Cost of Document: Rs. 11800/- (including GST)

E-Tender

For

Empanelment of the EPC Contractors

For

Design, manufacture, supply, erection, testing, net metering and commissioning including Warrantee & AMC for 5 years

Of 1 KWp to 500 KWp Grid connected Rooftop and small Solar Power Plant at various locations in the State of Uttarakhand

EOI No:

1/UREDA/03(1)/Grid-Connected SPP /2020-21

Dated: 12/05/2020

Uttarakhand Renewable Energy Development Agency (UREDA)
Energy Park Campus, Industrial Area, Patel Nagar, Dehradun
Tel: 0135-2521553, 2521387, Fax: 0135-2521386
E-mail: spv.uredahq@gmail.com, Web: www.ureda.uk.gov.in

UTTARAKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY.
OFFICE: Energy Park Campus, Industrial Area, Patel Nagar, Dehradun
Tel: 0135-2521387, 2521553 Fax 0135-2521386, E-mail: spv.uredahq@gmail.com,
Website: ureda.uk.gov.in

E-Tender Notice

Empanelment of EPC contactors for installation of Grid connected Rooftop and small Solar Power Plant

UREDA invites Expression of Interest (EOI) for Empanelment of the EPC Contractors for Design, manufacture, supply, erection, testing, net metering and commissioning including Warrantee & AMC for 5 years Of 1 KWp to 500 KWp Grid connected Rooftop and small Solar Power Plant at various locations in the State of Uttarakhand

The document for EOI can be seen and downloaded from 12/05/2020 from 10:00 Hrs (IST) at www.uktenders.gov.in. The proposal (Technical + financial) can be submitted to www.uktenders.gov.in on or before 05/06/2020 till 17:00 Hrs (IST). The cost of document Rs. 11800/- and EMD of Rs. 5,00,000/- (Rs. five Lakhs Only) in favour of Director UREDA, Dehradun should be submitted on or before 10/06/2020 till 17:00 Hrs (IST) at UREDA head office Urja Park campus Patel Nagar, Dehradun.

In case of any query Mr. C.P. Agarwal, Dy. Chief Project Officer, UREDA (Mob. No. - 09897913809) may be contacted. The undersigned reserves all the rights to reject any or all the offers without assigning any reason.

DIRECTOR, UREDA

PARTICULARS OF OFFER

Sl	Particulars	Details
1	EOI No.	1/UREDA/03(1)/Grid-Connected SPP /2020-21
2	Particulars of the works	Design, manufacture, supply, erection, testing, net metering and commissioning including Warrantee & AMC for 5 years Of 1KWp to 500 KWp Grid connected Rooftop and small Solar Power Plant at various locations in the State of Uttarakhand
3	Period of empanelment	One year from the date of Agreement
4	Cost of document	Rs. 10000+18% GST = 11800/- (Demand Draft in favor of Director UREDA, Dehradun)
5	Earnest money	Rs. 5,00,000/- (Rs. Five Lakhs Only) (Bank Guarantee/FDR/Demand Draft issued/Pledge in favor of Director, UREDA, Dehradun)
6	Last date/ time for on line submission of proposal	05/06//2020 till 17 :00 Hrs on e-tender portal **www.uktenders.gov.in**
7	Last date/ time for submission of cost of document Rs. 11800/- and EMD of Rs. 5,00,000/- (Rs. Five Lakhs Only)	10/06/2020 till 17 :00 Hrs
8	Validity of offer for acceptance	Three Months from the last date of submission of offer
9	Date and Time for opening of Technical offer	11/06/2020 11:00 AM onwards
10	Place of opening of offer	UREDA Headquarter, Energy Park Campus, Industrial Area, Patel Nagar, Dehradun

A. BACKGROUND

The Government of India has launched the Jawaharlal Nehru National Solar Mission (JNNSM) to promote ecologically sustainable growth while addressing India's energy security challenge. It will also constitute a major contribution by India to the global effort to meet the challenges of climate change.

The aim of the Mission is to focus on setting up an enabling environment for solar technology penetration in the country both at a centralized and decentralized level by way of focusing on promoting Off grid/ Grid Connected Solar Power Generation including hybrid systems to meet/supplement power, heating and cooling energy requirements. These systems still require interventions to bring down costs but the key challenge is to provide an enabling framework and support for entrepreneurs to develop markets.

In order to create a sustained interest within the investor community, Ministry of New & Renewable Energy (MNRE), Govt of India has given the details of various promotional activities on the website of MNRE www.mnre.gov.in.

In view of the above national scenario state govt. is also promoting the installation of solar power plants in the state of Uttarakhand. UREDA as per the instructions receive from Government of Uttarakhand is in process of initiating the bidding process for determination of competitive cost of Grid connected Rooftop and small solar power plants. The tentative list of the Solar Power Plant proposed to be installed at Annexure-1.

B. SCOPE OF WORK:

UREDA invites bids for "Empanelment of the EPC Contractors for Design, manufacture, supply, erection, testing, net metering and commissioning, including Warrantee & AMC for 5 years of 1KWp to 500 KWp Grid connected Rooftop and small Solar Power Plant At various locations in the State of Uttarakhand".

This will include obtaining all applicable Statutory approvals and implementing the net metering arrangement. For the state of Uttarakhand kindly refer the Hon'ble Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2018 regarding Net metering and other regulation.

UREDA will empanel various firms who participate in this empanelment process and wish to provide their services on the lowest quoted prices which are received under this offer. **The selected firms will have to install the Grid connected Rooftop and small Solar PV Power Plants in accordance with technical specification and various other requirements as specified in draft agreement in this document.**

Work orders shall be placed by UREDA to various empanelled firms and they will design, manufacture, supply, erect, test, and commission the Solar Power Plant and shall make all necessary arrangements for satisfactory maintenance and performance of the Power Plant. Warrantee & AMC period will include rectification/replacement of all the defective and consumable components/items including batteries.

Detailed scope of work is given in the enclosed draft agreement at **Annexure-A**

C. INSTRUCTIONS TO BIDDER ABOUT SITE CONDITIONS AND OTHER REQUIREMENTS

It is important to note that under "Grid connected Rooftop and small Solar Power Plant", various projects ranging between 1 KWp to 500 KWp capacities shall be allotted. The work shall include "Design, manufacture, supply, erection, testing and commissioning of Grid connected Rooftop and small Solar Power Plant including Warrantee & AMC for 5 years at various locations in the State of Uttarakhand. This will include obtaining all applicable Statutory approvals and implementing the net metering arrangement.

The project installation may differ from site to site. The following types of sites may be considered:

- Flat Roof Top
- Inclined Roof Top
- Open Flat Land
- Open hilly and inclined land, etc

Further as the plants may be situated in plain areas as well as remote hilly areas with/without roads in the State; the various requirements for installation of plants may vary according to the location of the plant. The bidder should consider the various factors related to transportation and mounting structures for solar modules with respect to different size/location and type of roof of Solar Power Plants.

Further additional separate electric cable/wiring, etc shall be required to energize the proposed load according to the requirement of the beneficiary

These factors should be taken into account by the bidder before providing his rates for the execution of the work.

UREDA shall not entertain any request of contractor for clarifications related to such local conditions and shall bear no responsibility regarding the variation in installation cost due to location of the plant.

i. Cost Of Bidding

The Bidder shall bear all costs and expenses associated with preparation and submission of its bid including post-bid discussions, technical and other presentations etc, and UREDA will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

ii. Understanding of bid documents

A prospective Bidder is expected to examine all instructions, forms, terms, technical specifications, and scope of works in the Bid documents and fully

inform himself as to all the conditions and matters which may in any way affect the scope of work or the cost thereof. Failure to furnish all information required in the Bid document or submission of a Bid not substantially responsive to the Bid document in every respect will be at the Bidder's risk and may result in the rejection of its bid.

iii. Language of Bid

The bid prepared by the Bidder and all correspondences and documents relating to the bid, exchanged by the Bidder and UREDA shall be written in the English language, 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. Failure to comply with this may disqualify a bid. For purposes of interpretation of the bid, the English translation shall govern.

iv. UREDA right to withdraw the Tender and to reject any Bid

a. This Tender may be withdrawn or cancelled by UREDA at any time without assigning any reasons thereof. UREDA further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.

b. UREDA reserves the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the tender and make its own judgment regarding the interpretation of the same. In this regard the UREDA shall have no liability towards any Bidder and no Bidder shall have any recourse to UREDA with respect to the selection process.

c. UREDA reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance of bid by UREDA will be full and final.

v. UREDA Right to Accept any Bid and to Reject any or all Bids

UREDA reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.

D. EARNEST MONEY:-

1. The firm/bidder shall have to submit the Earnest Money of Rs. 5,00,000/- (Rs. Five Lakhs Only) in the form of Bank Guarantee/FDR/Demand Draft issued/Pledge in favor of Director, UREDA, Dehradun from any nationalized bank and valid for minimum 03 months from the date of submission of offer against this E-Tender.
2. No interest shall be paid by UREDA on the amount of Earnest Money.
3. The Earnest Money of unsuccessful offer shall be refunded within 30 days from the date of short listing of successful bidders.

E. DURATION OF EMPANELMENT:-

The selected firms/bidders will be empanelled initially for One year. After completion of this period, the validity of rates may further be extended on the basis of performance of the firms and mutual consent between UREDA and interested empanelled firms.

F. ELIGIBILITY CRITERIA

The Bidder should strictly comply with the financial, technical and experience requirements as defined in this Expression of Interest.

G. SUBMISSION AND EVALUATION PROCESS OF OFFERS

The complete offer (Technical and financial offer) shall be submitted by the firm/bidder through E-tender portal www.uktenders.gov.in of Govt of Uttarakhand. All the necessary details and documents shall be uploaded by the firm/bidder on the E-portal.
The submission and evaluation process shall comprise the following two stages

Stage-I: EVALUATION OF TECHNICAL OFFERS
Stage- II: EVALUATION OF FINANCIAL OFFERS AND EMPANELMENT OF EPC CONTACTORS

Stage-I: EVALUATION OF TECHNICAL OFFERS

1. Submission of Technical Offer by the bidder

a. The firm/bidder are required to submit their Technical offer online at www.uktenders.gov.in along with complete EOI document duly signed on each page. The information required in Format 1.1 to 1.4 of this document should be duly filled in along with the supporting documents. The scanned copy of bank draft

towards the cost of document Rs. 11800/- and bank draft/FDR/Bank Guarantee for EMD of Rs. 5, 00,000/- (Rs. Five Lakhs Only) in favour of Director UREDA, Dehradun should also be submitted online.

b. The original bank draft towards the cost of document Rs. 11800/- and bank draft/FDR/Bank Guarantee for EMD of Rs. 5,00,000/- (Rs. Five Lakhs Only) in favour of Director UREDA, Dehradun should be submitted to Director, UREDA, Energy Park Campus, Industrial Area, Patel Nagar, Dehradun in a sealed envelope subscribed with following :-

i. 1/UREDA/03(1)/Grid-Connected SPP /2020-21

ii. Offer for installation of "Grid connected Rooftop and small Solar Power Plant"

iii. Name and address of the firm with contact no.

c. The offers shall be opened on due date and time. The Offers shall be evaluated against the qualifying criterion defined in this EoI.

d. The offers meeting the qualifying criterion will be considered qualified and other offers shall be rejected.

Note: The above envelope should positively reach at the prescribed address prior to 10/06/2020 till 17:00 Hrs.

2. Evaluation of bidder's fulfillment of eligibility criteria & Responsiveness check of technical offer

Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed formats and related documentary evidence in support of meeting the Eligibility Criteria. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the offer to be non-responsive.

Each offer shall be checked for its responsiveness and compliance with the requirements set forth in this EoI before the Bidder's detailed evaluation criteria is taken up. The offers shall be treated as non-responsive in case:

a. Offer is incomplete, i.e. not accompanied by any of the applicable formats inter alia covering letter, power of attorney, format for disclosure, valid Earnest Money etc.;

b. Offer is not signed by Bidder in the manner indicated in this EoI;

c. Material inconsistencies in the information /documents submitted by the Bidder, affecting the Eligibility Criteria;

d. Information is not submitted in the formats specified in this EOI;

e. Offer is conditional in nature;

f. Offer is not received by the Bid Deadline;

g. Offer is having Conflict of Interest;

h. Delay in submission of additional information or clarifications sought by UREDA as applicable;

i. Bidder makes any misrepresentation.

j. Any overwriting shall make the offer liable to be rejected.

k. Non submission of cost of document and EMD by due date.

3. Detailed Technical evaluation criteria:

Points would be allotted to each of the bidder as per following:

SI	Field	Points to be allocated	Minimum qualifying marks
A	**Experience of supply, installation & commissioning of Grid Connected Solar PV Power Projects with net-metering facility (in last three years)**		
2	Above 200 KWp up to 500 KWp cumulative capacity	40	**30**
3	Above 100 KWp up to 200 KWp cumulative capacity	30	
B	**Financial capability- Average Annual turnover for last 2 years**		
1	More than 2 Crore	40	**30**
2	Between 25 Lacs to 2 Crore	30	
C	**Bidder Company registered in Uttarakhand** (Enclose copy of company registration in Uttarakhand- if applicable)	5	**5**
D	**Sales and Service Center in Uttarakhand (Minimum 5 Nos)** **(Enclose list of a sales and service centres details with contact no)**	5	**5**

The minimum Score to be obtained to qualify technically should be at least 70 points otherwise the technical offer shall be rejected.

Note: - Experience should be strictly in the field of "supply, installation & commissioning of Grid Connected Solar PV Power Projects with net-metering facility". The proposal not having the requisite experience shall be out rightly rejected.

Following documents are to be submitted (online) by the bidder/firm in support of the above Criteria:-

1. Experience of minimum 100 KWp Grid connected Rooftop and small Solar Power Plant projects installed at Government buildings in last three years shall be mandatory. Certificate of experience from SNA/DISCOM/PSU/Govt. Department regarding installation & commissioning of Grid connected Rooftop and small Solar Power Plant projects shall have to be enclosed and should clearly indicate the Grid connected Rooftop and small Solar Power Plant projects

2. CA certificate on letter head of CA regarding Average Annual Turnover for last 2 years

3. Certificate of registration of company in Uttarakhand- if applicable

4. In case of Service centres established in Uttarakhand-Enclose details with contact number of 5 Nos of sales and service centres.

STAGE-II:

SUBMISSION AND EVALUTION OF FINANCIAL OFFERS

1. Submission of Financial Offer by the firm/ bidder

a) The financial offer shall be given by the bidder/firm online in prescribed BoQ Format at the time of submission of his bid.

b) The financial offer should be submitted in INR only, otherwise it shall be out rightly rejected. The rates/ prices mentioned in the offer must include all applicable taxes, duties & surcharges. No additional payments shall be made by UREDA on this account.

c) Before submitting their financial offer online the firm/bidders should ensure that they have taken into account the various site specific factors which may affect the overall cost of the installation as described in PART-C i.e. "INSTRUCTIONS TO BIDDER ABOUT SITE CONDITIONS AND OTHER REQUIREMENTS"

2. Evaluation of financial offer

i. The financial offers of technically qualified bidders shall be opened on the due date. The evaluation of financial offer shall be carried out only on the basis of the rates furnished by the bidders in financial offer.

ii. The bidders are advised to provide the rates only in their financial offer. Any other condition or rebate etc. shall be liable to outright rejection of the financial offer.

3. Selection of bidder(s) for empanelment

i) The lowest quoted rates by any bidder for every group of size/capacity will be taken as base rate.

ii) UREDA will seek in writing, the consent to work on the lowest quoted rates (base rate) in each group of size/capacity of the project, from all other technically qualified bidders who have submitted their financial offer.

iii) The list of the successful empanelled bidder/firms along with base rates shall be published on www.ureda.uk.gov.in.

iv) Such empanelled bidders shall have to extend their DD/FDR/BG submitted as EMD for 03 months, for further 15 months period to be kept by UREDA as security against empanelment. This security against empanelment of the empanelled firms will be refunded after the completion of duration of empanelment.

v) The EMD of bidders who do not get empanelled shall be released at this stage.

vi) In case any empanelled firm/bidder does not complete the work (awarded by any office of the UREDA) or the quality of the work is not satisfactory, UREDA reserves the right to forfeit the security deposit against empanelment and cancel the work order/empanelment.

vii) For execution of the works, an agreement shall be signed with all the qualified bidders as per Annexure-A.

H. AWARD OF WORKS

i) The separate work orders in ratio of the financial capacity of the firm (Average turnover of last two years) shall be issued by UREDA to various empanelled firms.

ii) The time for the execution of the project shall be 8 months from the date of issue of Work Order.

iii) In case the performance of any contractor against progress of works is not satisfactory, the quantity of work order may be reduced and reallocated to other contractors.

iv) In case of breach of any terms of the agreement by any Empanelled firm, UREDA may cancel the work order and shall forfeit the EMD money of the concerned empanelled firm.

v) Joint inspection of the works shall be carried out by UREDA/ duly authorized representatives of UREDA, before release of payments. Contractor should provide all the data and necessary proof of meeting the technical specifications as specified in the EoI.

I. PERFORMANCE SECURITY AMOUNT:-

The FDR/CDR/TDR/bank guarantee equivalent to 5% of the work order value plugged in favor of Director, UREDA shall have to be submitted by the contractor at the time of placement of every work order.

J. PAYMENT TERMS:-

Orders will be placed to various empanelled firms by UREDA. Payment shall be as specified in the draft agreement at **Annexure-A**

K. TECHNICAL SPECIFICATION

The technical specification of the solar power plants shall be as specified in the draft agreement at **Annexure-A**

Format: 1.1

FORMATS FOR SUBMITTING EoI

(The Format should be on the Letter Head of the firm)

Ref.No._____Date:_____

To
Uttarakhand Renewable Energy Development Agency
Energy park campus,
Industrial area, Patel Nagar,
Dehradun – 248 001,
Uttarakhand

Sub: "EoI for Empanelment of the EPC Contractors for Design, manufacture, supply, erection, testing and commissioning including Warrantee & AMC for 5 years Of 1KWp to 500 KWp Grid connected Rooftop and small Solar Power Plant at various locations in the State of Uttarakhand"

Dear Sir,

We, the undersigned….[insert name of the 'Bidder'] having read, examined and understood all the details the EoI Document and hereby submit our Technical offer.

We give our unconditional acceptance to the EoI no. ……. dated……..and EoI Documents attached thereto, issued by Uttarakhand Renewable Energy Development Agency. As a token of our acceptance to the EoI Documents, all the pages of the same have been signed by us alongwith all the information required in Format 1.1 to 1.4 of this document and uploaded on the portal with our offer. We ensure that we shall execute the works as per the provisions of the EOI and all the provisions of this EOI Documents shall be binding on us.

1. **Details of cost of Document**

S.No	Type of Document	No	Issue date	Valid up to	Name of Bank
1	Demand Draft				

2. **Details of EMD**

S.No	Type of Document	No	Issue date	Valid up to	Name of Bank
1	Demand Draft/ FDR/ Bank Guarantee				

3. **Acceptance**

I. We hereby unconditionally and irrevocably agree and accept that the decision of Uttarakhand Renewable Energy Development Agency with respect of any matter regarding or arising out of the EoI shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

II. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to execution of projects.

4. **Familiarity with Relevant Indian Laws & Regulations**
We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this offer and execute the EoI Document, in the event of our selection as Successful Bidder. We further undertake and agree that all such factors as mentioned in EOI have been fully examined and considered while submitting the Offer.

5. **Contact Person**

Details of the contact person are furnished as under:

Name	:	.....
Address	:	.....
Phone Nos.	:	.....
Mobile no.	:	.....
Fax Nos.	:	.....
E-mail address	:	.....

8. It is confirmed that our offer is consistent with all the requirements of submission as stated in the EoI and subsequent communications from Uttarakhand Renewable Energy Development Agency.

9. The information submitted in our offer is complete, strictly as per the requirements stipulated in the EOI and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Offer.

10. We confirm that all the terms and conditions of our offer are valid for acceptance for a period of three months from the Bid Submission Deadline.

11. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the_____day of_____,20….

Thanking you,

Yours faithfully,

Name

Seal and Signature of bidder

Format-1.2

General particulars of the bidder

Sl	Particulars	Details
1	Name of Bidder/Firm	
2	Postal Address	
3	E-mail address for communication	
4	Telephone, Fax No. Mobile no.	
5	Name, designation & contact number of the representative of the bidder/firm to whom all references shall be made.	
6	Type of firm (Proprietor/ Partnership/ Pvt. Ltd./Govt./Other)	
7	Amount and particulars of the cost of document and EMD/security deposited.	
9	Does bidder/firm have any relative working in UREDA? If yes state the name and designation.	

Yours faithfully,

Name
Seal and Signature of bidder

Format-1.3

PROFORMA FOR BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

(On Non-Judicial stamp paper of appropriate value)

Ref.: Date:

Bank Guarantee No.:

To,

Uttarakhand Renewable Energy development Agency (UREDA),
Energy park campus,
Industrial area, Patel Nagar,
Dehradun – 248 001, Uttarakhand

Dear Sir,

In accordance with Invitation of Offers under EoI No…… M/S…… having its Registered/ Head Office at ……(hereinafter called the "Bidder") who wishes to participate in the said tender for implementation of Grid connected Rooftop and small Solar Power Plant in Uttarakhand State as per tender specification.

We, the……[Name & Address of the bank]……and having our Head Office at……Guarantee and undertake to pay immediately on demand by Uttarakhand Renewable Energy Development Agency hereinafter called 'UREDA', the amount of Rs……. without any reservation, protest, demand and recourse to the extent of the said sum of Rs. (Rupees……only). Any such demand made by the 'UREDA' shall be conclusive and binding on us irrespective of any dispute or difference raised by the Bidder.

This guarantee shall be irrevocable and shall remain valid up to …… (as per clause D-1 of the EoI) . If any further extension of this guarantee is required, the same shall be extended to such required period on receiving instructions from M/s…… [Bidder's name]……on whose behalf this guarantee is issued.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this .....day of.....20.....at.....

.....

(Name) (Designation with Bank)

Seal).....

(Official Address)

Stamp.....

Attorney as per Power of No.....

Date.....

Witness:

.....

(Signature)

.....

(Signature)

(Name).....

Note:

1. (*) the amount shall be as specified in the Bid document.

(#) Complete mailing address of the Head Office of the Bank to be given.

2. The Bank Guarantee shall be from a Bank as per as define in Clause 2.1 of the Bid document.

3. The Stamp Paper of appropriate value shall be purchased in the name of guarantee issuing Bidder/bank issuing the guarantee.

Format-1.4

DECLARATION BY THE BIDDER

(On non- judicial stamp paper of Rs. 100/-)

I/We .....(Hereinafter referred to as Bidder/Firm) being desirous of Bidding for the work, under this 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 tender document do hereby declare that-

1. The Bidder/firm is fully aware of all the requirements of the EoI document and agrees with all provisions of the EoI document and accepts all risks, responsibilities and obligations directly or indirectly connected with the performance of the tender.

2. The Bidder/firm is capable of executing and completing the work as required in the EoI and is financially solvent and sound to execute the EoI work. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of UREDA. The Bidder gives the assurance to execute the work as per specifications, terms and conditions of the EoI on award of work.

3. The Bidder/firm has no collusion with other Bidders, any employee of UREDA or with any other person or firm in the preparation of the EoI.

4. The Bidder/firm has not been influenced by any statement or promises by UREDA or any of its employees but only by the EoI document.

5. The Bidder/firm 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.

7. That the order of debar or blacklisting by MNRE/ any other Government undertaking /Department/Institutions/autonomous Organizations is not presently in force against me.

8. All the information and the statements submitted with the offer are true and no information has been concealed by the Bidder/firm.

9. The bidder/firm shall deploy PV modules/inverter systems etc with applicable latest IEC standards, BIS standards and with applicable standard as specified by Central Electricity Authority and shall meet various other technical requirements specified by MNRE for Grid connected Rooftop and small Solar Power Plant.

10. The Bidder/firm unconditionally acknowledges and accepts that

i. While these documents has been prepared in good faith, neither the firm nor its employees or advisors make any representation, or warranty, express or implied or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the information, even if any loss or damage is caused by any act or omission on their part".

ii. "The Bidder/firm shall make independent enquiry and satisfy itself with respect to all the required information, inputs, conditions and circumstances and factors that may have any effect on his Offer. While submitting the tender the Bidder shall be deemed to have inspected and examined the conditions examined the laws and regulations in force in India, the transportation facilities available in India, the conditions of roads, bridges, ports etc. for unloading and/or transporting of material and has based its design, equipment size and fixed its price taking into account all such relevant conditions and also the risks, contingencies and other circumstances which may influence or affect the supply of the products.

iii. Accordingly, Bidder/firm acknowledges that, on being selected as Successful, the Bidder shall not be relieved from any of its obligations nor shall the Bidder be entitled to any extension of time or financial compensation by reason of the unsuitability of anything for whatever reason.

Yours faithfully,

Name

Seal and Signature of bidder

Checklist for Documents to be submitted online

Sl. No	Description	Compliance
1	Complete EOI document as specified in Para G.1.a. of the Expression of Interest.	
2	Covering Letter as per prescribed Format-1.1	
3	General particulars of the bidder as per prescribed Format-1.2	
4	Scanned Copy of Demand Draft/FDR **or** Bank guarantee (as per prescribed Format-1.3) for EMD	
5	Declaration by the bidder as per prescribed Format-1.4	
6	Scanned Copy of Demand draft towards the Cost of document	
7	Completion certificates for experience issued from SNA/DISCOM/PSU/Govt. Departments for installation of Grid connected Rooftop and small Solar Power Plant for more than 300 KWp cumulative capacity in last 2 years	
8	CA Certificate for Average annual turnover for last 2 year	
9	Certificate of registration of Company in Uttarakhand	
10	List of 5 nos of sales and service Center in Uttarakhand with contact details and name.	
11	Other documents, if relevant (Please Specify)	

Checklist for Documents to be submitted in hard copy

Sl. No	Description	Compliance
1	Demand draft towards the Cost of document	
2	Scanned Copy of Demand Draft/FDR **or** Bank guarantee (as per prescribed Format-1.3) for EMD	

Annexure-1

List of Solar Power Plants proposed to be installed

S.No.	Name of Site	Proposed Capacity (KWp)
1	District court campus, Tehri	20
2	District court campus, Almora	50
3	District court campus, Bageshwar	25
4	District court campus, Nainital	40
5	District court campus, U.S. Nagar	100
6	District court campus, Dehradun	275
7	District court, Dehradun, ADR Building	25
8	District court campus ,Family Court, Dehradun	20
9	District court campus, conveyance Block, Dehradun	20

Note:-

The size of the plant has been proposed on the basis of the various parameter present at the time of site survey. The actual size of Solar Power Plant may vary in case of changes in site conditions at present. The plants shall have to be installed as per the actual site conditions at the time of installation and direction of concerned Officer in Charge at site.

Annexure-A

Draft Agreement to be signed between Empanelled firm and UREDA

GENERAL CONDITIONS OF AGREEMENT

(In case of orders placed by UREDA)

1. DEFINITIONS

In the deed of contract unless the context otherwise requires:-

2.1 **'**UREDA' shall mean The DIRECTOR or his representative of 'Uttarakhand Renewable Energy Development Agency. Govt. of Uttarakhand' with its Head office at Energy Park Campus, Patel Nagar Dehradun and shall also include its successors in interest and assignees. The **'Contractor'** shall mean the **Firm/ Person (whose has been empanelled by UREDA)** and shall include his legal representatives, successor in interest and assignees

2.2 The empanelment shall be for Design, manufacture, supply, erection, testing and commissioning including warranty & AMC for 5 years of Grid Interactive Rooftop and Small Solar PV Power Plant (1 KWp to 500 KWp) in the State of Uttarakhand and shall be valid till the completion of all related works.

2.3 The empanelment shall be for a period of 1 year from the date of signing of the agreement. However the validity of rates may further be extended to a specified period of time on the same terms & conditions on the mutual consent of both the parties.

2. COMPLETION PERIOD

2.1 Under this agreement, separate work orders shall be issued to the contractor at various times. The FDR/CDR/TDR/bank guarantee equivalent to 5% of the work order value, plugged in favor of Director, UREDA shall have to be submitted by the contractor at the time of placement of every work order.

2.2 The work assigned to the contractor shall have to be completed within 8 months from the date of placement of work order. The work shall have to be completed within time and shall be binding on the contractor. In case of any urgency, the contractor may be asked to complete the work even earlier and contractor will be bound to fulfill the requirements.

2.3 In case the contractor fails to execute the said work or related obligations within stipulated time, UREDA will be at liberty to get the work executed from the open market at the risk and cost of the contractor, without calling any tender and without any notice to the contractor. Any additional cost incurred by UREDA during such execution of the work shall be recovered from the contractor.

2.4 If the cost of executing the work as aforesaid shall exceed the balance payments due to the contractor and the contractor fails to make good the 'additional cost', UREDA may recover it from the contractor's pending claims against any work in UREDA or in any other lawful manner. All risks & responsibilities related to the execution of the said work and fulfillment of related obligations directly or indirectly connected with the performance of the contract shall be the sole responsibility of contractor.

2.5 The calculation of aforesaid 'additional cost' will be finalized by the UREDA at its sole discretion. The contractor shall have no right to challenge the mode or amount relating to calculation at any forum. For completion of the work through any other agency, in case some changes are required in terms and conditions of the contract; the contractor shall not have any right to challenge the decision of UREDA.

3. LIOUIDATED DAMAGES

If the contractor fails to perform the work within the time periods specified in the work orders or within the extended time period if any, UREDA shall without prejudice to its other remedies under the contract, deduct from the contract price as liquidated damage, a sum equivalent to 1% of the price of the un-performed work / services for each week of delay until actual completion of work, up to a maximum deduction of 10%. Once the maximum is reached, UREDA may consider termination of the contract.

4. PERFORMANCE SECURITY

The amount of the earnest money for Rs. 10.00 Lacs and FDR/CDR/TDR against 5% Performance Security Amount shall be forfeited in case of breach of any term or condition by the contractor. If required, the other balance payments may also be forfeited, depending on the liabilities on the part of the contractor.

5. FORCE MAJEURE

5.1 Notwithstanding the provisions of clauses contained in this deed; the contractor 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 force majeure circumstances.

5.2 For purpose of this clause, "Force majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes etc. Whether a "Force majeure" situation exists or not, shall be decided by the Director UREDA & his decision shall be final and binding on the contractor and all other concerned.

5.3 If a force majeure situation arises, the contractor shall notify UREDA in writing promptly (at the most within 10 days from the date such situation arises). After examining the cases UREDA shall decide and grant suitable addition time for the completion of the work.

5.4 For other justified cases also, not covered under force majeure conditions, UREDA may consider the request of contractor and additional time for completion of work may be granted.

6. QUALITY, WARRANTEE AND ANNUAL MAINTENANCE

6.1 The contractor shall warrant the Solar PV Power Plant as per applicable standards of quality. Anything to be furnished shall be new, free from all defects and faults in material and workmanship. The manufacture shall be in accordance with the specified technical parameters and should be of the highest grade and consistent with established and generally accepted standards for material. It shall be in full conformity with the drawing or samples if any and shall operate properly if operable.

6.2 After erection of the Solar PV Power Plant at site, the contractor shall ensure satisfactory performance of the equipments for a period of time as specified in the scope of work.

6.3 The contractor shall rectify defects developed in the Systems within Warrantee & AMC period promptly. In case the contractor does not rectify the defects within 7 days of the receipt of complaint, UREDA may restore the System in working condition on contractor's expenses.

6.4 Frequent and unjustified delays in rectifying defects may lead to cancellation of the contract, recovery of losses and imposing of additional penalty. In such circumstance UREDA shall have the full liberty to recover the losses/penalty from the contractor pending claims, EMD/ performance security deposit or in other law full manner. The amount of losses/penalty shall be decided be DIRECTOR UREDA and will be binding on the contractor.

7. STANDARDS

The goods supplied and works executed under this contract shall confirm to the standards mentioned in the technical specification and where no applicable standard is mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be applicable.

8. INSPECTION AND TESTS

8.1 UREDA or its duly authorized representatives shall have the right to inspect and /or to test the goods to confirm their quality according to the contract and shall have access to the contractor's works premises and the power to inspect and examine the materials and workmanship of the various components of Solar PV Power Plant at all reasonable times during their manufacture.

8.2 The contractor shall inform UREDA through a written notice regarding any material being ready for testing at least 7 days in advance. The conditions of contract and/or the technical specifications shall specify what inspections and tests shall be conducted by UREDA. All the arrangements of necessary equipments and expenses for such tests shall be on the contractor's account excluding the expenses of the inspector.

8.3 UREDA's Inspector, unless the witnessing of the tests is virtually waived off, will inspect and attend such test within 7 days from the date on which the equipments are notified as being ready for test /inspection.

8.4 UREDA shall within 7 days, give written notice to the contractor, about any objection regarding the quality of the system. The contractor shall either make the necessary modifications to remove the cause of such objection or shall clarify the objections in writing if modifications are not necessary to comply with the contract.

8.5 After satisfactory testing of the systems during inspection, UREDA's Inspector shall issue of dispatch clearance for the supply of material at site.

8.6 The inspection by UREDA and issue of dispatch instruction there on shall in no way limit the liabilities and responsibilities of the contractor in respect of the agreed and specified quality. Nothing in clause 8 shall in any way relieve the contractor from any Warrantee or other obligations under this contract.

8.7 In case any time the system is not found in accordance with the required technical specifications, the work order(s) shall be canceled and all the payments made by UREDA to the contractor shall be recovered. Such contractor shall also be blacklisted from participating in any tender in URDEA in future. MNRE and other State Nodal Agencies of MNRE shall also be informed for the necessary action against such contractor.

9. SPARE PARTS

The contractor shall make arrangement to maintain a sufficient stock of essential spares and consumable spare parts to ensure proper maintenance of the system promptly.

10. PACKING FORWARDING

10.1 Contractors, wherever applicable shall properly pack and crate all materials in such a manner as to protect them from deterioration and damage during transportation. The contractor shall be responsible for all damage due to improper packing.

10.2 The contractor shall inform the district level project office of UREDA regarding the probable date of each shipment of materials from his works.

11. TRANSPORTATION

The contractor is required to deliver the goods at (Name of the Place) as defined in the scope of work.

12. DEMURRAGE WHARFAGE, ETC

All demurrage, wharfage and other expenses incurred due to delayed clearance of the material or any other reason shall be on the account of the contractor.

13. INSURANCE

13.1 The contractor shall be responsible and take an Insurance Policy for transit-cum-storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning.

13.2 The Contactor shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.

14. LIABILITY FOR ACCIDENTS AND DAMAGES

During the Warrantee & AMC period, the contractor shall assume all responsibilities for direct damages covering all type of accident, injury or property damage caused by manufacturing defects or faulty erection on the systems.

15. DUTIES AND TAXES

The rates/ prices mentioned in the price-schedule include all type of applicable taxes, duties & surcharges. No additional payments shall be made by UREDA on this account.

16. PATENT RIGHT AND ROYALTIES:

The contractor shall indemnify UREDA against all third party claims of infringement of patent, royalties, trademark or industrial design rights arising from use of the goods supplied/ erected by the contractor or any part thereof.

17. RIGHT TO VARY QUANTITIES

UREDA reserves all the rights to increase or decrease the quantity of goods mentioned in the contract, at the time of placement of orders without any change in price or other terms and conditions.

18. LOCAL CONDITIONS

18.1 It will be imperative on contractor to have full information of all local conditions and factors which may have any effect on the execution of the works. The contractor shall be deemed to have collected all the relevant information regarding the proposed place of works/ site, its local environment, approach road and connectivity etc. and be well acquainted with actual working and other prevailing conditions.

18.2 If required, the contractor should pre-visit the site before starting the work. UREDA shall not entertain any request of contractor for clarifications related to such local conditions and shall bear no responsibility in this regard.

19. TOOLS & TACKLES

The contractor shall provide all necessary tools & tackles for proper execution of work and operation/ maintenance of systems after erection. UREDA shall in no way, responsible for supply of any tools & tackles.

20. TERMINATION FOR DEFAULT

UREDA without prejudice to any other remedy for breach of contract, by written notice of default sent to the contractor, may terminate the contract in whole or in part:

20.1 If the contractor fails to deliver the Services within the allocated time period(s).
20.2 If the contractor fails to perform any other obligation(s) under the contract. However in the event of termination of the contract in part, the contractor shall continue performance of the contract to the extent not terminated.

21. TERMINATION FOR INSOLVENCY

UREDA may at any time terminate the contract by giving written notice to the contractor without compensation to the contractor if he 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 UREDA.

22. TERMINATION FOR CONVENIENCE

UREDA may vide a written notice sent to the supplier; 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 UREDA.

23. COMPLETION OF WORK

On completion of the work, the contractor shall submit various documents as prescribed in Documentation details in General Technical Specifications.

24. OTHERS CONDITIONS

24.1 The contractor shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party without the prior consent of UREDA in writing.

24.2 UREDA may at any time either stop the work all together or reduce or cut it down by sending notice in writing to the contractor. If the work is stopped all together, the contractor 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. The decision of UREDA regarding assessment of such expenses shall be final and binding on the contractor. If the work is cut down, the contractor will not be paid any compensation what to ever for the loss of profit which he might have made if he had been allowed to complete all the work awarded to him.

24.3 Fulfillment of various requirements, not particularly mentioned in the specifications or drawings but necessary for satisfactory and proper completion of the work shall be the contractor's responsibility within the prices offered by him. But additional works beyond the scope and essence of this contract shall be carried out by the contractor as extra items. For such works the rates shall be decided by UREDA and shall be binding on the contractor.

24.4 Work carried out without UREDA's approval shall not be accepted and UREDA shall have rights to get it removed and to recover the cost so incurred from the contractor.

24.5 The contractor shall not display the photographs of the work and not take advantage through publicity of the work without written permission of UREDA.

24.6 The contractor shall not make any other use of any of the documents or information of this contract, except for the purposes of performing the contract.

24.7 UREDA will not be bound by any Power of Attorney granted/ issued by the contractor or by any change in the composition of the firm made during or subsequent to the execution of the contract. However recognition to such Power of Attorney and change (if any) may be given by UREDA after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

25. STATUTORY ACTS

25.1 All legal formalities/clearances, safety are to be obtained by the contractor regarding the execution of the said work.

25.2 In respect of all labour directly or indirectly employed on the work by the contractor, the contractor shall comply with all the provisions of hiring the contract labour and rules of State/ Central Government or any other authority framed from time to time. The rules and other statutory obligations in this regard will be deemed to be the part of this contract.

25.3 The contractor shall comply with the all the Acts & rules and regulations, laws and by-laws framed by State/ Central Government/ organization in whose premises the work has to be done. UREDA shall have no liabilities in this regard.

26. APPLICABLE LAW

The contract shall only be interpreted under Indian laws. The station of UREDA Dehradun shall have exclusive jurisdiction in all matters arising under this contract.

27. RESOLUTION OF DISPUTES / ARBITRATION

27.1 The purchaser and the supplier shall make every effort to resolve any disagreement or dispute arising between them under or in connection with the contract, amicably by direct informal negotiation.

27.2 If after thirty (30) days from the commencement of such informal negotiations, the purchasers and the supplier are unable to resolve a contract dispute amicably; the matter may be referred in writing by either party to the sole arbitration of the Chairman of UREDA, Dehradun or to a person nominated by him.

27.3 Subject to aforesaid, the arbitration and conciliation Act 1996 and rules made thereafter or any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceedings. Under this cause, the 'Award' given by the Arbitrator shall be binding on all the parties. The contractor shall not have right to challenge the Award.

27.4 Work under the contract shall if reasonably possible, continue during the arbitration proceedings and dues if any, payable by UREDA to the contractor with respect to the work not in dispute shall not ordinarily be withheld on account of such proceedings unless it becomes necessary to withhold the same.

27.5 The proceedings, if any, in relation to the arbitration referred to above, shall be held by the arbitrator aforesaid at Dehradun and courts at Dehradun shall have jurisdiction to entertain and decide the matter involved.

27.6 No decision given by the officer in charge of the work under this contract, in accordance with the forgoing provisions shall disqualify him as being called as a witness or giving evidence before the arbitrators on any matter whatsoever relevant to the dispute of difference referred to the arbitrator as aforesaid.

27.7 In case during the Arbitration proceedings the appointed Arbitrator becomes unable, due to any reason whatsoever, to continue with the proceedings or making of Award; it will be prerogative of UREDA to nominate any other person as sole Arbitrator instead thereof. The contractor shall not raise any objection to such appointment having been made by UREDA.

27.8 The High court of Uttarakhand at Nainital or Courts subordinate to it as the case may be, shall alone have jurisdictions to the exclusion of all other courts.

28. NOTICES

28.1 Any notice to be given by one party to the other, pursuant to the contract shall be sent in writing. A notice shall be effective when delivered or from the effective date mentioned in the notice, whichever is later.

28.2 Notices, statements and other communications sent by UREDA to the contractor at his specified addresses through registered post/ email/ fax shall be deemed to be delivered to the contractor.

29. APPLICATION

These general conditions shall apply to the extent that provisions in other parts of the contract do not supersede them.

30. PAYMENT TERMS

Payment shall be made as following:-

30.1 80% amount of the work value shall be paid after installation and commissioning of Grid Connected Solar Power Plant at site and injection of surplus power (if any) into the UPCL grid confirming to technical specification as specified in this EoI.

30.2 Bank guarantee against 5% Performance Security money deposited by the contractor at the time of placement of work order shall also become payable at this stage.

30.3 Balance 20% of the contract value shall be paid against satisfactory performance of the Grid Connected Solar Power Plant during 5 years Warrantee & AMC period. This amount shall be paid in 5 equal annual instalments, starting from completion of one year from the date of Commissioning at site. The bidder shall have to receive annual performance & functionality report from "concerned beneficiary" and recommended by concerned district office of UREDA for the release of annual payments. However this amount shall be released against the bank Guarantee of equal amount for a period of 66 months from the date of commissioning of solar power plant.

Note

1. No price escalation due to any reason (including any change in the applicable taxes, duties, surcharge etc.) shall be considered by UREDA during the validity/ extended validity of the contract agreement

2. All the bank guarantees should be made from nationalized bank.

GENERAL 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 is without battery and should be designed with necessary features to supplement the grid power during day time. 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 system shall consist of following equipment's/components.

1 Brief Description of the System

The main components of the SPV plant are

- PV Modules
- Civil Work.
- Module Mounting Structure.
- Array Junction Boxes.
- String Monitoring Boxes
- Grid Tie Inverters
- Step- up Transformer – LT
- Step- up Transformer – HT
- SCADA / Monitoring System as per predefined parameters
- Earth System
- Lightning & Surge Protection
- DC Cables.
- AC Cables.
- Illumination System
- AC Metering and Grid Interconnection System.

This list is of general nature and some of the components may not be required or may be combined as per the system finally designed.

2 Typical Power Generation Scheme

The system consists mainly of the following:

- Solar PV array – which produces DC electricity when solar rays are incident on it

- Power Conditioning Units (PCU) or Inverters – which convert DC (Direct Current) electricity into AC (Alternating Current) electricity and facilitate synchronization with the grid power
- Transformers – which transform the AC output of the Power Conditioning Units to the level required at the grid

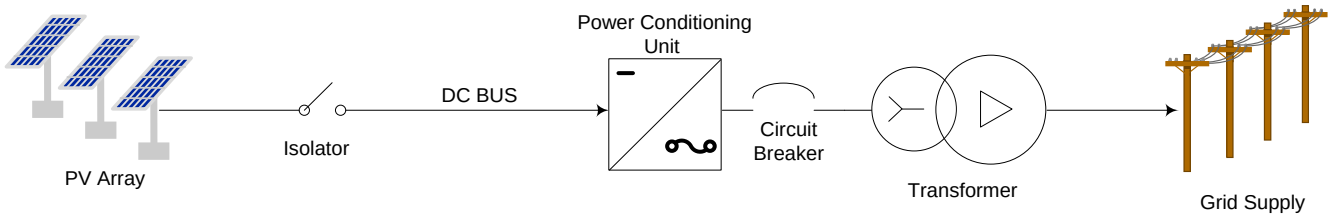
The SPV array (constituting solar PV modules of selected rating connected in series and parallel combinations to build up the Voltage and Current parameters as per desired design modalities) produces DC electricity when Solar insolation is incident on it. The DC power thus produced is taken through various junction boxes and isolators and connected to the Inverter.

The Inverter houses the inverter circuitry which converts DC power supply into AC power supply, the synchronization circuitry which actualizes the tie-up of solar PV source to the grid source and control circuitry. A number of Inverters are connected in parallel as per the desired AC Power required.

Depending on the grid voltage level to which the solar PV power is being synchronized, different levels of step-up transformers may have to be deployed.

The protection and metering circuits play a very significant role in the Inverter operation. Appropriate current transformers and potential transformers are used to tap required feed back signals to initiate action on metering and protection.

A Typical schematic diagram of a Grid connect system is shown below:



3 Typical System Components

SOLAR PHOTOVOLTAIC MODULES:

The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC61215/IS14286. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 - requirements for testing, for safety qualification or equivalent IS.

a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC61701.

b) The total solar PV array capacity should not be less than allocated capacity (KWp) and should comprise of solar crystalline modules of minimum 300 Wp

and above wattage. Module capacity less than minimum 300 watts shall not be accepted.

c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.

d) PV modules must be tested and approved by one of the IEC authorized test centers.

e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.

f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. Owners shall allow only minor changes at the time of execution.

g) Plants installed in high dust geographies like Rajasthan and Gujarat must have the solar modules tested with relevant dust standards (Applicable standard would be IEC 60068-2-68).

h) Other general requirement for the PV modules and subsystems shall be the Following:

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

ii. 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 maybe.

iii. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65rated.

iv. I-V curves at STC should be provided by contactor.

i) Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each module. This should be inside the laminate only.

i. Name of the manufacturer of the PV module

ii. Name of the manufacturer of Solar Cells.

iii. Month & year of the manufacture (Both solar cells and modules)

iv. Country of origin (Both solar cells and module). Modules must be manufactured in India

v. I-V curve for the module Wattage, Im, Vm and FF for the module

vi. Unique Serial No and Model No of the module

vii. Date and year of obtaining IEC PV module qualification certificate.

viii. Name of the test lab issuing IEC certificate.

ix. Other relevant information on traceability of solar cells and modules as per ISO 9001and ISO 14001

j) Material Warranty:

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 Ten (10) years from the date of sale to the original customer ("Customer").

i. Defects and/or failures due to manufacturing.
ii. Defects and/or failures due to quality of materials.
iii. 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 repair or replace the solar module(s), at the Owners sole option

k) Performance Warranty:

The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output.

ARRAY STRUCTURE:

a) Hot dip galvanized/Suitable Pre Galvanized MS mounting structures may be used for mounting the modules/ panels/arrays.

b) Structure should have angle of inclination as per the site conditions to take maximum Solar Irradiation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

c) The Mounting structure shall be so designed to withstand the wind speed applicable to project site per IS Standard (like Delhi-wind speed of 150kM/hour). Bidder must submit Wind Load Calculation and STAAD Analysis for structure components, fasteners and foundation duly certified by MNRE empanelled Chartered Engineer. Suitable fastening arrangement such as grouting and clamping should be provided to secure the installation against the specific wind speed.

d) 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.

e) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind speed of respective wind zone. Protection towards rusting need to be provided either by coating or an odization.

f) Aluminum frames should be avoided for installations in coastal areas.

g) The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels

h) 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.

i) The total load of the structure (when installed with PV modules) on the terrace should be less than 30kg/m2.

j) The minimum clearance of the structure from the roof level should be 300mm.

AC DISTRIBUTION PANEL BOARD:

a) AC Distribution Panel Board (ACDB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.

b) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

c) The changeover switches, cabling work should be undertaken by the bidder as part of the project.

d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50Hz

e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.

f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.

g) Should conform to Indian Electricity Act and rules (till last amendment).

h) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions.

Variation in supply Voltage	+/- 10 %
Variation in supply Frequency	+/- 5 Hz

PCU/ARRAY SIZE RATIO:

a) The combined wattage of all inverters should not be less than rated capacity of power plant under STC.

b) Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

Power Conditioning Unit / 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. Typical technical features of the inverter shall be as follows:

Switching devices	IGBT/MOSFET
Control	Microprocessor /DSP
Nominal AC output voltage and frequency	415V, 3 Phase, 50 Hz (In case single phase inverters are offered, Suitable arrangement for balancing the phases must be made.)
Output frequency	50 Hz
Grid Frequency Synchronization range	+/- 5 Hz
Ambient temperature considered	-20^{o} C to 50^{o} C
Humidity	95 % Non-condensing
Protection of Enclosure	IP-20(Minimum) for indoor.
	IP-65(Minimum) for outdoor.
Grid Frequency Tolerance range	+/- 5 Hz
Grid Voltage tolerance	-0.20.15
No-load losses	Less than 1% of rated power
Inverter efficiency(minimum)	>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)
Inverter efficiency (minimum)	> 90% (In case of less than 10 kW)
THD	< 3%

PF	> 0.9

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 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 IEEE1547/UL1741/IEC62116 or equivalent BIS standard.

f) Successful Bidders shall be responsible for galvanic isolation of solar roof top power plant (>100kW) with electrical grid or LT panel.

g) In PCU/Inverter, there shall be a direct current isolation provided at the output by means of a suitable isolating transformer. If Isolation Transformer is not incorporated with PCU/Inverter, there shall be a separate Isolation Transformer of suitable rating provided at the output side of PCU/PCU units for capacity more than 100kW.

h) 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.

i) 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.

j) The MPPT units environmental testing should qualify IEC60068-2 (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.

k) The PCU/ inverters should be tested from the MNRE approved test centres / NABL/ BIS/ IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international tes thouses.

INTEGRATION OF PV POWER WITH GRID:

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.

TRANSFORMER "IF REQUIRED" & METERING:

a) Dry/oil type relevant kVA, 11kV/415V, 50 Hz Step up along with all protections, switch gears, Vacuum circuit breakers, cables etc. along with required civil work.
b) The bidirectional electronic energy meter (As per latest applicable Net Metering Regulation Hon'ble UERC guidelines/ CEA guidelines/ UPCL guideline) shall be installed for the measurement of import/Export of energy.
c) The contactor must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network before commissioning of SPV plant.

POWER CONSUMPTION:

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

PROTECTIONS

LIGHTNING PROTECTION

a) 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 NFC 17-102:2011 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.

SURGE PROTECTION

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement).

EARTHING PROTECTION

a) 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 Department as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
b) Earth resistance shall not be more than 3 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

GRID ISLANDING:

a) In the event of a power failure on the electric grid, it is required that any independent power- producing inverters attached to the grid turn off in a short period of time. This prevents the DC- to-AC inverters from continuing to feed power into small sections of the grid, known as "Islands." Powered Islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be

equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

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

CABLES

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

i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards

ii. Temp. Range: $-10^{o}C$ to $+80^{o}C$

iii. Voltage rating 660/1000V

iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation

v. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (2%)

vi. For the DC cabling, XLPE or, XLPO insulated and sheathed, UV-stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.

vii. For the AC cabling, PVC or, XLPE insulated and PVC sheathed single or, multi-core multi- stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV- stabilized outer sheath.

viii. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in color.

ix. The DC cables from the SPV module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of1.5mm.

x. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers

xi. 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. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.

xii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.

xiii. Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in color.

xiv. All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.

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

xvi. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC69947.

xvii. The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed2.0%.

xviii. The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

CONNECTIVITY

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the UERC RE REGULATION 2018 and amended from time to time.

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 upto 90% of 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.

SAFETY MEASURES:

The contactor 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, 2003and CEA guidelines etc.

4 DOCUMENTATION

The Contractor shall provide various documents as per following:

A. Documents to applicant

- Routing diagram of cables and wires.
- User manual for solar power plant including details for operation and maintenance
- Contact details of service centre

B. Documents to UREDA

i) Site specific documents to be submitted (with bill for payment against clause no. 30.2/30.3 of payment terms).

1. Photograph of beneficiary with power plant in background (hard & soft copy)
2. Photographs of all equipment's of Power Plant (hard copy & soft copy))
3. Joint inspection report from district level officer of UREDA (annexure-II), certificate for Handing over the system to beneficiary (annexure-III) and Letter towards Warranty of the system (annexure-IV).
4. Meter Sealing certificate issued by UPCL.
5. Certificate from electrical safety department
6. Contact details of various service centers

ii) Documents to be submitted for one time for every make of component (with bill for payment against clause no. 30.2/30.3 of payment terms).

1. IEC certificate module- IEC 61215/ IS 14286, IEC 61701, IEC 61853- Part 1/ IS 16170: Part 1, IEC 62716,
2. IEC certificate for module safety qualification- IEC 61730-1,2
3. Test certificate for Inverter/PCU-IEC 61683, IEC 62109-1, IEC 62109-2, IEC 62116/ UL 1741/ IEEE 1547, IEC 60255-27, IEC 60068-2 / IEC 62093.
4. IS 2062 certificate for Module Mounting- frames and leg assemblies.
5. IS 4759 certificate for Galvanization of Structure Material.
6. BS EN 50618 electric cables for photovoltaic systems (BT (DE/NOT) 258), mainly for DC Cables.
7. Cable certificate –IEC 60227/ IEC60502
8. Switches, Circuit breakers, connectors certificate –IEC 60947 part I, II, III/IS 60947 part I, II, III/EN 50521.

9. Junction boxes certificate confirming to IEC 60529 for IP 65 protection for outdoor use, and IP 54 protection for indoor use.
10. Lightning/Earthling certificate IEC 62561 Series (Chemical Earthling).
11. Surge protection certificate - IEC 60364-5-53/ IS 15086-5 (SPD).
12. Layout of solar modules.

5 AUTHORIZED TESTING LABORATORIES/ CENTERS

Test certificates / reports can be from any of the NABL/ IEC Accredited Testing Laboratories or MNRE approved test centers.

6 WARRANTY

PV modules used in solar power plant must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.

The mechanical structures, electrical works including Power conditioners/ inverters/ charge controllers/ maximum power point tracker units/ distribution boards/ digital meters/ switchgear/ storage batteries, etc. and overall workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

The Warrantee Card to be supplied with the Solar PV Power Plant must contain the details of the system supplied, as given in the Annexure- IV. The tenderer can provide additional information about the system.

7 OPERATION MANUAL

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar PV Power Plant. The detailed diagram of wiring and connection diagrams should also be provided with the manual

8 QUALITY AND WORKMANSHIP

Solar PV modules are designed to last 25 years or more. It is therefore essential that all system components and parts, including the mounting structures, cables, junction boxes, distribution boxes and other parts also have a life cycle of at least 25 years. Therefore all works shall be undertaken with the highest levels of quality and workmanship. During inspection UREDA and its representatives will pay special attention to neatness of work execution and conformity with quality and safety norms. Non-compliant works will have to be redone at the cost of the Installer.

9 Other requirements:-

Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the SPV plant.

SCOPE OF WORK

The work shall include "Design, manufacture, supply, erection, testing, net metering and commissioning including warranty & AMC for 5 years of Grid Interactive Rooftop and Small Solar PV Power Plant (1 KWp to 500 KWp) in the various locations of the State of Uttarakhand"

Scope of works shall include:

A. All works required for proper installation of Solar PV Power Plant including necessary civil works for mounting structures of solar module, shall be done by the contractor. The entire work shall be performed on turnkey basis. All the works related to the proper installation and functioning of the systems shall have to be carried out by the contractor in the prices offered by him.

B. All necessary electrical wiring up to the point of interconnection (HT side of the transformer within the premises of the registered applicant) shall have to be done by the contractor including supply of all required materials. However the errection of power transmission line required for evacuation of power from point of interconnection up to the grid line /substation of UPCL may be done by the Contractor on the expenses of the registered applicant.

C. The generated electricity from the Grid Connected Solar Power Plant (with Net metering facility, including Consumer sanction load of upcl enhancement if applicable) shall be utilized for self consumption of the beneficiary to whom the solar power plant has been allotted and if surplus power is available, it will be fed to grid through net metering. Metering arrangements, related connectivity components and other charges including supply of meter shall be in the scope of contractor.

D. After completion of the proposed works, clearances of all temporary works/ materials shall be the sole responsibility of the contractor and this shall be removed immediately after the requirement of such temporary work is completed.

E. General Aesthetics & cleanliness in regard to the installation of various systems shall have to be maintained in accordance with the aesthetics of the site.

F. Arrangement of proper earthing mechanism and lightening arresters should be done at site as per the requirements of the Solar Power plant.

G. Supply and Installation of Display board of 4' X 3' size showing all technical information of SPV plant shall be done by the contractor. The matter written on these boards shall be as per annexure-V.

H. The contractor shall supply/ install the necessary tools/instruments required for proper operation of the plant and to measure PV array Voltage, Current, Power and solar radiation.

I. During 5 year's Warrantee & maintenance period, the contractor will have to make all necessary arrangements for satisfactory operation, maintenance and performance of the Power Plant.

J. The complete Grid Connected Solar Power Plant shall be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years from the date of commissioning.

K. Warrantee period will include rectification /replacement of all the defective and consumable components/items. However all the non functional parts/ materials/ items replaced during the Warrantee period shall be the property of the contractor.

L. After commissioning of the plant, the contractor will conduct one on-site training of the purchaser's/user's personnel regarding assembly, start-up, operation, maintenance and repairs of the Solar PV Power Plant.

M. Rectification of all the defects developed in the Solar PV Power Plant during Warrantee and Maintenance period shall have to be done by the contractor promptly, at the most within 7 days from the date of receipt of compliant.

N. During Warrantee, operation and Maintenance period, the contractor shall have to submit annual performance & functionality report from the Registered Applicant.

O. **For proper functioning and maintenance of Solar Power Plant, Contractor shall have to establish at least one service station in every district where plants are installed by him.**

P. During the Warrantee & AMC period UREDA / users will have all the rights to cross check the performance of the Solar PV Power Plant. UREDA may randomly

pick up its components to get them tested at Govt. / MNRE approved any test center. If during such tests any part is not found as per the specified technical parameters, UREDA will take the necessary action to recover the losses and to black list the firm and the same may be communicated to MNRE and other nodal agencies. The decision of UREDA in this regard will be final and binding on the contractor.

Certificate of Commissioning for Solar PV Power Plant

S.	Particulars	Details
1	Name of Beneficiary	
2	Project Site/Location Address (with pin)	
3	Contact no of beneficiary	
4	Capacity of Solar Power Plant in KW	
5	**Specification of solar modules**	
	a) Type of modules (Mono/Poly/other)	
	b) Make of Modules and year of manufacturing	
	c) Wattage and number of modules	
	d) Indigenous modules or imported modules	
6	**Specification of the PCU/Inverter**	
	a) Make	
	b) Rating (KVA)	
7	Lightening arrester installed (Yes/No)	
8	Date of Commissioning of Solar Power Plant(as per meter sealing certificate of UPCL)	
9	**PR Ratio Test**	
	A=Instant Power as per Invertor Display (KW)	
	B =Total capacity of the Solar modules	
	C =Measured radiation during test period (Watt/m^2)	
	Performance Ratio (%) = $\frac{\mathbf{A} \text{ X } 1000}{\mathbf{B} \text{ X } \mathbf{C}}$	**(should not be less than 0.75)**

Beneficiary	UREDA official	Authorized Signatory of Firm
(Signature) Name Date:-	**(Signature)** Name Designation:- Date:-	**(Signature)** Name Designation:- Date:-

Joint inspection report by UREDA Official and installation Firm:-

Certified that the above mentioned Solar PV Power Plant installed by M/s. ..... has been checked and found to be in accordance with the agreement and is working satisfactorily.

Sign of UREDA official with Seal .....
Name & Designation:-
Date:-

Signature of authorized Signatory of Firm with Seal .....
Name & Designation:-
Date:-

Recommendation of UREDA Officer:-

On the basis of above inspection report it is recommended to release the payment of the firm as per the payment terms in the agreement of UREDA with firm.

Signature of UREDA official (SPO/PO) with seal .....
Name & Designation:-
Date:-

Annexure-III

Handing over Certificate

Name of Site: - _____

Capacity of system installed (KWp) _____

S.N	Component	Observation
1	**Modules**	
	Make of Modules and year of manufacturing	
	Wattage and no of modules **(Annex list of Module serial no.)**	
2	**PCU**	
	Make	
	Nos and Capacity of inverter And year of manufacturing	
3	Display board of 4' X 3' size installed (Yes/No)	
4	**Other Items** a. b. c. d.	
5	**Name of Technical Person Trained to maintain system-** **Mobile no.-**	

It is certified that above solar power plant has been handed over/taken over on dated _____ in the running condition. Responsibility for security and safety of the equipments of the solar power plant shall be of user/beneficiary from now onwards.

The responsibility for 5 Years Warrantee & Maintenance of solar power plant shall be of M/s.....

Handed-over by

Signature (Firm)-

Name-

Designation-

Official Seal:-

Date-

Taken Over by

Signature (Beneficiary)-

Name-

Designation-

Official Seal:-

Date-

Annexure-IV

(On the letter head of the firm)

WARRANTY OF THE SYSTEM INSTALLED

Date of issue:-……

To,

The Director
Uttarakhand Renewable Energy Development Agency,
Urja Park Campus, Industrial Area, Patel Nagar, Dehradun-248001

Ref:-……work order……

Dear Sir/Madam,

I hereby warrantee the Grid connected rooftop and small Solar Power Plant of ……KWp capacity as per following:-

S. 1	**Particulars**	**Details**
1	Name of Beneficiary (to whom plant has been allotted)	
2	Project Site/Location Address (with pin)	
3	Contact no of beneficiary	
4	**Specification of solar modules** a) Type of modules (Mono/Poly/other) b) Make of Modules & year of manufacturing c) Wattage and no of modules	
5	**Serial nos. of solar modules (enclose list)**	
7	**Specification of the PCU/Inverter** a) Make b) Rating (KVA)	
8	**Date of meter sealing of the system**	

The mechanical structures, electrical works including power conditioners/ inverters/charge controllers/ maximum power point tracker units/ distribution boards/digital meters/switch gear/net meter etc. and over all workmanship of the SPV power plants/ systems are warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

Solar PV modules used in solar power plants /system are warranted for their output peak watt capacity, which shall not be less than 90% at the end of 12 years and 80% at the end of 25 years.

Authorized Signature of Firm with Seal ……

Name & Designation:-

Date:-

Annexure-V

GRID CONNECTED ROOFTOP SOLAR POWER PLANT

1	**Name of the Site-**	**……..**
2	**Installed Capacity-**	**…….KWp**
3	**Installed by-**	**……**

UTTARAKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY (UREDA)