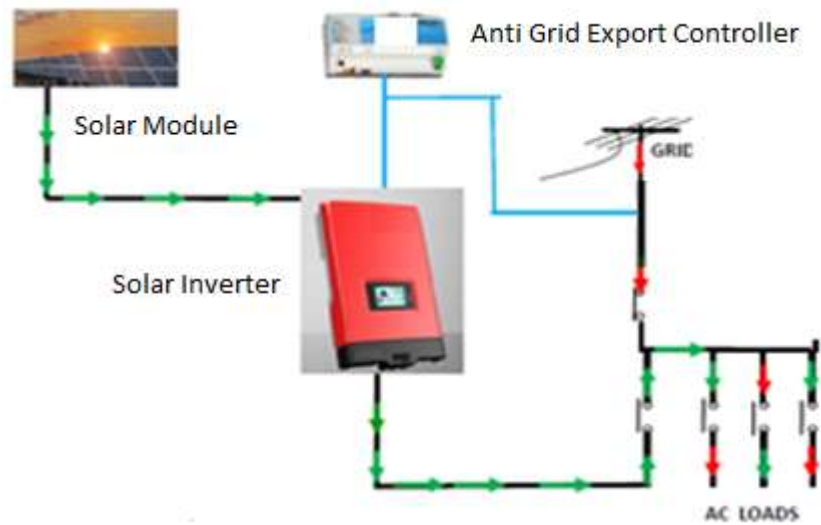


e-TENDER DOCUMENT FOR

Rate Contract for the Design, manufacture, supply, erection, testing and Commissioning including comprehensive warranty maintenance for 5 years of 1 kWp to 500 kWp Grid Interactive Rooftop Solar Power Plants for captive use (Capex Mode) of in various Government buildings at various places in the State of Uttar Pradesh.

e-tender No.- **01/UPNEDA/SPV/GCRT/GB/2019**



Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA)

(Deptt. of Additional Sources of Energy, Govt. of U.P.)

VibhutiKhand, Gomti Nagar, Lucknow, U. P.

Tel.No. 91-0522-2720652, TeleFax: 0522-2720779, 2720829

Website: www.upneda.org.in e-mail: compneda@rediffmail.com

2. DEFINITIONS

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

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

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

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

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

"**Bid Validity**" shall have the meaning ascribed to it in Clause 3.6

"**Bid Capacity**" shall mean capacity offered by the bidder in his Bid under invitation.

"**CEA**" shall mean Central Electricity Authority.

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

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

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

"**Earnest Money Deposit**" shall mean the unconditional and irrevocable bank guarantee of an amount as mentioned in this document, to be submitted along with the Bid by the Bidder as prescribed in this tender document;

"**Electricity**" means the electrical energy in kilowatt hours;

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

"**Financial Bid**" shall mean the e-Bid, containing the Bidder's Quoted Capital Cost for in the Part -B of the e-bid document;

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

"**kWp**" shall mean kilo-Watt Peak;

"**kWh**" shall mean kilo-Watt-hour;

"MNRE" shall mean Ministry of New and Renewable Energy, Government of India;

"Minimum Bid Capacity" shall mean for established firm 500 KW which is the minimum capacity for which the Bidder can submit its Bid. Bidder(s) quoting less the minimum bid capacity shall be out-rightly rejected;

"O&M" shall mean Operation & Maintenance of Rooftop Solar PV system for 5 years;

"Owner of the project" shall mean anyone who has ownership (including lease ownership also) of the roof and is the legal owner of all equipment's of the project.

"Plant" shall mean rooftop solar photovoltaic power generation plants implemented on the individual site;

"PV" shall mean photovoltaic;

"Eligibility Conditions" shall mean the qualification requirements set forth in Clause 1.1

"Quoted Capital Cost" shall mean the capital cost requirement, in Wp, quoted by the Bidder in accordance with the prescribed Format B and shall be construed to have considered the capital cost for Design, Supply, Installation, Testing and Commissioning of Grid Connected Rooftop Solar Photovoltaic Power Plants including its Operation and Maintenance for five (5) years. The quoted capital cost shall also include development of necessary evacuation infrastructure and its Operation and Maintenance;

"Rs. or ₹" shall mean Indian rupees;

"UPERC" means the Uttar Pradesh Electricity Regulatory Commission constituted under Section 82 of the Electricity Act 2003 for the State of Uttar Pradesh;

"UP Electricity Grid Code" or "Grid Code" or "UPEGC" shall mean the document notified by the UPERC describing the responsibilities for planning and operation of the power system in Uttar Pradesh in 2007 and as amended from time to time;

"Performance Ratio" (PR) means

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

"Security Deposit/Performance Guarantee" shall mean the bank guarantee to be provided from a Selected Bidder to the UPNEDA in accordance with the prescribed Format in this bid document.

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

"Wp" shall mean Watt Peak.

"1KWp for the purpose of conversion in Wp shall be considered as 1000Wp
GCRT: Grid Connected rooftop systems

e-Tender Notice

Uttar Pradesh New and Renewable Energy Development Agency, (UPNEDA)

(Deptt of Additional Sources of Energy, Govt. of U.P.) Vibhuti Khand, Gomtinagar, Lucknow U P Tel.No. 91-0522-2720652, TeleFax: 0522-2720779, 2720829 Website: www.upneda.org.in e-mail: compneda@rediffmail.com

UPNEDA invites Online Bids from Prospective Bidders through e-tendering for the Rate Contract for supply, installation, commissioning and 5 years comprehensive warranty & maintenance of following item at various sites in Uttar Pradesh as per the details given in e-tender document.

Sl No	Name of Work	Capacity/ quantity	Tender fees in Rs	Availability of Bid document on e-tender web portal
1	Design, manufacture, supply, erection, testing and Commissioning including comprehensive warranty maintenance for 5 years of 1 kWp to 500 kWp Grid Interactive Rooftop Solar Power Plants for captive use (Capex Mode) of in various Government buildings at various places in the State of Uttar Pradesh.	16 MW	Rs 35000/- + 18% GST =41300.00	30-08-2019

The tender document is available at e-Procurement website <http://etender.up.nic.in> Interested bidders may view, download the e-Bid document, seek clarification and submit their e-Bid online up to the date and time mentioned in the table below:

(a)	Availability of tender document on website	From 30.8.2019 at e-Procurement web site http://etender.up.nic.in
(b)	Pre bid conference	6.9.2019 at 3.30 PM
(b)	e-Bid submission end date & Time	23.9. 2019 up to 06.55 PM
(c)	Online technical e-Bid opening date & time	24.9.2019 at 11.30 AM
(d)	Online financial e-Bid opening date & time (Only of technically qualified bidders)	30.9.2019 at 12.30 PM
(e)	Venue of opening of pre bid conference , technical & financial e-bid opening	UPNEDA Head Office, Vibhuti Khand, Gomti Nagar, Lucknow-226010

The bidders need to submit the proof/cost of e-Bid document fees and EMD as stated in this tender through Demand Draft as bid documents fees and bank guarantee as EMD/FD/DD in favour of Director Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA), payable at LUCKNOW. The scanned copy of the Demand Draft and Bank guarantee must be uploaded along with the e-Bids. The original Demand Draft and bank guarantee along with the hard copy of the tender document (Except financial Bid) with enclosures duly signed by bidders must reach the office of UPNEDA at Vibhuti Khand, Gomti Nagar Lucknow before opening date and time of technical e-Bid failing which, tender shall not be considered. Capacity of the system mentioned as above, may increase or decrease. Director, Uttar Pradesh New and Renewable Energy Development Agency, (UPNEDA) reserves the right to reject any or all tenders without assigning any reason thereof. The decision of Director UPNEDA will be final and binding.

Director
UPNEDA

3.Covering Letter:

FROM:- (Full name and address of the Bidder)

.....
.....

To:
The Director,
Uttar Pradesh New and Renewable Energy
Development Agency (UPNEDA)
VibhutiKhand, Gomti Nagar, Lucknow- U. P.

Subject: - Offer in response to e-tender specification No: **01/UPNEDA/SPV/GCRT/GB/2019**
Sir,

We hereby submit our offer in full compliance with terms & conditions of the above e-tender. A blank copy of the e-tender, duly signed on each page is also submitted as a proof of our acceptance of all specifications as well as terms/ Conditions.

We confirm that, we have the capability for supplying, installation, testing and commissioning of Grid connected Rooftop Solar PV Power Plant including 5 years Comprehensive warranty & maintenance of Solar Grid connected Rooftop PV Power Plants of more than KWp capacity in 4 months. Based on eligibility and capacity to carry out work within the specified time of this bid, we are quoting as per following:

Categories	Capacity in KW
PART-A (1 to 10 KWp)	
PART-B (11-100KW)	
PART-C (101-500) KW	
Total	

Accordingly we are depositing the EMD of RS----- in the form of DD/FD/BG valid for-----months.

The e-tender is to be uploaded in two separate files named Part-A for technical bid & Part-B for Financial Bid only.

(Signature of Bidder)
With Seal

4 Check list of Annexure

(The following information/documents are to be annexed and flagged by the Bidders along with the BID)

S.N	Annexure No.	Particulars	Yes/No, Flag No.
1	Annexure-I (a)	Details of Tender document fees (Demand Draft no, date, amount and bank name)	
	Annexure-I (b)	Details of Earnest money (bank guarantee no. and date, (valid for four months)	
2	Annexure-II a	A Registered manufacturing Company/Firm/ Corporation duly incorporated under the relevant laws of its jurisdiction.	
	Annexure-II b	An experience of Design, Supply, Installation, Testing, Commissioning of solar photovoltaic power generating plants rooftop power plants, grid connected and including operation & maintenance of single capacity 05 /50/100 KWp capacity grid interactive power plant (on an individual) as a developer of the plant or as an EPC Provider	
3	Annexure-III	Following Test Certificates & Reports for components specified in technical bid	
	III (a)	1. SPV Modules	
	III (b)	a) IEC 61215 edition II/ IS 14286 for Crystalline Modules.	
	III (c)	b) IEC 61730 Part 1 & 2	
III (d)	c) STC Performance Report –I V curve .		
III (a)	d) PID test report in case system voltage more than 500 Volt.		
	III (a)	2. PCU cum Inverters MPPT and Protections-IEC 61683 /IS 61683 & IEC 60068-2 (1,2,14,30)/ equivalent BIS Standard, IEC 62116-2008 and UL 1741 for anti-islanding protection grid interconnectivity and IEC 62109-1 & 2 for electrical safety and parallel operations	
5	Annexure-V	Overall Average Annual Turnover of the Company/Firm/Corporation in the last three financial years (A summarized sheet of turnover of last three Financial Years certified by registered CA)	
6	Annexure-VI	A copy of valid GST registration certificate.	
7	Annexure-VII	A summarized sheet of cumulative experience in PV Systems /power plants certified by registered CA in format 4	
8	Annexure-VIII	Authorization letter of the Bidder, for the person representing his firm, that he is authorized to discussed with specification mention of this e-tender.	
9	Annexure-IX	Others XIII(i). Affidavit from Firm has not been debarred or Blacklisted by any Government department or undertaking XIII(ii) Minimum Generation details. XIII (iii). -----	
10			

* Please flag the annexure and write flag number in the box. Note:- Bids received without supporting documents for the various requirements mentioned in the tender document may be rejected.

(Signature of Bidder)
With Seal

5 Particulars of e-tender

1	e-tender no.	01/UPNEDA/GCRT/GB/2019
2	Particulars of the work	Rate Contract for the Design, manufacture, supply, erection, testing and Commissioning including comprehensive warranty maintenance for 5 years of 1 kWp to 500 kWp Grid Interactive Rooftop Solar Power Plants (Capex Mode) of in various Government buildings at various places in the State of Uttar Pradesh.
3	Period of Agreement and work	Rate contract for 12 months,
5	Period of validity of rates for acceptance	3 months from opening of financial bid
8	Place of opening of e-tender	UPNEDA, Head Office, Vibhuti Khand, Gomti Nagar, Lucknow, Uttar Pradesh

1. Bidders are advised to study the tender Document carefully. Submission of e-Bid against this tender shall be deemed to have been done after careful study and examination of the procedures, terms and conditions of the tender Document with full understanding of its implications.
2. The e-Bid prepared in accordance with the procedures enumerated in ITB Clause 15 of Section-I should be submitted through e-Procurement website <http://etender.up.nic.in>.
3. The e-Bids will be electronically opened in the presence of bidder's representatives, who choose to attend at the venue, date and time mentioned in the above table. An authority letter of bidder's representative will be required to be produced.
4. In the event of date specified for e-Bids opening being declared a holiday for UPNEDA's office then the due date for opening of e-Bids shall be the following working day at the appointed time and place.
5. All the required documents including Price Schedule/BOQ should be uploaded by the e-Bidder electronically in the PDF/XLS format. The required electronic documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) schedules/packets can be clubbed together to make single different files for each label. All the enclosures should be scanned and uploaded with bid.
6. The companies/firms who are registered at e-Procurement portal for e-tendering with U.P. Electronics Corporation Ltd. (UPLC), 10, Ashok Marg, Lucknow (UP) would only be eligible for participating in this e-tender. All companies/firms who have not registered themselves with UPLC for e-tendering till date can get their registration done. The companies/firms may contact the UPLC officials on phone numbers 0522-2286809, 0522-2288750 (O) 0522-4130303 (Extn: 303, 304 & 307), for their Registration/Digital Signature Certificate related queries.

(Signature of Bidder)With Seal

6. GENERAL PARTICULARS OF BIDDER

1	Name of Bidder	
2	Postal Address	
3	Mobile no.	
4	Telephone, Telex, Fax No	
5	E-mail	
6	Web site	
7	Name, designation and Mobile Phone No. of the representative of the Bidder to whom all references shall be made	
8	Name and address of the Indian/foreign Collaboration if any	
9	Have anything/extra other than price of items (as mentioned in price Schedule) been written in the price schedule.	
10	Have the Bidder to pay arrears of income tax. If yes up to what amount?	
11	Have the Bidder ever been debarred By any Govt. Deptt./ Undertaking for undertaking any work?	
12	Monthly supply capacity (attach supporting document)	
13	Details of offer (please mention number of pages and number of Drawings in the hard copy)	
14	Reference of any other information attached by the tenderer (please Mention no. of pages & no. of drawings)	

(Signature of Bidder)
With Seal

7 DECLARATION BY THE BIDDER

(Regarding e-tender 01/UPNEDA/GCRT/GB/2019)

We _____ (hereinafter referred to as the Bidder) being desirous of e-tendering for the work under the above mentioned e-tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the e-tender document,
DO HEREBY DECLARE THAT

1. The Bidder is fully aware of all the requirements of the e-tender document and agrees with all provisions of the e-tender document.
2. The Bidder is capable of executing and completing the work as required in the e-tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the e-tender.
4. The Bidder has no collusion with other Bidders, any employee of UPNEDA or with any other person or firm in the preparation of the bid.
5. The Bidder has not been influenced by any statement or promises of UPNEDA or any of its employees, but only by the e-tender document.
6. The Bidder is financially solvent and sound to execute the work.
7. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of UPNEDA.
8. The information and the statements submitted with the e-tender are true.
9. The Bidder is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
10. The Bidder has not been debarred from similar type of work by UPNEDA and or Government undertaking/ Department.
11. This offer shall remain valid for acceptance for 12 Months from the date of opening of financial bid of e-tender.
12. The Bidder gives the assurance to execute the e-tendered work as per specifications terms and conditions.
13. The Bidder confirms the capability to Supply, Install, Testing and Commissioning including 5 years Operation ,Comprehensive Warranty and Maintenance of Grid Interactive Rooftop Solar PV Power Plantsand power evacuation system – including meters and other necessary infrastructures of actual KWp----- in various Districts in the State of Uttar Pradesh in 4 months of Grid Interactive Solar Rooftop PV Power /Plants and power evacuation system – including meters and other necessary infrastructures .

(Signature of Bidder)
with SEAL

PART-2 : INSTRUCTION TO BIDDERS

SECTION 1: THE TENDER DOCUMENT

1.1 CONTENT OF e-tender DOCUMENT

The e-tender procedure and contract terms are prescribed in the e-tender Documents. In addition to the e-tender Notice the Bidding documents include.

PART A

Part - 1

- 1 e-tender Notice
- 2 Covering Letter
- 3 Checklist of Annexures
- 4 Particulars of e-tender
- 5 General Particulars of Bidder
- 6 Declaration by Bidder

Part – 2 : Instruction to Bidders

- | | |
|------------|-----------------------------------|
| Section -1 | Contents of e-tender document |
| Section-2 | Bidder to inform fully |
| Section -3 | Eligibility condition |
| Section-4 | Preparation of e-tender |
| Section-5 | Submission of e-tender |
| Section -6 | e-tender opening and evaluation |
| Section-7 | Procedure for Finalisation of Bid |

Part – 3 : General Condition of Contract

Part – 4 : Scope of Work & Technical specifications

Part – 5 : Details of Warranty

Part – 6 : Technical Bid

PART B

Financial Bid

The Bidder is expected to examine all instructions, forms, terms and specifications as mentioned in the e-tender document. Failure to furnish all information required by the e-tender documents or submission of a bid not substantially responsive to the Tender document in every respect will be at the Bidder's risk and is likely to result in out-right rejection of the e-tender .

1.2 LOCAL CONDITIONS

It shall be imperative on each bidder to fully inform him of all local conditions and factors, which may have any effect on the execution of the works covered under these documents and specifications. UPNEDA shall not entertain any request for clarifications from the Bidder, regarding such local conditions.

1.3 CLARIFICATION:

- I.** A prospective Bidder requiring any clarification of the e-tender Documents may contact UPNEDA in writing through mail or by Fax at the UPNEDA's mailing address indicated in the Invitation for e-tender by 5.8.2019
- II.** All are requested to remain updated with the website. No separate reply/ intimation will be given elsewhere. Verbal clarifications and information's given by the UPNEDA or its employees or its representatives shall not be in any way entertained
- III.** The UPNEDA is not under any obligation to entertain or respond to suggestions made or to incorporate modifications sought for.

1.4 AMENDMENT OF e-tender DOCUMENTS

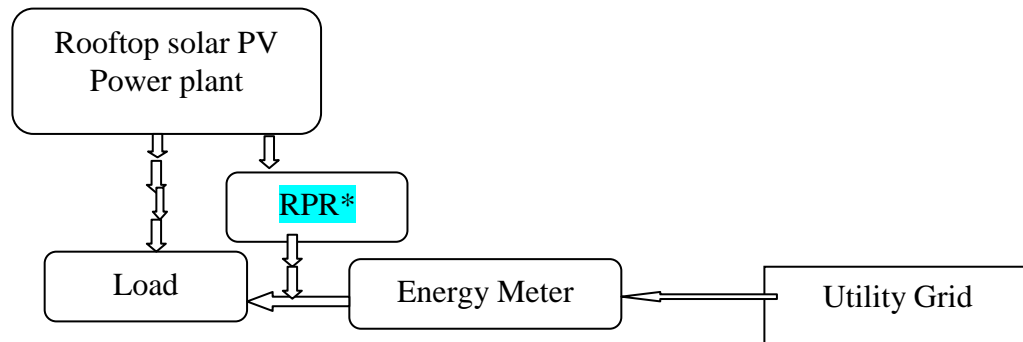
At any time prior to the submission of the e-tender the UPNEDA may for any reason, whether at its own initiative or in response to a clarification requested by the Bidder,

modify the e-tender documents by amendments. Such document shall be made available on <http://etender.up.nic.in>. All are requested to remain updated with the website. No separate reply/ intimation will be given elsewhere.

- 1.5 The Bidder shall make independent enquiry and satisfy itself with respect to all the required information, inputs, conditions, including site conditions and circumstances and factors that may have any effect on its Bid. Once the Bidder has submitted the Bids, the Bidder shall be deemed to have examined the laws and regulations in force in India, the grid conditions, and prepare the Financial Bid and other sections taking into account all such relevant conditions and also the risks, contingencies and other circumstances which may influence or affect the implementation of power plants. Accordingly, the Bidder acknowledges that, on being selected as the Selected Bidder, it shall not be relieved from any of its obligations foreseen under this Document nor shall be entitled to any extension of time for commissioning of the plants or financial compensation for any reason whatsoever.

INTRODUCTION

UPNEDA calls for Rate contract Tender for the implementation of about 16 MW Grid Connected Rooftop Solar PV power plant under the CAPEX models. The project are proposed to be installed at the Government Buildings for captive use with grid integration. A captive RTS solar power plant refers to a distributed generator that has been implemented by the owner for its own captive consumption. The power generated by such solar power plants is consumed entirely within the premises of the installation for captive loads. Captive RTS power plants are not designed to feed energy into the grid.



*RPR- Reverse Power Relay/ Isolator

The Solar developers requires to study and analysis of the power consumption , load pattern, electrical structure, storage (if needed) and utility tariff and integration for each premise where GCRTS is to be installed.

Estimation of the optimal GCRTS installable capacity and design that can cater the captive electrical load consumption requirements and no energy export to the grid.

For this each bidder to use electronic device to attain the function of Reverse Power Relay (RPR) as shown in the schematic such that it will communicate on continuous basis with the PCU/PCU's as well as monitor the power/current just before utility meter and will reduce the power generation from PCU/PCU's such that there is no power flow in the direction from PCU to Grid through the Utility meter. A separate meter will also be required to be installed just before Utility meter to read any such power/energy flow. It should not be done by switching off the PCU/PCU;s but be reducing the solar power generation on continuation basis. So the PCU supplied should have such provision.

For example in case the AC load is say 120 KW and Solar power generated is say 90 KW, only $120-90=30$ KW shall be drawn from Grid. However if the plant load reduces to say 40 KW and Solar power generation is still 90 KW, this RPR will communicate with PCU/PCU's and will reduce the solar power generation to 40 KW only.

This will happen through out the day on continuous basis.

The RPR should also work with DG set which will start on Grid failure if DG set is installed in the premises.

The load of building should be preferentially catered by solar power and if required during the lean period of solar insolation or increase of load it should draw power from grid. In case of no load the solar plant should be in open mode i.e. no power should be fed to grid.

The tentative requirement of categories wise power plants are as follows:

Categories	Capacity In KW	Total Capacity (In MW)
A	1 to 10 KW	1.2
B	11 KW to 100 KW	10
C	101 KW to 500 KW	4.8

Total 16 MW

The categories wise above capacity are tentative and can be interchanged depending

upon the demands from various departments for which no claim should be made
Eligibility Conditions for Bidders

1. Minimum Eligibility Conditions:

- **The Bidder should be**

A Registered Manufacturing Company/Firm/ Corporation in India of **SPV Cells / Modules or PV System PCU**(Conforming to relevant National / International Standards)

OR

A PV System integrator working in the field of SPV Power plants who has installed/commissioned at

least Solar Photovoltaic Power Plant (s) aggregating to a total of 120 KW for category A, 1000 KW for Category B and 480 KW for category C capacity. Also they must have installed a single unit of power plant capacity not less than 5 KW for A, 50 KW for B and 100KW for C.

(A copy of the work order and certificate indicating its successful execution to be enclosed)

(The details of projects executed should be listed. A certificate issued by the SNA/Govt. organisation /SECI/Third part inspector empanelled with MNRE/SNA's towards the satisfactory installation, commissioning and functioning of the power plants to be furnished by the bidder.)

7. **Cumulative Experience* in three years** 2016-17 , 2017-18 and 2018-19 of the Bidder in executing contracts of **Solar Photovoltaic Systems/Power plants (Installed & Commissioned) should be at least for Rs 160 Lakhs for Category A, Rs. 1200 Lakhs for category B and Rs. 540 Lakhs for Category C.**

8. The Bidder should have valid GST registration certificate. A copy of which should be enclosed.

9. Overall Average Annual Turnover of the Company/Firm/ Corporation in the last three financial years (i.e.FY2016-17, 2016-17 and 2018-19) should be at least Rs. **190 Lakhs for Category A, Rs. 1440 Lakhs for category B and Rs. 640 Lakhs for Category C**) (This must be the individual Company's turnover and not that of any group of Companies) (A summarized sheet of turnover of last three years with average turnover certified by registered CA should be compulsorily enclosed)

*Bidder's experience should be in supply, installation/commissioning (contracts executed, completed and handed over) of Solar Photovoltaic Systems for: MNRE supported Schemes / Programs, OR Any Government Organization/ Agency/ SNA/PSU).- CA certificate is required.

Note: Any bidder willing to apply in one two or all categories in that case the turnover and experience should be cumulative i.e for all categories the turnover should 2270 Lakhs, Work experience should be 1900 Lakhs.

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

EMD

The Earnest money for category A is Rs 6 Lakhs, for category B Rs. 48 Lakhs and For categories C Rs 21 Lakhs, If Applying for two or all categories the EMD should be cumulative i.e for all categories it should be Rs. 75 Lakhs.

EMD (To be submitted in original form offline only. Scan copy shall also be uploaded.)

The Bidder shall furnish Interest free Earnest Money in the form of Bank Guarantee (BG) / Demand Draft drawn in favour of "Director, UPNEDA", payable at Lucknow. The validity of Earnest Money shall be for a period of 4 Month.

The EMD of unsuccessful bidders shall be returned within 30 days from the finalization of financial bid. EMD(s) of Successful bidder shall be released after the receipt of PBG in the format prescribed by UPNEDA and after the receipt of confirmation of their PBG's from their respective banker.

The Micro and small firm established and registered in Uttar Pradesh are exempted for submitting the EMD. Others firm mandatorily submit the EMD.

The Earnest Money shall be in Indian Rupees and shall:

- i. At the Bidder's option, be in the form of either a demand draft, or a bank guarantee.
The EMD shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to UPNEDA under following circumstances:
 - a. Hundred percent (100%) of Earnest Money amount of the proposed capacity, if a Bidder withdraws/revokes or cancels or unilaterally varies his bid in any manner during the period of Bid Validity specified in this document.
 - b. Hundred percent (100%) of Earnest Money amount of the proposed capacity, if the Successful Bidder fails to furnish the "Performance Security".

PERFORMANCE SECURITY/PERFORMANCE BANK GUARANTEE (PBG)

Within 15 days from the date of issue of Allocation letter, Successful Bidder shall furnish the Performance Security for the allocated capacity only.

The formula applicable to calculate the PBG amount will be:

PBG amount = 10% of LOI value.

The Performance Security shall be in Indian Rupees and shall be in one of the forms:

A demand draft, or a bank guarantee.

The PBG shall be forfeited as follows without prejudice to the Bidder being liable for any further consequential loss or damage incurred to UPNEDA.

If the Successful Bidder is not able to commission the projects PBG amount on pro-rata basis to the capacity not commissioned by the successful Bidder will be deducted. However, Hundred percent (100%) PBG amount furnished for the Sanctioned Capacity, if the Successful Bidder fails to Commission the Projects(s) which are awarded by UPNEDA shall be forfeited.. The PBG should be of 18 months. This PBG will be released after completion of the project. The bidder shall be responsible for Operation and Maintenance of the Roof top Solar PV system for a period of 5 years.

In case of Micro and small for getting benefits of exemptions, if they will not turnup for agreement or work or not complete the work as per guide lines of tender and agreement they will be blacklisted. Blacklisting may inter-alia include the following: - a. The Vendor/Firm will not be eligible to participate in tenders for Government supported projects. b. In case, the concerned Director(s) of the firm/company joins another existing or starts/ joins a new firm/company, the company will automatically be blacklisted.

Signature of tenderer

SECTION 3: PREPARATION OF e-tender

3.1 LANGUAGE OF BID AND MEASURE

3.1.1 The e-tender prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and UPNEDA shall be written in the English provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purpose of interpretation units of measurement shall be MKS system.

3.2 DOCUMENTS COMPRISING THE BID

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

- (a) Covering letter as provided in e-tender document.
- (b) General particulars of bidder, as provided in e-tender document.
- (c) Declaration by The Bidder, as provided in e-tender document
- (d) Details for Past Experience meeting Qualification Requirement in the prescribed Format 4 With Documentary evidence establishing that the bidder is eligible to Tender and is qualified to perform the contract if its tender is accepted.
- (e) Check list of Annexure as provided in e-tender document
- (f) A blank copy of the in e-tender document signed on each page, as a confirmation by the Bidder to accept all technical specifications / commercial conditions along with all necessary enclosures.
- (g) Authorization letter of the Bidder, for the person representing his Company/Firm/ Corporation, that he is authorized to discuss and with specific mention of this e-tender

3.3 BID PRICE

3.3.1. The Bidder shall indicate prices on the appropriate financial bid schedule.

3.3.2. Bidder may quote /apply for all categories or single as per eligibility in Financial Bid Schedule,

3.3.3 DUTIES AND TAXES

The price quoted should include all taxes what so ever as applicable. A Bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & GST norms will be payable by the Bidder. TDS of income Tax and GST as applicable will be deducted from the payment of the Bidder as per the prevalent laws and rules of Government of India and Government of Uttar Pradesh in this regard for the work order issued by UPNEDA.

3.4 BID CURRENCIES

3.4.1 Prices shall be quoted in Indian Rupees (INR) only

3.5 SECURITY DEPOSIT/ PERFORMANCE GUARANTEE:

3.5.1 The successful Bidders, who execute the agreement with UPNEDA for the work, shall have to furnish a security amount as calculated of the contract LOI in the form of Bank Guarantee valid for a period of 18 months from the date of execution of agreement. The bank guarantee may be issued by a nationalized bank or State Bank of India or its subsidiary bank. Bank Guarantee shall be in favour of "Director, UPNEDA". The aforesaid Bank Guarantee shall be furnished prior to the execution of agreement in format enclosed.

3.6 PERIOD OF VALIDITY OF e-tender

3.6.1 Validity of the offer should be 3 months from the date of opening of the financial bid of the e-tenders. Without this validity the e-tenders will be rejected.

3.6.2 In exceptional circumstances; the UPNEDA will solicit the Bidder's consent to an extension of the period of validity. The request and the response there of, shall be made

in writing. The contract performance security provided under clause 3.5.1 above shall also be suitably extended.

3.7 BID SECURITY (Earnest Money)

- 3.7.1 The bidder shall furnish, as part of its bid, bid security of Rs. -----) in the form of Bank guarantee issued by a nationalized bank, or State Bank of India and its subsidiary banks. The bank guarantee shall be valid for a period of 4 (Four) months from the opening of technical bid.Format enclosed .
- 3.7.2 Any bid not secured with the tender fee and earnest money will be rejected by the UPNEDA as non-responsive.
- 3.7.3 No Interest shall be payable on the amount of earnest money.The same will be released after the e-tenders have been decided, to those Bidders who fail to get the contract.
- 3.7.4 The e-tender security (earnest money) may be forfeited:
 - a) If a Tenderer withdraws its e-tender during the period of e-tender validity specified by the Bidder in the e-tender.
 - b) If the successful Bidder fails to sign the contract within stipulated period.
- 3.7.5 EMD of successful bidder shall only be released after signing of agreement and submission of Security bank guarantee.

3.8 FORMAT AND SIGNING OF e-tender

- 3.8.1 The bid must contain the name, residence and places of business of the persons making the e-tender and must be signed and sealed by the Bidder with his usual signature. The name and designations of all persons signing should be typed or printed below the signature.
- 3.8.2 e-tender by corporation/ company must be signed with the legal name of the corporation/ company/firm by the 'President', Managing director or by the 'Secretary' or other designation or a person duly authorized
- 3.8.3 The original copy of the e-tender shall be typed or written in indelible ink and shall be signed by the Bidder or a person duly authorized to bid and bidder to the contract. The letter of authorization shall be submitted along with power-of-attorney. All the pages of the bid shall be initialed by the person or persons signing the e-tender.
- 3.8.4 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder in which case such corrections shall be initialed by the person or persons signing the e-tender.

(Signature of Bidder)
with SEAL

SECTION: 4: UPLOADING OF e-tender

- 4.1** uploading of e-tender the bid shall be uploaded online as per guide lines of U.P. Electronics Corporation Limited (UPLC), 10 Ashok Marg, Lucknow (U.P.)
- 4.1.1 The tender must be complete in all technical and commercial respect and should contain requisite certificate, drawings, informative literature etc. as required in the specification.
- 4.1.2 First part (**PART-A**) should contain technical specification, brochure literature etc. All parts of tender documents except financial bid should be uploaded as per e-procurement mode in due date and time. Scanned copy of Requisite earnest money in the form of Bank Guarantee should be enclosed.
- 4.1.3 The Bidder should submit price bid in Second part. Second part (**PART-B**) should contain financial bid only should be uploaded as per e-procurement mode in due date and time. Anything in regard of financial condition, payment terms, rebate etc. mentioned in financial bid may make the tender invalid. Therefore, it is in the interest of the Bidder not to write anything extra in part-II except price.
- 4.1.4 The original copy of uploaded document i.e. First part (**Part-1**) is to be submitted by Post /courier/by hand to UPNEDA HQ before opening of Technical bid.
- 4.2** EXPENSES OF AGREEMENT:A formal agreement for a period of 01 (one) year shall be entered into between UPNEDA and the contractor/ bidder for the proper fulfillment of the contract. The expenses of completing and stamping of the agreement shall be paid by the successful bidder.
- 4.3** DEADLINE FOR SUBMISSION OF BIDS:Bids must be uploaded by the tenderer in the date; time and address specified in the e-tender notice/ tender documents.

(Signature of Bidder)
with SEAL

SECTION 5: e-tender OPENING AND EVALUATION

5.1 OPENING OF e-tender

The procedure of opening of the e-tender shall be as under:

- 5.1.1 First part (PART-A) uploaded having e-tender specification no. and super scribed as “**Technical bid**” shall be opened at the time and date mentioned in the e-tender notice by UPNEDA’s representatives in the presence of Bidders, who choose to be present.
- 5.1.2 Second part (PART-B) containing Financial Bid shall be opened (after obtaining clarifications and establishing technical suitability of the offer) as per schedule. Second part of only those Bidders shall be opened whose first part (PART-A) shall be found commercially clear and technically suitable.

5.2 CLARIFICATION OF e-tender

- 5.2.1 To assist in the examination, evaluation and comparison of bids the UPNEDA may at its discretion ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing.

- 5.3 UPNEDA reserves the right to interpret the Bid submitted by the Bidder in accordance with the provisions of this document and make its own judgment regarding the interpretation of the same. In this regard UPNEDA shall have no liability towards any Bidder and no Bidder shall have any recourse to UPNEDA with respect to the selection process. UPNEDA shall evaluate the Bids using the evaluation process specified in this document or as amended, at its sole discretion. UPNEDA’s decision in this regard shall be final and binding on the Bidders.

Signature of Bidder
with seal

SECTION-6:PROCEDURE FOR FINALIZATION OF BID

The Procedure for Finalization of BID would be as follows:

6.0 The Procedure for Finalization of BID would be as follows:

6.1 Finalization of BID:

6.1.1 First the Technical bids shall be opened and evaluated.

6.1.2 Then the price bid of technically qualified bidders shall be opened.

6.1.3 The lowest rate (i.e. L-1) received for each categories (and in turn approved by the competent authority) would be the "Approved Rate" for particular capacity of solar Power plant.

6.1.4 L1 i.e. Lowest Rate Bidder for each category of system will be awarded up to 50% of the total quantity or as per his capacity given in the bid, whichever is lower.

6.1.5 "Approved Lowest Rate" for each category would be offered to those lowest bidders (i.e. to L-2, L3 L4 and L5 having price not more than 15% of lowest approved rates (L1). The L1 will be awarded minimum 50% of total bid quantity or as per his capacity given in the bid, whichever is lower.

6.1.6 Maximum 25 % of the total quantity purchased in three years has to be distributed amongst successful micro and small industries/ firms bidders. Therefore 25% of the total order quantity for this year shall be awarded amongst the micro and small industries qualified firm/firms at the lowest approved rate subject to their consent at to work on lowest rate and their capacity. If MSME category bidder will be L1 then L1 will be awarded 50% of 25% of MSME work order. The remaining 25% of MSME quantity shall be awarded among others 4 qualified MSME firms L2 to L5

6.1.7 The bidder other than MSME will be awarded in remaining of 75% of total bid quantity. The lowest bidder other than MSME firms qualified and agreed on approved rate L1 shall be awarded 50% of 75% or as per its capacity given in the bid, whichever is lower and remaining 50% shall be awarded in other 4 bidders empanelled bidders L2 to L5

6.1.8 Training of the user will be arranged by the contractor/ bidder.

6.3 If required UPNEDA reserves the right to negotiate with (lowest) L-1 bidder before finalization of the tender.

6.4 UPNEDA reserves the right at the time of awarding the contract to increase or decrease the quantity of goods and locations of supply without any change in price or other terms and conditions.

6.5 UPNEDA reserves the right to accept any bid and to reject any or all bids.

6.6 NOTIFICATION OF AWARDING THE CONTRACT:

List of successful Bidder(s) for contract shall be displayed on UPNEDA's website and shall be intimated in writing to the contractor.

6.7 CONTRACT

Before execution of the work, a contract agreement for execution of the work shall be signed by the Bidder with UPNEDA within 15 days of communication from UPNEDA. In case agreement is not executed within the stipulated time, the earnest money will be forfeited.

6.8 RIGHT TO VARY QUANTITIES

The authority reserves the right of awarding the work in a phased manner. UPNEDA may increase or decrease the quantity mentioned in the tender at the time of award of contract. The Successful Bidder shall not assign or make over the empanelment, the benefit or burden thereof to any other person or persons or body corporate for the execution of the contract or any part thereof without the prior written consent of UPNEDA. UPNEDA reserves its right to cancel the empanelment either in part or full, if this condition is violated.

6.9 Quality :

In case the systems are not as per standards, non-functional on account of poor quality of installation, or non-compliance of AMC, the implementing agency/Ministry reserves the right to blacklist the vendor. Blacklisting may inter-alia include the following: - a. The Vendor/Firm will not be eligible to participate in tenders for Government supported projects. b. In case, the concerned Director(s) of the firm/company joins another existing or starts/ joins a new firm/company, the company will automatically be blacklisted.

Signature of Bidder
with seal

PART 3 : GENERAL CONDITIONS OF CONTRACT UNIFIED

1. DEFINITIONS

- 1.2. "UPNEDA" shall mean The Director of UPNEDA or his representative and shall also include its successors in interest and assignees. The "Contractor" shall mean (successful bidder) i.e. the person whose e-tender has been accepted by UPNEDA and shall include his legal representatives and successors in interest.
- 1.3 The agreement shall be a rate contract on a basis valid for 12 months. The work shall be completed within 6 months on a turnkey basis from the date of placement of work order by UPNEDA/ Beneficiaries. However for the work awarded by UPNEDA, "UPNEDA" may in case of urgency ask the bidder to complete the work earlier, with the mutual consent of the contractor/ bidder. In case the contractor/ bidder fails to execute the said work within stipulated time, "UPNEDA" will be at liberty to get the work executed from the other bidder/open market without calling any tender/e-tender and without any notice to the contractor/ bidder, at the risk and cost of the contractor/ bidder. Any additional cost incurred by "UPNEDA" shall be recovered from the contractor/ bidder. If the cost of executing the work as aforesaid shall exceed the balance due to the contractor/ bidder, and the contractor/ bidder fails to make good the additional cost, "UPNEDA" may recover it from the contractor/ bidders' pending claims against any work in "UPNEDA" or in any lawful manner.
- 1.4 That on the request of the contractor/ bidder and also in the interest of the organization the "UPNEDA" is authorized to extend the validity of the agreement, subject to that the request of the contractor/ bidder is received before the expiry of the agreement period, or any extended period granted to the contractor/ bidder. Maximum period of extension shall be 2 months on the same terms and conditions as contained in this agreement.
- 1.5 The agreement shall be deemed to be extended till the date of completion of last work order including 5 years comprehensive O&M subject to the completion period as provided in clause 1.3.
- 1.6 IN the interest of the work and the programme, agreement executed between the contractor/bidder and the "UPNEDA" may be extended to a mutually agreed period, if theneed so arises. It shall be sole responsibility of the contractor/ bidder to get verified the quality & quantity of the supplied material at the site of delivery.

2 LIQUIDATED DAMAGES

- 2.1 If the contractor/ bidder fails to perform the services within the time periods specified in the contract (In case of delay for any reason other than due to Force Majeure conditions or any extension thereof granted to him by UPNEDA) the "UPNEDA" shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damage, a sum equivalent to 1.0% of the price of the each complete system cost for each week (For the purposes as calculation of delay, part of week shall be treated as week) of delay until actual performance up to a maximum deduction of 10% of the delayed services. Once the maximum is reached, UPNEDA may assess the progress of work and take decision where the work order is to be cancelled, forfeit the performance security and debar/blacklist the firm or to continue with time extension with further penalty. The "UPNEDA" may consider termination of the contract. In the case of violation of contract, UPNEDA may confiscate pending payments/ dues of the contractor/ bidder assigning specific reasons and shall also have the power to debar/ blacklist the contractor/bidder in similar circumstances. UPNEDA may also invoke performance/security bank guarantee of 10%.

3 The contractor/ bidder shall have to comply with all the rules, regulations, laws and by-laws for the time being in force and the instructions if any, of the organization, in whose premises the work has to be done. "UPNEDA" shall have no liability in this regard.

4 **FORCE MAJEURE**

4.1 Notwithstanding the provisions of clauses contained in this deed; the contractor/ bidder shall not be liable for forfeiture of its performance security, liquidated damages, termination for default, if he is unable to fulfill his obligation under this deed due to event of force majeure circumstances.

4.2 For purpose of this clause, "Force majeure" means an event beyond the control of the contractor/ bidder and not involving the contractor/ bidder's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of Government either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes

4.3 However, If a force majeure situation arises, the contractor/ bidder shall immediately notify the "UPNEDA" in writing. The decision of the competent authority of UPNEDA in above conditions shall be final.

5 The High court of Judicature at Allahabad and Courts subordinate thereto, at Lucknow, shall alone have jurisdictions to the exclusion of all other courts.

6 The contractor/ bidder shall not, without the consent in writing of "UPNEDA", transfer, assign or sublet the work under the contract or any substantial part thereof to any other party.

7 "UPNEDA" shall have at all reasonable time access to the works being carried out by the contractor/ bidder under the contract. All the work shall be carried out by the contractor/ bidder to the satisfaction of "UPNEDA".

8 If any question, dispute or difference what so ever shall arises between "UPNEDA" and the contractor/ bidder, in the connection with the agreement except as to matters, the decisions for which have been specifically provided, either party may forthwith give to the other notice in writing of existence of such question, dispute or difference and the same shall be referred to the sole arbitration of the Principal Secretary/Secretary of the Uttar Pradesh or a person nominated by him not below the rank of Secretary. This reference shall be governed by the Indian Arbitration and Conciliation Act 1996, and the rules made there under. The award in such arbitration shall be final and binding on both the parties. Work under the agreement shall be continuing during the arbitration proceedings unless the "UPNEDA" or the arbitrator directs otherwise.

9 "UPNEDA" may at any time by notice in writing to the contractor/ bidder either stop the work all together or reduces or cut it down. If the work is stopped all together, the contractor/ bidder will only be paid for work done and expenses distinctly incurred by him as on preparation or the execution of the work up to the date on which such notice is received by him. Such expenses shall be assessed by "UPNEDA", whose decision shall be final and binding on the contractor/ bidder. If the work is cut down the contractor/ bidder will not be paid any compensation what so ever for the loss or profit which he might have made if he had been allowed to complete all the work included in the contract.

10 **INSPECTION AND TESTS**

10.1 The following inspection procedures and tests are required by the "UPNEDA" in the presence of "UPNEDA"'s representative if so desired by "UPNEDA".

10.2 The "UPNEDA" or its representative shall have the right to inspect and / or to test the goods to confirm their conformity to the contract. The special conditions of contract and/

or the Technical specifications shall specify what inspections and tests the “UPNEDA” requires.

10.3 INSPECTION AT WORKS

- 10.3.1 The “UPNEDA”, his duly authorized representative shall have at all reasonable times access to the contractor/bidders premises or works and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the works during its manufacture.
- 10.3.2 The contractor/ bidder shall give the “UPNEDA”, 15 day's written notice of any material being ready for testing. It shall be mandatory that such notice should reach “UPNEDA” within 30 days of placement of work order. Such tests shall be on the contractor/ bidder's accounts/expenses except for the expenses of the inspector. “UPNEDA” reserves the full rights, to waive off inspection of material.
- 10.3.3 The contractor/ bidder are required to get the entire lot of the ordered material inspected at one time, before the supply of the materials. In case the contractor/ bidder fails to get the entire lot inspected at one time, the total expenses of the further inspection will be borne by the supplier/contractor/ bidder.
- 10.3.4 UPNEDA will bear the inspector cost at only one manufacturing plant. If a component is produced in more than one location, then the cost of positioning the inspection in thesecond and subsequent plants would be borne by the successful Bidder at their cost.
- 10.3.5 The inspection by “UPNEDA” and issue of dispatch instruction there on shall in no way limit the liabilities and responsibilities of the contractor/ bidder in respect of the agreed quality assurance programme forming a part of the contract.

11. WARRANTY

- 11.1 The Contractor/ Bidder shall be solely responsible for commencement to completion of the work. It shall be responsible for any loss or damage happens at the work place or during the erection of the plant, not already approved by the UPNEDA, and shall, at its own cost, arrange for repair or compensation.
- 11.2 The Contractor/ Bidder shall warranty that the equipment used in installing the plant are new and unused.
- 11.3 The Contractor/ Bidder shall provide warranty, of the complete power plant towards any defect in design of the plant, equipment used including spare parts for a period of five (5) years from the date of Commissioning of the plant. The Warranty period shall be 25 Years for the PV modules.
- 11.4 Any defect noticed in the power plant during the period of five (5) years from the date of Commissioning of the power plant shall be rectified/replaced by the Contractor/ Bidder on its own motion or on due intimation by the UPNEDA or by the owner of the plant, as the case may be, free of charges.
- 11.5 The replacement of the defective component at the cost of Contractor/ Bidder shall be made with similar and/or equivalent make. The replaced component shall not, in any situation, reduce the performance of the plant.
- 11.6 The Contractor/ Bidder shall commence the replacement/rectification of the defect within seven (7) days from the date of identification of such defect and shall rectify the defect within mutually agreed time, failure in doing so shall enable the UPNEDA to rectify the defect at the expense of Contractor/ Bidder.
- 11.7 The Contractor/ Bidder shall provide warranty certificate along with the Commissioning report to the Beneficiaries/UPNEDA
- 11.8 Since the maintenance of the system may also be taken up by the contractor/ bidder after expiry of 05 years of warranty period if the end user/“UPNEDA” so desires, the contractor/bidder shall take up annual maintenance of the installed system.

- 11.9 The contractor/ bidder shall maintain the system under annual maintenance contract with the end user.
- 11.10 The contractor/ bidder shall furnish to the Primary Beneficiary at the instruction manuals at the time of submission of commissioning certificate for the plant at each site. The manual so prepared shall include the all diagrams and instructions to operate and maintain the whole plant.
- 11.11 Hand-Over Agreement: The Contractor/ bidder shall hand-over the respective plant to the user after its successful commissioning in excellent condition. At the time of handing over all the performance tests of the major equipment shall be demonstrated to the user and UPNEDA to ensure Generation from the solar photovoltaic power plant. While handing over the plant the Contractor/ bidder shall also hand over all technical documents, literature, instruction manuals, lists of spare part & tools & tackles.
12. The contractor/ bidder shall not display the photographs of the work and not take advantage through publicity of the work without written permission of “UPNEDA”.
- 13. PATENT RIGHT AND ROYALTIES.**
The Contractor/ bidder shall indemnify the “UPNEDA” against all third party claims of infringement of patent, royalty's trademark or industrial design rights arising from use to the goods or any part thereof.
- 14. PACKING FORWARDING**
- 14.1 Contractor/ bidders, wherever applicable, shall after proper painting, pack and crate all the equipment in such manner as to protect them from deterioration and damage during rail and road transportation to the site and storage at the site till time of installation. Contractor/bidder shall be held responsible for all damage due to improper packing.
- 14.2 The contractor/ bidder shall inform the “UPNEDA” of the date of each shipment from his works, and the expected date of arrival at the site for the information of the “UPNEDA” project offices at least 7 days in advance.
- 15. DEMURRAGE WHARF AGE, ETC**
All demurrage, wharf age and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the contractor/ bidder.
- 16. INSURANCE**
The goods supplied under the contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage during transportation shall be included in the bid price.
- 17. TRANSPORTATION**
The contractor/ bidder is required under the contract to deliver the goods to the site. Transportation, storage, safety and security of the supplied material, issuance of road permit etc. shall be the sole responsibility of the contractor/bidder.
- 18. TERMINATION FOR INSOLVENCY**
“UPNEDA” may at any time terminate the contract by giving written notice to the contractor/bidder without compensation to the contractor/ bidder, if it becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the “UPNEDA”.
- 19.. TERMINATION FOR CONVENIENCE**
The “UPNEDA”, may by written notice sent to the contractor/ bidder, terminate the contract, in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for the purchaser's convenience in the interest of “UPNEDA”.
- 20. APPLICABLE LAW**
The contractor/ bidder shall be interpreted in accordance with the laws of the purchaser's country i.e. India. The station of “UPNEDA” Headquarter shall have exclusive jurisdiction in all matters arising under this contract.

21. NOTICE

21.1 Any notice given by one party to the other pursuant to the contract shall be sent in writing or by telegram or telex/ cable or Email and confirmed in writing to the address specified for that purpose in the special condition of contract.

21.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

22. TAXES DUTIES AND INSURANCE:

The price quoted should include all taxes, duties and Insurance expenditure, all tax etc. if any. A contractor/ bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & service tax norms will be payable by the contractor/ bidder. If any new tax/duty is levied during the contract period the same will be borne by the contractor exclusively. TDS and GST will be deducted from the payment of the contractor/ bidder as per the prevalent laws and rules of Government of India and Government of the Uttar Pradesh in this regard.

23. OTHERS:

23.1 I-V curve of the each module technical details such as Voc, Isc, FF, cell efficiency and Pmax etc. shall be supplied along-with each consignment and copy should be handed over to Beneficiaries/UPNEDA for uploading it web portal.

23.2 The Contractor/ bidder in consultation with concerned Project Officer of "UPNEDA" will conduct training programme for users, focusing on main features, operation and maintenance of the systems.

23.3 The Contractor/ bidder shall continue to provide spare parts after the expiry of warranty period at the users cost. If the contractor/ bidder fail to continue to supply spare parts and services to users "UPNEDA" shall take appropriate action against the Contractor/ bidder.

23.4 It shall be the sole responsibility of the contractor/ bidder to get verified the quality & quantity of the supplied material at the site of delivery.

24 POST COMMISSIONING ACTIVITIES

24.1 On completion of work, the contractor/ bidder shall submit all the documents related to the execution of contract and implementation of rooftop solar photovoltaic power plants including,

- Detailed project report including layout and drawings of the plant for the capacity more than 50KW.
- All the consent, clearance and approvals
- Testing Certificate of solar module and PCU from MNRE authorized test center.
- Plant charging/ Commissioning certificate
- Photograph of site before installation and after installation

25. PAYMENTS:

The payments shall be made as per the following terms and conditions:

i) 50% of the ordered value after the supply of the complete system at site and duly certified by the concerned district officer of UPNEDA as per the technical specification and terms and conditions specified in the contract.

ii.) 35% of the ordered value after installation and commissioning of the system, establishing of service centre, along with the summary of Joint Commissioning & handing over certificate, indicating bill of material and successful commissioning duly countersigned by the designated officer and end user.

iii) The balance 15% payment shall be released against AMC charges on annual basis kept as security deposit and to be released @1.5% at the end of every six months, for five years on satisfactory performance and timely submission of quarterly performance report.

28. In case of any ambiguity in interpretation of any of the provisions of the tender, the decision of “UPNEDA” shall be final.

(Signature of Bidder)
with seal

PART -4 : SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

4.1 SCOPE OF WORK

- a. Scope of work covers Design, Supply, Installation, Commissioning and five years comprehensive warranty Maintenance and Operation of various capacity Grid Connected SPV Rooftop Plant for captive use (Capex Mode) at various government buildings through the Uttar Pradesh as per the technical specification given in this bid.
- b. Wiring up to Distribution Board from the SPV Rooftop system will be in the scope of the successful bidder(s).
- c. Performance testing of the complete system.

4.2 TECHNICAL SPECIFICATIONS

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables, Junction boxes, Distribution boxes and switches. PV Array is mounted on a suitable structure. Grid tied SPV system will be without battery and unidirectional should be designed with necessary features. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable. Solar PV rooftop system shall consist of following major equipment/components.

- Solar PV module
- Grid interactive Power Conditioning Unit
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections.
- IR/UV protected PVC Cables, pipes and accessories

- 4.3 The solar photovoltaic technology Crystalline based RTS projects for generation of electricity will be deployed under the Programme. Project proponents to adhere to the national/ international standards specified by MNRE from time to time.

4.4 SOLAR PHOTOVOLTAIC MODULES:

Solar PV modules should be of the Crystalline solar Photovoltaic Technology, manufactured in India. Detailed specifications of the solar PV modules are given below

	Must have test certificate as per MNRE guide lines and specified in this tender
Origin	Manufactured in India both cell and module
Efficiency module	$\geq 15\%$
Fill factor	$\geq 70\%$
warranty	Panel output (W_p) capacity to be $\geq 90\%$ at the end of 12 years and $\geq 80\%$ of at the end of 25 years.
Module frame	Non-corrosive and electrically compatible with the mounting structure material
Termination box	Thermo-plastic, IP 65, UV resistant
Blocking diodes	Schottky type
Module minimum rated power	The nominal power of a single PV module shall not be less than 250Wp.
Identification tag for	Shall be provided inside the module and must be able to withstand

each solar module	environmental conditions and last the lifetime of the solar module.
Identification tag data	Name of the manufacturer with logo Month and year of manufacture Model No (Should consists of the voltage and rate wattage) Module serial number Made in India
Power output rating	To be given for standard test conditions (STC). I- V curve of the each module shall be submitted.
Compliance with standards and codes	IEC 61215 / IS 14286 IEC 61730 Part 1 and 2
Salt Mist Corrosion Testing	As per IEC 61701

The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power output and overall performance of plant.

The rated output power of any supplied module shall have maximum tolerance of +/- 3%.

The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.

4.5 WARRANTIES:

a) Material Warranty:

i. Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than twenty five (25) years from the date of sale to the original customer.

ii. Defects and/or failures due to manufacturing

iii. Defects and/or failures due to quality of materials

Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will replace the solar module(s), at the Owners sole option.

The test certificate of modules must be enclosed, the certificate should be from authorized MNRE test centre.

4.6 Solar PV Mounting Structure

The PV modules shall be mounted on fixed metallic structures having 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.

4.7 Detailed specifications for the mounting structure are given below:

Wind velocity withstanding capacity	150 km / hour The designs have been certified by a recognized Lab/ Institution/certified engineers in this regard and submit wind loading calculation sheet to users if they desire so. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
Structure material	Pre galvanized sheet steel with a minimum galvanization thickness of 80 microns and the structural patterns shall be made before galvanizing
Bolts, nuts, panel mounting clamps, fasteners	Stainless steel SS 304

(with spring washers)	
Mounting arrangement for metal sheet roofs	Mounting directly on the sheet metal, ensuring stability and wind withstanding capacity or penetrating the sheet metal and fixing to the sub-structure, ensuring that the roof remains water proof and ensuring stability and wind withstanding capacity.
Mounting arrangement for elevated structures	The elevated structure has to be securely anchored to the supporting surface. Concrete foundations of appropriate weight and depth for elevated structures mounted directly on the ground; Bolted with anchor bolts of appropriate strength for elevated structures mounted on RCC surfaces.
Mounting arrangement for ground installations	With removable concrete ballast made of pre-fabricated PCC (1:2:4), M15; assuring enough ground clearance to prevent damage of the module through water, animals and other environmental factors.
Mounting arrangement for RCC-flat roofs Installation	With removable concrete ballast made of pre-fabricated PCC (1:2:4), M15. 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.
Minimum distance between roof edge and mounting structure	0.5m
Access for panel cleaning and maintenance	All solar panels must be accessible from the top for cleaning and from the bottom for access to the module- junction box.
Panel tilt angle	North – south orientation with a fixed tilt angle of 27-30 degrees(depending on location), south facing. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.

The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m². The array structure shall be grounded properly using maintenance free earthing kit suitable for mounting over building terrace

4.7 Solar Array Fuse

The cables from the array strings to the solar grid inverters shall be provided with DC fuse protection. Fuses shall have a voltage rating and current rating as required. The fuse shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

4.8 Solar Grid Inverter

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 phase 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
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 without in- built galvanic isolation)
14	Inverter efficiency	> 90% (In case of less than 10 kW)
15	Protection degree	IP 65 for outdoor mounting, IP 54 for indoor mounting
16	Communication interface	RS 485 / RS 232 / RJ45
17	Safety compliance	IEC 62109-1, IEC 62109-2
18	Environmental Testing	IEC 60068-2 (1, 2, 14, 30)
19	Efficiency Measurement Procedure	IS/IEC 61683
20	Cooling	Convection
21	Display type	LCD for data display. LCD /LED for status display
22	Display parameters to include	Output power(W), cumulative energy (Wh), DC voltage (V), DC current (A), AC voltage (V), AC frequency (Hz), AC current (A), cumulative hours of operation (h).

- a) Three phase PCU/ inverter shall be used with each power plant system (10kW and/or above) but in case of less than 10kW single phase inverter or as per building requirement can be used.
- b) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- c) The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- d) Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- e) **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.

- f) The PCU/ inverter generated 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.
- g) The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std.
- h) 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.

The PCU/ inverters should be tested from the MNRE approved test centres/ NABL/ BIS/ IEC accredited testing- calibration laboratories.

4.9 INTEGRATION OF PV POWER WITH GRID/ANTI GRID EXPORT:

The output power from SPV would be fed to 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 of synchronization and shall be disconnected from the grid. 4 pole isolation of inverter 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).

- 1. 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 manipulating 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.
- 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.
- 3. If any kind of protections fails, then it should cut off the inverter from the grid.
- 4. Up to 30KW, Anti grid export control can be allowed with the help of cloud base algorithm.
- 5. Above 30KW, Anti grid export device/system should be integral part of the Solar power plant, algorithm shall be built into the plant system, so that it can work without help of IOT.
- 6. All Hardware and communication cable will be in the scope of bidder.

4.10 DATA ACQUISITION SYSTEM / PLANT MONITORING

(for the plant 10 KW and above)

1 DATA ACQUISITION SYSTEM / PLANT MONITORING

- i. Data Acquisition System shall be provided for each of the solar PV plant above **10 kWp** capacity.
- ii. 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.
- iii. Solar Irradiance: An integrating Pyranometer / Solar cell based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system for above 50 kWp capacity..
- iv. 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 for above 50 kWp capacity.
- v. The following parameters are accessible via the operating interface display 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. Time Active.
 - h. Time disabled.
 - i. Time Idle.
 - j. Power produced
 - k. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.
 - vi. All major parameters available on the digital bus and 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 for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
 - vii. Computerized AC energy monitoring shall be in addition to the digital AC energymeter.
 - viii. 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.
 - ix. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
 - x. Provision for instantaneous Internet monitoring and download of historical data shall be also incorporated.
 - xi. 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 the solar radiation and temperature monitoring system.
 - xii. 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.

4.11 POWER CONSUMPTION:

Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be made open..

4.12 PROTECTIONS

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

4.13 LIGHTNING PROTECTION

The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 /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.

4.14 SURGE PROTECTION

Surge protection shall be provided on both the DC and the AC side of the solar system. The DC surge protection devices (SPDs) shall be installed in the DC distribution box adjacent to the solar grid inverter.

The AC SPDs shall be installed in the AC distribution box adjacent to the solar grid inverter. The SPDs earthing terminal shall be connected to earth through the above mentioned dedicated earthing system. The SPDs shall be of type 2 as per IEC 60364-5-53

4.15 EARTHING PROTECTION

- (h) Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Discom /UPNEDA as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
- (i) Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

4.16 CABLES

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

- a) Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards Temp. Range: -10°C to $+80^{\circ}\text{C}$. Voltage rating 660/1000V
- b) 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 stabilised single core flexible copper cables shall be used. Multi-core cables shall not be used.
- c) 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-stabilised outer sheath
- d) The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 1.0%.
- e) The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%
- f) *The DC cables from the SPV module array shall run through a **UV-stabilised PVC conduit pipe** of adequate diameter with a minimum wall thickness of 1.5mm or through a **High Density Poly Ethylene (HDPE) conduit**. The conduits shall not run across the path way of the terrace. Flexible corrugated PVC conduits shall not be used.*
- g) Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
- h) *All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm.* The minimum DC cable size shall be 4.0 mm^2 copper. The minimum AC cable size shall be 4.0 mm^2 copper for up to 10kWp and 16.0mm^2 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 colour coding shall be used for cable wires:
 - i) DC positive: **red** (the outer PVC sheath can be black with a **red** line marking)
 - j) DC negative: **black**

k) AC single phase: Phase: **red**; neutral: **black**

l)

A

C three phase: Phases: **red, yellow, blue**; neutral: **black** Earth wires: **green**

m) **Cables and conduits that have to pass through walls or ceilings shall be taken through a PVC pipe sleeve.**

n) Cable conductors shall be terminated with tinned copper end-ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.

o) Cable lugs and end –ferrules for all cable conductor and wire terminations shall be crimped with crimping pliers and end-ferrule pliers

p) All cable ties shall be UV resistant.

q) The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years

r)The ratings 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 drawings approved prior to installation.

4.17 TOOLS & TACKLES AND SPARES:

After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the bidder for maintenance purpose.

4.18 DANGER BOARDS AND SIGNAGES:

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Three signage shall be provided one each at battery –cum- control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with UPNEDA/ owner.

4.19 FIRE EXTINGUISHERS:

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

4.20 DRAWINGS & MANUALS:

Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied.

4.21 PLANNING AND DESIGNING:

The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor.

4.22 SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT

The Solar PV system on the rooftop of the selected buildings will be installed for meeting the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the office buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

4.23 SAFETY MEASURES:

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

4.24 DC Combiner Box

A DC Combiner Box shall be used to combine the DC cables of the solar module arrays with DC fuse protection for the outgoing DC cable(s) to the DC Distribution Box.

4.25 DC Distribution Box

A DC distribution box shall be mounted close to the solar grid inverter. The DC distribution box shall be of the thermo-plastic IP65 DIN-rail mounting type and shall comprise the following components and cable terminations:

Incoming positive and negative DC cables from the DC Combiner Box;

DC circuit breaker, 2 pole (the cables from the DC Combiner Box will be connected to this circuit breaker on the incoming side);

DC surge protection device (SPD), class 2 as per IEC 60364-5-53;

Outgoing positive and negative DC cables to the solar grid inverter.

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 cable that runs from the DC Distribution Box to the Solar Grid Inverter.

4.26 AC Distribution Box

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

Incoming 3-core / 5-core (single-phase/three-phase) cable from the solar grid inverter

AC circuit breaker, 2-pole / 4-pole AC surge protection device (SPD), class 2 as per IEC 60364-5-53

4.27 Documentation

The Installer shall supply the following documentation:

- i. System description with working principles.
- ii. System single line diagram.
- iii. Solar PV array lay-out.
- iv. Routing diagram of cables and wires.
- v. Data sheets and user manuals of the solar PV panels and the solar grid inverter.
- vi. A system operation and maintenance manual.
- vii. Name, address, mobile number and email address of the service centre to be contacted in case of failure or complaint.
- viii. Warranty cards.
- ix. Maintenance registers.

4.28 Test Certificates and Reports to be Furnished

Test Certificates / Reports from IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard for quoted components shall be furnished. Type Test Certificates /

reports shall be provided for the solar modules and solar grid tied inverters up to 20kW to provide evidence of compliance with standards. **For solar gridtied inverters above 20kW, self-certification by the manufacturer of the said inverter is acceptable.**

4.29 General Instructions

- A Security, safety, watch, and ward of all materials at sites shall be the responsibility of the Contractor/Bidder
- B Expenses for any other works, supply of material, and providing services required for the successful commissioning and operation of the plant, but not specifically mentioned in this document.
- C Safety management to be strictly complied with by the Contractor/Bidder throughout implementation activity.
- D First-aid medical facilities at the Site during construction to be provided by the Contractor/ Bidder(s)
- E All local labour, employment, and other issues shall be handled independently by the Contractor/ Bidder(s)
- F The entire responsibility and risk relating towards the workforce working at the Site, and compliance of different statutory regulations like Workman Compensation Act, Employees' State Insurance Corporation (ESIC), Factory Act 1948, Contract Labour Regulation, and Abolition Act 1970, Shop and Establishment Act 1948, and other Statutory regulatory bodies shall solely lie with the Contractor/ Bidder(s).
- G I. The Contractor/ Bidder(s) shall also be solely responsible for payment of wages, provident fund, bonus, retrenchment compensation leave, etc. applicable as per various statutory regulations to their entire workforce,

4.30 The following Statutory Clearances shall be obtained by the/Bidder(s) wherever applicable:

- a) Drawings approvals from UPNEDA .
- b) Electrical Safety approval for system more than 10 KW (Chief Electrical Inspector)
- a) All equipment, accessories, materials, civil construction & erection works should comply with statutory requirements, BIS and required and highlighted IEC standards

4.30.1. The Contractor/ Bidder(s) should not misuse the area and/or assign responsibility for the safety of machinery within the premises.

4.31 Term

4.31.1 The term for operation and maintenance of the plant may be extended for another five years on mutually agreed terms and conditions and charges.

4.32 Electricity Generation

The Contractor/Bidders shall be solely responsible for the performance of the plant(s) and shall make all necessary efforts to maximize the electricity generation of the plant.

4.33 Metering and associated facilities

The metering of electricity shall be carried out as per the regulations stipulated by Uttar Pradesh Electricity Regulatory Commission and/or Central Electricity Authority.

4.34 Failure to rectify the problem

- a). If the Contractor/ Bidder(s) fails to rectify the plant downtime within seven (7) days from the date of identification of such defect, unless the extension in time is mutually discussed and agreed between the bidder and the respective Beneficiary.
- b) If the Contractor/Bidder(s) fails to rectify the problem, the respective Beneficiary shall/may rectify the problem at the expense of the Contractor/ Bidder(s), in such case on

genuine complaint, UPNEDA will take appropriate action including forfeiture of PBG and blacklisting/debarring of the firm.

4.35 Completion of Term

- On completion of the term of Operation and Maintenance the Contractor/ Bidder(s) shall apply to the respective Beneficiary for the issue of power plant performance certificate. Such document is required for release of PBG of the firm.
- Make of Module, and PCU in technical bid will be indicative, bidder can use its equivalent as per MNRE test report/guidelines and submits its details test report before execution.

4.36 Standards and Limits

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

Standards and Limits

PARAMETER	REFERENCE	REQUIREMENT
Service 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 and Operation of Meters) Regulation 2013 & relevant regulations by Uttar Pradesh Electricity Regulatory Commission	Compliance
Safety and Supply	Central Electricity Authority(Measures of Safety and ElectricitySupply) Regulation 2010	Compliance
Harmonic Current	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Harmonic current injections from a generating station shall not exceed the limits specified in IEEE 519
Synchronization	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Photovoltaic system must be equipped with a grid frequency synchronization device. Every time the generating station is synchronized to the electricity system. It shall not cause voltage fluctuation greater than +/- 5% at point of connection.
Voltage	IEEE 519 and CEA(Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	The voltage-operating window should minimize nuisance tripping and should be under operating range of 80% to110% 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 Resources)	Operation of Photovoltaic system should not cause voltage flicker in excess of the limits stated in IEC 61000 standards or other equivalent Indian standards, if any.
Frequency	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources). Regulations 2013	When the Distribution system frequency deviates outside the specified conditions(50.5 Hz on upper side and 47.5 Hz on lower side), There should be over and under frequency trip functions with a clearing time of 0.2 seconds
DC injection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources). Regulations 2013	Photovoltaic system should not inject DC power more than0.5% of full rated output at the interconnection point under any operating conditions
Power Factor	IEEE 519 and CEA (Technical Standards for Connectivity of the	While the output of the inverter is greater than 50%, a lagging power

	Distributed Generation Resources). Regulations 2013	factor of greater than 0.9 should operate
Islanding and Disconnection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources). Regulations 2013	The photovoltaic system in the event of fault, voltage or frequency variations must island / disconnect itself within IEC standard on stipulated period
Overload and Overheat	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources). Regulations 2013	The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored
Paralleling Device	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources). Regulations 2013	Paralleling device of photovoltaic system shall be capable of withstanding 220% of the normal voltage at the interconnection point.

Notes for Bidder:

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

QUALITY CERTIFICATION, STANDARDS AND TESTING FOR GRID-CONNECTED ROOFTOP SOLAR PV SYSTEMS/POWER PLANTS

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

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

	<p>Ammonia (NH₃) Corrosion Testing (As per the site condition like dairies, toilets)</p>
IEC 61730-1,2	<p>Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing</p>
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	<p>Safety of power converters for use in photovoltaic power systems Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)</p>
IEC/IS 61683 (as applicable)	<p>Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)</p>
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	<p>Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures</p>
IEC 60255-27	<p>Measuring relays and protection equipment – Part 27: Product safety requirements</p>
IEC 60068-2 / IEC 62093 (as applicable)	<p>Environmental Testing of PV System – Power Conditioners and Inverters</p>
Fuses	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	<p>General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-</p>

PART -5 : WARRANTY AND MAINTENANCE

1. The PV modules will be warranted for a minimum period of 25 years from the date of supply. (Output wattage should not be less than 90% at the end of 12 years and 80% at the end of 25 years).
2. The mechanical structures, electrical components including evacuation infrastructure and overall workmanship of the Solar PV Rooftop power plant system must be warranted for a minimum of 5years from the date of commissioning and handing over of the system.
3. The Comprehensive Maintenance (within warranty period) may be executed by the firm themselves or through the service center of the firm in the concerned district/Division.
4. The contractor/ bidder shall be responsible to replace free of cost (including transportation and insurance expenses) to the purchaser whole or any part of supply which under normal and proper use become dysfunctional within 7 days of issue of any such complaint by the purchaser.
5. The service personnel of the Successful Bidder will make routine quarterly maintenance visits. The maintenance shall include thorough testing & replacement of any damaged parts Apart from the any complaint registered/ service calls received / faults notified in the report generated by the IVRS should be attended to and the system should be repaired/ restored/ replaced within 7 days.
6. Normal and preventive maintenance of the SPV Rooftop Power Plant systems will also be the duties of the deputed personnel during quarterly maintenance visits.
7. During operation and maintenance period of the SPV Rooftop Power Plant systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.
8. Vendors for supply and installation of the RTS shall establish a service center in each District. These service centers have to provide services to within the timelines specified in the contract, free of cost for first five years (Warranty period) of commissioning of the RTS. Non-performing/Under-performing PV Panels will be replaced free of cost in the warranty period. Non-compliance of the service standards by the vendor will make it ineligible for future work orders by the Government and may be blacklisted.

PART: 6

e-tender No: **01/UPNEDA/Grid Connected/Rooftop/2016**

Technical BID

	Description	To be furnished by the Contractor/Bidder
A	Solar PV Module	
	Type of Module:	
	Manufacturer of cell	
	Manufacturer of Module	
	Max power at STC Pmax (W)	
	Voltage at Max power Vmp(V)	
	Current at Max power Imp(A)	
	Open circuit voltage Voc (V)	
	Short circuit current Isc (A)	
	Module efficiency	
	Cell efficiency	
	Fill factor	
B	Solar Power Conditioning Unit	
	Manufacturer :	
	Type String type/central	
	Operating voltage (DC)	
	Operating voltage AC (pure sine wave)	
	Details of Indicators provided	

(Signature of Bidder)
with seal

PART B (Financial Bid)

e-tender NO. **01/UPNEDA/SPV/GCRT/GB/2019**

Name of the Firm: -----

Design, Supply, Installation, Testing and Commissioning of Grid Connected Rooftop Solar Photovoltaic Power Plant including 5 years Operation, Comprehensive Warranty and Maintenance of Grid Connected Rooftop Solar Photovoltaic Power Plants in various Government buildings in the State of Uttar Pradesh as per technical specifications, Terms and Conditions of the tender document :-

Sl. No	Description	Cost of SPV Power plant per kWp including CMC for 5 years (Rs)
1	PART A : 1KW Upto 10 kWp	
2	PART B: 11kWp to 100 kWp.	
3	PART C: 101kWp to 500 kWp	

NOTES:

1. Certified that rates quoted above are as per the requirement, specification terms & condition mentioned in the e-tender document.
2. The rates are inclusive of all taxes & duties, storage, transportation up to site, insurance etc., and any other job required to properly execute the work.
3. MNRE has issued the current year bench mark price for solar rooftop systems, hence the price quoted should not be more than the bench mark price.

(Signature of Bidder)
With seal

To be uploaded in Part B.

Other document / condition, terms if enclosed will liable to be rejection of bid.

FORMAT FOR BID SECURITY (EMD)

(To be submitted separately for each State and for each Model viz CAPEX)

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

Ref. _____

Bank Guarantee No. _____

Date: _____

In consideration of the -----[Insert name of the Bidder] (hereinafter referred to as 'Bidder') submitting the response to Tender document inter alia for selection of the Project for the capacity of MW [*Insert Capacity*] in response to the Tender document No. _____ dated ____ issued by UPNEDA (hereinafter referred to as UPNEDA) and UPNEDA considering such response to the Tender document of [*insert the name of the Bidder*] as per the terms of the Bid document, the _____ [*insert name & address of bank*] hereby agrees unequivocally, irrevocably and unconditionally to pay to UPNEDA at [*Insert Name of the Place from the address of UPNEDA*] forthwith on demand in writing from UPNEDA or any Officer authorized by it in this behalf, any amount upto and not exceeding Rupees _____ [*Insert amount not less than that derived on the basis of Rs. ___ Lakhs per MW of cumulative capacity only, on behalf of M/s. _____ [Insert name of the Bidder]*].

This guarantee shall be valid and binding on this Bank upto and including _____ [*insert date of validity in accordance with Bid document*] and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only). Our Guarantee shall remain in force until _____ [*insert date of validity in accordance with Bid document*]. UPNEDA shall be entitled to invoke this Guarantee till _____ [*Insert date which is 30 days after the date in the preceding sentence*].

The Guarantor Bank hereby agrees and acknowledges that the UPNEDA shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by UPNEDA, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to UPNEDA.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----- [*Insert name of the Bidder*] and/or any other person. The Guarantor Bank shall not require UPNEDA to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against UPNEDA in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Lucknow shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly UPNEDA shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder or to enforce any security held by UPNEDA or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only) and it shall remain in force until _____ [*Date to be inserted on the basis of this Bid document*] with an additional claim period of thirty (30) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if UPNEDA serves upon us a written claim or demand.

Signature _____

Name _____

Power of Attorney No. _____

Email ID _____

For _____ [Insert Name of the Bank]__

Banker's Stamp and Full Address.

Dated this ____ day of ____, 20__

FORMAT FOR PERFORMANCE BANK GUARANTEE (PBG)

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

In consideration of the ----- [Insert name of the Bidder] (hereinafter referred to as selected Successful Bidder(SB)) submitting the response to Tender document inter alia for selection of the Project for the capacity of MW under Roof Top scheme in response to the Tender document No _____ dated..... issued by UPNEDA (hereinafter referred to as UPNEDA) and UPNEDA considering such response to the Tender document of [insert the name of the Successful Bidder] (which expression shall unless repugnant to the context or meaning thereof include its executors, administrators, successors and assignees) and selecting the Solar Power Project of the Solar Power Developer and issuing Letter of allocation No ----- to----- (insert the name of the Successful Bidder(SB)) as per terms of Tender document and the same having been accepted by the selected SB or a Project Company, M/s ----- {a Special Purpose Vehicle (SPV) formed for this purpose}, if applicable]. As per the terms of the Bid document, the _____ [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to UPNEDA at _____ [Insert Name of the Place from the address of the UPNEDA] forthwith on demand in writing from UPNEDA or any Officer authorised by it in this behalf, any amount upto and not exceeding Rupees----- [Total Value] only, on behalf of M/s _____ [Insert name of the selected Successful Bidder(SB)/ Project Company]

This guarantee shall be valid and binding on this Bank up to and including..... [insert date of validity in accordance with Bid document]. and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only).

Our Guarantee shall remain in force until..... UPNEDA shall be entitled to invoke this Guarantee till

The Guarantor Bank hereby agrees and acknowledges that UPNEDA shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by UPNEDA, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to UPNEDA.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----- [Insert name of the Successful Bidder(SB)/ Project Company as applicable] and/or any other person. The Guarantor Bank shall not require UPNEDA to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against UPNEDA in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Lucknow shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly UPNEDA shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Successful Bidder(SB) / Project Company , to make any claim against or any demand on the Successful Bidder(SB)/ Project Company or to give any notice to the Successful Bidder(SB)/ Project Company or to enforce any security held by UPNEDA or to exercise, levy or enforce any distress, diligence or other process against the Successful Bidder(SB)/ Project Company .

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only) and it shall remain in force until We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if UPNEDA serves upon us a written claim or demand.

Signature _____

Name _____

Power of Attorney No. _____

Email ID _____

For _____ [Insert Name of the Bank]__

Banker's Stamp and Full Address.

Dated this ____ day of ____, 20__

Witness:

1.

Signature

Name and Address

Notes:

The Stamp Paper should be in the name of the Executing Bank and of appropriate value.

POWER OF ATTORNEY

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

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

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

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

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

Signed by the within named

..... **(Insert the name of the executant company)**

through the hand of Mr.

duly authorized by the Board(vide Board resolution No _____) to issue such Power of Attorney

Dated this day of

Accepted

Signature of Attorney

(Name, designation and address of the Attorney)

Attested

.....

(Signature of the executant)

(Name, designation and address of the executant)

.....

Signature and stamp of Notary of the place of execution

**Common seal of has been affixed in my/our presence
Pursuant to Board of Director's Resolution dated.....(Board of
Director's Resolution is also enclosed)**

WITNESS

i)

(Signature)

Name.....

Designation

ii)

(Signature)

Name.....

Designation

Notes:

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

Format 4

SCHEDULE OF EXPERIENCE (Supply & Installation)

(Please attach certificates in support from the concerned nodal agency /Govt. Organization/ MNRE authorized Agency /Project owner for work executed in case of private owner the joint commissioning report along with officer of Nodal agency/govt organization)

S. No.	Details of SPV systems installed during 2016-17, 2017-18, 2018-19 and till date of submission of BID.	Year	Deptt./Agency /Beneficiary for which work carried out	size of Work in kW	Cost of works in { Amt in Lakhs.}	Copy of work order
1.						
2.						
TOTAL :						

**SIGNATURE & SEAL OF Bidder
Certified by CA**