# TENDER SCHEDULE

**FOR**

**EMPANELMENT FOR SUPPLY, INSTALLATION & COMMISSIONING OF 1 KWp TO 500 KWp GRID CONNECTED ROOFTOP SOLAR POWER PLANTS AT VARIOUS LOCATIONS IN ANDHRA PRADESH STATE**

**UNDER**

**GRID CONNECTED ROOFFTOP SOLAR POWER PLANTS SCHEME OF MNRE OF CAPEX MODE**

**AND**

**SOLAR POLICY OF GOVT. OF ANDHRA PRADESH**

**TENDER NOTICE NO:**

**NREDCAP/OSD/RT- SPV 1 - 500 KWp/2018-19 DATED : 09.04.2018**

**CLOSING DATE** **03.05.2018 AT 3.00 PM**

**NEW & RENEWABLE ENERGY DEVELOPMENT CORPORATIONOF A.P LTD. (NREDCAP)**
Regd. Office: # 12-464/5/1, River Oaks Apartment,

CSR Kalyana Mandapam Road, Tadepalli, Guntur District, Pin: 522 501.

Contact No: 0863-2347650/651/652/653

Email: info@nredcap.in ; we@nredcap.in
Website : www.nredcap.in

## CONTENTS OF BID DOCUMENT

# PART – I

# GENERAL DETAILS

## TENDER PARTICULARS

<table>
<tr><th>Sl.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Tender Notice No.</td><td>NREDCAP/OSD/RT- SPV 1 - 500 KWp/2018-19 DATED : 09 .04.2018</td></tr>
<tr><td>2.</td><td>Name of the Work</td><td>Empanelment for Supply, Installation, Commissioning maintenance and operation of Grid connected Rooftop Solar PV power plants of 1 to 500 KWp capacity each at various locations in the State of Andhra Pradesh under Net Metering Policy for implementation of the projects under MNRE Sanctions as detailed below,<br>1. 318/20/2018-GCRT, Dated.15.02.2018 – 15MW for Govt. Buildings<br>2. 318/20/2018-GCRT, Dated.15.02.2018 – 20MW for residential, institutional and social sectors</td></tr>
<tr><td>3.</td><td>Minimum Eligibility Criteria</td><td>SPV Suppliers/ Manufacturers/ System Integrators with requisite experience of Supply, Installation and Commissioning of Grid Connected Solar Projects in the last 3 years as given in below table:
<table>
<tr><th>Project Category</th><th>Minimum Experience</th></tr>
<tr><td>1 to 10 KWp</td><td>At least minimum 10KWp cumulative capacity in field of Off Grid OR Grid Connected Solar PV systems in the last 3 Years.</td></tr>
<tr><td>11 to 100 KWp</td><td>At least minimum 50KWp cumulative capacity in field of Off Grid OR Grid Connected Solar PV systems in the last 3 Years.</td></tr>
<tr><td>Above 100 KWp</td><td>At least minimum 200KWp cumulative capacity in field of Off Grid OR Grid Connected Solar PV systems in the last 3 Years.</td></tr>
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<tr><td>4.</td><td>Period of Contract</td><td>Valid upto 30.06.2019</td></tr>
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| | | |
|---|---|---|
| 5. | Cost of Tender Document | 1) System integrators empanelled with NREDCAP for Grid connected solar rooftop systems for the year 2017-18 - Rs. 25,000/- plus 18% GST<br>2) Others - Rs. 50,000/- plus 18% GST |
| 6. | Last Date and Time of Submission | 03.05.2018 by 2:00 PM at NREDCAP, Registered Office at Tadepalli . |
| 7. | Amount of EMD/Bid Security | A) Rs. 5,00,000/- by way of Demand Draft in favour of NREDCAP, payable at Tadepalli or equivalent amount of Bank Guarantee from a nationalized/ scheduled bank. Firms claiming Exemptions for EMD shall submit letter from NSIC/ SSI |
| 8. | Validity of offer for acceptance | 3 months from the date of opening of Tenders |
| 9. | Technical Bid Opening Time | 03 .05.2018 at 3:00 PM at NREDCAP, Registered Office at Tadepalli . |
| 11. | Price Bid Opening Time | 10.05.2018 at 3.00 PM at NREDCAP, Registered Office at Tadepalli . |
| 12. | Security Deposit | A) Rs. 5,00,000/- by way of Demand Draft drawn in favour of NREDCAP , payable at Tadepalli OR Rs. 10,00,000/- Bank Guarantee on any Nationalized Bank in favour of NREDCAP valid for five years period at the time of entering into rate contract agreement. The amount / BG to be refund after 5years warranty period. |

**Note:**

1. The Tender document can be downloaded from http://www.nredcap.in and the cost of tender document should be enclosed by way of Demand Draft of Rs. 25,000/- Plus 18% GST in case of suppliers empanelled with NREDCAP for Grid connected solar rooftop systems in the year 2017-18 or Rs.50,000/- plus 18% GST in case of other suppliers. The demand draft shall be drawn in favour of NREDCAP, payable at Tadepalli and this D.D. is to be inserted in the technical bid of the tender document.

2. In respect of Minimum eligibility criteria (S.No 3 above), relevant attested copies of approvals of MNRE/NREDCAP shall be submitted along with Technical bid.

3. All relevant required documents along with evidences are to be inserted in technical bid, and only quoted rates (as per Format enclosed) is to be inserted in the financial bid.

4. Financial bid will be opened of those bidders who would duly qualify in the technical bid.

5. Industries exempted from payment of EMD shall enclose duly attested Photostat copy of their Registration Certificate showing the **materials (Solar)** they are permitted to manufacture/to do rendering services and the period of validity of the certificate as proof of eligibility for exemption from payment of EMD/Bid Security.

# PART – II

# INSTRUCTIONS TO TENDERERS

## SECTION 1

## INTRODUCTION

### 1.1 ELIGIBLE TENDERERS

The Tenderer shall provide sufficient documentary evidences to satisfy the following conditions that the Tenderer:

(a) Is an indigenous manufacturer of the Solar PV Systems or experienced contractor in the field of Solar PV Power Plant

(b) The Tenderer fulfills the terms and conditions of eligibility as an indigenous manufacturer of Solar PV Systems in accordance with the guidelines of Ministry of New and Renewable Energy, Government of India.

(c) Has adequate plant and manufacturing capacity available, to perform the works properly and expeditiously within the time frame specified in the tender document.

(d) Has established quality assurance systems and organization designed to achieve high level of equipment reliability in manufacturing of the Solar Systems.

(e) Has adequate financial stability and status to meet the financial obligations Pursuant to the scope of work.

(f) Has experience of Supply, Installation, Testing, Installation / commissioning and maintenance/after sale services in the field of Grid Connected Solar PV systems in the last 3 years as per the below criteria, and the details of the same must be submitted in the Proforma given in Technical- Bid section of tender document:

| Project Category | Minimum Experience |
|---|---|
| 1 to 10 KWp | At least minimum 10KWp cumulative capacity in field of Off Grid or Grid Connected Solar PV systems in the last 3 Years. |
| 11 to 100 KWp | At least minimum 50KWp cumulative capacity in field of Off Grid OR Grid Connected Solar PV systems in the last 3 Years. |
| Above 100 KWp | At least minimum 200KWp cumulative capacity in field of Off Grid OR Grid Connected Solar PV systems in the last 3 Years. |

(g) Has adequate field service setup to provide goods after sale services including necessary repair and maintenance in the state of AP.

(h) Has provided goods after sale services for the works done by him during past years.

(i) Has Valid Test Certificates of the Solar PV Power Plant as specified and required in the Technical-Bid of this tender document.

(j) Fulfills all requirements as per provisions under JNNSM, MNRE, GOI.

(k) The bidder shall be required to have adequate post installation localized service facilities/ centers.

(l) All the components including Power plant, software's and other components mentioned above should be quoted as a single item. No partial quotes are accepted.

The above stated requirements are compulsory to be fulfilled by the Tenderer and NREDCAP may also ask for any additional information as may be deemed necessary in public interest.

**1.2 ELIGIBLE CENTRAL FINANCIAL ASSISTENCE:**

The MNRE will provide CFA for implementing of Solar Grid Connected and Small Solar Power Plants from 1KWp to 500 KWp capacities, as detailed below,

| **Project Capacity** | **Category** | **Coverage of Buildings** | **Central Financial Assistance / Achievement linked Incentives & awards** |
|---|---|---|---|
| 1 to 500 KWp | **Residential** | All type of residential buildings | CFA upto 30% of bench mark cost for General Category states |
| 1 to 500 KWp | **Institutional / Social sector** | Schools, Health institutions including medical colleges & hospitals, educational institutions (both public & private), R&D institutions etc. / community centers, welfare homes, old age homes, orphanages, common service centers, common artisans or craftsman, facilities for use of community, Trusts/NGOs/Voluntary other establishments for common public use etc. (applicable to non – for – profit registered organizations only) | CFA upto 30% of bench mark cost for General Category states |
| 1 to 500 KWp | **Government Buildings** | Buildings both Central & State Government, Local government covering all government offices. | Achievement linked incentives / awards will be provided |
| | **Government Institutions** | Government Institutions, Public Sector Undertakings, all buildings owned by government directly or by any government owned societies, companies, corporation, | Achievement linked incentives / awards will be provided |

| | | | |
|---|---|---|---|
| | | institutions or organizations, government educational/ health institutions. | |
| No CFA shall be available to this Categories | **Private commercial and industrial sector** | **All types of buildings** | **No CFA** |

The CFA will be based on the scheme guidelines of Ministry of New and Renewable Energy (MNRE) which are amended from time to time.

# SECTION 2

# THE TENDER DOCUMENT

## 2.1 CONTENT OF TENDER DOCUMENT

2.1.1 The tender procedure and contract terms are prescribed in the tender document. In addition to the invitation of tender, the tender document includes the various other documents as given in the table of particulars of tender.

2.1.2 The tenderer is expected to examine all instructions, terms and conditions, specifications, forms and formats etc as mentioned/ enclosed in the tender document. Failure to furnish all information required in the tender document or submission of a tender not substantially responsive to the tender document in every respect will be at the Tenderer's risk and is likely to result in out-right rejection of the tender.

## 2.2 INFORMATION REOUIRED WITH THE PROPOSAL

2.2.1 The tender must clearly indicate the name of the manufacturer, the types and model & make of each principal item of equipment proposed to be supplied. The tender may also contain details of specifications and other comprehensive descriptive materials in support of technical specifications.

2.2.2 The above information may be provided by the Tenderer in the form of separate sheets, specifications, catalogues etc.

2.2.3 Any tender not containing sufficient descriptive material to describe the proposed equipment may be treated as incomplete and hence may be rejected. Such descriptive materials and specifications submitted by the Tenderer will be retained by NREDCAP. Any deviations from these will not be permitted during the execution of contract, without specific written permission of NREDCAP.

## 2.3 CLARIFICATION OF TENDER DOCUMENT

2.3.1 Any prospective tenderer requiring any clarification on the tender document regarding various provisions / requirements/ preparation/ submission of the tender, may contact NREDCAP in writing by letter or fax/ email before 48 hours of closing time of the tender. Queries received later shall not be entertained.

2.3.2 Verbal clarifications and information shall not be entertained in any way.

## 2.4. AMENDMENTS IN TENDER DOCUMENT

2.4.1 At any time prior to the due date for submission of the tender or even prior to the opening of the financial bid, NREDCAP may for any reason, whether at its own initiative or as a result of a request

for clarification/ suggestion by a prospective tenderer, amend the tender document by issuing a notice.

2.4.2 The amendments will be notified on the website at least 2 days before the proposed date of submission of the tender. NREDCAP will bear no responsibility or liability arising out of non receipt of the information in time or otherwise. If any amendment is required to be notified within 2 days of the proposed date of submission of the tender, the last date of submission shall be extended for a suitable period of time.

2.4.3 In case amendments is notified after submission of the tender (prior to the opening of financial bids), all the tenders received by NREDCAP shall be returned in sealed condition to the concerned Tenderers through registered post or courier, for getting their offer revised according to the amended terms and conditions.

All the notices related to this tender which are required to be publicized shall be uploaded only on http://www.nredcap.in

# SECTION 3

# PREPARATION OF TENDER

## 3.1 LANGUAGE OF TENDER AND MEASURE

The tender prepared by the tenderer along with all the related documents shall be in English. Unit measurements shall be metric in accordance with International System. All correspondence between the tenderer and NREDCAP shall also be in English.

## 3.2 EARNEST AND SECURITY MONEY

3.2.1 The tenderer shall furnish earnest money of Rs. 5,00,000/- as mentioned in the "Particulars of Tender" in the shape of DD in favour of, NREDCAP, payable at Tadepalli. Bank guarantee can also be submitted in place of DD towards EMD amount from any Nationalized / scheduled bank in favour of VC & Managing Director, NREDCAP, Tadepalli", as a part of the tender. The bank guarantee should be valid for a period of one year beyond the validity of offer. Tenders without EMD shall be rejected by NREDCAP as being non-responsive. No interest shall be paid by NREDCAP on the amount of earnest money deposit deposition as well as deposition of Security Deposit.

3.2.2 The earnest money may be forfeited:-

a) If a Tenderer withdraws his tender during the specified period of validity of offer.

b) If the successful Tenderer fails to sign the contract agreement within stipulated period.

3.2.3 The earnest money of the successful Tenderer shall be released at the time of signing of the agreement with NREDCAP. At this time, the selected bidder shall have to deposit security money amounting to Rs.5,00,000/- in the form of Demand Draft in favour of "NREDCAP, Tadepalli" OR Rs.10,00,000/- Bank Guarantee on any Nationalized Bank in favour of NREDCAP valid for five years period. No interest shall be paid by NREDCAP on the amount of security money deposit. The amount will be refund after warranty period of last system installed.

3.2.4 The authority reserves the right of awarding the work. The earnest money of such selected Tenderer shall also be released after signing the agreement and submission security money by them. After receiving the consent to work, the earnest money of such Tenderer shall be forfeited if they fail to sign the contract agreement within stipulated period.

3.2.5 The earnest money of all unsuccessful bidders shall be released soon after selection of selected bidder(s) against submission of their written intimation regarding acceptance of work and deposition of security deposit amount.

**3.3 PERIOD OF VALIDITY OF TENDER**

3.3.1 Validity of the offer should be 3 months from the proposed date of opening of the Technical bid. Tenders without this validity will be rejected.

3.3.2 In exceptional circumstances, NREDCAP may solicit the consent of the Tenderers to an extension of the period of validity of offer. The request and the response there of shall be made in writing.

**3.4 FORMATS AND SIGNING OF TENDER**

3.4.1 The tender must contain the name and places of business of the firm/person/persons participating in the tender and must be signed and sealed by the Tenderer with his usual signature. The name and designation of all persons signing the tender document should be written below every signature. Tender by a partnership firm must be furnished with full name of all partners with a copy of partnership deed.

3.4.2 The original copy of the tender should be typed or written in indelible ink and must be signed with the legal name of the corporation/ company by the President/ Managing Director/ Secretary of the firm or a person duly authorized to bid. In case of authorized person the letter of authorization by written power-of-attorney should be enclosed with the technical bid of the tender. The person or persons signing the tender shall initial all pages of the tender document.

3.4.3 The tender shall contain no interlink actions, erasers or overwriting except as necessary to correct the errors made by the tenderer in the preparation of tender. The person or persons signing the tender shall also sign at all such corrections.

**3.5 PRICE AND CURRENCIES**

The tenderer shall have to submit their rates in Indian Rupees only including all latest applicable taxes & duties of Govt. of Andhra Pradesh as well as Govt. of India. Moreover, NREDCAP will not be responsible for providing Road permits. It is to be obtained by the selected bidder only and necessary Entry Tax (as admissible) will have to be borne by the selected bidder if any. The rate should be quoted on the prescribed format for Financial Bid (Part II) attached to this tender document.

# SECTION 4

## SUBMISSION OF TENDER

### 4.1 SEALING AND MARKING OF TENDER

4.1.1 The tender must be complete in all technical and commercial respect and should contain requisite certificates, drawings, informative literature etc. as required in the tender document.

4.1.2 In Technical bid (sealed envelope) (**Envelope-A**), following documents are to be inserted: - (1). Copy of Registration 2) Cost of the tender document by way of D.D is to be attached 3) Copy of GST, PAN No. 4.) System Test certificates 5) Proof of Company's local office including contact telephone no. of local people. 6) Requisite earnest money, brochures, literature and other documents regarding technical specifications.

It should be superscripted with "NREDCAP-Tender for Empanelment for Supply, Installation, and Commissioning of 1 to 500 KWp Capacity Grid connected rooftop SPV Power Plants - Earnest Money and Technical Bid".

4.1.3 The complete tender document downloaded from the website should be submitted by the tenderer in the first envelope (Envelope - A) after furnishing all the required information on relevant pages. Each page of the tender document should be signed & stamped. Tenders with any type of change or modification in any of the terms/ conditions of this document shall be rejected. If necessary, additional papers may be attached by the tenderer to furnish/ submit the required information.

4.1.4 Second sealed envelope (**Envelope- B**) should contain financial bid only. It should be super scribed with "NREDCAP-Tender for Empanelment for Supply, Installation, and Commissioning of 1 to 500 KWp capacity Grid connected SPV Power Plants - Financial bid". The tenderer should submit his duly signed and stamped financial bid on the financial bid format attached with this tender document, after writing the price only.

4.1.5 Any term/condition proposed by the tenderer in his technical bid which is not in accordance with the terms and conditions of the tender document or any financial conditions, payment terms, rebates etc. mentioned in financial bid shall be considered as a conditional tender and will make the tender invalid.

4.1.6 Both the above sealed envelopes i.e. closely marked as **Envelope-A** (Technical Bid) and **Envelope-B** (Financial Bid) will be sealed in another one envelope, subscribed with TENDER notice : NREDCAP/NREDCAP/OSD/RT-SPV 1-500 KWp/2018-19/ dated 09.04.2018 and Name of Work: "NREDCAP-Tender for Empanelment for Supply, Installation, and Commissioning of 1 to 500 KWp Capacity Grid connected SPV Power Plants". This envelope shall be addressed to "VC & Managing Director, NREDCAP, TADEPALLI"

**4.2 DEADLINE FOR SUBMISSION OF TENDER**

4.2.1 Tender must be received by NREDCAP till the date & time of submission as specified in tender document.

4.2.2 Any tender received after the specified date & time of submission will be rejected and returned unopened to the Tenderer.

# SECTION 5

# TENDER OPENING AND EVALUATION

## 5.1 OPENING OF TENDER

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

5.1.1 First envelop (**Envelope-A**) super scribed "TENDER for Empanelment for Supply, Installation, and Commissioning of 1 to 500 KWp capacity Grid connected SPV Power Plants - Earnest Money and **Technical Bid**" shall be opened by NREDCAP representatives at the time and date mentioned in the Particulars of Tender, in the presence of Tenderers who choose to be present. The financial and technical suitability of offers will be examined by NREDCAP in detail. If required, clarifications regarding the suitability of the offers will be obtained.

5.1.2 Second envelope (**Envelope-B**) super scribed "Tender for Empanelment for Supply, Installation, and Commissioning of 1 to 500 KWp capacity Grid connected SPV Power Plants - **Financial bid**" of only those Tenderers shall be opened whose technical bid is found responsive, suitable and in accordance with the various requirements of the tender.

5.1.3 In case it is not possible to open second envelope (Envelope - B ) comprising the "Financial Bid" on the specified date, then a suitable date for this purpose shall be announced or shall be communicated to Tenderers by notice on web site / letter/ fax/ email (Either Mode). To avoid postponement of opening of financial bid, it is in the interest of the Tenderers to send their authorized representatives who are well conversant with the tender and competent enough to take decisions on technical and financial matters at the time of opening of bids.

## 5.2 CLARIFICATIONS REGARDING THE SUBMITTED TENDERS

5.2.1 During the process of evaluation of the tender, NREDCAP may at its discretion ask the tenderer for a clarification of their tender. The request for clarification and the response shall be in writing.

5.2.2 Any query regarding any clarification required by NREDCAP on the information submitted by the tenderer, must be replied by the tenderer within the following time schedule.

- Email/ fax query should be replied by Email/ fax within 2 days.
- Query by letter must be replied by letter within 7 days of receipt of the letter.

**5.3 PRICE BID EVALUATION**

5.3.1 (i) The Price evaluation will include all Duties and Taxes.

(ii) In cases of discrepancy between the cost quoted in words and in figures, the lower of the two will be considered.

(iii) In case of discrepancy between the actual total of price break up and the total mentioned in the bid, the lower of the two will be considered.

5.3.2 NREDCAP reserves the right to negotiate with the bidders for further reduction of prices.

5.3.3 Under no circumstances shall a tenderer increase his price during the validity period after tenders are opened. Any tenderer who does so shall not only lose his EMD but also run the risk of being Black listed by NREDCAP. NREDCAP also reserves the right under the law to recover damages resulting there from, in addition to forfeiture of EMD.

## SECTION 6

## FINALISATION OF TENDERS

6.1 Tenders will be finalized by the NREDCAP Tender evaluation committee, for the works along with technical bid evaluation for consideration and in accordance with the conditions stipulated in the tender document and in case of any discrepancy or non-adherence to the conditions, the same shall be communicated which will be binding both on the tender concluding authority and tenderer. In case of any ambiguity the decision taken by the VC & Managing Director, NREDCAP on tenders shall be final.

6.2 The tenders if received with abnormally high percentage or within the permissible ceiling limits (bench mark cost) prescribed, but under collusion due to unethical practices adopted during the tendering process shall be rejected.

6.3 The Lowest Feasible Price discovered for each category of Projects shall be communicated to the Tenderers and the Tenderer's are required to provide their acceptance for the same, within One Week from the date of notifying.

6.4 The Tenderer who has quoted the Lowest Feasible Price shall have to mandatorily accept the Price or else forfeit their E.M.D. Other Tenderers who accept to abide by the Lowest Feasible Price shall be considered as Successful Tenderers, and the E.M.D of Other Tenderers who do not wish to accept the discovered price shall be returned.

6.5 The Successful Tenderer has to sign an agreement with in a period of 15 days from the date of receipt of communication of acceptance of his tender. On failure to do so, his tender will be cancelled, duly forfeiting the E.M.D paid by him without issuing any further notice.

6.6 Empanelled Installer who is initially eligible a particular category of projects shall be automatically eligible for higher size projects, if such Installer shall during the period of Empanelment execute a Grid Connected Project that would make him eligible for executing Project in the higher size category. **Ex**: Installer ABC has experience of 10 KWp Grid Connected Project and thus initially eligible for categories 1 to 10 KWp. Upon empanelment under this scheme if Installer ABC successfully executes a Project of 200 KWp Capacity then ABC shall be eligible for doing Projects in the next higher category i.e. 101 to 500 KWp.

6.7 Upon signing of agreement with NREDCAP the E.M.D of Successful Tenderers and Tenderers who did not accept the discovered price shall be returned to them within 15 days.

## SECTION 7

# TERMS OF CONTRACT

### 7.1 EVALUATION CRITERION

The whole work shall be on Turnkey basis. The empanelment of tenderer shall be finalized on the basis of total cost of Solar Power Plant system including supply, installation & commissioning as offered by the tenderer in his Financial Bid.

### 7.2 NOTIFICATION OF ENPANELMENT

Prior to the expiry of validity period of offer, NREDCAP will notify the successful tenderer by registered Letter/Email/ Fax that he is empanelled as one of the Tenderers accepted to install the solar rooftop power plants under the state net metering policy.

### 7.3 AWARD OF WORK CONTRACT

7.3.1 Before empanelment as approved supplier, an agreement shall be signed between NREDCAP and the tenderer. The denial of the lowest bidder to undertake the whole work shall be treated as breach of contract and NREDCAP may forfeit EMD/ Security amount submitted by him.

### 7.4 RIGHT TO VARY QUANTITIES

The authority reserves the right of awarding the work in a phased manner. NREDCAP may increase or decrease the quantity mentioned in the tender notice at the time of award of contract.

### 7.5 RIGHT TO ACCEPT/REJECT ANY OR ALL TENDERS.

NREDCAP reserves all the right to reject any or all the tenders, accept any tender in total or in part.

### 7.6 EXPENSES OF AGREEMENT

The respective suppliers shall pay all the expenses of stamp duties and other requirements for signing the agreement with NREDCAP.

### 7.7 EXECUTION OF AGREEMENT OF EMPANELMENT

a) The Successful Bidder shall execute an agreement of empanelment in the INR 200 non-judicial stamp paper of Andhra Pradesh Jurisdiction only in the name of the Tenderer, within 15 days from the date of Letter of Intimation about qualification by NREDCAP.

b) 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 NREDCAP. NREDCAP reserves its right to cancel the empanelment either in part or full, if this condition is violated.

c) In case of the successful bidder fails to execute necessary agreements as prescribed, within the stipulated period, then his EMD shall be forfeited and his tender held as non responsive.

**7.8 ISSUE OF LETTER OF EMPANELMENT**

After execution of the Agreement and payment of Security Deposit, the name of successful bidder(s) with price will be displayed in website of NREDCAP and a letter of empanelment will be sent to the qualified tenderer.

**7.9 INSTALLATION & COMPLETION SCHEDULE**

The entire work involving Supply, Installation and Commissioning of each Grid connected Solar Rooftop power plants shall be completed within 30 to 90 days from the date of issue of work order by the end user or beneficiary or NREDCAP.

**7.10 SCOPE OF WORK**

a. Scope of work covers Design, Supply, Installation, Commissioning, Maintenance and Operation of Grid Connected SPV Rooftop Plant under Net Metering as per the technical specification.

b. Wiring upto Distribution Board from the SPV Rooftop system will be in the scope of the successful bidder(s). The maximum cable length of 25m for every solar power plant installed shall be in the scope of the bidder and supply of excess cable length if required shall be in the scope of purchaser.

c. Mounting Structure within the scope of this tender is for flat RCC roofs.

d. Performance testing of the complete system.

e. The empanelled installer will collect firm work order from the purchasers. A copy of Work Order, Invoice, Commissioning report Statement of Expenditure, Joint Inspection Report, Net Metering Work Completion & Synchronization reports, installed system photographs, beneficiary photo, aadhar card, mobile no & Electricity bill and bill of material has to be submitted to NREDCAP for release of CFA of MNRE/State subsidy.

f. The empanelled installer shall undertake to supply spares free of cost for the maintenance of the offered items during the warranty period.

g. A leaflet containing the details of the service centres shall be provided to each purchaser as well as to NREDCAP.

h. If the operation or use of the system proves to be unsatisfactory during the warranty period, the installer shall replace the faulty ones or carry out necessary repairs as per the warranty terms and conditions.

i. The Empanelled Installer shall do necessary coordination with concerned agencies like DISCOM and CEIG, as applicable, for procuring necessary approvals on behalf of the Purchasers. However the cost of approvals and bi-directional meter, CT/PT shall be borne by the Purchaser only.

**7.11 INSPECTION BY NREDCAP**

All the SPV Rooftop systems installed will be inspected by the representative of NREDCAP within 30 days of receipt of Installation & Commissioning Certificate. The eligible subsidy will be released only for the systems installed in compliance to the technical specification of MNRE /NREDCAP /TRANSCO /DISCOMs. During the Inspection, if the system installed is found faulty (or) not in compliance to the technical specification, the cost for re-inspection by NREDCAP after rectification/replacement shall be borne by the Tenderer.

**7.12 SERVICE CENTRES**

Empanelled Installer shall have minimum of **two service centres** in Andhra Pradesh. Additional service centres shall be opened in Andhra Pradesh in different districts based on the installations carried out by them under this empanelment mechanism.

The Installer shall visit the site at least once in a quarter, to attend routine maintenance, during the 5 years warranty period. However, in case of malfunctioning of the system, the tenderer/bidder shall attend for rectification of defects within 5 working days from the date of lodging complaint.

**7.13 WARRANTY**

1. (a) The SPV panel shall carry a warranty of minimum 25 years.

(b) The SPV panel must be warranted for their output peak watt capacity which shall not be less than 90% at the end of 10 years and 80% at the end of 25 years.

(c) The PCU/Solar Grid tie Inverter shall carry a warranty of minimum 5 years.

2. The complete SPV rooftop systems installed and commissioned shall be under a warranty against any manufacturing or usage defect for a minimum period of 5 years from the date of Commissioning. The mechanical structures, electrical works including power conditioners/inverters/maximum power point tracker units/ distribution boards/digital meters/ switchgear etc. and overall workmanship of the SPV rooftop systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

3. The warranty will be against breakages, malfunctions, non fulfilment of guaranteed performance and breakdowns due to manufacturing defects or defects that may arise due to improper operation of electrical /electronic components of the system but do not include physical damages by the end users.

4. The above warranty shall take effect from the date on which the system is taken over by the purchaser after commissioning Synchronizing.

5. The successful bidder shall be liable to make good the loss by replacing the defective product during the warranty period for the entire system free of cost.

6. The warranty will cover all the materials and goods involved in the installation and commissioning of SPV rooftop systems by the successful Bidder.

**7.14 PAYMENT TERMS**

A) For Projects Installed by Tenderer on Their Own:

1. Payment of the project cost, including the MNRE / State Subsidy, shall be paid by the Purchaser or owner of the system directly to the empanelled Tenderer/owner of the system based on declaration furnished in the prescribed format, after satisfactory NREDCAP Inspection & on submission of invoice to the purchaser.

2. Copies of invoices after inspection shall also be submitted to NREDCAP along with Inspection Report, photographs and required documents as per the check list.

3. The eligible Central Financial Assistance (CFA) of MNRE shall be claimed as per MNRE guidelines or the CFA proposals shall be processed through NREDCAP. NREDCAP may release the eligible CFA to beneficiary based on MNRE guidelines on sanction by MNRE and availability of funds.

B) For Projects allotted / PO placed by NREDCAP:

In case the work order is released by NREDCAP, the payment shall be made as follows,

a. 70% of the purchased value on installation, testing and commissioning of the total system including net metering facility and on handing over of the system to the user organization.
b. 20% payment will be released after 30 days of successful performance and on receipt of performance report from user organization/district office, NREDCAP.
c. Balance 10% of the contract value shall be released at the end of the 5 years on completion of the warranty period and on submission of satisfactory performance report from the user organization or against performance bank guarantee.

The payment shall be released only on receipt of funds from respective user organizations and eligible CFA from MNRE.

**7.15 VALIDITY OF EMPANELMENT**

The validity of Empanelment and the price accepted shall be up to **30/06/2019.**

**7.16 NREDCAP RESERVES THE RIGHT TO;**

Negotiate with the Bidders for further reduction of prices.

**7.17 BANNING OF BUSINESS DEAL:**

The bidder/consortium will be banned from business with NREDCAP if any of the particulars produced by the bidder such as Auditor Certificate, Annual account, VAT Clearance Certificate, Test certificate, etc. are found to be incorrect, or if there is breach of any of the conditions in the contract.

# PART III

# GENERAL TECHNICAL SPECIFICATIONS

# SECTION 1

# TECHNICAL SPECIFICATIONS

## 1.1 INTRODUCTION

In grid-connected Solar Photo-Voltaic (SPV) systems, solar energy is fed into the building loads that are connected to the public electricity grid through a service connection with surplus energy being fed into the grid and shortfall being drawn from the grid. Production of surplus energy may happen when solar energy produced exceeds building load energy demand. This surplus is fed into the grid. During the night, or when during the day energy demand in the building exceeds solar energy production, energy is drawn from the grid. Grid connected solar PV systems have no battery storage and will not work during grid failure. For buildings with grid-connected solar PV systems, the service connection meter needs to be of the bidirectional type, whereby import kWh and export kWh are separately recorded.

## 1.2 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 NREDCAP 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.

## 1.3. D E F I N I T I O N

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 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 equipments/components.

- Solar PV modules consisting of required number of Crystalline PV modules
- Grid interactive Power Conditioning Unit with Remote Monitoring System
- Mounting structures
- Junction Boxes.
- Earthing and lightening protections.

- IR/UV protected PVC Cables, pipes and accessories

**1.4 SOLAR PHOTOVOLTAIC MODULES:**

1.4.1. Only indigenously manufactured PV modules with RFID and the manufacturer should provide the following minimum information laminated inside the module:

- Made in India (to be subscribed in words)
- Company name / logo
- Module number (it should indicate the voltage and rated wattage of the module)
- Serial number
- Year of make

1.4.2. 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 IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-2- 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 IEC 61701/IS 61701

b) The total solar PV array capacity should not be less than allocated capacity (KWp) and should comprise of solar crystalline modules of minimum 250Wp and above wattage. Module capacity less than minimum 250 watts should 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. NREDCAP/owners shall allow only minor changes at the time of execution.

g) 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 of +/- 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 may be.

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-65 rated.

iv) IV curves at STC should be provided by bidder.

1.4.3. Modules deployed RF identification tag. The following information to be mentioned in the RFID used on each modules (This has to be inside the laminate, but must be able to withstand harsh environmental conditions).

a) Name of the manufacturer of the PV module

b) Name of the manufacturer of Solar Cells.

c) Month & year of the manufacture (separate for solar cells and modules)

d) Country of origin (separately for solar cells and module)

e) I-V curve for the module Wattage, Im, Vm and FF for the module

f) Unique Serial No and Model No of the module

g) Date and year of obtaining IEC PV module qualification certificate.

h) Name of the test lab issuing IEC certificate.

i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

1.4.4. 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 five (05) years from the date of sale to the original customer ("Customer")

ii. Defects and/or failures due to manufacturing

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

iv. 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

b) Performance Warranty:

i. 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.

## 1.5. ARRAY STRUCTURE

a) Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insulation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (like Delhi-wind speed of 150 kM/ hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to NREDCAP/User. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.

c) 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.

d) 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. Necessary protection towards rusting need to be provided either by coating or anodization.

e) 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

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

g) The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/$m^2$.

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

### 1.6. JUNCTION BOXES (JBs)

a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JBs shall be such that input & output termination can be made through suitable cable glands.

b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single/ double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.

c) Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) /SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

d) Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification

### 1.7. DC DISTRIBUTION BOARD:

a) DC Distribution panel to receive the DC output from the array field.

b) DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

### 1.8. AC DISTRIBUTION PANEL BOARD:

a) AC Distribution Panel Board (DPB) 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, 50 Hz.

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 | +/- 3 Hz |

**1.9. 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.

**1.10. PCU/ 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 : + 3 Hz or more
- Ambient temperature considered : $-20^{O}$ C to $50^{O}$ C
- Humidity : 95 % Non-condensing

| | | |
|---|---|---|
| – | Protection of Enclosure | : IP-20(Minimum) for indoor.<br>: IP-65(Minimum) for outdoor.\ |
| – | Grid Frequency Tolerance range or more | : + 3 |
| – | Grid Voltage tolerance | : - 20% & + 15 % |
| – | No-load losses | : Less than 1% of rated power |
| – | Inverter efficiency(minimum) | : >93% ( In case of 10kW or above ) |
| – | 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) 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.

f) The charge controller (if any) / 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.

g) 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 test houses.

**1.11. 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. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of

availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

### 1.12. DATA ACQUISITION SYSTEM / PLANT MONITORING

i. Data Acquisition System shall be provided for each of the solar PV plant.

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.

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

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. PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.

viii. Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.

ix. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.

x. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.

xi. 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.

xii. All instantaneous data shall be shown on the computer screen.

xiii. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.

xiv. Provision for Internet monitoring and download of data shall be also incorporated.

xv. 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.

xvi. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.

xvii. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.

xviii. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner /NREDCAP location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier. Provision for interfacing these data on [NAME OF THE ORGANISATION] server and portal in future shall be kept.

**1.13. TRANSFORMER "IF REQUIRED" & METERING:**

a) Dry/oil type relevant kVA, 11kV/415V, 50 Hz Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.

b) The bidirectional electronic energy meters per the statutory requirements of DISCOMs shall be installed for the measurement of import/Export of energy.

c) The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to NREDCAP before commissioning of SPV plant.

d) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

**1.14. POWER CONSUMPTION:**

a) Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Finalization of tariff is not under the purview of NREDCAP or MNRE. Decisions of appropriate authority like DISCOM, state regulator may be followed.

**1.15. PROTECTIONS**

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

1.15.1. 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 62305standard. 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.

1.15.2. SURGE PROTECTION

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

1.15.3. EARTHING PROTECTION

i. 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

NREDCAP/User as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.

ii. 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.

**1.16. GRID ISLANDING:**

i. 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.

ii. A manual disconnect 4pole 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

**1.17. 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. Flexible

vi. 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. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.

vii. 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.

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

ix. 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.

x. 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 /IEC 69947.

xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

### 1.18. CONNECTIVITY

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

| Plant Capacity | Connecting voltage |
|---|---|
| Up to 10 kW | 230V-single phase or 415V-three phase at the option of the consumer |
| Above 10kW and up to 100 kW | 415V – three phase |
| Above 100kW | At LT/HT/EHT level (11kV/33kV/66kV) as per DISCOM rules |

i. The maximum permissible capacity for rooftop shall be 1 MWp for a single net metering point. However, the CFA will be limited to 500 KWp or as per the MNRE norms.

ii. Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.

iii. For large PV system (Above 100 kW) for commercial installation having large load, the solar power can be generated at low voltage levels and stepped up to 11 kV level through the step up transformer. The transformers and associated switchgear would require to be provided by the SPV bidders.

**1.19. TOOLS & TACKLES AND SPARES:**

i. 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. List of tools and tackles to be supplied by the bidder for approval of specifications and make from NREDCAP/User.

ii. A list of requisite spares in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc along with spare set of PV modules be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished

**1.20. 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 NREDCAP/ owner.

**1.21. FIRE EXTINGUISHERS:**

The fire fighting system for the proposed power plant for fire protection shall be consisting of:

a) Portable fire extinguishers in the control room for fire caused by electrical short circuits

b) Sand buckets in the control room

c) 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.

**1.22. DRAWINGS & MANUALS:**

i. Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

ii. Approved ISI and reputed makes for equipment be used.

iii. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to NREDCAP/owners before progressing with the installation work

**1.23. PLANNING AND DESIGNING:**

i. The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The bidder should submit the array layout drawings along with Shadow Analysis Report t o N R E D C A P /Owner for approval.

ii. NREDCAP reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.

iii. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder submits three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

**1.24. DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT**

i. The Contractor shall furnish the following drawings Award/Intent and obtain approval
ii. General arrangement and dimensioned layout
iii. Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc. iv. Structural drawing along with foundation details for the structure.
iv. Itemized bill of material for complete SV plant covering all the components and associated accessories.
v. Layout of solar Power Array
vi. Shadow analysis of the roof

1**.25. 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.

**1.26. 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 shall be provided for the solar modules and the solar grid inverter to provide evidence of compliance with standards as specified by Ministry of New and Renewable Energy (MNRE). NREDCAP reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.

## 1.27. CONFIRMATION TO MNRE TECHNICAL SPECIFICATIONS AND STANDARDS

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

# PART IV

# TECHNICAL BID

## TECHNICAL BID FORMAT (ENVELOPE – A)

All pages of the Technical Bid shall be organised section-wise, annexed with proof documents, serially numbered and stitched/or spiral bound intact and submitted) Loose pages shall not be accepted.

### 1. GENERAL PARTICULARS OF TENDERER

| SL. | PARTICULARS | TO BE FUNISHED BY THE TENDERER |
|---|---|---|
| 1 | Name of Tenderer/Firm | |
| 2 | Postal Address | |
| 3 | E-mail address for communication | |
| 4 | Telephone/ Fax No. | |
| 5 | Name, designation, address, contact number and Email of the representative of the tenderer to whom all references shall be made. | |
| 6 | Nature of the firm (Individual/ Partnership/Consortium/ Pvt. Ltd /Public Ltd. Co. /Public Sector, etc.) Attach attested copy of Registration & Partnership deed/ Memorandum of Association | |
| 7 | Amount and particulars of the Earnest Money Deposited. | |
| 8 | Annual Turnover for last three years i.e 2015 - 2018 (Attach balance sheets from CA in this regard) | |
| 9 | Name and address of the Indian/foreign collaboration if any. | |
| 10 | PAN NO (Copy of certificate to be enclosed) | |
| 11 | GST No. (copies of certificates to be attached) | |
| 12 | Has the Tenderer/firm ever been debarred by any institution for undertaking any work? | |

| | | |
|---|---|---|
| 13 | Any other information attached by the Tenderer (Details of Annexure / page no. where its enclosed) | |
| 14 | Does Tenderer have any relative Working in NREDCAP?<br>If yes state the Name and designation. | |

**2. DETAILS ABOUT THE COMPONENTS TO BE USED**

| S. No | Description | Name of Manufacturer(s) | Manufacturing Plant address |
|---|---|---|---|
| 1 | Solar PV Modules | | |
| 2 | Grid Tied Inverter/PCU | | |

Enclose the Data Sheets of Solar PV Modules and Grid Tied Inverters proposed to be used

**3. DETAILS OF EXPERIENCE**

Please fill in information about grid connected/off grid Solar PV Systems installed in the last three years.

| Sl. No | Description | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|---|---|---|---|---|
| 1 | Grid Connected Solar PV Plants in KWp | | | |
| 2 | Off Grid Solar PV Plants in KWp | | | |
| 3 | Total Aggregate Project Cost in Rs. | | | |

**Mandatory Documentary Evidences to be submitted:**

A. Work Order Copies
B. MNRE Project Sanction Letter (either through SNA/SECI/Channel Partner)
C. Project Completion Report/Certificate clearly showing the date of commissioning
D. CEIG Clearance Certificates (for Projects > 50 KWp)

**4. DETAILS ABOUT THE BLACKLISTING, IF ANY**

Information on litigation history in which Bidder is involved.

1) Whether black listed/ Debarred/Suspended from execution of work.

2) Other litigations. If any including Court litigations Arbitrations etc.

| Department and concerned officer | Other party (ies) | Case of dispute. | Amount involved. | Remarks showing present status. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

Signature of the authorised person:

Name of the authorised person:

Designation:

Name and Address of Bidder

Stamp of bidder

## CHECKLIST TO ACOMPANY THE TENDER

| S. No | Description | Submitted in Cover 'A' | Page No. (see Note below) |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1 | Copy of the system integrator empanelment certificate with NREDCAP for Grid connected solar rooftop systems for the year 2017-18. | Yes /No | |
| 2 | Demand draft toward requisite Earnest Money Deposit (issued by any Nationalised/Scheduled bank) or exemption document. | Yes /No | |
| 3 | Crossed demand draft towards Cost of tender document Rs.25,000/Rs.50,000 + GST @ 18% | Yes /No | |
| 4 | Copy of PAN card | Yes /No | |
| 5 | Copy of latest Income Tax Clearance returns submitted along with proof of receipt (Latest SARAL form). | Yes /No | |
| 6 | Copies of GST Registration Certificate. | Yes /No | |
| 7 | Latest GST/VAT/ Sales Tax clearance certificate. | Yes /No | |
| 8 | Availability of local service centres/ technical personnel | Yes /No | |
| 9 | Information on litigation history in which Bidder is involved. | Yes/No | |
| 10 | Any other documents/certificate as specified in tender conditions | Yes /No | |
| 11 | Experience Certificate | Yes /No | |
| 12 | Declarations as per the formats | Yes /No | |

Notes:

1. All the statements copies of the certificates, documents etc., enclosed to the Technical bid shall be given page numbers on the right corner of each certificate, which will be indicated in column (4) against each item. The statements furnished shall be in the formats appended to the tender document.

2) The information shall be filled-in by the Tenderer in the check list, as applicable and shall be enclosed to the Technical bid for the purposes of verification as well as evaluation of the Tenderer's Compliance to the qualification criteria as provided in the Tender document.

The bidder shall on all the statements, documents, certificates by him, owning responsibility for their correctness/authenticity.

## DECLARATION

## (on Rs.100/- non-judicial stamp paper)

I / WE ……. have gone through carefully all the Tender conditions and solemnly declare that I / we will abide by any penal action such as disqualification or black listing or determination of contract or any other action deemed fit, taken by, the Department against us, if it is found that the statements, documents, certificates produced by us are false / fabricated.

I / WE hereby declare that, I / WE have not been blacklisted / debarred / Suspended / demoted in any Government Department in any State due to any reasons.

**Signature of the Tenderer**

## DECLARATION BY THE TENDERER

I/We ……

(Hereinafter referred to as Tenderer) being desirous of tendering 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 tenderer is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document and accepts all risks, responsibilities and obligations directly or indirectly connected with the performance of the tender.

2. The Tenderer is fully aware of all the relevant information for proper execution of the proposed work, with respect to the proposed place of works/ site, its local environment, approach road and connectivity etc. and is well acquainted with actual and other prevailing working conditions, availability of required materials and labour etc. at site.

3. The Tenderer is capable of executing and completing the work as required in the tender and is financially solvent and sound to execute the tendered work. The tenderer is sufficiently experienced and competent to perform the contract to the satisfaction of NREDCAP. The Tenderer gives the assurance to execute the tendered work as per specifications, terms and conditions of the tender on award of work.

4. The Tenderer has no collusion with other Tenderers, any employee of NREDCAP or with any other person or firm in the preparation of the tender.

5. The Tenderer has not been influenced by any statement or promises by NREDCAP or any of its employees but only by the tender document.

6. The Tenderer 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. The Tenderer has never been debarred from similar type of work by any Government Undertaking /Department. (An undertaking on Non-Judicial Stamp paper worth of Rs. 200/- in this regard shall be submitted)

8. The Tenderer accepts that the earnest money / security deposit may be absolutely forfeited by NREDCAP if the selected bidder fails to sign the contract or to undertake the work within stipulated time.

9. This offer shall remain valid for acceptance for 3 (Three) months from the proposed date of opening of Tender.

10. All the information and the statements submitted with the tender are true and correct to the best of my knowledge and belief.

**Signature of Tenderer**

# PART V

# FINANCIAL BID

## FINANCIAL BID (ENVELOPE-B)

The cost of SPV power plants shall include their respective components as per their respective technical specification, including cables, MCBs, switches, fuses etc., as per the site requirement and shall be a lump-sum turnkey price:

| Project Category | Turn-key Price of Grid Connected Rooftop Solar PV Power Plant as MNRE/NREDCAP/TRANSCO/DISCOM Specifications under Net Metering Scheme (Rs./Wp) | (Rs./Wp) IN WORDS |
|---|---|---|
| **1 KWp** | | |
| **2 KWp** | | |
| **3 KWp** | | |
| **4 KWp** | | |
| **5 KWp** | | |
| **6 – 10 KWp** | | |
| **11 to 50 KWp** | | |
| **51 – 100 KWp** | | |
| **101 KWp to 500 KWp** | | |

Note:

1. Total cost quoted above is without deducting CFA/incentives from MNRE.
2. The quoted price is inclusive of all taxes, duties, freight with insurance up to site, for installation and commissioning within the State of Andhra Pradesh, incl. AMC for 5yrs period after commission.
3. The price quoted shall be in both figures and words, rounded to one decimal point. Price quoted after first decimal point, if any, shall not be considered.
4. In case of discrepancy in the Price quoted between Words and Figures, the lower of the two shall be considered.
5. The Tenderer may choose one or more category of Projects to quote for based on their eligibility criteria.

Signature of the authorised person:

Name of the authorised person:

Designation:

Name and Address of Bidder and Stamp of bidder

# PART VI

# ANNEXURES

## BIDDERS UNDERTAKING COVERING LETTER

(Letter shall be submitted on Bidder(s) Letter Head)

Ref No: Date:

To

The V.C & Managing Director
New & Renewable Energy Development Corporation of A.P Ltd.
(NREDCAP)
Regd. Office: # 12-464/5/1, River Oaks Apartment,
CSR Kalyana Mandapam Road,
Tadepalli,
Guntur District.
Pin: 522 501.

Dear Sir,

**Sub**: Design, Supply, Installation, Commissioning, Maintenance and Operation of Grid connected Rooftop Solar Power plants under State Net Metering Policy- reg.

**Tender Reference**: NREDCAP/OSD/RT- SPV 1 - 500 KWp/2018-19 DATED : 09 .04.2018

****

1. We have examined the Tender for Supply, Installation and Commissioning of Grid connected Solar Rooftop Power plants as specified in the Tender. We undertake to meet the requirements and services as required and as set out in the Tender document.

2. We attach our Technical Bid and Financial Bid in separate sealed covers as required by the Tender both of which together constitute our proposal, in full conformity with the said Tender.

3. We have read the provisions of Tender and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our response shall not be given effect to.

4. We undertake, if our Bid is accepted, to adhere to the requirements as specified in the Tender or such modified plan as may subsequently be agreed.

5. We agree to unconditionally accept all the terms and conditions set out in the Tender document and also agree to abide by this Bid response for a period as mentioned in the Tender from the date fixed for bid opening and it shall remain binding upon us with full force and virtue, until within this period a formal contract is prepared and executed, this Bid response, together with your written

acceptance thereof in your notification of empanelment, shall constitute a binding contract between us and NREDCAP.

6. We affirm that the information contained in the Technical Bid or any part thereof, including its schedules, and other documents, etc., delivered or to be delivered to NREDCAP is true, accurate, and complete. This proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead NREDCAP as to any material fact.

7. We also agree that you reserve the right in absolute sense to reject all or any of the products/ service specified in the bid response without assigning any reason whatsoever.

8. It is hereby confirmed that I/We are entitled to act on behalf of our company/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.

9. We agree to use only indigenous PV modules in this project.

10. We also declare that our Company/Organisation is not blacklisted by any of the State or Central Government and organisations of the State or Central Government.

11. We undertake to use the BOS components other than PV Modules and Solar grid tie Inverters as per the standards stipulated.

Signature of the authorised person:

Name of the authorised person:

Designation:

Name and Address of Bidder

Stamp of bidder

**CERTIFICATE AS TO AUTHORISED SIGNATORIES**

I, certify that I am (Name) …… (Designation) ……, and that (Name)…… who signed the above Bid has been duly authorized to sign the same on behalf of our Organisation.

Date:

Signature:

Seal:

# FORMAT FOR BANK GUARANTEE FOR - EARNEST MONEY DEPOSIT

This deed of Guarantee made on..... day of Month & Year by Name & Address of the bank (hereinafter called the „GUARANTOR") on the one part, on behalf of M/s Name & address of the Firm (hereinafter called the "Firm") ) in favour of VC& Managing Director, NREDCAP, Tadepalli on the following terms and conditions.

Whereas the FIRM is submitting its tender for (Name of the work) and this guarantee is being made for the purpose of submission of Earnest money deposit with the tender document.

Know all people by these presents that the GUARANTOR, hereby undertake to indemnify and keep NREDCAP indemnified up to the extent of Rs……during the validity of this bank guarantee and authorize NREDCAP to recover the same directly from the GUARANTOR. This bank guarantee herein contained shall remain in full force and effect till the expiry of its validity or till any extended period (if extended by the bank on receiving instructions from FIRM.). The liability under the guarantee shall be binding on the GUARANTOR or its successors.

Whereas the GUARANTOR further agrees that their liability under this guarantee shall not be affected by any reason of any change in the offer or its terms and conditions between the FIRM and NREDCAP with or without the consent or knowledge of the GUARANTOR.

Whereas the GUARANTOR further agrees to pay guaranteed amount hereby under or part thereof, on receipt of first written demand whenever placed by NREDCAP during the currency period of this guarantee. The GUARANTOR shall pay NREDCAP immediately without any question, demure, reservation or correspondence.

Whereas the GUARANTOR hereby agrees not to revoke this guarantee bond during its currency period except with the previous consent of NREDCAP in writing.

Notwithstanding anything contained herein

1. Our liability under this bank guarantee shall not exceed Rs. …….

2. This Bank guarantee shall be valid up to ……...

3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only against the written claim or demand on or before …….. Sealed with the common seal of the bank on this …….day of Month and Year

**Witness :**

**1.**

**2**

**(Signature and seal of Bank)**

## MODEL FORM OF AGREEMENT

***To be executed on a Rs.200- Non-judicial Stamp paper of Andhra Pradesh jurisdiction by the Successful Bidder for Supply, Installation and Commissioning of connected Rooftop Systems (NO FIGURES IN NUMERALS OR WORDS SHALL BE FILLED UP IN THIS SAMPLE FORM AT THE TIME OF SUBMISSION OF TENDER)***

## AGREEMENT

This Agreement is entered into at Tadepalli on the ..... day of _____ 2018 between New & Renewable Energy Development Corporation of A.P Ltd (NREDCAP) having its Regd. Office at # 12-464/5/1, River Oaks Apartment, CSR Kalyana Mandapam Road,Tadepalli-522 501, Guntur district,. Andhra Pradesh State, India hereinafter referred to as "NREDCAP" (Which term shall mean and include its successors and permitted assigns) and ....., a Company registered under .....and having its Registered office at ..... hereinafter referred to as the “Installer” (Which term shall mean and include its successors and permitted assigns)

Whereas NREDCAP invited a tender vide Tender Ref. No. NREDCAP/OSD/RT- SPV 1 - 500 KWp/2018-19 dated 09 .04.2018 for Supply, Installation, Commissioning, Maintenance and Operation of Grid connected SPV Rooftop Systems all over the State of Andhra Pradesh.

This document on having been signed by both the parties shall constitute a binding contract between the parties and shall remain in force for a period of five years. But in the event of any breach of the Contract at any time on the part of the Installer, the contract shall be terminated by NREDCAP without compensation to the Installer. The contract may also be put to an end at any time by the NREDCAP upon giving seven days notice to the Installer. The Installer agrees for Supply, Installation, and Commissioning of _____SPV Rooftop with 60 months warranty as per clause 7.13 and as per the Terms & Conditions given below.

1. Installation & Completion Schedule

The entire work involving Supply, Installation and Commissioning of SPV Rooftop shall be completed within 30 to 90 days from the date of issue of work order by the purchaser.

2. Service:

Empanelled Installer shall have minimum of two service centre in Andhra Pradesh. Additional service centres shall be opened in Andhra Pradesh in different districts based on the installations carried out by them under this empanelment mechanism.

The Installer shall visit the site at least once in a quarter, to attend routine maintenance, during the 5 years warranty period. However, in case of malfunctioning of the system, the tenderer/bidder shall attend for rectification of defects within 3 working days from the date of lodging complaint.

3. Installation and Commissioning locations:

The Grid Connected Solar Rooftop Power Plants shall be installed and commissioned anywhere in Andhra Pradesh under Net Metering Scheme.

4. The validity of Empanelment and the price accepted will be for 30 months.

5. The following documents shall be deemed to form and be read and constructed as part of this Contract.

a) Technical Specifications

b) Tender Terms and Conditions

c) Amendments issued by NREDCAP for the Tender document

d) Corrigendum/Clarifications issued by NREDCAP for the Tender document

e) Detailed final offer of the Successful Bidder

f) Correspondence made by NREDCAP to the successful Bidder from time to time during the period of the contract.

6. Waiver of any terms and conditions by NREDCAP / Purchaser in writing shall not have the effect of waiving or abandoning other terms and conditions of the contract.

7. (a) Unless otherwise provided in the Contract, any notice, request, consent or other communication given or required to be given hereunder shall be given by mailing the same by registered mail, postage prepaid to NREDCAP at its registered office.

(b) Any notice to the Installer shall be deemed to be sufficiently served, if given or left in writing at their usual or last known place of abode or business In case of failure by the Installer to commission the solar Rooftop systems within the period specified as per the schedule or in case of installations made by them, not being of the stipulated quality and specifications, NREDCAP shall have the power to reject any such installations.

9. NREDCAP is no way responsible for any dispute arising between the Installer & Purchaser.

Subject to the above, the Courts of AP jurisdiction alone only shall have jurisdiction in the matter of empanelment.

In Witness whereof the parties hereto have signed on the day, month and year above written in the presence of

| | |
|---|---|
| **For and on behalf of NREDCAP** | **For and on behalf of Installer** |
| Name | Name |
| Designation | Designation |
| Seal | Seal |
| **Witnesses:** | **Witnesses:** |

**1.**

**2.**