidated damages, if any, specified in GCC Clause 34 hereof;

27.3.2. At any time after any of the events set out in GCC Sub- Clause 27.3.1 have occurred, the Contractor may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Bidding Documents or in another form acceptable to the Employer in respect of the Facilities or the part thereof specified in such notice as at the date of such notice.

27.3.3. The Project Manager shall, after consultation with the Employer, and within thirty (30) days after receipt of the Contractor's notice, issue an Operational Acceptance Certificate.

27.3.4. If within thirty (30) days after receipt of the Contractor's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Operational Acceptance Certificate, the Facilities shall be deemed to have been accepted as at the date of the Contractor's said notice.

27.3.5. Subsequent to Operational Acceptance of the Facilities by the Employer and within 10 days of the commencement of the O&M period, the Contractor shall furnish an Indemnity Bond as per Appendix 18 of Section VI: Forms and Formats which is to be executed by the contractor for the plant handed over by Employer for performance of its O&M Contract (Entire Solar Photo Voltaic Plant).

27.4. Final Acceptance

27.4.1. Final Acceptance shall occur in respect of the Facilities when:

- The plant have achieved the Operational acceptance and served the O&M for the period stipulated under the contract agreement; and
- All the contractors' liabilities under the O&M contract have been satisfied; and
- Contractor has provided the list of recommended spares with detailed specification, source and price for further procurement; and
- The Contractor has paid the liquidated damages, if any, as specified in SCC Clause 25 thereto;

27.4.2. At any time after the events set out in GCC Sub - Clause 27.4.1 have occurred, the Contractor may give a notice to the Project Manager requesting the issue of Final Acceptance Certificate in the form provided in the Bidding Documents or in another form acceptable to the Employer in respect of the Facilities or the part thereof specified in such notice as at the date of such notice.

27.4.3. The Project Manager shall, after consultation with the Employer, and within thirty (30) days after receipt of the Contractor's notice, issue Final Acceptance Certificate.

27.4.4. If within thirty (30) days after receipt of the Contractor's notice, the Project Manager fails to issue the Final Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Final Acceptance Certificate, the Facilities shall be deemed to have been accepted as at the date of the Contractor's said notice.

27.4.5. The O&M contract period may further be extended for minimum period of 5 years as per mutually agreed terms and conditions. The contractor is allowed to submit his intent at the time of Final acceptance.

28. Inter-changeability

All the parts shall be made accurately to applicable Standards and specification so as to facilitate replacement and repairs. All corresponding parts of similar apparatus shall be inter- changeable.

29. Power to Vary or Omit Work

29.1. No alterations, amendments, omissions, additions, subtractions, or variations of the work (hereinafter referred to as "variation") under the contract shall be made by the Contractor except as directed by the Employer.

29.2. If any suggested variations would, in the opinion of the Contractor, if carried out would prevent it from fulfilling any of its obligations or guarantees under the Contract, it shall notify the Employer thereof in writing and the Employer shall decide forthwith whether or not the same shall be carried out and if Employer confirms its instruction, the Contractor shall carryout the work as per the instructions.

29.3. The differences in cost, if any, occasioned by such variations, shall be added to or deducted from the specific Contract Price i.e., Supply, Erection and Civil Works, as the case may be.

29.4. In the event of the Employer requiring any variations; reasonable and proper notice shall be given to the Contractor as well, to enable it to make arrangements accordingly, and in cases where goods or materials are already prepared/ procured, or any designs, drawings or patterns made or work done that require to be altered, a reasonable sum in respect thereof shall be allowed by the Employer.

29.5. In every case in which the contractor shall receive instructions from the Employer for carrying out any work, which either then or later, will in the opinion of the Contractor involve a claim for additional payment, the Contractor shall as soon as reasonably possible, not later than 15 days after the receipt of such instructions, inform in writing to the Employer of such claim for additional payment.

29.6. The quantity of earthwork with soil for land development after dewatering is to be assessed as per the actual site requirement. The bidder has to assess the earthwork and associated work involved and make his bid judiciously. No extra claim on account for the same shall be admissible under any circumstances.

29.7. In any case, if the Bidder deviates from the design or specification as defined in the RFP document, the Bidder has to submit the deviation sheet along with the Bid.

30. Negligence

30.1. If the Contractor neglects to manufacture or supply or construct the plant and

equipment with due diligence and with expeditiousness or refuses or neglects to comply with any reasonable order given to it in writing by the Employer or contravenes any provisions of the Contract, the Employer may give (7) seven days' notice in writing to the Contractor, to make good the failure, neglect or contravention complained of. If the Contractor fails to comply with the notice within reasonable time depending on the nature of affected work, which is evaluated by the Project Manager from the date of serving thereof, in the event of failure, neglect or contravention capable of being made good within that time, then in such case, if the Employer thinks fit it may get the work done at the risk and cost of the contractor

- 30.2. If the cost of executing the work as aforesaid shall exceed the balance due to the Contractor and the Contractor fails to make good such deficiency, the Employer shall take action in the manner it may consider deemed fit in terms of the Contract.

31. Statutory Responsibility

The Contractor shall comply with all applicable laws or ordinances, codes, approved standards, rules, and regulations and shall procure and maintain their validity along with all necessary Municipal, Panchayat and Government permits & licenses etc. at its own cost.

32. Insolvency

The Employer may at any time, by notice in writing, summarily terminate the Contract without compensation to the Contractor in the following events:

If the Contractor being an individual or a firm or any partner thereof shall at any time, be adjudged insolvent or shall have a receiver appointed from administration against it or shall take any proceeding for compensation under any Insolvency Act for the time being in force or make any conveyance or assignment with its creditors or suspend payment or if the firm be dissolved under Partnership Act, or court or a Receiver, Liquidator or manager on behalf of the Debenture holder is appointed or circumstances have arisen which entitle the Court or debenture holder to appoint a Receiver, Liquidator or Manager.

33. Delay in Execution or Failure to Supply

- 33.1. Any delay in completion of the work, shall attract liquidated damage, for late completion as per Liquidated Damage GCC Clause 34.
- 33.2. If the Contractor fails to deliver the plant or fails to start the work within specified time frame after signing of Contract Agreement or leave the work Site after partial execution of the work, Employer shall have the right to get the work done through any other agency at the risk and cost of the Contractor. Further to this, Employer may, without prejudice to the right of the Employer to recover damages for breach of trust of the Contract, may impose liquidity damages on the contractor as per GCC Clause 34.

34. Liquidated Damages

- 34.1. The project is scheduled to be commissioned within the period specified in SCC from

the commencement date.

34.2. In case the Contractor fails to achieve successful commissioning of plant by the due date indicated in schedule as mentioned in SCC Clause 8, the Employer shall levy Liquidated Damages on the Contractor in the following lines:

- a) For first 45 days: @ 0.10% of the Contract Value of the remaining work per day of delay, as assessed in accordance with the certified payments subtracted from the total contract value.
- b) For delay beyond 45 days mentioned at (a) above and up to 90 days from the scheduled commissioning date, LD shall be levied @ 0.1% of the total Contract Value per day. However, total amount on account of LD shall be limited to maximum of 10% (ten percent) of the total contract value.

34.3. The project is to be commissioned within the stipulated time period mentioned at SCC. In case of delay for more than the maximum time period allowed (including LD), the Employer after due assessment may initiate the appropriate action including cancellation and getting the work completed by other suitable agency at the risk and cost of the contractor. For calculation of liquidated damages, the month shall be considered consisting of 30 days and date of LOI/ NTP as reference date

35. Defect Liability

35.1. The Contractor must warrant that the Facilities shall be free from defects in the design, engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed.

35.2. If it shall appear to the Project Manager that any supplies have been executed with unsound, imperfect or unskilled workmanship, or with materials of any inferior description, or that any materials or articles provided by the Contractor for the execution of Contractor are unsound or otherwise not in accordance with the Contract, the Contractor shall on demand in writing inform the Project Manager or its authorized representative specifying the item, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for. The Contractor shall forthwith rectify or remove and replace that item so specified and provide other proper and suitable materials or articles at its own charge and cost, and in the event of failure to do so within a period to be specified by the Project Manager in its demand aforesaid, the Project Manager may on expiry of notice period rectify or remove and re-execute the time or remove and replace with others, the materials or articles complained of as the case may be at the risk and expense in all respects of the Contractor. The decisions of the Project Manager in this regard shall be final and binding.

35.3. The Contractor shall also be undertaking the operation and maintenance of the Facility and consequently shall be required to rectify any defects that emerge during the operation of the Facilities for the entire term of this Contract.

35.4. The Defect Liability Period shall be of twenty four (24) months from the date of completion of the Facilities, during which the Contractor must repair any defect identified by the Project Manager/ EIC after commissioning of the plant. All the expenses to repair the defects shall be borne by the contractor and no additional cost charged to the Employer ("Defects Liability Period").

35.5. If during the Defect Liability Period any defect should be found in the design,

engineering, materials and workmanship of the Plant and Equipment supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Contractor shall, at its discretion, determine) such defect as well as any damage to the Facilities caused by such defect.

35.6. Furthermore, without prejudice to the generality of the foregoing, it is clarified that the Contractor shall also be responsible for the repair, replacement or making good of any defect, or of any damage to the Facilities arising out of or resulting from any of the following causes:

- Improper operation or maintenance of the Facilities by the Contractor during operation and maintenance of the Facility; and
- Operation of the Facilities outside specifications of the Facilities.

35.7. The Employer shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Employer shall afford all reasonable opportunity for the Contractor to inspect any such defect.

35.8. The Employer shall provide the Contractor all necessary access to the Facilities and the Site to enable the Contractor to perform its obligations under this Clause 35 (Defect Liability). The Contractor may, with the consent of the Employer, remove any Plant and Equipment or any part of the Facilities that are defective from the Site, if the nature of the defect and/or any damage to the Facilities caused by the defect is such that repairs cannot be expeditiously carried out at the Site.

35.9. If the repair, replacement or making good is of such a nature that it may affect the efficiency of the Facilities or any part thereof, the Employer may give to the Contractor a notice requiring that tests of the defective part of the Facilities shall be made by the Contractor immediately upon completion of such remedial work, whereupon the Contractor shall carry out such tests.

35.10. If such part fails the tests, the Contractor shall carry out further repair, replacement or making good (as the case may be) until that part of the Facilities passes such tests. The tests, in character, shall in any case be not inferior to what has already been agreed upon by the Employer and the Contractor for the original equipment/part of the Facilities.

35.11. If the Contractor fails to commence the work necessary to remedy such defect or any damage to the Facilities caused by such defect within a reasonable time (which shall in no event be considered to be less than seven (7) days), the Employer may, following a notice to the Contractor, proceed to do such work, and the costs incurred by the Employer in connection therewith shall be paid to the Employer by the Contractor or may be deducted by the Employer from any monies due to the Contractor or claimed under the Performance Guarantee, without prejudice to other rights, which the Employer may have against the Contractor in respect of such defects.

35.12. If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the

aforesaid reasons. Upon correction of the defects in the Facilities or any part thereof by repair/replacement, such repair/replacement shall have the defect liability period of twenty four (24) months from such replacement.

- 35.13. In addition, the Contractor shall also provide an extended warranty for any such component of the Facilities and for the period of time. Such obligation shall be in addition to the defect liability specified under Clause 35.2.

36. Termination by default and Breach of Contract

Employer may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Contractor, terminate the Contract in whole or in part:

- 36.1. If the Contractor fails to deliver or execute any or all of the goods within the time period(s) under the Contract or any extension thereof granted by the Employer pursuant to the clause for Delay in Execution or Failure to Supply or, if the Contractor fails to perform any other obligations(s) under the Contract.
- 36.2. In the event the Employer terminates the contract in whole or in part, pursuant to above, the Employer may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered, the Contractor shall be liable to the Employer for any excess costs for such similar goods. However, the Contractor shall continue the Performance of the Contract to the extent not terminated.
- 36.3. In case of termination of the Contract due to breach of contract, the Contractor may be debarred from participation in future tenders by Employer, through a communication in writing for a period to be specified therein.
- 36.4. In case the termination of contract in accordance with GCC Clause 32 thereto.

37. Breach & Cancellation of the Contract

- 37.1. In case of non-Performance, in any form or change of the covenant and conditions of the Contract by the Contractor, Employer shall have the power to annul, rescind, cancel or terminate the order and upon its notifying in writing to the Contractor that it has so done, this Contract shall absolutely determine. The decision of the Employer in this regard shall be final and binding.
- 37.2. The following conditions shall contribute to the breach of contract:
- If the Contractor fails to deliver any or all of the Goods within the period(s) specified in the Contract; or
 - If the Contractor fails to perform any of their obligations(s) under the Contract, and
 - If the Contractor, in either of the above circumstances does not rectify his failure within a period of 30 (Thirty) days (or such longer period as the Employer may authorize in writing) after receipt of the default notice from the Employer

38. Force Majeure

- 38.1. A 'Force Majeure' means any event or circumstance or combination of events those stated below that wholly or partly prevents or unavoidably delays an Affected Party in the performance of its obligations under this Agreement, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or complied with Prudent Utility Practices:

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- Act of God, including, but not limited to lightning, fire not caused by contractors' negligence and explosion (to the extent originating from a source external to the site), earthquake (above 7.0 magnitude on Richter Scale), volcanic eruption, landslide, unprecedented flood, cyclone, typhoon or tornado;
 - Any act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action, quarantine;
 - Radioactive contamination or ionizing radiation originating from a source in India or resulting from another Force Majeure Event mentioned above.

38.2. Force Majeure Exclusions

Force Majeure shall not include (i) any event or circumstance which is within the reasonable control of the Parties and (ii) the following conditions, except to the extent that they are consequences of an event of Force Majeure:

- Unavailability, late delivery, or changes in cost of the plant, machinery, equipment, materials, spare parts or consumables for the Power Project;
- Delay in the performance of any contractor, sub-contractor or their agents;
- Non-performance resulting from normal wear and tear typically experienced in power generation materials and equipment;
- Strikes at the facilities of the Contractor / Affected Party;
- Insufficiency of finances or funds or the agreement becoming onerous to perform; and
- Non-performance caused by, or connected with, the Affected Party's:
 - Negligent or intentional acts, errors or omissions;
 - Failure to comply with an Indian Law; or
 - Breach of, or default under this Contract Agreement.
- Normal rainy seasons and monsoon

38.3. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under this Contract, relative obligation of the party affected by such Force Majeure shall be treated as suspended during the period which the Force Majeure clause last.

38.4. Upon occurrence of such causes, the party alleging that it has been rendered unable as aforesaid, thereby, shall notify the other party in writing by registered notice within 48 (forty eight) hours of the alleged beginning thereof giving full particulars and satisfactory evidence in support of its claim. Further, within 7 (seven) days, the Contractor will furnish a detailed Contingency Plan to overcome the effects of the incident and bring the project on its schedule after cessation of the effect of Force Majeure.

38.5. The Affected Party shall give notice to the other Party of (i) the cessation of the relevant event of Force Majeure; and (ii) the cessation of the effects of such event of Force Majeure on the performance of its rights or obligations under this Agreement, as soon as practicable after becoming aware of each of these cessations.

38.6. Time for Performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such Force Majeure clause lasts.

38.7. If works are suspended by Force Majeure conditions lasting for more than two

months, the Employer shall have the option of cancelling this Contract in whole or part thereof, at its discretion.

- 38.8. The Contractor will not be entitled to claim any compensation for Force Majeure conditions and shall take appropriate steps to insure its men and materials utilized by it under the Contract.

39. Insurance

- 39.1. During the Contract period, i.e., during Construction, all insurance related expenses shall be borne by the Contractor. The goods supplied under the Contract shall be fully insured against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in such a manner that Employer shall not incur any financial loss, as long as the plant continues to remain under the custody of the Contractor. Contractor has to provide a seamless insurance for the contract duration.
- 39.2. In case of any loss or damage or pilferage or theft or fire accident or combination of the said incidents etc. under the coverage of insurance, the Contractor shall lodge the claim as per rules of insurance. Any FIR required to be lodged to local Police Station shall be the responsibility of the Contractor.
- 39.3. The Contractor shall arrange to supply/ rectify/ recover the materials even if the claim is unsettled for timely completion of the project. The final financial settlement with the insurance company shall rest upon the Contractor.
- 39.4. In case of any delay of the project attributable to the Contractor, the Contractor himself in consultation with Employer should take the extension of insurance. Any financial implications shall, however, be borne by the Contractor.
- 39.5. The Contractor should arrange for providing insurance coverage to its workmen under Workmen's Compensation Act or similar Rules and Acts as applicable during execution of work for covering risk against any mishap to its workmen. The Contractor shall also undertake a Third Party Insurance. The Employer will not be responsible for any such loss or mishap.
- 39.6. All other insurance like In - transit insurance (Marine/ Cargo/ others as applicable), Contractor All Risk, Erection All Risk, workmen compensation , third party liability, insurance against theft and acts of GOD and others as required for the Construction and O&M of the plant and to indemnify the Employer/ equipment/ material and resources shall be borne by the Contractor. Fire insurance is to be arranged by the Contractor up to the years of O&M of the Contract.
- 39.7. Employer shall be named as co - insured under all insurance policies taken out by the contractor pursuant to GCC Clause 39, except for the workmen compensation, third party liability and Employer's liability insurances. Also, Contractors' sub - contractor shall be named as co - insured under all insurances taken out by the contractor pursuant to GCC Clause 39 except for Cargo insurance, workmen compensation insurance and Employer's liability insurance. All insurers' rights of subrogation against such co - insured for losses or claims arising out of the performance of the contract shall be waived under such policies.
- 39.8. All the insurance cover taken for the construction and O&M period shall be seamless in nature.
- 39.9. The insurance are to be suitably taken for the activity/ act which is required to cover all the risks associated to the activity / act. The contractor shall be responsible to take

suitable insurance till the completion of the O&M contract and indemnify the Employer from all associated risks whatsoever.

40. Statutory Acts, Rules and Standards

The work shall be executed in conformity with the relevant standard of Bureau of Indian Specification (or equivalent International Standard), Indian Electricity Act 2003, Indian Electricity Rules 2005 (as amended up to date), Explosive Act 1948, Petroleum Act 1934, National Building Code, Hazardous Waste Management Rules 2009, e - waste (Management & Handling) rules 2011 and relevant Rules/ acts in vogue at the time of execution including operation & maintenance period.

41. Hazardous Material

Any hazardous material used during construction or used as part of the plant has to be taken back by the supplier for recycling or dumping purpose after its operating / working life, so that it may not affect the environment or any living being. Bidder(s) have to comply with State Pollution Board regulation.

42. Stoppage of Work

Employer shall not be responsible and not liable to pay any compensation due to stoppage of work as a reaction from local public due to any undue action on the part of the Contractor causing annoyance to local people.

43. Hindrance Register

The Contractor may also maintain a Hindrance Register where reasons for delay/ fault may be recorded from time to time and at the time of occurrence of the hindrance and get it duly certified by the Project Manager or his authorized representative.

44. Manuals

The Contractor shall supply all necessary erection and commissioning manuals, O&M manuals etc. as and when required. Six sets of test results, manuals etc. shall be submitted by the Contractor on completion of the work to the employer.

45. Delivery of Equipment

- 45.1. The Contractor shall deliver the equipment of the plant and machineries in accordance with the terms of the Contract at the time(s) to the place(s) and in the manner specified in the Contract. The Contractor shall comply with instructions that may be given by the Employer from time to time regarding the transit of the plant and material.
- 45.2. Notification of delivery or dispatch in regard to each and every consignment shall be made to the Employer immediately after dispatch or delivery from the manufacturing works. The Contractor shall supply to the consignee Invoice in triplicate and packing account of all stores delivered or dispatched by him.
- 45.3. In case of any occurrence of loss or damage in transit, it shall be the liability of the Contractor to initiate or pursue the claim with insurance company. It should take immediate steps to repair the damaged apparatus or replacement thereto.

46. Liabilities during Transit

All the supplies mentioned/ required under this RFP shall be FOR destination basis. The Contractor shall be responsible for loss, damages or depreciation to goods or of plant, equipment, and machineries up to delivery at Site. The replacement of the affected item shall also to be carried out by the contractor to meet the performance of the contract within the specified time.

47. Deduction from Contract Price

- 47.1. All costs, claims, damages or expenses, which the Employer may have paid for which the Contractor is liable, will be deducted by the Employer from deposited Performance Bank Guarantee (s) or from any money due or which become due to him under this Contract or any contract are being executed elsewhere with the Employer.
- 47.2. Any sum of money due and payable to the Contractor, as per the Contract Agreement, may be appropriated by the Employer and set off against any claim of the Employer, for the payment of a sum of money arising out of or under any other contract made by the Contractor with the Employer. It is an agreed term of the Contract that the sum of money, withheld or obtained under this clause by the Employer, will be kept withheld or retained as such by the Employer or till the claim arising out of in the same Contract is either mutually settled or determined by the arbitrator, or by competent court, as the case may be, and that the Contractor shall have no claim for interest or damages whatsoever on this account or any other account in respect of any sum of money withheld or retained under this clause and duly notified as such to the Contractor.
- 47.3. The generation LD is to be recovered from the payment due. If the LD is greater than the payment due, then O&M performance BG will be encashed for balance amount. It will be the responsibility of the contractor to have the desired performance BG for O&M to be made available at the end of every year till the completion.

48. Warranty / Guarantee

- 48.1. PV modules used in grid connected Rooftop Solar Power Plants must be warranted for peak output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- 48.2. Deleted.
- 48.3. The mechanical structures, electrical works and overall workmanship of the grid connected Solar Power Plant must be warranted for a minimum of 10 years.
- 48.4. The Contractor must ensure that the goods supplied under the Contract are new, unused and of most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.
- 48.5. The warranty / guarantee period shall be as follows:
 - 48.5.1. Solar PV Modules & Flotation Device/Floats: Modules shall be warranted for a minimum period of 25 years in the Bidder's detailed Warranty / Guarantee certificate. Flotation Device/Floats shall be warranted for a minimum period of 25 years in the Bidder's detailed Warranty / Guarantee certificate
 - 48.5.2. Power Conditioning Units (PCU)/ Inverters: PCUs shall be warranted for the minimum period of 10 years or guarantee period provided by the OEM, whichever is higher.

48.5.3. Transformers, associated switch gear and others: Bidder must furnish in detail its warranties / guarantees for these items.

- 48.6. During the period of Warranty / Guarantee the Contractor shall remain liable to replace any defective parts, that becomes defective in the plant, of its own manufacture or that of its sub-Contractors, under the conditions provided for by the Contract under and arising solely from faulty design, materials or workmanship, provided such defective parts are not repairable at Site. After replacement, the defective parts shall be returned to the Contractors works at the expense of the Contractor unless otherwise arranged.
- 48.7. At the end of guarantee period, the Contractor's liability shall cease. In respect of goods not covered by the GCC Sub Clause 48.5, the Employer shall be entitled to the benefit of such guarantee given to the Contractor by the original Contractor or manufacturer of such goods.
- 48.8. During the Operation & Maintenance and guarantee period, the Contractor shall be responsible for any defects in the work due to faulty workmanship or due to use of sub- standard materials in the work. Any defects in the work during the guarantee period shall therefore, be rectified by the Contractor without any extra cost to the Employer within a reasonable time as may be considered from the date of receipt of such intimation from the Employer failing which the Employer reserves the right to take up rectification work at the risk and cost of the Contractor.
- 48.9. If any extended warranty/guarantee is required beyond the warranty/guarantee period as parts of terms and conditions of the bid, the same has to be arranged by the bidder at their cost, if necessary.

49. Final Bill/ Final Due Payment

The final bill relating to the EPC Contract or its parts viz. Supply, Erection and Civil Works contract, shall be prepared only after the Guaranteed Performance of the plant has been observed. It will include the adjustments of all claims against the Contractor by the Employer and awarded in its favor by the adjudicator or arbitrator, as the case may be, up to the date of preparation of the final bill.

50. Operation and Maintenance

- 50.1. The Operation and Maintenance shall be comprehensive. The maintenance service provided shall ensure project functioning of the Solar PV system as a whole and Power Evacuation System to the extent covered in the Contract. All preventive / routine maintenance and breakdown / corrective maintenance required for ensuring maximum uptime shall have to be provided. Accordingly, the Comprehensive Operation & Maintenance shall have two distinct components as described below:

50.1.1. Preventive / Routine Maintenance:

This shall be done by the Contractor regularly and shall include activities such as cleaning and checking the health of the Solar PV system, cleaning of module surface, tightening of all electrical connections, and any other activity including the associated civil works, as mentioned in TS Clause 3, wear and tear that may be required for proper functioning of the Solar PV system as a whole. Necessary maintenance activities, Preventive and Routine for Transformers and associated switch gears and transmission line also shall be included.

50.1.2. Breakdown / Corrective maintenance:

Whenever a fault occurs, the Contractor has to attend to rectify the fault & the fault must be rectified within the 48 hours from the time of occurrence of fault, failing which the Contractor will be liable for additional liquidated damages as per reference to the generation parameters accumulated in similar/ associated equipment of the plant (for eg. if a block consists of 4 inverters and one inverter is down for more than 48 hours, then the generation for faulty inverter shall be calculated as the average of accumulated generation for the other 3 inverters over the 48 hours duration of fault as the deemed generation) and the LD shall be levied on the deemed generation, 1.5 times of the prevailing tariff. The contractor must maintain all the records pertaining to all such faults and necessary measures taken.

- 50.2. The date of Comprehensive Operation & Maintenance Contract period shall begin on the date of Successful demonstration of guaranteed PR i.e., Operational acceptance. However, operation of the Power Plant means operation of system as per bid and workmanship in order to keep the project trouble free covering the guarantee period.

51. Risk Purchase

If the Contractor fails, on receipt of the LOI, to take up the work within a reasonable period or leave the work Site after partial execution of the work, the Employer shall have the liberty to get the work done through other agency at the Contractor's own risk and additional cost if any has to be borne by the Contractor. If the situation, so warrants, to compel the Employer to cancel the LOI placed on the Contractor, the Contractor shall be liable to compensate the loss or damage, which the Employer may sustain due to reasons of failure on Contractor's part to execute the work in time.

52. Unforeseen/ Differing site Conditions

- 52.1. If, during the execution of the Contract, the Contractor shall encounter on the Site any physical conditions (other than climatic conditions) or artificial obstructions that could not have been reasonably foreseen prior to the date of the Contract Agreement by an experienced contractor on the basis of reasonable examination of the data relating to the Facilities, and on the basis of information that it could have obtained from a visual inspection of the Site (if access thereto was available) or other data readily available to it relating to the Facilities, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Plant and Equipment or Contractor's Equipment, notify the Project Manager in writing of

- The physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen

The additional work and/or Plant and Equipment and/ or Contractor's Equipment required, including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions

- The extent of the anticipated delay
- The additional cost and expense that the Contractor is likely to incur and the breakup of the same.

On receiving any notice from the Contractor under this GCC Sub- Clause 52.1, the Project Manager shall consult and decide upon the actions to be taken to overcome the physical conditions or artificial obstructions encountered. Following such consultations, the Project Manager shall instruct the Contractor of the actions to be taken.

52.2. Any reasonable additional cost and expense incurred by the Contractor in following the instructions from the Project Manager to overcome such physical conditions or artificial obstructions referred to in GCC Sub-Clause 52.1 shall be paid by the Employer to the Contractor as an addition to the Contract Price.

52.3. If the Contractor is delayed or impeded in the Performance of the Contract because of any such physical conditions or artificial obstructions referred to in GCC Sub-Clause 52.1, the Time for Completion shall be extended in accordance with GCC Clause 54.

53. Change in Laws and Regulations

If, prior to the date of Bid submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the Performance of any of its obligations under the Contract. However, these adjustments would be restricted to direct transactions between the Employer and the Contractor/assignee of Foreign Contractor (if applicable). This adjustment shall not be applicable on procurement of raw materials, intermediary components etc. by the Contractor and shall also not be applicable on bought out items dispatched directly from sub- vendor works to site. Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable.

54. Extension of Time for Completion

54.1. The Time(s) for Completion specified in the SCC shall be extended if the Contractor is delayed or impeded in the Performance of any of its obligations under the Contract by reason of any of the following:

54.1.1. Any occurrence of Force Majeure as provided in GCC Clause 38 (Force Majeure), unforeseen/ differed site conditions as provided in GCC Clause 52 (Unforeseen/ differed site Conditions).

54.1.2. Any changes in laws and regulations as provided in GCC Clause 53 (Change in Laws and Regulations) or by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.

54.1.3. No cost compensation will be payable during the extension of time (whatsoever the reason). Only time extension will be allowed.

54.2. Except where otherwise specifically provided in the Contract, the Contractor shall

submit to the Project Manager a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Employer and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Employer's estimate of a fair and reasonable time extension, then the matter will be settled in accordance with the provisions of GCC Sub-Clause 6.1 (Adjudicator).

54.3. The Contractor shall at all times use its reasonable efforts to minimize any delay in the Performance of its obligations under the Contract.

54.4. The Contractor shall be required to attend all weekly site progress review meetings organized by the 'Project Manager' or his authorized representative. The deliberations in the meetings shall include the weekly program, progress of work (including details of manpower, tools and plants deployed by the Contractor vis-à-vis agreed schedule), inputs to be provided by Employer, delays, if any and recovery program, specific hindrances to work and work instructions by Employer. The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the 'Project Manager' or his authorized representative. These recordings shall be jointly signed by the 'Project Manager' or his authorized representative and the Contractor and one copy of the signed records shall be handed over to the Contractor.

55. Care of Facilities

The Contractor shall be responsible for the care and custody of the Facilities or any part thereof until the date of Completion of the Facilities pursuant to GCC Clause 18 or, where the Contract provides for Completion of the Facilities in parts, until the date of Completion of the relevant part, and shall make good at its own cost any loss or damage that may occur to the Facilities or the relevant part thereof from any cause whatsoever during such period. The Contractor shall also be responsible for any loss or damage to the Facilities caused by the Contractor or its Subcontractors in the course of any work carried out, pursuant to GCC Clause 35 (Defect Liability).

56. Contractor Performance & Feedback and Evaluation System

The Employer has in place an established 'Contractor Performance and Feedback System' against which the Contractor's Performance during the execution of Contract shall be evaluated on a continuous basis at regular intervals. In case, the Performance of the Contractor is found unsatisfactory on any of the following four parameters, the Contractor shall be considered ineligible for participating in future tenders for a period as may be decided by the Employer:

- Financial Status
- Project Execution and Project Management Capability
- Engineering & QA Capability
- Claims & Disputes

57. Documents constituting the Contract

The following documents shall constitute the Contract between the Employer and the

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission. (2nd Call)

Section III : General Conditions of Contract

Contractor, and each shall be read construed as an integral part of the contract:

- a) Contract Agreement
- b) Letter of Intent / Notice to proceed
- c) Special Conditions of Contract
- d) General Conditions of Contract
- e) Technical Specifications and Drawings
- f) The Bid and Price schedules submitted by the contractor

58. Fraud Prevention Policy

The Contractor along with their Associate/Collaborator/Sub-contractors/Sub-vendors/Consultants/Service Providers shall observe the highest standard of ethics and shall not indulge or allow anybody else working in their organization to indulge in fraudulent activities during execution of the Contract. The Contractor shall immediately apprise the Employer about any fraud or suspected fraud as soon as it comes to their notice.

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Section IV- Special Conditions of Contract

Section - IV

Special Conditions of Contract

1. Project description

Setting up a 168 KWp Rooftop Solar Power Plant along with associated evacuation and net metering related works under smart city mission in Aligarh.

2. Project Site

Project site shall be at Aligarh. Details of the Project Site is mentioned under Section V: Technical Specifications and Annexure 1: Details of site.

3. Appointing Authority

Appointing Authority of Adjudicator and arbitrator shall be as per directives of Aligarh district Court.

4. Project Manager/ Engineer in - Charge

Project Manager/ Engineer in - Charge will be appointed and will be intimated after award of the contract.

5. Scope of Works

The detailed scope of works under this contract shall be referred at Section V: Technical Specifications.

6. Training of Employer's Personnel

On successful commissioning of the plant, the Bidder shall provide training on Plant operations and maintenance to a team of 5 - 10 personnel (Engineers and Technician/ Operators) as nominated by Employer.

7. Performance Guarantee

- 7.1. The plant performance will be evaluated through Performance Ratio (PR) test as per the formulas and procedures mentioned under TS Clause 7.
- 7.2. The minimum acceptable PR of the plant is 75% against installed rated capacity at STC.
- 7.3. As the PR of the Plant is dependent on the quality of plant equipment and optimum design of the plant, the bidders shall demonstrate the PR of 75% as per the procedure mentioned at TS Clause 7 for Operational Acceptance of the plant.
- 7.4. The initial acceptance of the plant will be evaluated during commissioning by measuring PR for continuous 7 days. However, contractor must demonstrate the PR for a period of 30 days as per the PR test procedure specified in TS Clause 7.
- 7.5. Deleted.
- 7.6. During O&M contract, the plant performance will be evaluated based on annual average PR. Second year onwards linear degradation of the module output (i.e., 0.75% per year) shall be considered for the calculation.
- 7.7. During the O&M period, the bidders need to maintain 99% uptime of the plant. Any repair, replacement, overhauling, etc. are to be performed during night times so that no generation loss will be there in day time. On account of uptime less than 99% except the grid outages, as certified by the competent authority, shall attract no separate LD. GCC Clause 50.1.2 shall be read in addition to the breakdown maintenance.
- 7.8. Bidders are expected to make their own study of solar radiation profile and other related parameters of the area & make sound commercial judgment about the

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section IV- Special Conditions of Contract

Performance Ratio. It shall be the responsibility of the Bidder to access the corresponding solar insolation values and related factors of solar plant along with expected grid availability. The Bidder should access all related factors about the selected Site for the Project before giving commitments of PR of the proposed Project. METENORM Radiation Data shall be referred for the PR calculation. (Annual Average GHI: 5.2 kWh/m²/day).

7.9. Deleted.

7.10. The Contractor shall be responsible for achieving PR. For any shortfall in achieving PR, compensation shall be recovered from the Contractor as per SCC Clause 25.

8. Project Time lines:

The time lines for execution of the contract is 210 days from the date of agreement and as per the indicative milestones mentioned below.

Timelines for Scope of work		
S. No.	Stage	Reference from D
1	Date of Agreement (Commencement Date)	Zero Date (D)
2	Site Development Work	D+45
3	Approval of Major drawings	D+60
4	Completion of Civil work	D+100
5	Completion of supply of major equipment like SPV Modules (including structure for the above), Power Conditioning Units, etc.	D+120
6	Installation of all major equipment	D+150
7	Interconnection of all major equipment and completion of installation	D+165
8	Completion, testing and commissioning of Solar PV power plant	D+180
9	Operational Acceptance entire capacity(PR test demonstration)	D+210

9. Mode of Execution

The entire work shall be executed on turnkey basis. Any item(s) not included in the schedule but essentially required for completion of the work shall have to be carried out/ supplied without any extra cost. Such works, not listed in the schedule of works but elaborately described to perform or to facilitate particular operation(s) required for completion of the project shall deemed to have been included in the scope of this work and the Contractor shall supply, install the same without any extra cost.

10. Programme of Work

The Contractor shall submit the detailed programme of work within 15 days from the date of receipt of Letter of Intent. The programme shall include a Bar/ Gantt chart indicating there in the starting position and completion date of each of the major items

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section IV- Special Conditions of Contract

of work.

11. Starting of Work

The Contractor shall be required to start the work within 30 (Thirty) days from the date of issue of LOI / NTP and shall thereof, report to the Employer accordingly.

12. Completion Schedule

- 12.1. The Contractor shall inform the Employer through advance information at least 30 days in advance in written notice, and a final notice 7days in advance to enable the Employer inform the commissioning committee of the date on which it intends to synchronize the Power Project to the Grid System.
- 12.2. The Contractor shall prepare the completion schedule accordingly and in conformity with provisions of technical specifications and carry out the work as per this schedule subject to "Force Majeure" conditions. The Contractor shall mobilize resources keeping in view, the above scheduled completion period.

13. Site Inspection & Basis of Bid

The volume and quantity of work indicated in schedule of works may vary. The Contractor should visit and make his own assessment of the Site before quoting rate. After taking in to consideration all aspects of the site and according to site condition etc., the Contractor should quote for the works. No extra claim will be entertained at post bidding stage. The design of the MMS & other civil structures shall have to be approved by the Employer. In case of any defects arising in the building during guarantee period, the Contractor shall have to rectify the same at its own cost.

14. Terms of Payment

Payments shall be released against each component of Price Bid in the following manner after submission by the contractor and acceptance of Security cum Performance Bank Guarantee by Employer and signing of Agreement as per provisions of bidding document.

- 14.1. In accordance with the provisions of GCC Clause 11 (Terms of Payment), the Employer shall pay the Contractor in the following manner and at the following times:

85% amount of quoted per kWp price, shall be paid against satisfactory completion of Design, Supply, Installation, Testing & Commissioning on prorata basis for each part of installed plant.

Contractor can claim secured advance against the materials supplied at site, subject to a maximum of 60% of the value per kWp quoted in the price bid. Such payment will be made after satisfactory inspection of Material delivered/received at Site.

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

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The payment towards the operation and maintenance: Balance 15% of the Contract price quoted on per kWp basis subject to deductions (if any) shall be released in the following manner:

1st Year : 2 Percent
2nd Year : 2 Percent
3rd Year : 3 Percent
4th Year : 4 Percent
5th Year : 4 Percent

Payment shall be made on quarterly basis during operation and maintenance.

14.2. Recovery of interest bearing Mobilization advance:

NA.

14.3. Notes:

- i. All the transactions shall be made directly between the Employer and the Contractor. Hence for every consignment, the consignee must be in the name of "ASCL, Aligarh".
- ii. The bidder shall furnish a detailed break-up, including bill of materials, for the Price Component of all the packages which shall be mutually discussed and finalized with the Employer "before signing of Contract Agreement matching with the price quoted by the successful bidder". Progressive payment for Erection works will be made against monthly bills based on certification by the Project Manager/ Engineer In - Charge for the work completed.

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Section IV- Special Conditions of Contract

- i. The release of first progressive payment for Civil, Evacuation and Net Metering related Works shall also be subject to submission of documentary evidence by the Contractor towards having taken the insurance policy (ies) in terms of relevant provisions of GCC Clause 39 (Insurance) and acceptance of same by the Project Manager/ Engineer-In-Charge.
- ii. Contract Value (CV):
The firm sum quoted by the Successful Bidder in its Financial Proposal is inclusive of all to execute the work in Lump sum basis which includes design, procurement, installation, commissioning and Operation & Maintenance.

Contractor need to execute the work in Lump sum basis which includes design, procurement, installation, commissioning and Operation & Maintenance.

14.4. Mobilisation Advance : NA

- 14.5. "OM" indicates the O&M Contract Value quoted by the Successful Bidder for each individual year in its Financial Proposal.
- 14.6. The Employer will withhold / deduct /under this Contract, and or to any additions or deductions provided for in this Contract, the statutory deductions as per provisions of the laws in force before making payments. Accordingly the Contractor shall submit Bills / Invoices after incorporating and in compliance of the following:
 - 14.6.1. All payments shall be made in Indian Rupees, unless otherwise specified in the Contract Agreement. All payment shall be made on the basis of actual measurement for the quantified items as per schedule of works and approved by Project Manager/ EIC within 30 days of submission of certified invoice by the contractor.
 - 14.6.2. The Contractor shall submit the bill / invoice for the work executed showing separately Taxes and any other statutory levies in the bill / invoice.
 - 14.6.3. All taxes and deductions shall be applicable as per prevailing income tax and other statutory rules and provisions in force. Employer will not issue C - Form etc. in order to get tax concession. Bidders are requested to take in account while quoting their bids.
- 14.7. The Contractor, while raising Bills / Invoices shall raise separate Bills / Invoices against individual contracts with reference to the LOI/ Contract number and indicating applicable taxes / duties on the contract. Bills / Invoices for more than one contract package shall not be clubbed together.

15. Price Escalation

No Price escalation is allowed. The rate(s) quoted against the work shall remain firm during the entire Contract period. Any change in Forex rate shall also not be considered for price variation.

16. Taxes and Duties:

- 16.1. Proper tax invoices, raised against the different work packages viz. Supply, Erection, Civil, evacuation and net metering related works must be submitted mentioning the

tax component clearly and separately.

- 16.2. Bidder will quote the rates of taxes & duties based on the concessional rate or exemption in the same (as applicable) that can be availed by the bidder on its own. Statutory variations in the tax shall be permitted as under:

- A. Statutory variations during original contractual completion period:
 - i. If any increase takes place in taxes and duties due to statutory variation, then Employer shall consider the same on production of documentary evidences and Tax Invoices.
 - ii. If any decrease takes place in taxes and duties due to statutory variation, the same shall be passed on to Employer and Employer shall consider the reduced rate of taxes and duties while making the payment.
- B. Statutory variations beyond original contractual completion period:
 - i. If reasons for extension of contractual completion period is attributable solely to Employer, the provisions of (A) above shall apply.
 - ii. If reasons for extension of contractual completion period is attributable to Bidder, then:
 - a) Increase in taxes and duties due to statutory variation, shall not be admissible. However, taxes and duties at the rate prevailing original contract completion period will be payable.
 - b) If any decrease takes place in taxes and duties due to statutory variation, the same shall be passed on to Employer or Employer shall consider the reduced rate of taxes and duties while making the payment.
- C. Variation on account of foreign exchange rate will not be payable. Also, no statutory variation shall be payable on the input items i.e., raw materials etc.
- D. No statutory variation shall be admissible if the excise duty becomes payable because of exceeding the prescribed limits for turnover of the Bidder.
- E. Notwithstanding anything contained in this document at any other place, all the taxes on account of bought out items or any other transaction between the Contractor and his sub-Contractor/supplier, will be to the account of the Contractor. Employer will not be liable for any other taxes on this account.

17. Procurement of Materials

The Contractor shall procure all necessary material required for the project work and arrange to store them properly. Test certificate in accordance with the specifications are to be furnished by the Contractor to the Employer for approval in respect of the materials procured by the Contractor. Contractor shall furnish all the documents related including GR/LR/RR along with the supplier invoices as a proof of the purchase along with the bill / invoice raised by the contractor.

18. Notice of Operation

The Contractor shall not carry out important operation without the consent in writing of the Employer or his representative. For carrying out such important activity, the Contractor shall intimate to the Employer at least 72 hours before starting of the job.

19. Rejection of Materials

The Project Manager's decision in regard to the quality of the material and

workmanship will be final. The Contractor at its own cost and risk without any compensation shall immediately remove any material rejected by the Project Manager from the Site of work.

20. Construction Power & Water Supply

- 21.1. The Contractor has to arrange Construction Power and water at the site for construction purpose at its own cost.
- 21.2. The Employer shall not provide facility for storage of material, and accommodation for labours at site. The Contractor shall make his own arrangement for the above. The site handed over to the contractor must be used optimally. The contractor can identify the suitable location for storage of materials within the site. However, the site cannot be used for the labor colony. The contractor shall arrange on his own suitable area for such establishment. It is also necessary to take necessary approval from the concerned authority before any such establishment. In this case, any transportation facility, if required, is the responsibility of the contractor.

21. Labour Engagement

The Contractor shall be responsible to provide all wages and allied benefits to its labours engaged for execution of the project work and also to carry out Operation & Maintenance service.

The Contractor shall remain liable to the authorities concerned for compliance of the respective existing rules and regulations of the government for this purpose and shall remain liable for any contravention thereof. m

The contractor is encouraged to use local manpower as per the local statutory (labour) requirement, if any.

22. Handing Over -Taking Over

The work shall be taken over by the Employer upon successful completion of all tasks to be performed at Site(s) on equipment supplied, installed, erected and commissioned by the Contractor in accordance with provision of RFP. During handing over complete project work, the Contractor shall submit the following for considering final payment:

1. All as- Built Drawings and documents as per the contract coordination procedure set out for the successful completion of the project.
2. Detailed Engineering Document with detailed specification, schematic drawing, circuit drawing, cable routing plans and test results, manuals for all deliverable items, Operation, Maintenance & Safety Instruction Manual and other information about the project.
3. Bill of material.
4. Inventory of recommended and mandatory spares at project Site.
5. Immediately after taking over of complete facilities (s), the same will be handed over to the Contractor for Operation & Maintenance for a period of as mentioned in the bidding document.

23. Liquidated Damages

Liquidity damages for the delay in construction of the plant shall be as per the GCC Clause 34.

24. Liquidated Damages (LD) for PR and CUF deviations

- 24.1. During the Operational Acceptance any shortfall in the Performance Ratio (PR) as determined through the PR Test Procedure specified in Clause 7 of Section V: Technical Specification, will attract imposition of liquidated damages. For every 0.01 shortfall in PR below 0.75 by the bidder, a LD of 1% of the total Contract Value shall be levied. In case the Plant PR result is 0.05 below 0.75, i.e., 0.70 or lower, the total performance bank guarantee submitted by the bidder will be encashed. In case the Performance guarantee has already been encashed on any account, the balance due amount, if any, will be recovered from the Final Instalment of the EPC payable at the end of the first year (as per the Terms of Payment specified in Clause 14 of SCC)
- 24.2. In case of any defect in the system after commissioning resulting in shortfall of generation, the Contractor shall repair it within 48 hours. Otherwise LD shall be charged for shortfall in generated units (based on the previous generation reports) beyond 48 hours, 1.5 times as per the prevailing tariff, with the cumulative LD to the extent of maximum 10% of the total contract value, and the same shall be deducted from their payments due / Performance Bank guarantee for O&M period submitted to the Employer. The LD will be calculated with reference to GCC 50.1.2. During the O&M period, at any point of time, the Contractor has to ensure the availability of BG of requisite value with Employer.
- 24.3. Liquidity Damages during O&M period shall be charged at a rate of:
Difference in units derived from calculated PR x 1.5 times as per the prevailing tariff; for period after commissioning till the O&M contract closure on annual basis, upto 10% of the total contract value and the same shall be deducted from their payments due / Performance Bank guarantee for O&M period submitted to the Employer. The PR shall be evaluated as per the formula mentioned at Clause 7 of TS of this RFP.
- 24.4. In case the Project fails to generate any power continuously for 1 month any time during the O&M period, apart from the force majeure and grid outages as certified by competent authority from STU/ CTU, it shall be considered as "an event of default". In the case of default the entire O&M Bank Guarantee will be encashed.

25. Miscellaneous

- 25.1. Based on reviewing the Project, if the progress is below expectation as demanded by the Employer then, the employer reserves right to reduce the Scope of the Contractor in part or full and assign the same to other contractor(s) and get the work done at the risk and cost of the existing Contractor.
- 25.2. The Contractor shall continue to provide all the monitoring services, licenses, software, access to all information (real-time or stored) that were being used during the O&M to the Employer.
- 25.3. The Contractor will construct/ provide a temporary facility/ arrangement at site or otherwise for the office of Employer's employee/ consultant at the time of construction of the Rooftop Solar Power Plant. All the temporary facilities constructed for the purpose of execution of the contract shall be removed after taking necessary permissions from the Employer immediately after Operational Acceptance.

25.4. Provision for installing any additional monitoring equipment to facilitate on- line transfer of data shall be provided by the Contractor.

25.5. The Contractor shall check the design criteria and calculations (if any) included in the RFP and satisfy itself regarding their accuracy and adequacy. Contractor shall meet the minimum design and sizing requirements specified in the Bid Documents – a design that does not meet such minimum requirement shall not be acceptable and will result in rejection of the bid as non-responsive. Further, if Contractor believes that the minimum design and sizing requirements are not adequate to meet the minimum performance requirements specified, then Contractor shall make whatever upward adjustments to the design and sizing it deems necessary to meet the performance requirements and include these in the Bid Price. Contractor assumes full responsibility for meeting the specified performance requirements and ensuring the adequacy of the Works for this purpose.” The design criteria provided in respective schedules of the same volume is basic design criteria and has to be met in totality. However, if the Contractor feels that, he requires additional work to meet the contractual conditions, the cost of same shall be deemed to be included in the Price and no extra cost shall be paid over and above the quoted price.

25.6. In case, approved make of any item is not available or ambiguity arrives, list of approved make of item with Uttar Pradesh New & Renewable Energy Development Agency shall be applicable.

25.7. In case of discrepancy between GCC Clause and SCC Clause on a particular subject, SCC conditions will prevail.

Schedule 1: List of Banks

SCHEDULED COMMERCIAL BANKS		OTHER PUBLIC SECTOR BANKS	
1	SBI AND ASSOCIATES	1	IDBI Bank Ltd.
2	State Bank of India	FOREIGN BANKS	
NATIONALISED BANKS		1	Bank of America NA
1	Allahabad Bank	2	Bank of Tokyo Mitsubishi UFJ Ltd.
2	Andhra Bank	3	BNP Paribas
3	Bank of India	4	Calyon Bank
4	Bank of Maharashtra	5	Citi Bank N.A.
5	Canara Bank	6	Deutsche Bank A.G
6	Central Bank of India	7	The HongKong and Shanghai Banking Corpn. Ltd.
7	Corporation Bank	8	Standard Chartered Bank
8	Dena Bank	9	Societe Generale

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Section IV- Special Conditions of Contract

9	Indian Bank	10	Barclays Bank
10	Indian Overseas Bank	11	ABN Amro Bank N.V.
11	Oriental Bank of Commerce	12	Bank of Nova Scotia
12	Punjab National Bank	13	Development Bank of Singapore (DBS, Bank Ltd.)
13	Punjab & Sind Bank	SCHEDULED PRIVATE BANKS	
14	Syndicate Bank	1	Federal Bank Ltd.
15	Union Bank of India	2	ING Vysya Bank Ltd.
16	United Bank of India	3	Axis Bank Ltd.
17	UCO Bank	4	ICICI Bank Ltd.
18	Vijaya Bank	5	HDFC Bank Ltd.
19	Bank of Baroda	6	Yes Bank Ltd

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Section V- Scope & Technical Specifications

SECTION - V

SCOPE & TECHNICAL SPECIFICATIONS

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A. Introduction

1. Site Description

1.1. The area for the proposed project is located at

1.	Collectorate Meeting Hall (District Minority Welfare Office)	Latitude: 27°54'13.33"N Longitude: 78° 4'14.53"E
2.	Nagar Nigam Sewa Bhawan	Latitude: 27°53'49.83"N Longitude: 78° 4'26.40"E
3.	Treasury Office, Badar Bagh	Latitude: 27°54'10.78"N Longitude: 78° 4'16.68"E
4.	Chief Medical Office, Rasalgaanj	Latitude: 27°54'3.68"N Longitude: 78° 4'40.42"E
5.	NIC Center	Latitude: 27°54'18.13"N Longitude: 78° 4'11.92"E

1.2. Proposed Project Details:

Particulars	Description
Details of proposed capacity of the solar power plant	168 KWp Rooftop Solar Power Plant
Proposed SPV Plant Size	168 KW
State	Uttar Pradesh
District	Aligarh District
Location	Aligarh
Minimum values of PR	PR:75 %
Estimated life of PV Power plant	25 Years
Water and Power for Construction	To be arranged by the Contractor

B. System Design and Philosophy

2. Design Philosophy

2.1. The main objective of the design philosophy is to construct the plant within-built Quality and appropriate redundancy to achieve high availability and reliability with minimum maintenance efforts. In order to achieve this, the following principles shall be adopted while designing system.

- 2.1.1. Technology: Solar PV Mono/ multi-crystalline modules (>16% Multi-crystalline, >18% mono) of high efficiency Modules shall be installed on the rooftop over an appropriately designed modular and pre-fabricated module mounting structure.
- 2.1.2. Adequate capacity of SPV module, MMS, PCUs, Junction boxes etc. to ensure generation of power as per design estimates. This to be done by applying liberal de-rating factors for the array and recognizing the efficiency parameters of PCUs, transformers, conductor loss etc.
- 2.1.3. Use of equipment and systems with proven design and performance that have a high availability track record under similar service conditions.
- 2.1.4. Selection of the equipment's and adoption of a plant layout to ensure ease of

maintenance.

- 2.1.5. Strict compliance with the approved and proven quality assurance systems and procedures during the different stages of the project starting from sizing, selection of make, shipment, storage (at site) , during erection, testing and commissioning.
 - 2.1.6. Proper monitoring in the synchronizations which ensures the availability of power to the grid.
 - 2.1.7. The plant instrumentation and control system should be designed to ensure high availability and reliability of the plant to assist the operators in the safe and efficient operation of the plant with minimum effort.
 - 2.1.8. It should also provide for the analysis of the historical data and help in the plant maintenance people to take up the plant and equipment on predictive maintenance.
 - 2.1.9. Inverter output voltage of 230-415V has to be connect to the grid at the point of interconnection.
 - 2.1.10. The power plant has to satisfactorily operate in parallel with the grid system which is infinite electrical system. Any faults not taken care will result in damage of only SPV power plant without affecting state Utility infinite system. Thus suitable protective measure is to be in built so that any disturbance of the grid will not cause any damage of the equipment's of the Solar Power Plant.
 - 2.1.11. Very fast responsive microprocessor based Directional and Reverse power flow protection should be provided to ensure isolation of the Rooftop Solar Power Plant from the grid at the time of any fault or/and any additional suitable protection.
- 2.2. The basic and detailed engineering of the plant shall aim at achieving high standards of operational performance especially considering following:
- 2.2.1. Plant layout to ensure optimum availability for generation during the day time without any shading.
 - 2.2.2. High DC system voltage and low current handling requirements.
 - 2.2.3. Selection of PCUs with proven reliability and minimum downtime. Ready availability of requisite spares.
 - 2.2.4. Based on the SOLAR INSOLATION data from reliable sources, the solar PV system should be so designed that it shall take into account the mean energy output after allowing for various losses, temperature corrections, on an average day for each month of the year.
 - 2.2.5. Careful logging of operational data / historical information from the Data Monitoring Systems, and periodically processing it to determine abnormal or slowly deteriorating conditions.
 - 2.2.6. SPV power plant should be designed to operate satisfactorily in parallel with the grid within permissible limits of high voltage and frequency fluctuation conditions. It is also extremely important to safeguard the system during major disturbances.
 - 2.2.7. The module mounting structure shall have adequate strength and as per requirement of site to withstand the load of the modules and high wind velocities. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759. The MMS shall be designed for simple mechanical on- site installation. There shall be no requirement of welding, masonry or complex machinery at the installation site.

- 2.3. The specifications provided with this bid document are a functional ones; any design provided in this document is only meant as an example. The Bidder must submit a proposal based upon their own design. Bidder must optimize their own design for Solar Photovoltaic (SPV) system with best proven technology so that it shall meet to guarantee the performance factors as it is a part of the acceptance criteria given in this bid document. The bidders are advised to visit the site before designing the plant.
- 2.4. The minimum array capacity at STC shall be determined to have 168 KWp output at the time of installation. If the bidder anticipates any degradation of the modules more than 2% of the module output during the first year, it shall be taken care of to meet guaranteed generation to avoid liquidated damages/compensation on account of Generation Performance Guarantees.
- 2.5. This Bid document specifically cover the rest of the requirements for Zero Export Grid Connected Rooftop Solar Power Plant along with their associated equipment.
- 2.6. Successful Bidder (Contractor) shall prepare the detailed project report & design basis report and submit a copy to Employer for evaluation within 2 weeks from the date of issue of LOI.
- 2.7. Component and equipment reliability: Each component offered by the bidder shall be of established reliability. The minimum target reliability of each equipment shall be established by the bidder considering its failure, mean time between failures and mean time to restore, such that the availability of complete system is assured. The guaranteed annual system availability shall not be less than 99%. Bidder recommendation of the spares shall be on the basis of established reliability.
- 2.8. Bidder shall design the equipment and plant in order to have sustained life of 25 years with minimum maintenance efforts.
- 2.9. The supply, erection, commissioning and all other allied works for said capacity SPV Power Plant shall be completed as per timelines under SCC Clause 8.

The scope of design is in the purview of the bidder. The bidder has to carry out the site investigation for arriving at the cost before bidding. Structure customization such as super structure or carport structure or shed type structure has to be considered wherever required/necessary.

Proposed Installed capacity has been derived based on extensive study and calculations have been checked at various level.

Successful Bidder need to submit detailed design to be adopted for each building before execution. In case, even after following the approved design and standards, installed capacity is found to be lesser than the estimated tender capacity , payment shall be made the basis of per Kw cost subjected to fulfillment of

other conditions stipulated in the RFP.

C. Scope of Supply and Work

3. Detailed Scope of Work

- 3.1. Scope of Supply & Work includes all design & engineering, procurement & supply of equipment and materials, testing at manufacturers works, inspection, packing and forwarding, supply, receipt, unloading and storage at site, preparation of site, reclamation work, associated civil works, services, permits, licences, installation and incidentals, insurance at all stages, erection, testing & commissioning, evacuation and net metering with Zero Export Policy related works of 168 KW Grid Interactive Rooftop Solar Power Plant, clearing the site of any debris after completion and performance demonstration with associated equipment and materials on turnkey basis and 05 (five) years comprehensive operation and maintenance from the date of commissioning or Operational Acceptance, whichever is later.
- 3.2. The equipment and materials for the said capacity Grid Interactive Solar PV Power Plant with associated system (Typical) shall include but not be limited to the receipt, unloading, storage, erection, testing and commissioning of all supplied material for the following:
 - 3.2.1. Solar PV modules of suitable rating, in array totalling minimum of the said DC capacity including mounting frames, fasteners and module interconnection.
 - 3.2.2. Array Junction boxes, distribution boxes and Fuse boxes: MCBs, Surge Arrestors with string monitoring capabilities and with proper lugs, glands, ferrules, terminations and mounting structures.
 - 3.2.3. DC and AC cables of appropriate sizes with adequate safety and insulation
 - 3.2.4. Power Conditioning Units (PCU) with SCADA compatibility, common AC power evacuation panel with bus bars and circuit breakers LT & HT Power Interfacing Panels, Plant Monitoring Desk, AC & DC Distribution boards – As required. Cost of Internet as required need to be bear by the bidder and same is to be considered in the quoted price.
 - 3.2.5. Deleted.
 - 3.2.6. Deleted.
 - 3.2.7. Metering and protection system
 - 3.2.8. LT Power and Control Cables including end terminations and other required accessories for both AC & DC power
 - 3.2.9. Data acquisition system with remote monitoring facilities with internet connectivity.
 - 3.2.10. Lightning protection for entire plant area.
 - 3.2.11. PVC pipes, cable conduits, cable trays and accessories/trenches.
 - 3.2.12. Earthing of the entire plant as per relevant standards.
 - 3.2.13. Testing, maintenance and monitoring of equipment.
 - 3.2.14. Mandatory spares, spares, other spares & consumables, as required or recommended, for 05 years O&M period.
 - 3.2.15. Fire extinguishers.
 - 3.2.16. All safety gadgets during Construction and O&M period including but not limited to, rubber mats of appropriate grade, PPE, rubber gloves and shoes etc.

3.2.17. Weather monitoring station with associated systems shall include but not be limited to the following :

- Pyranometers - one for horizontal and one mounted on MMS
- Ultrasonic Anemometer (wind speed and direction)
- Temperature Sensor - Ambient and module surface
- Power source to the all sensors
- Data Logger
- Desktop and Printer

Weather monitoring station/central monitoring station including solar radiation sensors at a single location proposed by the authority shall be provided.

Data logging system shall be provided at other locations for monitoring daily generation data and should be able to communicate with the central monitoring station.

Cost of Internet as required need to be bear by the bidder and same is to be considered in the quoted price.

3.2.18. Design of said capacity Grid Interactive Rooftop Solar Power Plant and its associated civil, structural, electrical & mechanical auxiliary systems includes preparation of single line diagrams and installation drawings, manuals, electrical layouts, erection key diagrams, electrical and physical clearance diagrams, GTP and GA drawings for the major equipment, design basis & calculation sheets, and other relevant drawings and documents required for engineering of all facilities to be provided under this contract, are covered under Bidders scope of work.

3.2.19. In addition to above, the Bidder is required to measure the Solar Radiation and other climatic conditions relevant to measure the plant performance. This is necessary to study Solar Level and Guaranteed Performance of the Solar Power Plant. The satellite based analysis is to be combined with direct ground based measurement equipment in order to achieve the necessary accuracy and level of detail in the assessment of solar levels and climatic conditions.

3.2.20. Estimation and determination of the plant generation on daily basis in form of look ahead scheduling of power output.

3.2.21. Any other equipment / material, not mentioned but essentially required to complete the said capacity Rooftop Solar Power Plant in all respect.

3.3 During the O&M period, the Contractor shall keep the measured daily data at regular interval and provide the same to Employer in electronic form compatible in CSV format. The right to use the data shall remain with Employer.

3.4 Materials and accessories, which are necessary or usual for satisfactory and trouble-free operation and maintenance of the above equipment.

3.5 Availability of vehicles for inspection by Employer as per requirement may be ensured, failing which Employer shall have full right for alternate arrangement at the risk & cost of contractor.

3.6 Bidders shall design suitable power evacuation system including design and

construction of a suitable infrastructure to evacuate the power generated from Rooftop Solar Power Plant. Processing the net metering with Zero Export Policy and related works for the power generated from the Rooftop Solar Power Plant is in the scope of the bidder.

- 3.7 The items of civil design and construction work shall include all works required for solar PV project like all designs, preparation of drawings & approval from Employer, supply & construction of various civil works.
- 3.8 Obtaining statutory approvals /clearances on behalf of the Employer from various Government Departments, in addition to Central/State Electricity Authorities/ DISCOM/Industrial Development Corporation and including but not limited to, the following-
- 3.8.1. Pollution control board clearance, if required
 - 3.8.2. Mining Department, if required
 - 3.8.3. Forest Department, if required
 - 3.8.4. All other approval, as necessary for setting up of a Rooftop Solar Power Plant including CEIG, connectivity, power evacuation, railways, PTCC etc. as per the suggested guidelines.
 - 3.8.5. All other statutory approvals and permissions, not mentioned specifically but are required to carry out hassle free Construction and O&M of the plant prevailing at Site.
- 3.9 The Bidder shall arrange deployment of qualified and suitable manpower and required necessary consumables & spares during commissioning.
- 3.10 Construction Power & construction Water as required for construction and completion of this contract are to be arranged by the Bidder.
- 3.11 Total Operation & Maintenance of Rooftop Solar Power Plant for the 05 year's period including deployment of engineering personnel, technicians and security personnel after the commissioning till final acceptance, during this period, the responsibility of O&M shall be with contractor.
- 3.12 All approvals, equipment, item and works which are not specifically mentioned in this document but are required for completion of work including construction, commissioning, net metering with Zero Export Policy and related works, O&M of Solar PV Power Plant in every respect and for safe and efficient construction & erection, operation and guaranteed performance are included in the scope of this bid.
- 3.13 Submission of following documents, drawings, data design, and engineering information to Employer or its authorized representative for review and approval in hard copy and soft copy from time to time as per project schedule.
- 3.13.1. Plant Layout drawing
 - 3.13.2. GA drawings of the entire project.
 - 3.13.3. Design basis Report along with relevant standards (list of standards and respective clause description only)

- 3.13.4. Solar insolation data and basis for generation data.
- 3.13.5. Design calculations and sheets.
- 3.13.6. Detailed technical specifications of all the equipment.
- 3.13.7. General arrangement and assembly drawings of all major equipment.
- 3.13.8. Schematic diagram for entire electrical system.
- 3.13.9. GTP & G.A. drawings for all types of structures/ components, switchgears & other interfacing panels.
- 3.13.10. Quality assurance plans for manufacturing and field activities
- 3.13.11. Detailed site EHS plan, fire safety & evacuation plan and disaster management plan.
- 3.13.12. Detailed risk assessment and mitigation plan.
- 3.13.13. Test reports (for type, acceptance, and routine tests).
- 3.13.14. O&M Instruction's manuals and its drawings.
- 3.13.15. As-built drawings / documents and deviation list from good for construction (GFC)
- 3.13.16. O&M plans, schedules and operational manuals for all equipment etc. Daily/ Weekly site work progress report with catch-up plan(s), as necessary to monitor actual timelines of the project during construction period along with the real time snap shots during the time of construction.
- 3.13.17. Weekly/ Monthly O&M reports after commissioning of the project.

- 3.14 All drawings shall be fully corrected to agree with the actual "as built" site conditions and submitted to Employer after commissioning of the project for record purpose. All as-built drawings must include the Good for Construction deviation list.

- 3.15 The contractor shall forward the following to Employer within two weeks from issue of LOI:
 - 3.15.1. Schedule for various activities in the form of PERT Chart.
 - 3.15.2. Detailed engineering calculations, Design basis report and complete layout of the plant
 - 3.15.3. Equipment data sheets, guaranteed technical particular of equipment and GA drawings of major equipment like inverter, mounting structure, etc.

- 3.16 Providing a detailed training plan for all operation, maintenance procedures, which shall after approval by Employer form the basis of the training program. The contractor, shall also provide training to Employer's nominated staff.

- 3.17 Employ and coordinate the training of contractor's personnel who will be qualified and experienced to operate and monitor the facility and to coordinate operations of the facility with the grid system.

- 3.18 Establishing a system to maintain an inventory of spare parts, tools, equipment, consumables and other supplies required for the facility's hassle free operation.

- 3.19 Adequate and seamless insurance coverage during EPC and O&M period to cater all risks related to construction and O&M of plant to indemnify the Employer.

- 3.20 Maintain at the facility accurate and up-to-date operating logs, records and monthly reports regarding the Operation & Maintenance of facility.

- 3.21 Perform or contract for and oversee the performance of periodic overhauls or maintenance required for the facility in accordance with the recommendations of the original equipment manufacturer (OEM).
- 3.22 Procurement for spares parts, overhaul parts, tools, equipment, consumables, etc. required to operate and maintain the project in accordance with the prudent utility practices and having regarded to warranty recommendations during entire O&M period.
- 3.23 Handover the system to maintain an inventory of spare parts, tools, equipment, consumables and supplies for the facility's operation along-with required details of recommended spares list with all associated information regarding replacement records, supplier details, tentative cost, storage details, specifications on the basis of replacement frequency and mean time between failures and mean time to restore at the culmination of penultimate year under O&M period.
- 3.24 Maintain and keep all tool rooms, stores rooms, equipment, clean, green and in good & workable conditions.
- 3.25 Discharge obligations relating to retirement/ Superannuating benefits to employees or any other benefit accruing to them in the nature of compensation, profit in lieu / in addition to salary, etc. for the period of service with the contractor, irrespective continuance of employees with the project as employees of Contractor, after conclusion of O&M period.
- 3.26 Operation and Maintenance
- 3.26.1. The contractor shall be entrusted to carry out the total O&M activities of the 168 KW Rooftop Solar Power Plant for the next 05 years after commissioning w.e.f. from the date of operational acceptance.
- 3.26.2. The Turnkey contractor shall be responsible for all the required activities for the successful running, committed energy generation & maintenance of the Rooftop Solar Power Plant covering:
- Deputation of qualified and experienced engineers and technicians
 - Successful running of Rooftop Solar Power Plant for committed energy generation.
 - Co-ordination with STU/SLDC/other statutory organizations as per the requirement on behalf of Employer for complying with grid requirements.
 - Monitoring, controlling, troubleshooting maintaining of logs & records, registers.
 - Supply of all spares, consumables and fixing / application as required.
 - Supply & use of consumables such as grease, oil etc. throughout the maintenance period as per recommendations of the equipment manufacturers.
 - Conducting periodical checking, testing, overhauling, preventive and corrective action.
 - General up keeping of all equipment, Solar PV modules, inverter etc.
 - Submission of periodical reports to Employer on the energy generation & operating conditions of the power plant.

- Furnishing generation data monthly to Employer by 1st week of every month for the previous month to enable Employer raise commercial bills on consumers.
- Periodic cleaning of solar modules as per the recommendations of OEM
- Replacement of Modules, Invertors/PCU's and other equipment as and when required

3.26.3. Continuous monitoring the performance of the Solar Power Plant and regular maintenance of the whole system including Modules, MMS, PCU's, cables, outdoor/indoor panels etc. are necessary for extracting and maintaining the maximum energy output from the Solar Power Plant.

3.26.4. Preventive and corrective O&M of the Rooftop Solar Power Plant including supply of spares, consumables, wear and tear, overhauling, replacement of damaged modules, MMS components, invertors, PCU's and insurance covering all risks (Fire & allied perils, earth quake, terrorists, burglary and others) as required, for a period of 05 years from the date of start of O&M of the project shall be carried out at fixed annual cost.

3.26.5. The period of Operation and Maintenance will be deemed to commence from the date of completion of performance demonstration/Operational acceptance and successively the complete Rooftop Solar Power Plant to be handed over to the O&M contractor for operation and maintenance of the same. O&M contract shall further be extended on the mutually agreed terms and conditions for the period of minimum 5 years or as required.

3.26.6. All the equipment required for Testing, Commissioning and O&M for the healthy operation of the Plant must be calibrated, time to time, from the NABL accredited labs and the certificate of calibration must be provided prior to its deployment.

3.27 Operation and Performance Monitoring

3.27.1. Operation part consists of deputing necessary manpower required to operate the Rooftop Solar Power Plant at the full capacity. Operation procedures such as preparation to starting, running, routine operations with safety precautions, monitoring etc., shall be carried out as per the manufacturer's instructions to have trouble free operation of the complete system.

3.27.2. The operation and maintenance in the Rooftop Solar Power Plant involves periodic cleaning of Modules, logging the voltage, current, power factor, power and energy output of the Plant at different levels. The operator shall record monthly energy output, down time, etc.

3.28 Maintenance

3.28.1. The contractor shall carry out the periodical/plant maintenance as given in the manufacturer's service manual and perform operations to achieve committed generation.

3.28.2. Regular periodic checks of the Modules, MMS, PCU's and other switchgears shall be carried out as a part of routine corrective & preventive maintenance. In order to meet the maintenance requirements stock of consumables are to be maintained as well as various spare as recommended by the manufacturer at least for 5 years to be kept for usage.

- 3.28.3. According to the recommendations stock of special tools and tackles shall be maintained for Modules, MMS, PCU's, switchgears and other major electrical equipment.
- 3.28.4. A maintenance record is to be maintained by the operator/engineer-in-charge to record the regular maintenance work carried out as well as any breakdown maintenance along with the date of maintenance reasons for the breakdowns steps have taken to attend the breakdown duration of the breakdown etc.
- 3.28.5. The Schedules will be drawn such that some of the jobs other than breakdown, which may require comparatively long stoppage of the Power Plant, shall be carried out preferably during the non-sunny days. An information shall be provided to Engineer-in-charge for such operation prior to start.
- 3.28.6. The Contractor shall deploy enough manpower at Rooftop Solar Power Plant site to carryout work instructions and preventive maintenance schedules as specified. The contractor shall keep at least one skilled and experienced supervisor to supervise the jobs that are being carried out at site.
- 3.28.7. The Contractor will attend to any breakdown jobs immediately for repair/replacement/adjustments and complete at the earliest working round the clock. During breakdowns (not attributable to normal wear and tear) at O&M period, the Contractor shall immediately report the accidents, if any, to the Engineer In-charge showing the circumstances under which it happened and the extent of damage and or injury caused.
- 3.28.8. The Contractor shall comply with the provision of all relevant acts of Central or State Governments including payment of Wages Act 1936, Minimum Wages Act 1948, Employer's Liability Act 1938, Workmen's Compensation Act 1923, Industrial Dispute Act 1947, Maturity Benefit Act 1961, Mines Act 1952, Employees State Insurance Act 1948, Contract Labour (Regulations & Abolishment) Act 1970, Electricity Act 2003, Grid Code, Metering Code, MNRE guidelines or any modification thereof or any other law relating whereto and rules made there under or amended from time to time.
- 3.28.9. The contractor shall at his own expense provide all amenities to his workmen as per applicable laws and rules.
- 3.28.10. The Contractor shall ensure that all safety measures are taken at the site to avoid accidents to his or his sub-contractor or Employer's Workmen.
- 3.28.11. If negligence / mal operation of the contractor's operator results in failure of equipment such equipment should be repaired replaced by contractor at free of cost.
- 3.28.12. If any jobs covered in O&M Scope as per O&M Plan are not carried out by the contractor during the O&M period, the Engineer-In-Charge can issue a notice to the Contractor. Repetition of such instances for more than 2 times a year may lead to the Termination of the O&M Contract by the Employer.

3.29 Quality Spares & Consumables

In order to ensure longevity and safety of the core equipment and optimum performance of the system the contractor should use only genuine spares of high quality standards.

3.30 Testing Equipment, Tools and Tackles

The Contractor shall arrange for all the necessary testing equipment, tools and tackles for carrying out all the construction, operation and maintenance work covered under this contract. All the instruments are required to be calibrated from NABL accredited lab before put in use. The certificate of the same shall be submitted to Employer for verification.

D. Technical Specification of Solar power plant

4. Bill of Material:

The equipment and material for said capacity Grid Interactive Rooftop Solar Power Plant with associate system (typical) shall include, but not limited to the following:

Item Details	Unit
PV Modules	Nos.
Module Mounting Structures (MMS) including fasteners and clamps	Set
Main Junction Boxes with monitoring capabilities	Lot
Solar module array to Junction box Interconnection cable (Cu)	RM
Junction box to Inverter Interconnection Cable (Cu/ Al)	RM
Connection accessories - lugs, ferrules, glands, terminations etc.	Lot
AC Cable (LT/ HT) of appropriate sizes	RM
Power Conditioning Units/ Inverters	Nos.
Meteorological station with sensors and data logger	Lot
AC & DC distribution panels/ boards, PDB, LDB etc.	Lot
Lightning Arresters of suitable ratings	Nos.
Control and power cables	Lot
Surge Protection devices and Fuses	Set
Earth cables, flats and earthing pits	Lot
Fire extinguisher - Foam type, CO2 type, ABC type etc., as applicable	Lot
Sand Buckets	Lot
Metering Equipment (Meters, and associated CT and PT's)	Set
Protection Equipment	Set
Weather monitoring station including associated systems and with remote monitoring assistance	Set
Danger sign plates, anti-climbing, bird protection etc.	Lot

All the information shown here is indicative only and may vary as per design and planning by the bidder. The bidder must provide the BOM of the plant as per the design during the time of bidding. The technical features of major equipment are described hereunder.

5. Photovoltaic Modules

Total capacity of PV Modules to be supplied for the 168 KW project is minimum of 168 KWp which is the cumulative rated capacity of all solar PV module under supply as per relevant IEC standards under Standard Temperature Condition (STC). The Project shall consist of Mono/poly-crystalline silicon photovoltaic modules of reputed make like Vikram,

Waaree, Emmvee or equivalent. The wattage of each module shall not be less than 250 Wp. Only the indigenously manufactured cell & PV modules shall be used and should comply with the specifications given below:

- 5.1.** Only indigenously manufactured cell and PV modules (IEC Tested) shall only be used in the project.
- 5.2.** Multi Crystalline high power/efficiency cells shall be used in the Solar Photovoltaic module. Cell efficiency shall not be less than 18% and module efficiency shall not be less than 16%.
- 5.3.** For module with 72 cell, Pmax will be measured at 32.4 + 0.2 Volt and VOC should not be less than 42 Volt.
- 5.4.** PV modules must be warranted for their output peak watt capacity which should not be less than 90 % at the end of 12 years and 80% at the end of 25 years.
- 5.5.** Fill factor of the module should be greater than 0.7.
- 5.6.** Terminal box should be thermoplastic, IP-65, UV resistance.
- 5.7.** Blocking Diodes should be Schottky type
- 5.8.** Module frame should be non-corrosive and electrically compatible with mounting structure material.
- 5.9.** The terminal box on the module shall be designed for long life out door operation in harsh environment should have provision for opening for replacing the cable, if required.
- 5.10.** The offered module shall be in accordance with the requirement of MNRE.
- 5.11.** PV module must qualify latest edition of IEC 61215 edition II / IS 14286 for Crystalline and shall be certified by MNRE authorized test center. The bidder shall submit appropriate certificates (Not before 1.4.18).
- 5.12.** PV modules must qualify to IEC 61701 for salt mist corrosion testing.
- 5.13.** PV modules must qualify to IEC 61853- Part 1/ IS 16170 Part 1 for performance testing and energy rating -: Irradiance and temperature performance measurements, and power rating.
- 5.14.** PV modules must qualify to IEC 62716 for Ammonia (NH3) Corrosion Testing.
- 5.15.** PV modules must qualify to IEC 61730 Part 1 – requirements for construction & part 2 – requirements for testing, for safety qualification.
- 5.16.** Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided and if required, blocking diode (s) may also be provided
- 5.17.** Losses from PV array area to PCU/Inverter should not exceed 2% in any case.
- 5.18.** Module mismatch factor must be less than 1.5%.
- 5.19.** Bidder to specify Potential Induced, Light Induced and Current Induced degradation of module.
- 5.20.** Module shall not be less than 300W. The PV module selection should be as per latest MNRE guideline / practice and / or as per latest market trend.

5.21. As per IEC 61215 I-V curve at irradiation 800, 600 and 400 watt/m² should also be provided in addition to the curve of 1000 watt/m²

5.22. Identification and Traceability

Each PV module must use a RF identification tag (RFID), which must contain the following information:

- a) Name of the Manufacturer of PV module
- b) Name of the manufacturer of Solar Cells.
- c) Month and year of the manufacture (separately for solar cells and module).
- d) Country of origin (separately for solar cells and module).
- e) I-V curve for the module.
- f) Peak wattage, Im, Vm and FF for the module.
- g) Unique serial No. and model No. of the module.
- h) Date and year of obtaining IEC PV module qualification certificate.
- i) Name of test lab issuing IEC certificate
- j) Other relevant information on traceability of solar cells and module as per ISO 9000 series.
- k) The RFID should be placed inside the module laminate

5.23. Test reports / certificate from IEC/MNRE(NISE) and MNRE approved laboratory to be mandatorily enclosed for relevant IEC/equivalent BIS Standard. Test report should be latest or after 1.4.18.

5.24. Bidder shall provide data sheet for Solar PV Module (Under STC) along with their offer as per Guaranteed Technical Particular Data Sheet- 1. Also, the bidder must provide the commercial data sheet indicating the exact power of the module, if the data sheet consists of a range of modules with varying output power.

5.25. The Employer or its authorized representative reserves the right to inspect the modules at the manufacturer's site prior to dispatch.

5.26. The Bidder is advised to check and ensure the availability of complete capacity of modules prior to submitting the NIT document.

5.27. Entire drawings, detailed test & flash reports and compliance certificates of the offered modules should be submitted for approval of Employer within 60 days from the issuance of LOI and supply should start thereafter.

6. PV Array Configurations

The Solar array shall be configured in multiple numbers of sub-arrays, providing optimum DC power to auditable number of sub arrays. Row to row spacing of modules shall be such that shadow of one module shall not intercept the adjacent module especially during winter season, 8:30 am to 3:30 pm. The bidder shall submit their own design indicating configuration of PCU and respective sub arrays and associated bill of material..

6.1. Module Mounting Structure(MMS):

6.1.1.For module mounting structure refer **Section-F** of this specification. 6.1.2.The grade of steel for MMS structure shall not be

more than 350 MPa.

- 6.1.3. Cable should pass from Pipes and Cable-ties shall be used to hold and guide the Pipes (cables/wires) from the modules to junction boxes or inverters. All the cables were aesthetically tied to module mounting structure.
- 6.1.4. In case the string monitoring unit (SMU or JB) is mounted on the module mounting structure, bidder to take into consideration of the load thus added on the MMS. Accordingly, suitable supporting members for mounting the SMU/ JB must be designed and supplied. Separate structure for mounting of SMU can also be proposed.
- 6.1.5. Bidder must submit the complete quality documents i.e. test certificates for all tests conducted starting from raw material stage, in process, final testing w.r.t structure.
- 6.1.6. Every major Component of the Plant should be suitably named/numbered & marked for ease of traceability, identification and maintenance.

6.2. Junction Box/ Combiner Box:

- 6.2.1. All junction/ combiner boxes including the string junction box, array junction box and main junction box/ combiner box should be equipped with appropriate functionality, safety (including fuses, grounding, contacts etc.) and protection.
- 6.2.2. The terminals will be connected to copper bus-bar arrangement of proper sizes to be provided. The junction boxes will have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus-bars for easy identification and UV resistant cable ferrules will be fitted at the cable termination points for identification.
- 6.2.3. The Junction Boxes shall have suitable arrangement for the followings:
 - Strings are required to be connected to the bus bar through individual fuses. However, if the bidder propose to use a "Y" Connector; maximum of 2 (two) strings can be combined, keeping the losses within the specified limit.
 - Provide arrangement for disconnection for each of the groups.
 - Provide a test point for each sub-group for quick fault location and to provide group array isolation.
 - SCADA Communication device with all necessary equipment for communicating with main SCADA Server.
 - Suitable space for workability and natural cooling.
 - Provision of adequate number of spare terminals
- 6.2.4. The rating of all component of JB's shall be suitable with adequate factor of safety to inter connect the Solar PV array.
- 6.2.5. The junction boxes shall be dust, vermin ,and waterproof and made of thermoplastic/metallic in compliance with IEC 62208, which should be sunlight/UV resistive as well as fire retardant & must have minimum protection to IP65 (Outdoor) and Protection Class II.
- 6.2.6. The Array Junction Box will also have suitable surge protection. In addition, over voltage protection shall be provided between positive and negative conductor and earth ground such as Surge Protection Device (SPD). The maintenance free earthing shall be done as per the relevant standards.
- 6.2.7. DC fuses shall be provided for each string/input and DC disconnecter of suitable size should be used. The junction box shall have DIN rail mountable fuse holders.
- 6.2.8. Details of junction box specifications and data sheet, including all components, shall

be provided with the Bid document.

6.2.9. Bidder shall submit all the test reports/ test certificates and compliance certificates before installation at site.

6.3. Power Conditioning Unit (PCU)

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic inverter and the associated control and protection devices. All these components of the system are termed the power conditioning unit (PCU). In addition, the PCU shall also house MPPT (Maximum power point tracker), an interface between solar PV array & the inverter, to the power conditioning unit/inverter should also be DG set interactive.

If necessary, Inverter output should be compatible with the grid frequency. Under normal condition the building load is fed from a SPV electricity and in the absence of SPV power or low SPV power conditions an external AC source can be used for supply of electrical energy to load. In case the PV power generated at any instant of time is more than the load requirement of building or at no load conditions this excess PV power shall be reduced or make it open automatically, All these operation should be automatic.

Typical technical features of the inverter shall be as follows:

1	Total Output power AC	To match solar PV plant capacity while achieving optimum system efficiency
		Single or three phases as per requirement of site and capacity of plant.
2	Input DC voltage range	As required for the solar grid inverter for corresponding capacity
3	Maximum power point (MPPT)	Shall be incorporated
4	Number of independent MPPT Inputs	1 or more
5	Operation AC voltage	As per requirement of the site
6	Operating frequency range	47.5 - 52.5 Hz
7	Nominal frequency	50 Hz
8	Power factor of the inverter	>0.95 at nominal Power
9	Total harmonic distortion	Less than 3%
10	Built-in-Protection	AC high/low voltage; AC high/low frequency, It should work at 30% imbalance phase voltage and loads.
11	Operating ambient temperature Range	-5°C to +55°C
12	Humidity	0 – 95%Rh
13	Inverter efficiency	>93% (In case of 10 KW or above with in-built galvanic isolation) >97% (In case of 10 KW or above with in-built galvanic isolation)
14	Inverter efficiency	>90 (In case of less than 10 KW)

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

15	Protection degree	IP 65 for outdoor mounting, IP 54 for indoor mounting
16	Communication interface	RS 485 / RS 232 / RJ45
17	Safety compliance	IEC62109-1, IEC 62109-2
18	Environmental Testing	IEC 60068-2, (1, 2, 14, 30)
19	Efficiency Measurement Procedure	IS/IEC 61683
	Cooling	Convection
	Display type	LCD for data display, LCD/LED for status display
	Display parameters to include	Output Power(W), cumulative Energy (Eh), DC voltage(V), DC current(A), AC voltage(V), AC frequent (Hz), AC (current), cumulative hours of operation(h).

- 6.3.1. Three phase PCU/ inverter shall be used with each power plant system (10 KW and/or above) but in case of less than 10 KW single phase inverter or as per building requirement can be used.
- 6.3.2. PCU/Inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU should also be able to balance grid voltage.
- 6.3.3. The output of power factor of PCU inverter should be suitable for all voltage range or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- 6.3.4. Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- 6.3.5. Anti-islanding (Protection against Islanding of grid): The PCU shall have anti islanding protection in conformity to IEEE 1547/UL 1741/IEC 62116 or equivalent BIS standard
- 6.3.6. The PCU/inverter general harmonics, flicker, DC injection limits, Voltage range, Frequency Range and Anti-Islanding measures at the point of connection to the utility services should follow the latest CEA (Technical Standards for connectivity Distribution Generation Resources) Guidelines.
- 6.3.7. The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environment tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std. The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for measuring relays and protection equipment as per standard codes IEC 60255 – 27.
- 6.3.8. The MPPT units environmental testing should qualify IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS std. The junction boxes/ enclosures should be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- 6.3.9. The PCU/ inverters should be tested from the MNRE approved test centres / NABL/ BIS/ IEC accredited testing- calibration laboratories.

6.4. Operational Requirements for Inverter/ PCU

INTEGRATION OF PV POWER WITH GRID/ANTI GRID EXPORT

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

or high voltage, solar PV system shall be out for synchronization and shall be disconnected from the grid. 4 pole isolation output with respect to the grid power connection need to be provided.

PCU/External device shall have power export control features (as Net-metering is not available).

- 6.4.1. The Anti-Grid Export controller/system shall monitor the current flow regularly towards grid from solar inverter within 20ms and it shall control the solar inverter output, if any current flow detected going towards grid, the controller shall reduce the solar power output in the inverter by maintaining the MPPT, so that no excess energy is fed in to the grid. The solar inverter output shall be always equal to the consumption load.
- 6.4.2. Any controller, which will shut down the inverter without controlling the output of solar inverter to avoid current flow towards grid, will not be acceptable.
- 6.4.3. If any kind of protection fails, then it should cut off the inverter from the grid.
- 6.4.4. Up to 30kW, Anti grid export control can be allowed with the help of cloud base algorithm.
- 6.4.5. Above 30 KW, Anti grid export device system should be integral part of the solar power plant, algorithm shall be built in to the plant system, so that it can work without help of IOT.
- 6.4.6. All Hardware and communication cable will be in the scope of bidder.
- 6.4.7. PCU shall have provisions/features to allow interfacing with monitoring software and hardware devices.

6.5. Deleted.

6.6. Standards & Compliances

6.5.1. PCU shall confirm to the following standards and appropriately certified by the labs:

- Efficiency measurement: IEC 61683
- Environmental Testing: IEC 60068-2 or IEC 62093
- EMC, harmonics, etc.: IEC 61000 series, 6-2, 6-4 and other relevant Standards.
- Electrical safety: IEC 62109 (1&2), EN 50178 or equivalent
- Recommended practice for PV - Utility interconnections: IEEE standard 929 - 2000 or equivalent
- Protection against islanding of grid: IEEE 1547/ UL1741/ IEC 62116 or equivalent
- Grid Connectivity: Relevant CEA/ CERC regulation and grid code (amended up to date)
- Reliability test standard: IEC 62093 or equivalent

6.5.2. The Bidder should select the inverter as per its own system design so as to optimize the power output.

6.5.3. Desired Technical Specifications of PCU.

- Sinusoidal current modulation with excellent dynamic response.
- Compact and weather proof housing (indoor/ outdoor)
- Comprehensive network management functions (including the LVRT and capability to inject reactive power to the grid)
- Total Harmonic Distortion (THD) <3%
- No load loss < 1% of rated power and maximum loss in sleep mode shall be less than 0.05%
- Optional VAR control

- Power factor Control range: 0.9 (lead - lag)
- Humidity: 95% Non – Condensing
- Unit wise & integrated Data logging
- Dedicated Prefabs / Ethernet for networking

6.5.4. Inverter/ Power Condition unit must provide protection against:

- Over current
- Sync loss
- Over temperature
- DC bus over voltage
- Cooling Fan failure (If provided)
- Short circuit
- Lightning
- Earth fault
- Surge voltage induced at output due to external source
- Power regulation in the event of thermal overloading
- Set point pre-selection for VAR control
- Bus communication via -interface for integration
- Remote control via telephone modem or mini web server
- Integrated protection in the DC and three phase system
- Insulation monitoring of the PV array with sequential fault location

6.5.5. Ground fault detector which is essential for large PV generators in view of appreciable discharge current with respect to ground.

6.5.6. Over voltage protection against atmospheric lightning discharge to the PV array is required.

6.5.7. The power conditioner must be entirely self-managing and stable in operation.

6.5.8. A self-diagnostic system check should occur on start up. Functions should include a test of key parameters on start up.

6.5.9. PCU/inverter front panel shall be provided with display (LCD or equivalent) to monitor, but not limited to, the following:

- DC power input
- DC input voltage
- DC Current
- AC power output
- AC voltage (all the 3 phases and line)
- AC current (all the 3 phases and line)
- Power Factor

6.5.10. Documentary Requirements & Inspection

- The bill of materials associated with PCU's should be clearly indicated while delivering the equipment.
- The Contractor shall provide to the Employer, data sheet containing detailed technical specifications of all the inverters and PCUs, Type test reports and Operation & Maintenance manual before dispatch of PCUs.
- The Employer or its authorized representative reserves the right to inspect the PCUs/ Inverters at the manufacturer's site prior to dispatch.

6.7. Cable and Wires

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

- 6.6.1. Shall meet IEC 60227/IS 694, IEC60502/IS 1554 standard Temp range: -10°C to +80°C Voltage rating 660/1000V
- 6.6.2. For the DC cabling, Solar cables with multi stranded copper conductors XLPE or XLPO insulated and sheathed with the voltage rating of 1000 V Dc or higher UV stabilized single core flexible copper cables shall be used. Multi-core cables shall not be used.
- 6.6.3. For the AC cabling, PVC or XLPE insulated and PVC sheathed single or multi-core flexible copper cables shall be used. Outdoor AC cables shall have a UV-stabilized outer sheath.
- 6.6.4. The total voltage drops on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 1.0%
- 6.6.5. The total voltage drops on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%
- 6.6.6. The Dc cables from SPV module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm or through a High Density Poly ethylene (HDPE) conduits shall not run across the path way of the terrace flexible corrugated PVC conduits shall not be used.
- 6.6.7. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
- 6.6.8. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermoplastic clamps at intervals not exceeding 50 cm. The minimum DC cable size shall be 4.0 mm² copper. The minimum AC cable size shall be 4.0 mm² copper for up to 10kWp and 16.0mm² for above 10kWp/ required standard size. In three phase systems, the size of the neutral wire shall be equal to the size of the phase wires. The following color coding shall be used for cable wires:
 - Dc positive: red (the outer PVC sheath can be black with red line marking)
 - DC negative: black
 - AC single phase: Phase: red; neutral: black
 - AC three phase: Phase: red, yellow, blue; neutral: black Earth Wires: green
- 6.6.9. Cables and conduits that have to pass through walls or ceilings shall be taken through a PVC pipe sleeve.
- 6.6.10. Cable conductors shall be terminated with tinned copper end-ferruled to prevent fraying and breaking of individual wire standard. The termination of the DC and AC cables at the solar grid inverter shall be done as per instructions of the manufacture, which in most cases will include the use of special connectors.
- 6.6.11. Cable lugs and end -ferrules for the all cable conductor and terminations shall be crimped with crimping pliers and end-ferrule pliers
- 6.6.12. All cable ties shall be UV resistant.
- 6.6.13. The cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25 years

- 6.6.14. The rating given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawing approved prior to installation.

6.8. DC Distribution Box(DCDB)

A DC distribution box shall be mounted close to the solar grid inverter. The DC distribution box shall be of the thermos-Plastic IP65DIN-rail maintaining type and shall comprise the following components and cable terminations

- 6.8.1. Incoming Positive and negative DC cables from the DC Combine Box;
- 6.8.2. DC circuit breaker, 2 poles (the cables from the DC combiner Box will be connected to this circuit breaker on the incoming side);
- 6.8.3. DC surge protection devise (SPD), class 2 as per IEC 60364-5-53;
- 6.8.4. Outgoing positive and negative DC cables to the solar grid inverter.
- 6.8.5. As an alternative to the DC circuit breaker a DC isolator may be used inside the DC Distribution Box or in a separate external thermoplastic IP 65 enclosure adjacent to the DC Distribution Box. If a DC isolator is used instead of a DC circuit breaker, a DC fuse shall be installed inside the DC Distribution Box to protect the DC cables that runs from the DC Distribution Box to the solar grid Invertor.
- 6.8.6. The fuses should comply with applicable IEC/ equivalent BIS standard for general safety requirements for connectors, switches, circuit breakers, low-voltage switch gear as per standard codes IS/IEC 60947(Part 1, 2 & 3), EN 50521

6.9. AC Distribution Box(ACDB)

An AC distribution box shall be mounted close to the solar grid inverter. The AC distribution box shall be of the thermoplastic IP65 DIN rail mounting type and shall comprise the following components and cable terminations

- 6.9.1. Incoming 3-core/5-core (single-phase/three –phase) cable from the solar grid inverter.
- 6.9.2.AC circuit breaker, 2-pole/4-pole AC surge protection devise (SPD), class2 as per IEC 60364- 5-53
- 6.9.3.The fuses (AC/DC) should comply with applicable IEC/ equivalent BIS standard for general safety requirements for connectors, switches, circuit breakers, low-voltage switch gear as per standard codes IS/IEC 60947(Part 1, 2 & 3), EN 50521

6.10. Lightning Protection for PV Array

The SPV Power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the power PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against lightning by deploying required number of lightning arrestors. Lightning protection should be provided as per IEC 6205 /IS 2309 standard. The protection against induced high- voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

- 6.10.1. The source of over voltage can be lightning or other atmospheric disturbance. Main aim of over voltage protection is to reduce the over voltage to a safe level before it reaches the PV or other sub-system components as per NFC 17 - 102. Bidder to provide ESE type lightening arrester, placed at strategic locations to protect the plant from lightening and shall not cause any shadow on the solar modules.
- 6.10.2. Necessary foundation/anchoring for holding the lightning conductor in position to be made after giving due consideration to shadow on PV array, maximum wind speed and maintenance requirement at site in future.
- 6.10.3. The site is prone to lightning strikes and hence bidder is suggested to take utmost care while designing the lightning protection system. The Bidder shall submit the drawings, calculations and detailed specifications of the PV array lightning protection equipment to Employer for approval before installation of system.
- 6.10.4. The lightning conductor shall be earthed through flats and connected to the grounding mats as per applicable Indian Standards with earth pits. Three earth pits shall be provided for each lightning arrester. Each lightning conductor shall be fitted with individual earth pit as per required Standards including accessories, and providing masonry enclosure with cast iron cover plate having locking arrangement, watering pipe using charcoal or coke and salt as required as per provisions of IS.

6.11. General Standards

- 6.11.1. The equipment and accessories covered by this specification shall be designed, manufactured and tested in accordance with the latest relevant standards and codes of practice published by the relevant Indian Standards (IS) as applicable.
- 6.11.2. All electrical equipment and installation shall confirm to the latest Indian Electricity Rules as regards safety, earthing and other essential provisions specified for installation and operation of electrical plants. Relevant national and international standards in this connection can be followed in order to improve the efficiency and safe operations.
- 6.11.3. All working parts, insofar as possible, are to be arranged for convenience of operation, inspection, lubrication and ease of replacement with minimum downtime. All parts of equipment or of spare equipment offered shall be interchangeable.
- 6.11.4. The quality of materials of construction and the workmanship of the finished products / components shall be in accordance with the highest standard and practices adopted for the equipment covered by the specification.
- 6.11.5. All items of equipment and materials shall be thoroughly cleaned and painted in accordance with relevant Indian Standards. The finish paint shall be done with two coats of epoxy based final paint of colour Shade RAL 7032 of IS: 5 for indoor equipment.
- 6.11.6. Any fitting or accessories which may not have been specifically mentioned in the specification but which are usual or necessary in the equipment of similar plant or for efficient working of the plant shall be deemed to be included in the contract and shall be provided by the Contractor without extra charges. All plant and apparatus shall be complete in all details whether such details are mentioned in the specifications or not.
- 6.11.7. All equipment shall be designed for operation in humid climate at the required capacity.

6.12. Earthing for PVArray

- 6.12.1. The photovoltaic modules, BOS and other components of power plant requires adequate earthing for protecting against any serious faults as guided by IEC 60364.
- 6.12.2. The earthing system shall be designed with consideration of the earth resistivity of the project area. The earth resistivity values shall be measured prior to designing the earthing system. Unless otherwise specified, earthing system shall be in accordance with IS: 3043 and IEEE 80, Indian Electricity Rules, Codes of practice and regulations existing in the location where the system is being installed.
- 6.12.3. All metal casing/ shielding of the plant shall be thoroughly grounded in accordance with Indian electricity act / IE Rules.
- 6.12.4. The earth resistance for array and LT power system shall not be more than 05 ohm. It shall be ensured that all the earthing points are bonded together to make them at the same potential.
- 6.12.5. With cast iron cover plate having pad-locking arrangement, watering pipe using charcoal or coke and salt as required as per provisions of IS: 3043.
- 6.12.6. Necessary provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
- 6.12.7. Each string/ array and MMS of the plant shall be grounded properly.
- 6.12.8. For each earth pit, a necessary test point shall be provided.
- 6.12.9. The array structures are to be connected to earth pits as per IS standards. Necessary provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
- 6.12.10. The complete earthing system shall be mechanically & electrically connected to provide independent return to earth.
- 6.12.11. In compliance to Rule 11 and 61 of Indian Electricity Rules, 1956 (as amended up to date), all non-current carrying metal parts shall be earthed with two separate and distinct earth continuity conductors to an efficient earth electrode.
- 6.12.12. The Bidder should submit the earthing system design calculations along with the system layout for Owner approval. Prior to the installation of the system
- 6.12.13. Unless otherwise specified, the earthing system primary and secondary grid conductors, equipment connections shall be constructed with galvanized iron flat.

6.13. Metering

- 6.13.1. The metering of electricity shall be carried out as per the regulations stipulated by Uttar Pradesh Electricity Regulatory Commission and/or Central Electricity Authority.
- 6.13.2. All charges for testing and passing of the meter with relevant government agency shall be borne by Bidder, the Employer will assist Bidder for necessary document as and when required. Bidder has to intimate the required documents at least 7 days prior of such requirements

6.14. DATA ACQUISITION SYSTEM/WEATHER MONITORING SYSTEM

- 6.14.1. Data Acquisition System shall be provided for each of the solar PV plant.
- 6.14.2. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.
- 6.14.3. Solar Irradiance: An integrating Pyranometer / Solar cell-based irradiation sensor (along with calibration certificate) shall be provided, with the sensor mounted in the plane of the array and integrated with Data logging system
- 6.14.4. Temperature: Temperature probes for recording the solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system.
- 6.14.5. The following Parameters are accessible via the operating interface in real time separately for solar power plant
 - a) AC Voltage
 - b) AC Output current
 - c) Output Power
 - d) Power factor
 - e) DC input voltage
 - f) DC Input current
 - g) Tim Active
 - h) Time disabled
 - i) Time idle
 - j) Power Produced
 - k) Protective functions limits (Viz-AC Over voltage, over frequency, under frequency ground fault, PV Stopping voltage)
- 6.14.6. All Major parameters available on the digital bus stand logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
- 6.14.7. Computerized AC Energy monitoring shall be in addition to the digital AC energy meter.
- 6.14.8. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The Data Shall be represented in both tabular and graphical form.
- 6.14.9. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant
- 6.14.10. Provision for instantaneous internet monitoring and download of historical data shall be also incorporated.
- 6.14.11. Remote server and software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of solar radiation and temperature monitoring system.
- 6.14.12. Remote monitoring and data acquisition through Remote Monitoring System software at the owner location with service connectivity for online/real time data

monitoring/control complete to be supplied and operation and maintenance/Control to be ensured by the bidder.

6.15. Danger Plates

Danger plates/boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. The location and the size may be finalized in consultation with authority. Danger Notice plates shall be made of mild steel sheet and should be at least 2 mm thick, and vitreous enamelled white on both sides and with inscription in signal red colours on front side as required. The inscriptions shall be in Hindi and English.

6.16. Fire Extinguishers

The firefighting system for the proposed power plant for fire protection shall be consisting of portable fire extinguishers in the central room for fire caused by electrical short circuits and buckets in the control room. The installation of fire extinguisher should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs well as on the Roof or Site where the PV arrays have been installed.

6.17. Testing Instruments for Electrical & Electronic

Bidder shall also provide required set of onsite testing instruments/equipment viz. earth resistance tester, rheostats, insulation tester, millimetres, clamp meters, hand held temperature meter, inverter testing kit etc. All testing equipment shall possess valid calibration certificate issued from approved NABL labs.

6.18. General Guidelines

- 6.18.1. Any civil or electrical work which is not mentioned or included in this tender document but necessary for the plant shall be borne by the Bidder.
- 6.18.2. Successful Bidder shall prepare all designs/ drawings have based on the specifications given in the tender and in light of relevant BIS/IS/ equivalent standard.
- 6.18.3. The bidder shall provide type test reports and datasheet/ GTP for all equipment used for the project.
- 6.18.4. The Employer reserves right to modify the design at any stage, to meet local site conditions / project requirements.
- 6.18.5. All work shall be carried out in accordance with the latest edition of the Indian Electricity Act and rules formed there under and as amended from time to time.

6.19. Specification of Weather Monitoring System

As a part of weather monitoring system, Bidder shall provide the following measuring instrument with all necessary software and hardware required to integrate with SCADA.

6.19.1. Pyranometer

- Bidder shall provide minimum 1 (one) number of pyranometer for measuring the incidental solar radiation at horizontal plane of array.
- Specification of the pyranometer shall be as follows:

Details	Values
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Spectral Response	0.31 to 2.8 micron
Sensitivity	Min 7 micro-volt/w/m ²
Time response (95%):	Max 15 s
Non linearity	± 0.5%
Temperature Response	± 2%
Tilt error	<±0.5%.
Zero offset thermal radiation	± 7w/m ²
Zero offset temperature change	± 2w/m ²
Operating temperature range	0 deg to +80 deg.
Uncertainty(95%confidence Level)	Hourly- Max-3%, Daily- Max-2%
Non stability	Max±0.8%
Resolution	Min +/- 1 W/m ²
Input Power for Instrument & Peripherals	230V a.c.(If required)

- Each instrument shall be supplied with necessary cables. Calibration certificate with calibration traceability to World Radiation Reference (WRR) or World Radiation Centre (WRC) shall be furnished along with the equipment. The signal cable length shall not exceed 20m. Bidder shall provide Instrument manual in hard and soft form. The contractor shall periodically calibrate the Pyranometer as per standards.

6.19.2. Thermometer

Bidder shall provide minimum two thermometers (one for ambient temperature measurement with shielding case and other for module temperature measurement). The thermometers shall be RTD/ semiconductor type measuring instrument. Instrument shall have range of 0°C to 80°C. The instrument shall have valid calibration certificate.

6.19.3. Anemometer

Bidder shall provide minimum one no. Ultrasonic anemometer.

Details	Values
Velocity range with accuracy limit	± 0.11 m/s upto 10.1 m/s ±1.1% of true when more than 10.1 m/s
Wind direction range with accuracy Limit	0 to 360° with accuracy ± 4°

E. Performance Measurement procedure

7. Performance Ratio Test Procedure

7.1. PR - Provisional Acceptance Test Verification Procedure

- 7.1.1. The Performance ratio test aims at the comparison of the actual PV plant energy production with the guaranteed value for a limited operation time of the PV plant of 30 consecutive days.

- 7.1.2. After Commissioning of the Plant and after receiving all the satisfactory results regarding the correct operation of the plant, there will be continuous monitoring of the performance for 30 days. This monitoring will be performed on the site under the supervision of the Employer / Employer's engineer.
- 7.1.3. The final tests to prove the guaranteed performance parameters shall be conducted at site by the Contractor in presence of the Employer.
- 7.1.4. The test will consist of guaranteeing the correct operation of plant over 30 days, by the way of the efficiency rate (performance ratio) based on the reading of the energy produced and delivered and the average incident solar radiation.
- 7.1.5. However, as the SPV Plant is installed under Net Metering with Zero Export Scheme, instantaneous PR shall be calculated at full load and shall be considered for assessment of the performance of the SPV Plant.
- 7.1.6. The Efficiency or performance ratio (PR) of the PV Plant is calculated as follows (according to IEC 61724)

$$\text{Performance Ratio (PR)} = \{Y_A / Y_R\} * [1 - \alpha * (T_{\text{Cellavg.}} - T_{\text{Cell}})]$$

Where;

Y_A = Final PV system yield (representing the number of hours that the system would need to operate at its rated output power P_{Nom} to contribute the same energy to the grid as was monitored)

Or $Y_A = E_{ac} / P_{\text{Nom}}$

Y_R = Reference yield (representing the number of hours during which the solar radiation would need to be at STC irradiance levels in order to contribute the same incident energy as was monitored)

Or $Y_R = I_{R \text{ Site}} / I_{R \text{ STC}}$

E_{ac} = AC energy injected into the grid during a clearly specified amount of time (kWh)
 P_{Nom} = Installed nominal peak power of modules (Flash test rating at STC) (kWp)

$I_{R \text{ Site}}$ = Irradiation on the module plane of array during a clearly specified amount of time (measured with a pyranometer installed on the array plane) (kWh/sq. m)

$I_{R \text{ STC}}$ = Irradiance at STC (kW/sq. m)

T_{cellavg} = Average cell/ module temperature ($^{\circ}\text{C}$)
 T_{cell} = STC cell/ module temperature ($^{\circ}\text{C}$)

α = temperature coefficient of power (negative in sign) corresponds to the installed Module ($\%/^{\circ}\text{C}$)

7.2. Monitoring System for PR Verification

The following instrumentation will be used to determine the Solar Plant Performance:

- Power Meter at the delivery point.
- Power Meter for each inverter/ LT panel incomer for reference only.
- One nos. calibrated pyranometer to determine irradiance on the plane of array (with a target measurement uncertainty of ± 2).

- One nos. calibrated pyranometer to determine irradiance on horizontal plane (with a target measurement uncertainty of ± 2)
- Two nos. thermocouples to measure module temperature with a measurement uncertainty of ± 1 °C.
- Shielded ventilated thermocouple with a measurement accuracy of ± 1 °C.
- An anemometer mounted on a 10m mast to measure wind speed (without additional shadowing on modules).

7.3. Data measurement shall be witnessed in the format mutually agreed before the start of PR test by the Employer and the Contractor jointly for the said period.

7.4. The bidder shall show the specified PR for Operational Acceptance and committed CUF for Final Acceptance (i.e. after one year from the date of commissioning).

7.5. Deleted.

F. Civil & Structural Works

8. General

This section of Technical Specifications describes detailed technical and functional requirements of all civil & structural works which are covered under a separate chapter.

All design and construction of civil works shall conform to relevant Indian standards such as BIS, IRC, MORST, NBC etc. Design of steel structures shall conform to IS: 800, 801 or 802 as applicable with working stress method (WSD) of design. Design of concrete structure shall conform to IS: 456. For design of liquid retaining structure IS: 3370 shall be followed. Only in case of non-availability of Indian standard, equivalent American or British standard may be used for design with prior approval of the Employer and the contractor shall submit proper justification along with his request to the Employer for his review. All the design/ drawings shall be prepared/ approved by the chartered structural engineer. The design calculations for MMS, RCC structure, steel structure, foundation system, drainage work, etc. shall be submitted for prior approval of Employer before commencement of construction.

The design calculations shall be supplemented with a neat sketch showing the structure geometry, node and member nos., Lengths of various typical members, support points and type of supports, types of materials with design properties considered, type of sections used in analysis & design. The report shall also include back-up calculations for various loads adopted in design, brief write- up on primary load cases and load combinations considered and conclusions on design results with supporting sketches for easy reference and clarity. Where a computer program (other than STAAD Pro) is used for analysis and design, the contractor shall also include a write-up on the computer program used along with validation check. Input and output file shall also be given in the design report to facilitate its review and approval by the Employer.

The construction methodology for MMS, foundations, drains etc. shall be submitted for prior approval of Employer before start of works.

8.1. The construction shall be done only as per approved drawings.

8.2. Topographical & bathymetric Survey

The contractor shall be responsible for detailed Topographical Survey of the proposed project site. The work shall be carried out through an agency with relevant experience and shall have qualified survey team.

8.3. Other Investigations:

The contractor shall also obtain and study other input data at proposed project site for design of the project. This shall include data related to earthquake and wind, rainfall, maximum & minimum ambient temperature, humidity, high flood level (HFL) etc. The contractor shall carry out Shadow Analysis at proposed site and accordingly design strings and array layout with optimum use of space, material and man power. In case of large and steep variations in topography the study shall also include the effect of topographical variations on array layout. The contractor shall submit all the details/ design to the Employer for review/ approval.

8.4. Plant Layout:

The contractor shall submit drawing showing proposed Project Plant Layout. The Plant layout shall be a comprehensive drawing showing various requirements of the project like, Reference coordinate grid, Geographical and Plant North, including coordinates of all corner points, proposed Array layout, Lightening Arrester etc. The Plant Layout drawing shall be in suitable scale to have proper representation of the information. The Plant layout drawing shall be submitted by the contractor for review/ approval by the Employer.

8.5. Module Mounting Structure(MMS)

- a) Structure would be so designed that it will last for minimum of 25 years without much maintenance and replacement.
- b) Support frame structure shall be a minimum of 35x35x5mm with hot dip galvanized coating of a minimum of 85 micron dry film thickness. However, bidder to provide frame size details along with Bid.

Specification of Module Mounting Structure

S. No.	Specification for proposed module mounting structure on the roofs of the building
1	The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels.
2	The structure shall be designed to allow easy replacement of modules while at the same time be in line with site requirement.

3	<p>The array structure shall be made of hot dipped galvanized MS angles of suitable size and minimum 85 micron thickness of galvanization. Alternatively, aluminum structure specially designed and manufactured by an experienced company for solar module mounting can be used.</p> <p><i>The mounting structure steel should be as per latest IS 2062:1992 and galvanization of the mounting structure should be in compliance with latest IS 4759</i></p>
4	The support structure design & foundation shall be designed to withstand wind speed up to 150 km/hour. The same must be tested and certified by a reputed third-party inspection agency and a design analysis should be submitted.
5	The module alignment & tilt angle shall be calculated to provide the maximum Annual energy output and this shall be decided based on the location of array installation.
6	All fasteners shall be of Stainless steel of grade SS 304
7	The array structure shall be grounded properly using maintenance free earthing kit suitable for mounting over building terrace. The structures shall be designed for simple mechanical on site installation. There shall be no requirement of welding or complex machinery at the installation site
8	The mounting of solar modules shall be done in such a way that the lower position of solar module shall be of min 500 mm above the terrace level.
9	Mounting structure shall be grouted in PCC foundation columns made of 1:2:4 cement concrete after fastening on the roof the size of the foundation should be minimum 300 x 300 x 300 mm.
10.	The size of legs angle should not be less than 50 x 50 x 5 mm with base plate of size 25 x 25 x 10mm.
11	Making arrangement of water in the plant area for module cleaning along with cleaning mechanism.

G. Inspection & Testing

9. Inspection:

- 9.1. Employer shall have free access to Bidder's manufacturer's works to inspect, expedite and witness shop floor tests. Any materials or work found to be defective or which does not meet the requirements of the specification will be rejected and shall be replaced at Bidder's cost. Employer reserves the right to carry out stage wise inspection of fabrication and components. The Bidder shall furnish a detailed quality assurance plan (QAP) for review by the Employer.
- 9.2. The test & inspection shall be carried out at manufacturer's work and at the site with the Bidders obligation. The test and Inspection shall be done in accordance with the relevant standards and the Manufacturer's standard before the delivery to site as well as after the erection and commission at site. The bidders shall give the list of tests that

they will carry out at site to show the performance of plant.

- 9.3. A detailed 'QAP' for Manufacturing and Inspection shall be submitted by the Bidder for Employer's approval. The data of each test and inspection shall be recorded and submitted as soon as the test/ trials are conducted and will also be a part of final documentation.
- 9.4. The shop test shall be carried out to prove the performance parameters of the offered model. The testing shall be done in the presence of the representatives of the department.
- 9.5. The Employer will nominate its representatives (max. of 2 nos.) for inspection of stage manufacturing and testing at works & 7 days training at premises of SPV module and PCU manufacturer. The notice of such inspection shall be given 30 days in advance in case of countries outside India and 15 days in India.
- 9.6. Manufacturer has to submit procedure for Test carried out at their Factory:
 - Start Up Trials
 - Load Test
 - Records & Measurements
 - Safety Device List
 - Setting values for all sensors for Pressure and Temperature
 - Dimensional Check-up, Overall Inspection, Completeness of Scope of Supply
 - Shop Test/Load Test for Solar Power Plant

10. Load Trials & Reliability test at Site

- 10.1. All the tests which are mentioned in the load test of Rooftop Solar Power Plant will be carried out in presence of Employers' Representative at Site under site conditions and the parameters checked in accordance with the data sheet and guaranteed parameters given by the Contractor.
- 10.2. All the equipment supplied by the vendor will be tested as per relevant standard/ Quality assurance plan at site conditions and the performance monitored.

11. Quality Considerations

- 11.1. Contractor will submit and get finalized detailed comprehensive Standard Field Quality Plan (SFQP) within 30 days from date of issue of the order for bought out items and items manufactured by them. The Standard Field Quality Plan shall relate to the specific and objective erection practices right from storage of equipment till final inspection and testing to be followed for bought out items and items manufactured by Contractor. Accordingly, the Manufacturing Quality Plan shall be submitted broadly under following sub-heads:-
 - Raw material/Bought Out items and Components.
 - In process inspection and test/checks to establish successful completion/accomplishment of the process.
 - Final tests/checks in accordance with relevant national/international standards/specification.

- 11.2. The quantum of check for each and every inspection/test items shall be based on an established sampling method and the quantum of check indicated in the SFQP should be designed adequate quality protection.
- 11.3. In case reference documents/acceptance norms are indicated as per plant standards then the same shall be duly substantiated/properly explained by well-established and proven engineering practices. All submissions will be in English language only.
- 11.4. Bidder will allow Employer to carry out Quality/Audit/Quality surveillance on bidders and our sub-vendor's work with reference to contractual obligations to ensure that the quality management practices/norms as detailed out in the Quality Manual are adhered to. To facilitate this activity, you shall keep Employer informed all progress of work in this contract on monthly basis.
- 11.5. Contractor will associate/fully witness in each inspection being carried out at their/their sub-vendor's works by our authorized inspection engineer(s).
- 11.6. Employer shall also carry out quality audit and quality surveillance of your systems, procedures and quality control activities. However, this shall not relive you of any of your contractual responsibilities under the contract.

12. Performance and Functional Warranty / Guarantees

- 12.1. PV modules used in grid connected solar power plants must be warranted for peak output watt age, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- 12.2. The modules shall be warranted for at least 10 years for failures due to material defects and workmanship.
- 12.3. The MMS and anchoring system shall be warranted for 25 years for failures due to material defects and workmanship.
- 12.4. The mechanical structures, electrical works and overall workmanship of the grid connected Rooftop Solar Power Plant must be warranted for a minimum of 10 years.
- 12.5. The Contractor must ensure that the goods supplied under the Contract are new, unused and of most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.
- 12.6. The warranty/guarantee period shall be as follows:
 - Solar PV Modules: Modules shall be warranted for a minimum period of 25 years in the Bidder's detailed Warranty / Guarantee certificate.
 - The MMS and anchoring system shall be warranted for 25 years for failures due to material defects and workmanship.
 - Power Conditioning Units (PCU): PCUs shall be warranted for a period of minimum 10 years or guarantee period provided by the OEM, whichever is higher.
 - Associated switch gear and others, Bidder must furnish in detail its warranties / guarantees for these items.
 - All other associated equipment, not mentioned, but otherwise included in the scope of the contract must be warranted for minimum 10 years against its performance and workmanship.
- 12.7. During the period of Warranty / Guarantee the Contractor shall remain liable to replace any defective parts, that becomes defective in the plant, of its own manufacture or that of its sub-Contractors, under the conditions provided for by the Contract under and

arising solely from faulty design, materials or workmanship, provided such defective parts are not repairable at Site .After replacement, the defective parts shall be returned to the Contractors works at the expense of the Contractor unless otherwise arranged.

- 12.8. At the end of guarantee period, the Contractor's liability shall cease. In respect of goods not covered by the first paragraph of this clause, the Employer shall be entitled to the benefit of such guarantee given to the Contractor by the original Contractor or manufacturer of such goods.
- 12.9. The performance of the plant will be determined by the performance ratio (PR). The same shall be measured and recorded for a period of one month for operational acceptance of the plant as mentioned under TS Clause 7.
- 12.10. During the first year of performance demonstration and Operation & Maintenance thereafter, the Contractor shall be responsible for any defects in the work due to faulty workmanship or due to use of sub-standard materials in the work. Any defects in the work during the guarantee period shall therefore, be rectified by the Contractor without any extra cost to the Employer within a reasonable time as may be considered from the date of receipt of such intimation from the Employer failing which the Employer shall take up rectification work at the risk and cost of the Contractor.
- 12.11. During the O&M period, the bidder, in concurrence with the Employer, is encouraged to carry out the PR test in similar fashion for a period of 7 days, at regular intervals, in order to check the continued performance of the plant.

H. Standards and limits - Meters and Grid Interconnection

Following specifications shall be applicable for the activities related to meters and grid interconnection.

PARAMETER	REFERENCES	REQUIREMENT
Services Conditions	Relevant regulation/order by Uttar Pradesh Electricity regulatory Commission	Compliance
Overall Grid Standards	Central Electricity Authority (Grid Standard) regulations 2010	Compliance
Equipment	BIS/IEEE/IEC	Compliance
Meters	Central Electricity Authority (Installation & Operation of Meters) Regulation 2013 & relevant regulation by Uttar Pradesh Electricity Regulatory Commission	Compliance
Safety & Supply	Central Electricity Authority (Measures of Safety & Electricity Supply) Regulation 2010	Compliance

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

Harmonic Current	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	Harmonic current injection from generation station shall not exceed the limits specified in IEEE 519
Synchronization	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	Photovoltaic system must be equipped with a grid frequency synchronization device. Every time the generating station is synchronization to the electricity system. It shall not cause voltage fluctuation greater than +/- 5% at point of connection.
Voltage	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	The voltage operating window should minimize nuisance tripping and should be under operating range of 80% to 110% of the nominal connected voltage. Beyond a clearing time of 2 second, the photovoltaic system must isolate itself from the grid.
Flicker	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Regulations 2013 Resource)	Operation of photovoltaic System Should not cause voltage flicker in excess of the limit stated in IEC 61000 standard or other equivalent Indian standards, if any
Frequency	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	When the distribution system frequency deviates outside the specified conditions (50.5HZ on upper side and 47.5HZ on lower side) there should be over and under frequency trip functions with a clearing time of 0.2 Seconds
DC Injection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	Photovoltaic system should not inject DC power more than 0.5 % of full rated output at the interconnection point under any operating

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Section V- Scope & Technical Specifications

		condition
Power factor	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	While the output of the inverter is greater than 50% a lagging power factor of greater than 0.9 should operate
Islanding and Disconnection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	The Photovoltaic system in the event of fault, voltage or frequency variation must island/Disconnect it self with in IEC standard on stipulated period
Over load & over heat	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	The inverter should have the facility to automatically switch off in case of over load or overheating and should restart when normal conditions are restored
Paralleling device	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Rescores) Regulations 2013	Paralleling device of photovoltaic system shall be capable of with standing 220% of the normal voltage at the interconnection point

Note:

1. The installation should not be protruding outside the building and there should not be over hang type Structure on any terrace
2. Location & area for inverter and other interconnection equipment should be located in suitable and secure place and this should be approved by the authority.
3. Installation diagram & wiring from array to proposed location of inverter and interconnection should be clearly presented by the bidder before work starts to the authority.

SHEET-1

Guaranteed Technical Particular data Sheet for Solar PV Module

(To be furnished by the bidder)

S.No.	Particulars	Unit	Type/value
1	PV Module Manufacture (Name & Country)		
2	PV Module type (Crystalline- Mono/ Multi)		
3	Product Code (commercial)		
4	No. of PV cells per Module	cells	72
5	Mounting arrangement for Solar Module		
6	Solar Module frame material (if framed)		
7	Module dimensions		
8	Output Cables (viz., Polarized Weather Proof DC rated multi-contact connector)		
9	Availability of Reverse Blocking Diode and Bypass Diode		
10	Construction: Front glass description and thickness Back sheet details Encapsulating details		72
11	Cell efficiency	%	
12	Module efficiency	%	
13	Nominal Wattage (P_{nom})	W	
14	Power Tolerance ($\leq +5W$)	W	
15	Peak power voltage (V_{mp})	V	
16	Peak power current (I_{mp})	A	
17	Open circuit voltage (V_{oc})	V	
18	Short circuit current (I_{sc})	A	
19	Weight of each module	kg	
20	Fill Factor	%	
21	Standards/Approvals from International Agencies	IEC 61215 IEC 61730 IEC 61646 IEC 61701 IEC 62716 Others	
22	Module is suitable to operate up to 50° ambient temp	Yes/No	

SHEET-2

Technical Particular Data Sheet for Power Conditioning Unit (To be furnished by the bidder)

Particulars	Unit	Value
Make		
Capacity		
Origin		
AC Side		
Nominal AC power @ 25 °C	kW	
Nominal AC power @ 50 °C	kW	
Output AC voltage	V	
Output AC Current	A	
Frequency (and Variation)	Hz	
Total Harmonic Distortion (< 3%)	%	
AC over/under voltage, over/under frequency protection		
Phase shift (cos phi)		
DC Side		
Maximum Input DC power	kW	
Maximum DC voltage	V	
MPPT voltage range	V	
Maximum DC current	A	
DC over voltage protection		
DC voltage ripple	%	
Others		
Maximum Efficiency	%	
Euro Efficiency	%	
Ambient temperature range	°C	
Humidity (non-condensing)	RH	
Quiescent power	kW	
Degree of protection	IP	
Dimensions approx. (H x W x D)	mm	
Weight	kg	
Compliances (Reference Standards)		

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Section V- Scope & Technical Specifications

Annexure 1: Details of Site

1. Collectorate Meeting Hall (District Minority Welfare office)

Latitude: 27°54'13.33"N, Longitude: 78° 4'14.53"E

Google Images



Site Image



Proposed SPV Plant Detail

Description	Value	UoM
Contracted Load	45	KVA
Available Roof Top Area	3600	Sq.m.
Proposed SPV Plant Size	45	kWp

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

2. Nagar Nigam

Latitude: 27°53'49.83"N, Longitude: 78° 4'26.40"E

Google Images



Site Images



Proposed SPV Plant Detail

Description	Value	UoM
Contracted Load	49	KVA
Available Roof Top Area	500	Sq.m.
Proposed SPV Plant Size	49	kWp

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

3. Treasury Office

Latitude: 27°54'10.78"N, Longitude: 78° 4'16.68"E

Google Image



Site Images



Proposed SPV Plant Detail

Description	Value	UoM
Contracted Load	36	KVA
Available Roof Top Area	400	Sq. Mts.

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

Proposed SPV Plant Size	25	kWp
-------------------------	----	-----

4. CMO Office

Latitude: 27°54'3.68"N, Longitude: 78° 4'40.42"E

Google Image



Site Images



Proposed SPV Plant Detail

Description	Value	UoM
-------------	-------	-----

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Section V- Scope & Technical Specifications

Contracted Load	42	KVA
Available Roof Top Area	260	Sq. Mts.
Proposed SPV Plant Size	42	kWp

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Section V- Scope & Technical Specifications

5. NIC Center

Latitude: 27°54'18.13"N, Longitude: 78° 4'11.92"E

Google Image



Site Images



Proposed SPV Plant Detail

Description	Value	UoM
Contracted Load	7	KW
Available Roof Top Area	242	Sq. Mts.
Proposed SPV Plant Size	7	kWp

Section - VI

Forms and Formats

Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission.

Appendix5: Performa for Financial Proposal (TO BE SUBMITTED ONLINE ONLY)

Appendix 12(a): Format of Bank Guarantee for Bid Security

(Refer Clauses 16 of ITB)

B.G. No.

Dated:

1. In consideration of the Aligarh Smart City Limited represented by Chief Executive Officer having its office at Manasi Ganga Building, Baraula By Pass, Near Shanti Lodge, Aligarh, Uttar Pradesh 202001, India, (hereinafter referred to as the "ASCL", which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the Bid of and having its registered office at (hereinafter referred to as the "Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for "Design, Supply, Installation, Commissioning and Maintenance for a period of 5 years of Rooftop Solar PV Power Plants of different capacities under Net Metering with Zero Export Policy in Aligarh City on turnkey basis along with associated electrical & civil works under implementation of smart city mission" (hereinafter referred to as "the Project") pursuant to the RFP Document issued in respect of the Project and other related documents (hereinafter collectively referred to as "Bidding Documents"), we [Name of the Bank] having our registered office at and one of its branches at (hereinafter referred to as the "Bank"), at the request of the Bidder, do hereby in terms of RFP Document, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the RFP Document) by the said Bidder and unconditionally and irrevocably undertake to pay forthwith to the ASCL an amount of Rs. ***** (Rupees***** only) (hereinafter referred to as the "Guarantee") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.
2. Any such written demand made by the ASCL stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.
3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the ASCL is disputed by the Bidder or not, merely on the first demand from the ASCL stating that the amount claimed is due to the ASCL by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in

the Bidding Documents including failure of the said Bidder to keep its Bid open during the Bid validity period as set forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. ***** (Rupees ***** only).

4. This Guarantee shall be irrevocable and remain in full force for a period of 210 (two hundred and ten) days from the Bid Due Date/last date for bid submission or for such extended period as may be mutually agreed between the ASCL and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

5. We, the Bank, further agree that the ASCL shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Bidding Documents, and the decision of the ASCL that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the ASCL and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other ASCL.

6. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.

7. In order to give full effect to this Guarantee, the ASCL shall be entitled to treat the Bank as the principal debtor. The ASCL shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the Bids or the Bid validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the ASCL, and the Bank shall not be released from its liability under these presents by any exercise by the ASCL of the liberty with reference to the matters aforesaid or by reason of time being given to the said Bidder or any other forbearance, act or omission on the part of the ASCL or any indulgence by the ASCL to the said Bidder or by any change in the constitution of the ASCL or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.

8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently

given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.

9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Bank along with branch address] and delivered at our above branch which shall be deemed to have been duly authorised to receive the said notice of claim.

10. It shall not be necessary for the ASCL to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the ASCL may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealised.

11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the ASCL in writing.

12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorised and has full power to execute this Guarantee for and on behalf of the Bank.

13. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to Rs. ***** (Rupees *****) only. The Bank shall be liable to pay the said amount or any part thereof only if the ASCL serves a written claim on the Bank in accordance with paragraph 9 hereof, on or before [*** (indicate date falling 210 days after the Bid Due Date/last date for bid submission)].

14. Notwithstanding anything contained herein:

a) Our liability under this bank Guarantee shall not exceed Rs..... (Rupees Only)

b) This Bank Guarantee shall be valid up toAnd

c) We are liable to pay the guaranteed amount or any part thereof under this bank Guarantee only and only if we receive a written claim or demand on or before. (date of expiry of guarantee)

Signed and Delivered by Bank

By the hand of Mr./Ms., its..... and authorised official.

(Signature of the Authorised Signatory)
(Official Seal)

Appendix 12(b): Format for Performance Bank Guarantee for Performance Security during EPC

FORMAT OF PERFORMANCE SECURITY (GUARANTEE)

BANK GUARANTEE BOND

To,

Chief Executive Officer

Aligarh Smart City Limited (ASCL),

Manasi Ganga Building, Baraula By Pass
Road, Near Shanti Lodge, Aligarh,
Uttar Pradesh 202001, India

WHEREAS, M/s _____ (hereinafter called "the Contractor") has undertaken, in pursuance of his bid dated ____ to execute the _____ (hereinafter called the "Contract") and the bid of bidder has been accepted by the Aligarh Smart City Limited (ASCL) vide letter of acceptance No. ____ dated _____.

AND WHEREAS it has been stipulated by you in the said contract that the contractor shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the contract;

AND WHEREAS we have agreed to give the Contractor such a bank guarantee.

NOW THEREOF we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Rs. _____ (Rupees _____), such sum being payable in the type of currency in which Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Rs _____ as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein. The Bank will deliver the money required by you immediately on demand without delay and demur and without reference to the Contractor and without the necessity of a previous notice or of judicial or administrative procedures

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Section VI-Forms and Formats

and without it being necessary to prove to the Bank the liability or damages resulting from any defects or shortcomings or debts of the Contractor. The Bank shall pay to you any money so demanded notwithstanding any dispute/disputes raised by the Contractor in any suit or proceedings pending before any Court, Tribunal or Arbitrator/s relating thereto and the liability under this guarantee shall be absolute and unequivocal.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the works to be performed thereunder or of any of the Contract documents, which may be made between you and the Contractor, shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

The liability of the Bank under this bank guarantee shall not be affected by any change in the constitution of the Contractor or of the Bank.

This Guarantee will remain valid and in force up to ____.

Notwithstanding anything contained herein above, our liability under this guarantee is restricted to Rs. __ (Rupees _____) and the guarantee shall remain valid till _____. Unless a claim or a demand in writing is made upon us on or before _ all our liability under this guarantee shall cease.

DATE _____

SIGNATURE OF THE ISSUING AUTHORITY OF THE BANK _____

SEAL OF THE BANK _____

ADDRESS OF THE BANK _____

IN THE PRESENCE OF

SIGNATURE OF THE WITNESS _____

NAME AND ADDRESS OF THE WITNESS _____

Appendix12(c): Format of Bank Guarantee for Performance of O&M

(On stamp paper of Rs.100/-)

Reference No. Bank Guarantee No. Dated:

WHEREAS [Insert name of the Contractor] with address [Insert address of the Contractor] having its registered office at [Insert address of the Contractor] (Hereinafter, the “Bidder”) wishes to participate in RFP document No. issued by Aligarh Smart City Limited (“ASCL”) (hereinafter, the “Beneficiary”) for Operation and Management of Performance of Solar Power Project.

And WHEREAS a Bank Guarantee for Rupees [.....] valid till..... [Insert date 05 years from the date of Operational Acceptance] is required to be submitted by the Contractor as per the terms and conditions of the RFP.

We,..... [Insert name of the Bank and address of the Branch giving the Bank Guarantee] having our registered office at [Insert address of the registered office of the Bank] hereby give this Bank Guarantee No. [Insert Bank Guarantee number] dated [Insert the date of the Bank Guarantee], and hereby agree unequivocally and unconditionally to pay immediately on demand in writing from the Beneficiary any officer authorized by it in this behalf any amount not exceeding Rupees[] to the said Beneficiary on behalf of the Bidder.

We..... [Insert name of the Bank] also agree that withdrawal of the Bid or part thereof by the Bidder within its validity or non-submission of further O&M Performance Bank Guarantee by the Bidder within the stipulated time of the Letter of Intent to the Bidder or any violation to the relevant terms stipulated in the RFP would constitute a default on the part of the Bidder and that this Bank Guarantee is liable to be invoked and encashed within its validity by the Beneficiary in case of any occurrence of a default on the part of the Bidder and that the encashed amount is liable to be forfeited by the Beneficiary.

This agreement shall be valid and binding on this Bank up to and inclusive of.. [Insert the date of validity of the Bank] and shall not be terminable by notice or by Guarantor change in the constitution of the Bank or the firm of the Bidder or by any reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, conceded with or without our knowledge or consent by or between the Bidder and the Beneficiary.

NOTWITHSTANDING anything contained hereinbefore, our liability under this guarantee is restricted to Rupees (Insert the Amount). Our Guarantee shall remain in force till

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[Insert date]. Unless demands or claims under this Bank Guarantee are made to us in writing on or before [Insert date], all rights of the Beneficiary under this Bank Guarantee shall be forfeited and we shall be released and discharged from all liabilities there under.

[Insert the address of the Bank with complete postal branch code, telephone and fax numbers, and official round seal of the Bank]

[Insert signature of the Bank's Authorized Signatory]

Attested:

..... [Signature] (Notary Public)

Place:

Date:

Appendix 14: Contract Agreement

This agreement is made at Aligarh, the -----day of -----in the year Two thousand -----

--- between ----- (herein after referred to as

“The Contractor” which expression shall unless excluded by or repugnant to the contract include its successors or permitted assigns) of the one part and the ASCL having their Office at

----- (Hereinafter called “ASCL” which expression shall unless excluded by or

repugnant to the context include its successors or assigns) of the other part.

WHEREAS the aforesaid ASCL has accepted the tender of the aforesaid Contractor for -----
----- as per ASCL’s LOI/LOA No. ----- hereinafter called “the Works” and more particularly described enumerated or referred to in the specification, terms and conditions prescribed in the LOI which for the purpose of identification have been signed by -----
----- on behalf of the Contractor and by ----- on behalf of ASCL a list whereof is made out in the Schedule hereunder written and all of which said documents are deemed to form part of this contract and included in the expression “the Works” wherever herein used, upon the terms and subject to the conditions hereinafter mentioned.

AND WHEREAS ASCL has accepted the tender of the Contractor for the said works for the sum of Rs. - (Rupees :) upon the terms and subject to the conditions herein mentioned.

NOW THIS AGREEMENT WITNESSES AND IT IS HEREBY AGREED AND DECLARED THAT:-

- a) The Contractor shall do and perform all works and things in this contract mentioned and described or which are implied therein or therefrom respectively or are reasonably necessary for the completion of the works as mentioned and at the times, in the manner and subject to the terms, conditions and stipulations contained in this contract, and in consideration of the due provision, executions, construction and completion of the works agreed to by the contractor as aforesaid, ASCL doth hereby covenant with the Contractor to pay all the sums of money as and when they become due and payable to the Contractor under the provisions of the contract. Such payments to be made at such times and in such manner as is provided by the contract.
- b) The conditions and covenants stipulated herein before in this contract are subject to and without prejudice to the rights of the ASCL to enforce penalty for delays and /or any other rights whatsoever including the right to reject and cancel on default or breach by the Contractor of the conditions and the covenants as stipulated in the general conditions, specifications, forms, or tender schedule, drawing, etc.,

attached with ASCL's LOI No. -----

-----.

The contract value, extent of supply delivery dates, specifications, and other relevant matters may be altered by mutual agreement and if so altered shall not be deemed or construed to mean or apply to affect or alter other terms and conditions of the contract and the general conditions and the contract so altered or revised shall be and shall always be deemed to have been subject to and without prejudice to said stipulation.

SCHEDULE

List of documents forming part of the contract: 1.

2.

3.

In witness whereof the parties hereto have set their hands and seals this day and month year first above written.

1. Signed, Sealed and delivered by:
(Signature with Name, Designation & official seal)
for and on behalf of M/s. [Inset Name of Contractor] In the presence of name, Full Address & Signatures. :

i)

ii)

2. Signed, Sealed and Delivered by:
(Signature with Name, Designation & official seal) For and on behalf of ASCL.
In the presence of Name, Full Address & Signature:

i)

ii)

Appendix 17: Indemnity Bond to be executed by The Contractor for The Removal / Disposal of Scrap/Disposal of Surplus Material

(TO BE EXECUTED ON STAMP PAPER OF APPROPRIATE VALUE)

INDEMNITY BOND

This INDEMNITY BOND executed this day of 20..... by (Name of Company), a Company registered under the Companies Act, 1956/ Partnership Firm/ Proprietary Concern and having its registered office(s) at (Office Address)....., hereinafter called the Indemnifier(s)/ Contractor(s) (which expression shall, unless excluded by or repugnant to the context, be deemed to mean and include its successors, administrators, executors and permitted assigns).

IN FAVOUR OF

“Aligarh Smart City limited”, having its registered office at, ROOM NO 108, SEWA BHAWAN, NEAR GHANTA GHAR, CHURCH COMPOUND, CIVIL LINES, LAL DIGGI ROAD, ALIGARH, UTTAR PRADESH, INDIA, Pin: 202001.

1. ASCL has awarded the Contractor(s), contract for execution of work (“Scope of Work”) as mentioned in the contract agreement/LOI no..... dated, entered into between ASCL and Contractor(s), relating to (Name & Address of Project/Station) (hereinafter called ‘the Project’).
2. The Indemnifier(s) for the purpose of execution of its Scope of Work had from time to time procured and stored (Details of Material)... at the Project Site.
3. After completion of the Scope of Work by Indemnifier(s), it has been identified that scrap (Details of Scrap Material & its Quantity).....and/or surplus (Details of Surplus Material & its Quantity) belonging to Indemnifier(s) is lying at the said Project Site.
4. Now, the scrap (Details of Scrap Material & its Quantity).....and/or surplus (Details of Surplus Material & its Quantity) belonging to the Indemnifier(s), requires to be removed by Indemnifier(s) from the Project Site.

NOW THEREFORE THIS INDEMNITY BOND WITNESSETH AS UNDER:

1. That Indemnifier(s) by way of this indemnity requests ASCL to issue approval in favour of Indemnifier(s) for removal of scrap (Details of Scrap Material & its Quantity).....and/or surplus(Details of Surplus Material & its Quantity).....
belonging to Indemnifier(s), from the project.
2. That the Indemnifier(s) shall ensure clearing of its scrap (Details of Scrap Material & its Quantity).....and/or surplus (Details of Surplus Material & its Quantity).....
by itself, as aforesaid.
3. That Indemnifier(s) in consideration of the premises above, for itself and its respective, executors, administrators and assigns, jointly and severally agree and undertake from time to time and at all times hereafter to indemnify ASCL and keep ASCL indemnified from and against all claims, demands, actions, liabilities and expenses which may be made or taken against or incurred by ASCL by reason of the issue of necessary approval by ASCL and permitting Indemnifier(s) to remove scrap(Details of Scrap Material & its Quantity) and/or surplus(Details of Surplus Material & its Quantity) ..belonging to Indemnifier(s), from the project.
4. That Indemnifier(s) undertakes to indemnify and keep ASCL harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap and surplus belonging to Indemnifier(s), from the Project Site aforesaid, by the Indemnifier(s). Further, in case the laws require ASCL to take prior permission of the relevant Authorities before handing over the scrap and/or surplus to the Indemnifier, the same shall be obtained by the Indemnifier on behalf of ASCL.

IN WITNESS WHEREOF, the Indemnifier(s), through its authorized representative, has executed these presents on the Day, Month and Year first mentioned above at

.....(Name of the Place).....

Witness:

Indemnifie

r

1.

2.

(Authorised Signatory)

Appendix 18: Indemnity Bond to be executed by the contractor for the plant handed over by ASCL for Performance of its O&M Contract (Entire Rooftop Solar Power Plant)

(On non-judicial stamp paper of appropriate value)

INDEMNITY BOND

THIS INDEMNITY BOND IS made this day of 20 By

..... a Company registered under the Companies Act, 1956/2013 having its Registered Office at (hereinafter called as "Contractor" or "Obligor" which expression shall include its successors and permitted assigns) in favour of ASCL, a Company incorporated under the Companies Act, 1956 having its Registered Office at ROOM NO 108, SEWA BHAWAN, NEAR GHANTA GHAR, CHURCH COMPOUND, CIVIL LINES, LAL DIGGI ROAD, ALIGARH, UTTAR PRADESH, INDIA, Pin:202001, its Project at (Hereinafter called "ASCL" which expression shall include its successors and assigns) :

WHEREAS ASCL has awarded to the Contractor a Contract for vide its Letter of Intent/Award Letter/Contract No Dated and its Amendment No (Applicable when amendments have been issued) (hereinafter called the "Contract") in terms of which ASCL is required to hand over various Equipment and facilities provided under Supply Contract, Erection Contract, herein after called "Rooftop Solar Power Plant" to the Contractor for execution of the Contract.

AND WHEREAS by virtue of Clause No. 27.3 of Section III:GCC of the said Contract, the Contractor is required to execute an Indemnity Bond in favour of ASCL for the Rooftop Solar Power Plant handed over to it by ASCL for the purpose of Performance of the Contract/O&M portion of the Contract.

NOW, THEREFORE, this Indemnify Bond witnesseth as follows:

1. That in consideration of Rooftop Solar Power Plant as mentioned in the Contract, Valued at Rs#..... (Rupees..) handed over to the Contractor for the purpose of Performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep ASCL indemnified, for the full value of the Rooftop Solar Power Plant. The Contractor hereby acknowledges actual receipt of the Rooftop Solar Power Plant

- as detailed in the Schedule appended hereto. The Contractor shall hold such Rooftop Solar Power Plant in trust as a "Trustee" for and on behalf of ASCL.
2. That the Contractor is obliged and shall remain absolutely responsible for the safe O&M/protection and custody of the Solar Photo Voltaic Project against all risks whatsoever till completion of O&M Contract in accordance with the terms of the Contract and is taken over by ASCL. The Contractor undertakes to keep ASCL harmless against any loss or damage that may be caused to the Rooftop Solar Power Plant.
 3. The Contractor undertakes that the Rooftop Solar Power Plant shall be used exclusively for the Performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the Rooftop Solar Power Plant shall be utilised for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnify Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purposes including legal/penal consequences.
 4. That ASCL is and shall remain the exclusive owner of the Rooftop Solar Power Plant free from all encumbrances, charges or liens of any kind, whatsoever. The Rooftop Solar Power Plant shall at all times be open to inspection and checking by Engineer-in-Charge/Engineer or other employees /agents authorised by him in this regard. Further, ASCL shall always be free at all times to take possession of the Rooftop Solar Power Plant in whatever form the Rooftop Solar Power Plant may be, if in its opinion, the Rooftop Solar Power Plant are likely to be endangered, mis-utilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds itself and undertakes to comply with the directions of demand of ASCL to return the Rooftop Solar Power Plant without any demur or reservation.
 5. That this Indemnify Bond is irrevocable. If at any time any loss or damage occurs to the Rooftop Solar Power Plant or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in-Charge/Engineer of ASCL as to assessment of loss or damage to the Rooftop Solar Power Plant shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Rooftop Solar Power Plant at its own cost and / or shall pay the amount of loss to ASCL without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to ASCL against the Contractor under the Contract and under this Indemnify Bond.
 6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms of and conditions of this Bond to the satisfaction of ASCL, THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its

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authorised representative under the common seal of the Company, the day, month and year first above mentioned

SCHEDULE

Particulars of the Equipment / Facilities handed- over	Quantity	Value	Other details (if any)	Signature of Attorney token receipt

WITNESS

For and on behalf
of M/s

.....

I. 1. Signature..... Name

2. Signature..... Name

3. Address..... Designation of

Authorised representative*

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II. 1. Signature -----

2. Name -----

Common Seal

(In case of Company)

3. Address

* Indemnity Bonds are to be executed by the authorised persons and (i) In case of contracting Company under common seal of the Company of (ii) having the power of attorney issued under common seal of the company with authority to execute Indemnity Bonds, (iii) In case (ii) the original Power of Attorney if it is specifically for our contract or a Photostat copy of the Power of Attorney if it is a General Power of Attorney and such documents should be attached to Indemnity Bond.

The value shall be sum of Supply and Erection Contract value.

Appendix 19(a): Indemnity bond to be executed by the contractor for the equipment handed over by the employer for performance of its contract (entire equipment consignment in one lot)

(On non-Judicial stamp paper of appropriate value)

INDEMNITY BOND

THIS INDEMNITY BOND is made thisday of.....
20..... by..... (*Contractor's Name*) a Company registered under the Companies Act, 1956/2013 having its Registered Office at..... (Hereinafter called as 'Contractor' or "Obligor" which expression shall include its successors and permitted assigns) in favour of..... (*Name of Employer*), a Company incorporated under the Companies Act,

1956 having its Registered Office at..... and its project at (Hereinafter called ".....". {*Abbreviated name of the Employer*}) which expression shall include its successors and assigns):

WHEREAS@..... has awarded to the Contractor a Contract forvide its Notification of Award/ Contract No.....dated and its Amendment No. and Amendment No....., (*applicable when amendments have been issued*) (hereinafter called the Contract") in terms of which@..... is required to hand over various Equipment to the Contractor for execution of the Contract.

And WHEREAS by virtue of Clause No..... of the said Contract, the Contractor is required to execute an Indemnity Bond in favour of.....@..... for the Equipment's handed over to it by@..... for the purpose of performance of the Contract/Erection portion of the contract (hereinafter called the "Equipment's")

AND THEREFORE, This Indemnity Bond witnesseth as follows:

1. That in consideration of various Equipment's as mentioned in the Contract, valued at (*Currency and amount in Figures*)..... (*Currency and amount in words*) Handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep@..... indemnified, for the full value of the Equipment's. The Contractor hereby acknowledges actual receipt of the Equipment etc. as per despatch title documents handed over to the Contractor as detailed in the Schedule appended hereto. The Contractor shall hold such Equipment etc. in trust as a "Trustee" for and on behalf of@.....@ Fill in abbreviated name of Employer

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Equipment at@..... project site against all risks whatsoever till the Equipment's are duly used/erected in accordance with the terms of the Contract and the plant/package duly erected and commissioned in accordance with the terms of the Contract is taken over by@..... . The Contractor undertakes to keep@ harmless against any loss or damage that may be caused to the Equipment's.
3. The Contractor undertakes that the Equipment's shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the equipment shall be utilised for any other work of purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal/penal consequences.
4. That@. is and shall remain the exclusive owner of the Equipment's free from all encumbrances, charges or liens of any kind, whatsoever. The Equipment's shall at all times be open to inspection and checking by the Project Manager or other employees/agents authorised by him in this regard. Further ...@ Shall always be free at all times to take possession of the Equipment's in whatever form the Equipment's may be, if in its opinion, the Equipment's are likely to be endangered, miss-utilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of@..... to return the Equipment's without any demur or reservation.
5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Equipment's or the same or any part thereof is miss-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Project Manager of@. as to assessment of loss or damage to the Equipment shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Equipment's at its own cost and/or shall pay the amount of loss to@. without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to@..... against the Contractor under the Contract and under this Indemnity Bond.
6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of@. , THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue. @ Fill in abbreviated name of Employer
IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its

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authorised representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE

Particulars of the Equipment's handed over	Quantity	Particulars of title	Despatch	Value of the Equipment's	Signature of Attorney in token of receipt
		RR/GR/ Bill of lading No & Date	Carrier		

WITNESS

For and on behalf of

M/s

I. 1. Signature..... Name

2. Signature..... Name

3. Address..... Designation of

Authorised representative*

II. 1. Signature

2. Name Common Seal

(In case of Company)

3. Address

- * Indemnity Bonds are to be executed by the authorised persons and (i) In case of contracting Company under common seal of the Company of (ii) having the power of attorney issued under common seal of the company with authority to execute Indemnity Bonds, (iii) In case
(ii) the original Power of Attorney if it is specifically for our contract or a Photostat copy of the Power of Attorney if it is a General Power of Attorney and such documents should be attached to Indemnity Bond.
- # The value shall be sum of Supply and Erection Contract value.

Appendix 19 (b): Form of indemnity bond to be executed by the contractor for the equipment handed over in instalments by the employer for performance of its contract

(On non-Judicial stamp paper of appropriate value)

INDEMNITY BOND

THIS INDEMNITY BOND is made this.....day of..... 20..... by.....

(Contractor's Name) a Company registered under the Companies Act, 1956/2013 having its Registered Office at. (Hereinafter called as 'Contractor' or "Obligor" which expression shall

include its successors and permitted assigns) in favour of (Name of Employer), a Company incorporated under the Companies Act, 1956 having its Registered Office at

..... and its project at (Hereinafter called "....." {Abbreviated name of the Employer}) Which expression shall include its successors and assigns):

WHEREAS@..... has awarded to the Contractor a Contract forvide its Notification of Award/Contract No.....dated..... And it's Amendment No. and Amendment No....., (*applicable when amendments have been issued*)

(hereinafter called the Contract") in terms of which .@.....is required to hand over various Equipment's to the Contractor for execution of the Contract.

And WHEREAS by virtue of Clause No.....of the said Contract, the Contractor is required to execute an Indemnity Bond in favour in@. For the Equipment's handed over to it by@..... for the purpose of performance of the Contract/Erection portion of the contract (hereinafter called the "Equipment's")

NOW THEREFORE, This Indemnity Bond witnessed as follows:

1. That in consideration of various Equipment's as mentioned in the Contract, valued at (*Currency and amount in figures*)..... (*Currency and amount in words*)

..... to be handed over to the Contractor in instalments from time to time for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep@. indemnified, for the full value of the Equipment's. The

Contractor hereby acknowledges actual receipt of the initial instalment of the Equipment etc. as per details in the Schedule appended hereto. Further, the Contractor agrees to acknowledge actual receipt of the subsequent instalments of

the Equipment's etc. as required by@. in the form of Schedules consecutively numbered which shall be attached to this Indemnity Bond so as to form integral parts of this Bond. The Contractor shall hold such

Equipment's etc. in trust as a "Trustee" for and on behalf of@.....

@ Fill in abbreviated name of Employer.

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Equipment at@. project site against all risks whatsoever till the Equipment's are duly used/erected in accordance with the terms of the Contract and the plant/package duly erected and commissioned in accordance with the terms of the Contract, is taken over by@..... . The Contractor undertakes to keep@ harmless against any loss or damage that may be caused to the Equipment's.
3. The Contractor undertakes that the Equipment's shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the equipment shall be utilised for any other work of purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal/penal consequences.
4. That@. is and shall remain the exclusive owner of the Equipment's free from all encumbrances, charges or liens of any kind, whatsoever. The Equipment's shall at all times be open to inspection and checking by the Project Manager or other employees/agents authorised by him in this regard. Further,@. shall always be free at all times to take possession of the Equipment's in whatever form the Equipment's may be, if in its opinion, the Equipment's are likely to be endangered, mis-utilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of@. to return the Equipment's without any demur or reservation.
5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Equipment's or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Project Manager of@. as to assessment of loss or damage to the Equipment shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Equipment's at its own cost and/or shall pay the amount of loss to@. without any demur,

reservation or protest. This is without prejudice to any other right or remedy that may be available to@..... against the Contractor under the Contract and under this Indemnity Bond.

6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of@. , THEN, the

above Bond shall be void, but otherwise, it shall remain in full force and

virtue. @ Fill in abbreviated name of Employer

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorised representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE No.1

Particulars of the Equipment's handed over	Quantity	Particulars of Despatch title	Value of the Equipment's	Signature of Attorney in token of receipt
		RR/GR/ Bill of lading No & Date	Carrier	

(Please number subsequent schedules)

WITNESS

For and on behalf of

M/s

I. 1. Signature..... Name

2. Signature..... Name

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3. Address Designation of

Authorised representative*

II. 1. Signature

2. Name Common Seal

(In case of Company)

3. Address

- * Indemnity Bonds are to be executed by the authorised persons and (i) In case of contracting Company under common seal of the Company of (ii) having the power of attorney issued under common seal of the company with authority to execute Indemnity Bonds, (iii) In case (ii) the original Power of Attorney if it is specifically for our contract or a Photostat copy of the Power of Attorney if it is a General Power of Attorney and such documents should be attached to Indemnity Bond.

Annexure – 1, Template of Joint Commissioning and Handing Over Certificate / Warranty Card

Aligarh Smart City Limited

JOINT COMMISSIONING AND HANDING OVER CERTIFICATE / WARRANTEE CARD

(To be submitted in 3 copies to ASCL)

It is hereby certified that following system (as per following details) has been supplied, installed and commissioned:-

S. No.	Items	Details
1	Name of system	Grid connect Solar Rooftop System
2.	Agreement Number& Date	
3.	Work Order Number & Date	
4.	UID number (14 digits)	
5.	Name of beneficiary Organization (with mobile number of contact person)	
6.	Complete Address of Beneficiary Organization	
7.	Objective for implementing the Plant Self-consumption total or partial generation	
8.	Details of Installed Solar Power Plant	
a	Capacity of the SPV Power Plant (kWp) installed.	
b	Plant installed at single site/multiple sites	
c	Interconnection with the electricity network at single point or multiple point No. of Module No. of Panel No. of Array No. of F.J.B. No. of A.J.B.	

	<p>No. of P.J.B.</p> <p><u>Voltage on Open Circuit</u></p> <p>At each P.J.B. At each A.J.B. At each F.J.B. At D.C.D.B. At P.C.U. Input At P.C.U. Output</p> <p>Voltage on Load</p> <p>At each P.J.B. At each A.J.B. At each F.J.B. At D.C.D.B. At P.C.U. Input At P.C.U. Output</p> <p>Current on open circuit</p> <p>At each P.J.B. At each A.J.B. At each F.J.B. At D.C.D.B. At P.C.U. Input At P.C.U. Output</p> <p>Current on Load</p> <p>At each P.J.B. At each A.J.B. At each F.J.B. At D.C.D.B. At P.C.U. Input At P.C.U. Output</p>	
d	Total loads energized by SPV Power Plant (kW)	
e	Calculations and justification for the capacity (Please elaborate)	
f	Expected annual energy	

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	generation month wise	
g	Space for housing the plant control systems and battery bank (if any)	
9	Exact location of installation (land mark)	
10.	Date of Commissioning	
11.	Warrantee expire on	
12	Sketch/Line diagram of the complete SPV System with details (please attach drawing)	

S. No.	Items	Details
13	Name & Address of the Manufacturer / Supplier of the system	
14	SPV Modules Installed Sr. NO Make Model Capacity Details of Tracking of PV Array, if proposed (single axis / double axis tracking etc.)	
15	Power Conditioning Unit (PCU) (i) Make & Capacity of inverter. (ii) Type of Charge controller / MPPT (iii) Make (Details of quality of output power, standards) (iv) Type of inverter (central string/ multi string/any other) (v) Inverter efficiency (vi) Number of PCU/inverters used (vii) DC Bus voltage	
16	(i) Details of protections deployed on PV array and AC output side (ii) Details of Metering, Indication, Data logging operation	

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17	Training for operation & Maintenance of the systems	Provided / Not Provided
18	Details of Operation and Maintenance Arrangements (i) Arrangements for Generation Data Collection through remote monitoring (for SPV Power Plants having more than 5 kWp capacity) (ii) Is dedicated staff trained for O&M of the plant? (iii) No. of personnel trained in O&M	
19	Technical literature, Operation & Maintenance manual in English /Hindi	Provided/Not Provided

System unique identification code (UID) 14 digit

(Signature)

Authorized Signatory of Contractor (with seal)

(Signature)

Name of Beneficiary Organization

(Signature)

Project Manager ASCL (with Seal)