

# **TENDER BID DOCUMENT**

## **TENDER**

for

**Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years Maintenance and Performance Warranty Contract (MPWC).**

**NIB No. MANIREDA/SPP/SADP/2019-20/14**

**Under**

**Jawaharlal Nehru National Solar Mission  
of  
The Ministry of New and Renewable Energy  
For the Year 2019- 20**

### **Manipur Renewable Energy Development Agency (MANIREDA)**

2<sup>nd</sup> Floor, South Block, Secured Office Complex, A.T. Line, Near Hotel Imphal, Imphal-795001  
Tele Fax : 0385-2421594, e-mail : [manireda99@yahoo.com](mailto:manireda99@yahoo.com), Website : [www.manireda.com](http://www.manireda.com)

(This tender document is having 33 pages including this page)  
Cost of bid document: Rs. 500/-

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No. : MANIREDA/SPP/SADP/2019-20/14

Date: 5/08/2019

**NOTICE INVITING BID**

Offline tenders are invited from eligible MNRE accredited channel partners/firms of Grid connected Solar Photo Voltaic (SPV) power plant programme for Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant into Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur

<b>Tender Specification No.</b>	<b>Cost of Bid Document</b>	<b>Pre-Bid discussion</b>	<b>Last date &amp; time for submission of Tender</b>
NIB No. MANIREDA/SPP/SADP/2019-20/14 dtd. 5/8/2019	Rs. 500/-	11.00 a.m. 26/08/2019	2/9/2019 upto 12.00 Noon Sharp

Tender Document can be downloaded from the website [www.manipur.gov.in](http://www.manipur.gov.in) or [www.manireda.com](http://www.manireda.com). Bidders have to submit the Bids to the office of MANIREDA.

Last date & time of submission of Bid is 12.00 Noon of 2<sup>nd</sup> of Sept., 2019

Sd/-

(L. Manglem Singh)  
Director, MANIREDA

## 2. Bid at a Glance

NAME OF THE BIDDER : M/s .....

TENDER FEE DETAILS : D.D. No..... Dt .....

Drawn on Bank .....

EMD DETAILS : D.D. No..... Dt .....

Drawn on Bank .....

SI	Description	Details
1.	Notice Inviting Bid (NIB)	MANIREDA/SPP/SADP/2019-20/14 dated 5/08/2019
2.	Scope of work	Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years Maintenance and Performance Warranty Contract (MPWC).
3.	Pre-Bid Meeting	A Pre-Bid Meeting of the Prospective Bidders will be held at 11.00 a.m. on 26/08/2019 at the office of Director, MANIREDA, 2 <sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel, Imphal-795001, Manipur.
4.	Last date & time of submission of Bid in Hard copy.	Date : 2nd September, 2019 Time : Upto 12.00 noon (submission of documents after 12.00 noon will not be accepted at any circumstances and not eligible)
5.	Date & time of opening of Technical Bid	Date : 2nd September, 2019. Time : 2.00 pm sharp. Venue : Office of the Director, MANIREDA, 2 <sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Imphal.
6.	Cost of bid document (Non-refundable)	Rs 500/- in the form of D.D. favoring Director MANIREDA payable at Imphal.
7.	Earnest Money Deposit (Refundable)	Rs. 18,000/- only in the form of D.D. favoring Director MANIREDA, payable at Imphal.
8.	Place of submission of Bid documents and address for Bid Opening Meeting.	Manipur Renewable Energy Development Agency (MANIREDA), 2 <sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Hotel Imphal, Imphal - 795001. Phone No. 0385-2421594;
9.	Date & time of opening of Financial Bid	Financial Bids will be opened only for Technically qualified bidders. Date : Will be informed. Time : Will be informed.
10.	Time of completion	2(two) months from the date of placement of work order
11.	Validity of offer	The offer shall remain valid up to 365 days from the date of submission of offer.
12.	Validity of earnest money	The earnest money shall be submitted by the bidder in the form of demand draft from any Nationalized/Scheduled bank. This demand draft shall have validity for at least 3 months.
13.	Notices/amendments/cancellation to be updated	Prospective bidders are requested to remain updated for any notices/amendments/cancellation, etc. in the bid document conditions/terms, in the above mentioned website. No separate notifications will be issued for such notices /amendments/ clarifications etc. in the print media (press) or intimated to the bidders separately.

### 3. Detailed Notice Inviting Bid (DNIB)

#### **Manipur Renewable Energy Development Agency (MANIREDA)**

2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel, Imphal-795001

Ph. : 0385-2421594, Fax : 0385-2421594, e-mail : manireda99@yahoo.com

Website : [www.manireda.com](http://www.manireda.com)

NIB No. : MANIREDA/SPP/SADP/2019-20/14

Date: 5/08/2019

Sub : Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant into Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur.

Dear Sir/Madam,

Manipur Renewable Energy Development Agency (MANIREDA), Imphal is inviting offer from eligible empanelled Channel Partners of MNRE for the above work with the best binding price offer as per specifications and terms & conditions mentioned in the bid document. Salient features of the bid document are given below:

### **CHAPTER – I: ABOUT THE BID AND ITS SUBMISSION PERIOD:**

#### **1. Bid Document**

1.1 NIB No. : MANIREDA/SPP/SADP/2019-20/14 dated 5/08/2019.

1.2 This Bid Document comprises of total 33 pages including Proformas. In addition, any other documents/instructions/amendments/revisions issued by MANIREDA to the bidder till the due date of opening of the bids shall also be deemed to be the integral part of the bid document. Failure to furnish all the information as per the bid document in every respect will be at the bidder's risk.

1.3 The Technical Bids and Financial Bids will be opened on the date and time mentioned in the tender website in the **Office of the Director, MANIREDA, 2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Hotel Imphal, Imphal** in presence of bidders or their authorized representatives. The representative should produce authorization letter to attend the bid opening meeting in the Proforma - 2.

#### **2 Cost of Bid Document**

2.1 Bidders can download the Bid Document from MANIREDA's website ([www.manireda.com](http://www.manireda.com)) and submit the cost of the Bid document amounting Rs. 500/- (Non Refundable), along with Technical Bid.

#### **3. Earnest Money Deposit (EMD)**

3.1 EMD for an amount of Rs. 18,000/- shall be submitted alongwith the technical bid in the form of Demand Draft from a Nationalised Bank/scheduled bank of requisite value in favour of Director, MANIREDA payable at Imphal.

3.2 Bidders failing to submit EMD will be rejected.

3.3 EMD shall be returned to all unsuccessful bidders in technical evaluation, within three weeks.

3.4 No interest will be paid on EMD.

3.5 EMD shall be forfeited if –

3.5.1. Any bidder withdraws his bid during the validity period of the bid.

3.5.2. The successful bidder fails to furnish his acceptance of the Order within fifteen days of placement of Work Order by MANIREDA.

3.5.3. The bidder fails to successfully complete the work within the stipulated time frame. Delay in completion due to extreme and unavoidable situations will have to get approved by Director, MANIREDA.

#### 4. Exemption of Tender Fee and Earnest Money Deposit (EMD)

Cost of Bid Document and Earnest Money Deposit (EMD) will not be exempted for any Firm since in previous Tender, the successful Firm (after exempting EMD for MSME Firms) backed out without executing the Work and Tender had to be floated again.

#### 5. Submission of Bids:

This is offline Tender so Bidders are not required to upload the Bid in the E-tender website.

**Bidders shall have to submit the Bids offline in Hard copies** at the office of MANIREDA within the stipulated time mentioned in Sl. No. 4 in "Bid at a Glance".

- 5.1 Bidders are advised to submit their bids strictly based on the specifications, terms and conditions contained in the bid document and subsequent revisions/amendments, if any.
- 5.2 **Only 1(one) Hard copy of Bid shall be submitted by each Bidder in Hard Bond or Spiral Binding.**  
The bid shall be prepared and submitted by typing or printing in English with indelible black ink on white paper in consecutively numbered pages duly signed by the authorized signatory with company seal affixed on each page.
- 5.3 Total number of pages should be clearly mentioned and certified by competent authority.
- 5.4 Original copy of bid document, amendments/revisions to bid document, including minutes of meeting(s), issued by MANIREDA, if any, shall be signed and submitted along with the bid.
- 5.5 All the Proformas must be on the bidder's official letterhead. Any change in wording of the Proforma will lead to rejection of the bid application.
- 5.6 The offer shall contain no erasures or overwriting except as necessary to correct errors made by bidder. Such corrections, if any, shall be initialed by the person signing the offer.
- 5.7 The Bid Documents should have proper paging and flagging of Annexures/details. Documents without proper binding and proper paging etc. will not be considered in the evaluation. Any Overwriting /illegible/erasing, etc. in the documents submitted by the firms shall not be accepted.
- 5.8 Insertion, post-script, addition and alteration in Hard Copy shall not be recognized unless confirmed by bidder's signature and stamp.
- 5.9 MANIREDA reserves the right to reject part or whole of the bid/order without assigning any reason thereof, postpone the date of receipt and opening of the bids or cancel the bid without bearing any liability, whatsoever, consequent upon such decision.
- 5.10 Attestation of various documents enclosed along with the offer must be done by a competent authority or by the Proprietor of the Firm.

#### 6. Mode of Submission of Bids: Bidders have submit the Bid as Hard copy as stated below:

##### 6.1 The bidder shall submit;

- (i) Scanned copy of Tender Fee and scanned copy of Earnest Money Deposit (EMD)
- (ii) Forwarding Letter- Proforma -1
- (iii) Authorization letter for attending Bid Opening Meeting - Proforma-2
- (iv) Information about the Bidding Firm- Proforma-3
- (v) Details of Orders Received and Executed in Past 3 years (Grid connected SPV Power Plants only) - Proforma-4
- (vi) Document for being valid Channel Partner of MNRE for Grid connected Solar power plants under JNNSM with credit rating
- (vi) Bidders should have installed and commissioned at least one 50 kWp capacity of Grid connected SPV Power plant whose work order issued in the name of the bidder to Govt. aided/Govt. Deptt./Institutions/Private Institution.
- (vii) A summarized sheet of turnover for last 3 yrs certified by registered Chartered Accountant.
- (viii) Letter of authorized dealer/service provider registered as per MVAT Act in Manipur
- (ix) ISO 9001 certificate
- (x) ISO 14001 certificate.
- (xi) Registration Certificate of Company/Firm.

- 6.2 The hard copy of Technical Bid should be submitted in a sealed envelope superscribed "NIB No.: MANIREDA/SPP/SADP/2019-20/14 (Technical Bid)", to the office of MANIREDA, 2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Hotel Imphal, Imphal-795001 addressed to Director, MANIREDA. This envelope should contain the following:
- (i) Cost of bid document.
  - (ii) Original earnest money by demand Draft of requisite value.
  - (iii) Technical Bid should not contain price of any item. Such cases, even if found anywhere, shall not be given any cognizance.
- 6.3 The hard copy with earnest money and cost of tender document has to be submitted during the period upto 12 noon of 2<sup>nd</sup> September, 2019 failing which no late comers would be strictly entertained.

## **7.0 Pre-Bid Discussion & Authority of Person Signing the Documents**

- 7.1 A Pre-Bid Meeting will be held at the Office of Director, MANIREDA, on the designated Date and Time mentioned in 'Bid at a Glance' on Page No.4 of this Bid Document. All the prospective Bidders are to attend this Pre-Bid Meeting without fail.
- 7.2 In the Pre-Bid discussion, the following points shall be discussed:
- a) Scope of Work and necessary Plant & equipments to be installed,
  - b) Smooth implementation of the project, etc.
- 7.3 **All the Bidders are requested to attend this Pre-Bid Meeting to familiarize the scope of work to be executed. Any complaints afterwards from the Bidders who do not attend the Pre-Bid Meeting shall not be entertained.**
- 7.4 If the terms and conditions of the NIB require improvement, modifications may be made depending on the outcome of the Pre-Bid Meeting.
- 7.5 The Bidders should furnish the Authorization letter as per Proforma – 2 with the seal of the company for the person attending the Bid Opening meeting & signing the bid document.
- 7.6 A person signing the bid document or any document forming part of the bid document shall be deemed to warrant that he has authority to bind such offer/ document and if on enquiry it appears that the person signing had no authority to do so, MANIREDA may, without prejudice to other civil and criminal remedies, cancel the bid/contract and hold the signatory liable for all costs and damages.

## **CHAPTER – II: ELIGIBILITY CRITERIA**

### **8.0 Eligibility and Qualification Criteria**

- 8.1 The bidder should be:
- A Registered Company/Firm/Corporation in India with supporting documents. Cumulative Experience of the Bidders should be of executing contracts of Grid connected Solar Power Plants (installed & commissioned). The Bidders should have designed, supplied, installed & commissioned and tested a minimum of 50 kWp grid connected Solar Power Plant in Govt. aided/Govt. Institution/ Private Institution etc. with Work Order awarded in Bidder's Name/Firm. (Copies of work orders alongwith Project Completion Certificate from the Institutions must be enclosed to support the cumulative experience). Experience should be of Design, supply, installation & commissioning including integration to grid and testing of Grid connected Solar Power Plants only. Experience of Off-Grid Solar Power Plants will not be counted.
- 8.2 The bidder should be an MNRE accredited Grid connected Rooftop Channel Partner having credit rating (from MNRE Accredited Rating Agency).
- 8.3 Bidder should have Test Certificate for the components of tendered capacity of Grid connected Solar Power Plant like PCU/Inverter, Energy Meter etc. from an approved/competent testing centres as per requirements under the JNNSM scheme of the MNRE, GOI.
- 8.4 The Bidder should have valid CST /State VAT/ TIN registration certificate. A copy of which should be enclosed.
- 8.5 Cumulative Turnover of the Company/Firm/ Corporation in the last three financial years (2015-16,



2016-17 & 2017-18) should be at least **2.00 crores**. This must be the individual Company's turnover and not that of any group of Companies. (A summarized sheet of turnover certified by registered CA should be compulsorily enclosed)

- 8.6 The Bidder should have registered office/authorized dealer/service network in Manipur as per MVAT Act 2005. Details of the authorized dealer viz. name, address, contact no. both mobile and landline, e-mail ID etc. should be enclosed.
- Bidders who do not have service network in Manipur should be willing to appoint within 15 days from the date of Work Order and the details should be submitted. A self declaration on the same should be submitted with the Bid document.
  - Trained manpower, proper infrastructures with adequate spares should be maintained in the office for smooth execution of MPWC.
- 8.7 The bidder should have ISO 9001 certification
- 8.8 The bidder should have ISO 14001 certification.

## **CHAPTER – III: SCOPE OF WORK**

### **9.0 Scope of Work**

- 9.1 The scope of work is to design, supply, install & commission a 40 kWp Grid connected SPV power plant including 5 years MPWC at Raj Bhavan, Imphal, Manipur by converting the existing Off-Grid 40 kWp SPV power plant to Grid connected SPV power plant by installing new Grid connected string inverter(s) & necessary BOS items and then integrate the plant to Grid.
- 9.2 MANIREDA reserves the right to amend the scope of work, accept or reject any or all the offers/bids, in part or in full or cancel/withdraw the invitation for bids without assigning any reasons whatsoever and in such case, the bidder/intending bidder shall have no claim arising out of such action. The Bidder shall carefully check the specifications and shall satisfy himself regarding the technical requirement and completeness of the equipment/system. MANIREDA shall examine whether the bid is complete in all respects and conform to the stipulated requirement of the technical specifications and tests reports. The bid having material deviation shall be rejected as being non-responsive. If any amendment in specification is made by MNRE during implementation of this project, the same shall be followed by MANIREDA.
- 9.3 The bidders should beforehand thoroughly familiarized with the site to be installed, incidental expenditures/charges on transportation, installation and maintenance expenses etc. They should also access the local conditions including prevailing law and order problems before submitting their offer. Any claim on change/increase in the rate/cost of the work due to any reason will not be entertained at any circumstances.
- 9.4 MANIREDA, if required, may at its discretion obtain clarifications on offers by requesting clarifications from any or all the bidders at any time prior to Financial Bid opening. Such request for clarification and the response shall be in writing.
- 9.5 It is not necessary to select the lowest quoted rate. MANIREDA reserves the right to decide the reasonable price/rate for successful implementation of the project.
- 9.6 The Financial Bid of only those bidders, whose Technical Bids are found qualified after evaluation, will be opened and evaluated. In case of deviation in the date and time of opening of the Financial Bid from what is given in the Bid Detail, the date & time for opening of the Financial Bid will be uploaded on MANIREDA website. Bidders are requested to visit the website ([www.manireda.com](http://www.manireda.com)) regularly and keep themselves informed.
- 9.7 The bidders shall be ranked L1, L2, L3 etc. as per the Total Price (P). The work order will be issued subject to the acceptance of the bidders to supply at approved rate. MANIREDA reserves the right to award more than one firm for execution.

### **10.0 Price**

- 10.1 **The Bidder shall quote price as per Proforma - 8.** Price quoted shall be firm & binding and shall not be subject to any variation whatsoever, on any account except for statutory variation on taxes & duties during contractual completion period.



## CHAPTER – IV: PAYMENT TERMS

### 11.0 Terms of Payment

- 11.1 20% of the total work order value (excluding installation, commissioning and MPWC cost) shall be released as mobilisation advance against the submission of Bank Guarantee of equivalent amount from a Nationalised Bank/ Scheduled Bank valid at least for a period of 6 months after verification subject to availability of fund. The mobilisation advance so paid shall be interest bearing @ 9% per annum effective from the day on which advance payment is made.
- 11.2 50% of the total work order value (excluding installation, commissioning and MPWC charges) or 70% if the mobilisation advance is not taken for each bill shall be released against delivery of goods in full and in good condition subject to availability of fund and after submission of :-
- 11.2.1. Certificate of supply of grid connected solar power plant received by the consignee as specified.
- 11.2.2. Commercial invoice of the supply made in triplicate.
- 11.2.3. Copy of delivery challan/transportation challan/lorry receipt
- 11.2.4. Material Inspection Certificate.
- 11.3 Remaining 30% of the contract price (excluding installation, commissioning and MPWC charges) and 100% of installation, commissioning charges shall be paid against duly verified completion report with successful installation and commissioning including erection and testing of the systems after submission of the following documents:
- 11.3.1. Certificate of installation, commissioning, integration to grid and testing of grid connected solar power plant.
- 11.3.3. Commercial invoice of the supply made in triplicate.
- 11.3.4. Copy of delivery challan/transportation challan/lorry receipt.
- 11.3.5. Verification of Certificate of Commissioning and testing from the consumer/ beneficiary countersigned by officer concerned.
- 11.3.6. Photographs along with details of module, inverter/PCU, metering etc. installed.
- 11.3.7. All payments shall be released by MANIREDA through e-payment through RTGS/account transfer for which the following mandatory information is to be furnished from the consumer;

Name of the Firm to whom payment is to be made	Name of bank	Bank Branch address	Account Number	Type of account	MICR Code	IFSC code	PAN No.
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### Performance Guarantee

- 11.4 The contractor has to deposit **@5% of the project cost (excluding MPWC cost) as Performance Guarantee in terms of irrevocable Bank Guarantee for the tenure of the contract including MPWC period.** For the successful bidders, the EMD submitted may also be adjusted as part of the Performance Guarantee, but the firm has to submit the balance in the form of BG to make requisite 5% Performance Guarantee. If the Solar system fails to confirm to the laid down systems specifications or any deviation/compromise has been observed in the system specifications etc., the performance guarantee deposit of the firm shall be forfeited.
- 11.5 MPWC charges shall be released on 5 equal yearly installments on satisfactory performance. The record of performance sheet/metering system duly attested by the Beneficiaries shall be submitted to MANIREDA on quarterly basis, by 15th of the next month.

## CHAPTER – V: GENERAL TERMS AND CONDITIONS

### **12.0 No Claim or Compensation for Submission of Tender.**

12.1 The bidder whose bid is not accepted shall not be entitled to claim any costs, charges, expenses and incidental incurred by him through or in connection with his submission of bid, even though MANIREDA may decide to withdraw the notice inviting bid.

### **13.0 Validity of Offer**

13.1 Unless otherwise specified, the bidder shall keep his tender valid initially for a period of 365 days from the due date of submission of the offer.

### **14.0 Award of Contract/Work Order**

14.1 The contract/work order shall be awarded to the bidder whose financial Bid was acceptable and who is selected by the Tender Committee of MANIREDA/Departmental Tender Committee to undertake the work at the approved rate and on approval of the Chairman, MANIREDA.

### **15.0 Effective Date of Contract**

15.1 The effective date of commencement of execution of the order by the selected contractor shall be the date of issue of the Purchase/Work Order whichever is earlier.

### **16.0 Contract Price**

16.1 The total contract price should include a detailed break up of cost for supply of each materials such as control electronics, inverter, energy meter, mechanical components, etc. including 5 years MPWC in Proforma – 8. The price shall be for the total scope as defined in this document.

16.2 The income tax shall be deducted as applicable at the existing rate.

16.3 During the period of the contract, MANIREDA may order addition/deletion in quantities/capacities which the bidder shall comply. The adjustment in Contract Price shall be made at the same unit rate as per **Price Schedule (Proforma – 8)**.

### **17.0 Statutory Variations in Taxes and Duties:**

17.1 The adjustment in the Contract Price towards imposition of new taxes or abrogation of existing taxes due to statutory variation shall be applicable only if the new tax is enacted or existing tax is abrogated within contractual delivery/execution period. For any upward variation due to enactment of new tax or abrogation of existing tax after contractual delivery/execution period, adjustment in the Contract Price shall not apply, although for any downward variation, MANIREDA shall make necessary adjustment in the rate of the items.

17.2 The Supplier shall bear and pay all liabilities in respect of statutory variations in taxes and duties and imposition of new taxes and duties that may be imposed after the contractual delivery/execution dates, as originally stipulated, in case the delivery dates are extended due to reasons attributable to Supplier.

### **18.0 Agreement:**

18.1 The Supplier/Contractor(s) have to enter into an agreement within two weeks, in the office of the Director, MANIREDA in prescribed format before commencement of supply/services.

### **19.0 Dispatch Instructions:**

19.1 All items/equipments may be subjected to pre-dispatch inspection by Director, MANIREDA or its authorized representative(s) as per relative standards/provisions approved by MANIREDA before dispatch of items. Cost of inspection by officials (not more than two) would be borne by the successful bidder.

## **20.0 Transit Insurance:**

20.1 Transit Insurance shall be arranged by the Supplier for his total supplies. In case of any damage/loss/pilferage/non-delivery during transit, the Supplier shall lodge the claim and settle the claim with the insurance agency. The Supplier shall also arrange replacement of the damaged, lost/pilfered items expeditiously pending settlement of commercial implications with insurance agency, if any, so as not to hamper the working of the system. The resultant loss if any due to failure of Supplier to comply with the above shall be to the account of the Supplier.

## **21.0 After Sales Service and Availability of Spare Parts:**

21.1 The Supplier shall depute authorized Service Engineer within 3 days from the date of the intimation of fault, and establish sufficient inventory of spares, well trained technicians in the State in consultation with MANIREDA to provide satisfactory and uninterrupted services during the guarantee/MPWC period for which a servicing centre must be established at Imphal. Address, contact number etc. of the Servicing centre must be submitted before commencement of the work.

## **22.0 Completion Schedule:**

22.1 The Project shall be completed in full as per the terms and conditions of the contract within **2 (Two) months** from the date of issue of the Work Order.

## **23.0 Guarantee/Warranty Period:**

- 23.1 The manufacturer must provide guarantee which include servicing & replacement guarantee for parts and components (such as electronics, inverters, meters etc.) of grid connected rooftop Solar Power Plant for 5 (five) years. For PV modules, it must be warranted for its 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 from the date of commissioning the SPPs at site & demonstration of performance to the MANIREDA.
- 24.2 The guarantee card to be supplied with the systems must be in original and contain the details of the system supplied as given in the Proforma - 6. The manufacturers can also provide additional information about the system and condition of guarantee as necessary.
- 24.3 Supplier/contractor shall without prejudice to any other clauses of the order repair/replace the defective parts and restore the system to satisfactory working/performance within 7(seven) days of intimation of fault without any additional cost to MANIREDA within the period of guarantee/ MPWC.

## **25.0 Assignment/Sub Letting/Pre Bidding Tie Up:**

- 25.1 The Supplier/contractor shall not assign or sub let, manufacture, shop testing, packing & forwarding, transportation, transit insurance and supply, in whole or part, its obligations to any third party to perform under the order/contract.
- 25.2 In the event the Supplier contravenes this condition, MANIREDA reserves the right to reject the equipment/work sub-contracted and procure the same from elsewhere at Supplier's risk and cost. The Supplier shall be solely liable for any loss or damage which MANIREDA may sustain in consequence or arising out of such replacing of the contract work.
- 25.3 In case, the installation & commissioning and MPWC is planned to be carried out in collaboration with other party, the bidder has to sign MoU with the party on a Non-judicial stamp paper of value not less than Rs. 100/- and submit a copy of the MoU along with the bid. The MoU shall clearly indicate division of scope of work between the prime bidder and his sub-vendor and terms of payment. However, the total responsibility of work will remain with the prime bidder.

## **26.0 Liquidated Damages for Delay in Completion:**

- 26.1 The completion period for the assignment must carefully be worked out and all resource & work planning is to be done accordingly with flexibility for adjustments.
- 26.2 If the Supplier fails in the due performance of the contract to deliver and commission any part of the equipment or complete the work within the scheduled date for any reason other than due to Force

Majeure conditions or any extension thereof granted to him by MANIREDA, he shall be liable to pay to MANIREDA as pre-agreed liquidated damages but not by way of penalty on account of delayed successful commissioning, a sum equal to 0.1% of total contract value per week of such delay, or part thereof, subject to maximum of 5% of the Total Contract Value.

- 26.3 The liquidated damages for delayed completion shall be recovered from the Supplier's Bill / Bank Guarantee deposited as Performance Guarantee.
- 26.4 Deductions/payment of liquidated damages shall in no way relieve the Supplier from his contractual responsibility to complete the works.

### **27.0 Cancellation of Order:**

- 27.1 MANIREDA will be at liberty to terminate in part or full the awarded contract without prejudicing its rights and affecting the obligations of the Contractor by giving seven (7) days notice in writing in the following events:
  - (a) If the Supplier is found defaulter for delayed supply or failure to deliver satisfactory performance or supply of substandard materials pursuant to NIB conditions.
  - (b) If the Supplier/Vendor fails to comply with the provision(s) of the contract including the responsibilities to fulfill the 5 years maintenance and performance warranty contract as per the provisions mentioned in this bid document.
  - (c) If the Supplier/Vendor is involved in any action of moral turpitude.

### **28.0 Arbitration:**

- 28.1 All disputes or differences, whatsoever, arising between the parties out of or in relation to the construction, meaning and operation or effect of this contract or breach thereof shall be settled amicably.
- 28.2 If, however, the parties are not able to resolve them amicably, the same shall be settled by arbitration in accordance with the Rules of Arbitration of the Indian Council of Arbitration and Conciliation & Arbitration Act 1996 and the award in pursuance thereof shall be binding on the parties.
- 28.3 The venue of arbitration proceeding shall be within Jurisdiction of Court of Law at Imphal only.
- 28.4 Work under this contract shall be continued by the Supplier during the arbitration proceedings, unless otherwise directed in writing by MANIREDA or unless matter is such that the work cannot possibly be continued until the decision of the Arbitrator is obtained.

### **29.0 Force Majeure:**

- 29.1 Should at any time during the continuance of the contract the performance in whole or in part of any obligations by either party under this contract be held up by reasons of any war, hostility, civil commotion, sabotage, fires, floods, earthquakes, explosions, epidemics, cyclones, quarantine restrictions, Governmental regulations, law & order and other proclamation etc. (hereinafter referred to as "Events") then, provided notice of the happening of any such eventuality is given by either party to the other within 15 days from the date of occurrence thereof neither party shall, by reasons of such eventuality, be entitled to terminate this contract, nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and the work under this contract shall be resumed as soon as practicable after such eventuality has come to an end or ceased to exist.
- 29.2 Should one or both the parties be prevented from fulfilling their contractual obligations by a state of force majeure, lasting continuously for a period of at least four (4) weeks, the two parties should consult each other regarding the further implementation of the contract.
- 29.3 The above-mentioned force majeure conditions/clause shall also apply in the works of sub-contractors/suppliers of the contractor.
- 29.4 However, the Supplier shall not be liable for liquidated damages or termination/ cancellation of order/contract if and to the extent that its delay in performance or other failure to perform its obligations under the contract is the result of an event of force majeure.

## CHAPTER – VI: TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below. Any shortcomings will lead to cancellation of subsidy in full or part as decided by MANIREDA & Competent Authority's decision will be final and binding on the bidder.

### A. GRID CONNECTED SPV POWER PLANT:

DEFINITION: A Grid Tie Solar 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.

- a) Solar PV modules consisting of required number of Crystalline PV modules.
- b) Grid interactive Power Conditioning Unit with Remote Monitoring System.
- c) Mounting structures.
- d) Junction Boxes.
- e) Earthing and lightening protections.
- f) IR/UV protected PVC Cables, pipes and accessories.

#### 1. SOLAR PHOTOVOLTAIC MODULES

Existing Solar Modules shall be utilized for this grid connected plant however if any SPV Module/Modules is/are found defective then the successful Bidder/Contractor shall replace it/them with a new one. Each and every solar module shall have to be cleaned first before commissioning of the plant and should be free from grime and dirt.

#### 2. ARRAY STRUCTURE

Existing array structure shall also be utilized for this grid connected plant.

#### 3. JUNCTION BOXES

- i) 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 JB's shall be such that input & output termination can be made through suitable cable glands.
- ii) 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 earthing should be placed at 5 feet height or above for ease of accessibility.
- iii) 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.
- iv) 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.

#### 4. DC DISTRIBUTION BOARD:

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

- ii) 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.

**5. AC DISTRIBUTION PANEL BOARD:**

- i) 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.
- ii) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- iii) The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- iv) 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
- v) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- vi) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- vii) Should conform to Indian Electricity Act and rules (till last amendment).
- viii) 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

**6. PCU/ Inverter:**

**A New 3(Three) phase Grid connected PCU/String Inverter(s) of 40 kVA shall be installed.**

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° C to 50° C
- Humidity : 95 % Non-condensing
- Protection of Enclosure : IP-20(Minimum) for indoor  
: IP-65(Minimum) for outdoor.
- Grid Frequency Tolerance range : + 3 or more
- 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



- i) Three phase PCU/ inverter shall be used with each power plant system.
- ii) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- iii) 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.
- iv) Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- v) 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.
- vi) 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.
- vii) 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.

**7. 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.

**8.. 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 /MANIREDA 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 MANIREDA server and portal in future shall be kept.

**9. NET METERING:**

- a) A bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy.
- b) 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 MANIREDA before commissioning of SPV plant.
- c) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

**10. 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.

**11. PROTECTIONS:**

The protection of Grid connected SPV power plant is an important feature.. The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

**11.1. LIGHTNING PROTECTION**

The SPV power plant shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The

entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 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.

#### 11.2. SURGE PROTECTION

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

#### 11.3. EARTHING PROTECTION

- i. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/MANIREDA 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.

#### 11.4. 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

### 12. 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: -10oC to +80oC.
- 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 entire solar system to the minimum. 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 colour.
- 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. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.
- viii. The Cable should be so selected that it should be compatible up to the life of SPV Modules 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 %.

**13. 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 8 kW	240V-single phase or 415V-three phase at the option of the consumer
Above 8 kW and up to 75 kW	415V – three phase supply
Above 75 kW upto 500 kW	33 kV/11 kV as per DISCOM rules

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

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

- a) 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 MANIREDA/owner.
- b) 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.

**15. 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 control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with MANIREDA/ owner.

**16. 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.

**17. SAFETY MEASURES:**

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

**18. DISPLAY BOARD**

The bidder has to display a board at the project site (above 25 kWp) mentioning the following:

- a) Plant Name, Capacity, Location, Type of Renewable Energy plant (Like Grid tied Rooftop solar power plant etc.), Date of commissioning, details of tie-up with transmission and distribution companies, Power generation and Export FY wise.
- b) Financial Assistance details from MANIREDA/MNRE/Any other financial institution apart from loan. This information shall not be limited to project site but also be displayed at site offices/head quarter offices of the successful bidder.
- c) The size and type of board and display shall be approved by Engineer-in charge before site inspection.

## 19. ONLINE MONITORING

Real time monitoring system as specified by MNRE for large systems shall be taken into account for monitoring the solar rooftop power plant.

## **CHAPTER-VII: FIVE YEARS MAINTENANCE & PERFORMANCE WARRANTY CONTRACT (MPWC)**

### **The Maintenance and Performance Warranty Contract (MPWC)**

- a. After the works are awarded to the successful Bidder/Bidders, he/they enter into a Maintenance & Performance Warranty Contract (MPWC) with MANIREDA which includes the scope of operation and maintenance of the SPV Power Plant for a period of 5(five) years. The date of MPWC period shall begin from the date of actual commissioning of the Solar Power Plant. The Maintenance & Performance Warranty Contract shall include servicing & replacement guarantee for parts and components (such as electronics, PCU/Inverter, etc.) of Solar Power Plant for 5 years from the date of installation. For PV modules, the replacement guarantee is for 20 years.
- b. The Contractor should keep a trained person permanently (present round the clock) for day today operation, troubleshooting, maintenance etc. at the SERVICE CENTRE for attending any fault as and when occurred.
- c. The maintenance service provided shall ensure proper functioning of the grid connected rooftop SPV Power Plant as a whole. All preventive/routine maintenance and breakdown/corrective maintenance required for ensuring maximum uptime shall have to be provided by the Contractor. MANIREDA will provide the format of Maintenance sheet for submitting the Performance Report quarterly. The Contractor shall furnish a Performance Report duly attested by the Beneficiary alongwith the hard copy/printout of the daily performance data of the Plant for every quarter (3 months) shall be submitted to MANIREDA quarterly within 15<sup>th</sup> day of following month during the MPWC period. The MPWC shall have two distinct components as described below.

### **2.0 Preventive/Routine Maintenance**

- 2.1 This shall include activities such as, cleaning and checking the health of the SPV Power plant, cleaning of module surface, tightening of all electrical connections, changing of tilt angle of module mounting structure, and any other activity that may be required for proper functioning of the SPV Power Plant as a whole.

### **3.0 Breakdown/Corrective Maintenance**

- 3.1 Whenever a complaint is lodged by the consumer, the bidder shall attend to the same within a reasonable period of time 3 days and in any case the breakdown shall be corrected within a period not exceeding 7 days from the date of complaint.
- 3.2 The bidder shall maintain the following facilities at the local Service Centre for ensuring highest level of services to the end user;
  - (i) Adequately trained manpower, specifically trained by the bidder for carrying out the service activities.

- (ii) Adequate provisions for record keeping, which shall inter-alia, include the following:
    - (a) Details of system supplied within the command area of the service station including full name and address of consumer, system and sub-system serial numbers and records of routine maintenance carried out (duly signed by the consumer). These records shall include voltage, current, specific gravity, indicator charge, full glow, inverter operation, electronics, etc.
    - (b) History record sheets of maintenance done.
  - (iii) Adequate spares and manpower for ensuring least down time of an individual system.
  - (iv) The Service Center shall send summary service reports to MANIREDA on quarterly basis. These reports shall include the following information:
    - (a) Number/Type of components of the Plant covered by the Service Center.
    - (b) Number/Type of components/systems working satisfactorily on the reporting date.
    - (c) Number of complaints received during the period of reporting.
    - (d) Number of complaints attended during the period of reporting.
    - (e) Major cause of failure, as observed
    - (f) Major replacement made during the reporting period. Separate report shall be submitted for each type of systems manufacture wise in case the service center caters to the requirement of more than one manufacture
    - (g) Hard copy/printout of the daily performance data of the Plant for the last quarter.
- 3.3 The records maintained at the Service Center shall be available from time to time to MANIREDA.
- 3.4 The date of MPWC maintenance period shall begin on the date of actual commissioning of the SPV systems. If during the MPWC period, the Solar Power Plant becomes non-functional due to any defect or shortage of spares etc. for a period more than 1 week then the time duration of this non-functional period will be extended in the MPWC period.
- 3.5 Any payment for release of MPWC charges will not be entertained or put up to Higher Authority of MANIREDA without the Performance Report duly attested by the authority of Beneficiary.
- 3.6 Bidder shall furnish details of infrastructure that are presently available for establishing of Service Centers.

## 7. Proforma – 1

### Forwarding Letter

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

To,

The Director  
Manipur Renewable Energy Development Agency (MANIREDA),  
2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel,  
Imphal - 795001.

**Sub:** Offer in Response to Notice Inviting Bid No. MANIREDA/SPP/SADP/2019-20/14 for;

- (i) Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years Maintenance and Performance Warranty Contract (MPWC).

Sir,

With reference to the above we are submitting this offer after having fully read and understood the nature of the work and having carefully noted all the specifications, terms & conditions laid down in the bid document. This offer is hereby submitted in sealed envelopes duly marked as indicated below:  
(Technical Proposal): Submitted in original

The Financial Proposal is submitted online in e-tender  
We also confirm that:

1. We are an Indian company/firm.
2. We have never been debarred from executing similar type of work by any Central/ State/ Public Sector Undertaking/Department/Nodal Agency.
3. The Bid Document is downloaded from MANIREDA website and necessary document in support is enclosed.
4. We shall execute the offer/work order as per specifications, terms & conditions of the Bid Documents on award of work.
5. Our offer shall remain valid for placement of purchase orders up to 365 days from the due date of submission of offer.
6. If at any time, any of the declarations submitted by us is found to be false, our offer or order is liable to rejection.

Yours faithfully,

(Signature of Authorized Signatory)

Name :  
Designation :  
Company Seal :

8. Proforma – 2

**Authority Letter for Attending Bid Opening Meeting & Signing Bid Document**

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

To,

The Director

Manipur Renewable Energy Development Agency (MANIREDA),  
2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Hotel Imphal,  
Imphal-795001.

**Sub: Authority Letter for Attending Bid Opening Meeting & Signing Bid Document.**

I hereby authorize ..... (Name & Designation) to attend the **Bid Opening Meeting & sign the Bid Document** (*tick wherever applicable or tick both, if same person is to attend*) to be held on..... at MANIREDA on behalf of our company.

He is also authorized to provide clarifications/confirmations, if any, and such clarifications/ confirmations shall be binding on the company. The specimen signature of ..... is attested below.

.....

(Specimen Signature)  
Name : .....  
.....

(Signature of Authorized Signatory)  
Name : ..... Designation:  
Designation : .....  
Company Seal :

Yours faithfully,

(Signature of Authorized Signatory)  
Name :  
Designation :

Note:

- 1. To be submitted by bidders on official letter head of the company.



### 9. Proforma – 3

#### Information about the Bidding Firm

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

SI.	Particulars			
1.	Name of the Bidder			
2.	Address of Bidder with Telephone, Fax, email			
3.	Address of the Registered Office			
4.	Address of the works			
5.	GPS Co-ordinate of Registered Office			
6.	GPS Co-ordinate of Factory Campus			
7.	Name & Designation of Authorized Signatory for Correspondence			
8.	Nature of Firm (Proprietorship/Partnership /Pvt. Ltd./Public Ltd. Co./Public Sector)			
9.	Permanent Account Number (PAN)			
10.	Firm's Registration Number			
11.	EPF Registration No. (if applicable)			
12.	Sales Tax/Value Added Tax Registration Number			
13.	Specify the Item Originally Manufactured			
14.	Year of Starting of Manufacturing/ Assembling of PV Component(s)			
15.	Installed Capacity for Solar Products/ Components/Plant			
16.	Total Production and Sale of PV Products During the Last Three Years (in Rupees)	2013-14	<b>Production</b>	<b>Sales</b>
		2014-15		
		2015-16		
17.	Name of Material and Model Type Offered			
18.	Name of Manufacturer of SPPs with Full Address			
	1.	SPV SPPs		
	2.	PV Module		
	3.	Control Electronics/Inverter/PCU		
19.	Particulars of Earnest Money			

20.	Quantity Quoted for Solar Power plant	
21.	Name of the Test Center where the testing of Components SPP has been performed	
22.	Test Report No. of components SPP mentioning date of test	
23.	Specify MNRE specification as in the test report	
24.	Place where Materials will be Manufactured	
25.	Place where Materials will be Available for Inspection	
26.	Whether the Bidder has submitted details with regard to supplies made to important organizations.	
27.	Details of any existing service network in Manipur (Name & address of service centre)	
28.	Other details and remarks, if any	

Yours faithfully,

(Signature of Authorized Signatory)

Name : Designation  
: Company  
seal :

(Separate sheet may be used for giving detailed information in seriatim duly signed. This bid proforma must be submitted duly signed in case separate sheet is submitted).

### 10.Proforma – 4

<b>Details of Orders Received and Executed in Past Years</b>
--

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

Details of Orders Received & Executed by the Manufacturer/Supplier for Supply of SPPs to SNA/  
Govt. Organization/ Govt. Deptt. during past Years.

Sl. No.	Name of Agency/ Organization	Purchase Order No., Date & Ordered Qty.	Name of Model	Delivery Schedule	Qty. Supplied Within Delivery Schedule	Qty. Supplied After Delivery Schedule	Date of Full Supply

Yours faithfully,

(Signature of Authorized Signatory with  
Name Designation & Company Seal)

Note:

- (a) Attach Photocopies of Purchase Orders
  - (b) Attach Photocopies of Certificate of Satisfactory Performance Issued by Concerned Agency/Organization
  - (c) Separate sheet may be used for giving detailed information in seriatim duly signed.
- This bid proforma must be submitted duly signed in case separate sheet is submitted

**11.Proforma – 5**

**No Deviation Certificate**

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

To,

The Director  
Manipur Renewable Energy Development Agency (MANIREDA),  
2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel,  
Imphal-795001.

Dear Sir,

We understand that any deviation/exception in any form from our bid against the above mentioned reference number may result in rejection of our bid.

We, therefore, certify that we have not taken any exceptions/deviations anywherein the bid and we agree that if any deviation is mentioned or noticed, our bid may be rejected.

Yours faithfully,

Name : (Signature of Authorized Signatory)  
Designation :  
Company seal :

Note : This "No Deviation Certificate" should be written on the letter head of the bidder indicating BID No. duly signed and stamped with date by a person competent and having the power of attorney to bind the bidder.

**12. Proforma – 6**

<b>Format for Guarantee Card</b>
----------------------------------

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date:.....

(To be supplied by bidders on the official letter head of the company/firm)

**Guarantee Card**

	Name & Address of the Manufacturer/ Supplier of the System	
	Name & Address of the Purchasing Agency	
	Date of Supply of the System	
	Details of PV Module(s) Supplied in the System	
	Name of the Manufacturer	
	Make	
	Model	
	Serial No.	
	Wattage of the PV Module(s) under STC	
	Guarantee Valid Upto	
	Details of PCU/Inverter & Other BOS Items	
	Name of the Manufacturer	
	Make	
	Model	
	Serial No(s).	
	Month & Year of Manufacture	
	Guarantee Valid Upto	
	Energy Meters	Particulars and its configuration i) To be approved by CEA, ii) Prior approval from MSPDCL and MANIREDA to be accorded
	Designation & Address of the Person to be Contacted for Claiming Guarantee Obligations	

(Signature of Authorized Signatory with Name,  
Designation & Company Seal)

### 13. Proforma – 7

#### Format of Completion Certificate

Office of the

#### MANIPUR RENEWABLE ENERGY DEVELOPMENT AGENCY (MANIREDA)

(An Autonomous Govt. Agency under the Department of Power)

2<sup>nd</sup> Floor, South Block, Secured Office Complex, A.T. Line, Near Imphal Hotel, Imphal – 795001, Phone: 385-2444027

#### TO WHOM IT MAY CONCERN

Imphal, dated .....

No.: 58/1/2009/SADP/MANIREDA/Pt-I: This is to certify that M/s ..... has Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years Maintenance and Performance Warranty Contract (MPWC) as follows;

Sl. No	Work Order No. & Date	Site Address	Type of System	Capacity	Qty.	Date of Completion
1.	58/1/2009/SADP /MANIREDA/Pt-I  Dated: .....	Raj Bhavan, Manipur.	Grid connected SPV Power Plant.	40kWp	1 No.	.....

Work Order Value	Rs. ....
Executed Work Value	Rs. ....

The installed grid connected SPV power plant is operating satisfactory.

(L. Manglem Singh)  
Director

Copy to:

- (i) M/s .....(Installing Firm)
- (ii) Guard file.

## 14. Proforma – 8

**Format for Submitting the PRICE SCHEDULE/FINANCIAL BID (To be submitted OFFLINE only) for; Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years MPWC.**

NIB No.: MANIREDA/SPP/SADP/2019-20/14

Date : .....

To,  
The Director  
Manipur Renewable Energy Development Agency (MANIREDA),  
2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel,  
Imphal-795001.

### Price Schedule

Sl. No.	Item	Unit	Total Bid Qty.	Amount (Rs.)
1.	<b>Project Cost for Modification/Conversion of existing 40 kWp Grid connected Solar Power Plant (SPP).</b>	Set	1	
2.	Materials Cost for Modification/Conversion of existing 40 kWp Grid connected Solar Power Plant (SPP) including Supply of 40 kVA Grid connected string inverter, Import Export meter, RMS & data logger, DCDB, LT Panel/ACDB, DC copper cables, aluminium cables, Earthing systems, wiring materials, other necessary accessories etc. <b>@ 70% of Sl. No. 1.</b>	Set	1	70% of Sl. No.1.
3.	Installing and Commissioning Cost for 40 kWp Grid connected Solar Power Plant. <b>@ 15% of Sl. No. 1.</b>	Set	1	15% of Sl. No.1.
4.	5 yrs. Maintenance and Performance Warranty Contract (MPWC) Cost for 40 kWp Grid connected Solar Power Plant. <b>@ 15% of Sl. No. 1.</b>	Set	1	15% of Sl. No.1.
5.	GST 5% on <b>Sl. No. 2.</b>			
6.	GST 18% on <b>Sl. No. 3.</b>			
7.	GST 18% on <b>Sl. No. 4.</b>			
8.	<b>Total Cost (Work Order Value to the Firm)</b> Sl. Nos. (1+5+6+7)			(1+5+6+7)
9.	<b>State Govt. Charges:</b>			
10.	Labour Cess @1% on <b>Sl. No. 3.</b>			
11.	Contingency Charge @3% on <b>Sl. No. 3.</b>			
12.	Contingency Charge @3% on <b>Sl. No. 4.</b>			
13.	Agency Charge @ 11.75% on <b>Sl. No. 3.</b>			
14.	<b>Grand Total</b> Sl. Nos. (8+10+11+12+13)			(8+10+11+12+13)

**(SUBMIT THE FINANCIAL BID IN PHYSICAL FORM ONLY)**

Yours faithfully,  
(Signature of Authorized Signatory)  
Name:  
Designation:  
Company Seal:



**15. Proforma- 9**  
(On the Letter Head of the Firm)

<b>PROFORMA OF APPLICATION FOR PAYMENT</b>
--

Unit Reference:	Date:
Name of Contractor:	Contract No.:
Contract Name :	
Application Serial Number. :	Contact Value :

To,  
The Director  
Manipur Renewable Energy Development Agency (MANIREDA),  
2<sup>nd</sup> Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel,  
Imphal-795001.

Dear Sir,

**APPLICATION FOR PAYMENT**

Pursuant to the above referred Contract dated .....the undersigned hereby applies for payment of the sum of ..... (Specify amount and currency in which claim is made).

9. The above amount is on account of :[TICK whichever is applicable]
- Initial advance
  - Interim Payment as advance
  - Progressive payment against dispatch of equipment
  - Progressive payment against receipt of equipment at site
  - Progressive payment against Erection/installation & commissioning/testing
  - Ocean freight & marine insurance
  - Inland transportation
  - Inland insurance
  - Price adjustment
  - Extra work not specified in Contract  
(Ref. Contract Change order No.....)
  - Other (specify)
  - Final payment
- As detailed in the attached Schedule (S) which form an integral part of this application.
10. The payment claimed is as per item(s) No.(s) ..... of the payment schedule annexed to the above – mentioned Contract.
11. The application consists of this page, a summary of claim statement and the following signed schedule
- i).....
  - ii).....
  - iii).....
- The following documents are also enclosed
- a).....
  - b).....
  - c).....

Signature of Contractor/

**16. Proforma-10**

**MATERIALS INSPECTION CLEARANCE CERTIFICATE (MICC)**

1. Name of the Work: Design, supply, installation & commissioning of 40 kWp Grid connected SPV Power Plant at Raj Bhavan, Imphal, Manipur by Modification/Conversion of existing Off-Grid 40 kWp SPV Power Plant with integration to Grid including 5 years Maintenance and Performance Warranty Contract (MPWC).
2. Name of Worksite/Location: Raj Bhavan, Imphal, Manipur.
3. Name of the Firm/Contractor: : .....
4. Work Order No.: ..... dated .....
5. Shipment No.....
6. Date shipped:.....,
7. Shipped From .....
8. Shipped To Imphal

SL. No.	Item Description	Qty./ system	Invoice No. & date	Challan No. & date	Make	Unit price	Amount	Remarks
1	2	3	4	5	6	7	8	9

**9. Enclosed documents:** Packing List with model numbers, Invoice, Challan, Goods Consignment Note, Way Bill etc.

**10. Inspected on:** .....and ..... jointly by MANIREDA officials and representative of M/s .....and found okay.

Date:  
Name:  
Designation: Scheme Officer

Signature of authorized MANIREDA representative

## 18. Check List & Format for Submission of Bid

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

Sl. No.	Annexure and Proforma No.	Particulars	Yes/No, Flag No.	To be done
1.	Annexure-I	Details of Earnest Money (D.D from any nationalized bank and validity for at least 3 months from the last date of submission of bids)		Hard copy
2.	Annexure-II	A copy of the document/certificate that the bidder is Company/Firm/Corporation registered in India, manufacturing SPV Cells/Modules/PCU/inverter (conforming to relevant National/International Standards)		Hard copy
3.	Annexure-III	A copy of the Certificate for solar module as per IEC Standards.		Hard copy
4.	Annexure-IV	Test Certificate conforming to MNRE approved specifications of Grid connected string Inverter/PCU & for luminary from MNRE authorised testing centres/NABL accredited)		Hard copy
5.	Annexure-V	A copy of valid GST registration Certificate		Hard copy
6.	Annexure-VI	A summarized sheet of cumulative experience of the bidder of Design, supply, erection, testing , I&C of grid connected solar power plants including I&C of a minimum of 50 kWp SPV Power Plant whose work order should be in the name of the bidder.		Hard copy
7.	Annexure-VII	Overall Average Annual Turnover of the Company/Firm/Corporation in the last 3 financial years (A summarized sheet of turnover of last 3 Financial Years certified by registered CA)		Hard copy
8.	Annexure-VIII	MNRE accredited Grid connected solar power plant Channel Partner/Programme Administrator with Credit Rating(from MNRE Accredited Rating Agency)		Hard copy
9.	Annexure-IX	The bidder has ISO 9001 certification		Hard copy
10.	Annexure-X	The bidder has ISO 14001 certification		Hard copy
11.	Annexure-XI	Copy of MoU signed for Pre-bid tie-up		Hard copy
12.	Annexure-XII	Demand Draft for cost of bid document/Photocopy of Demand Draft		Hard copy
13.	Annexure-XIII	Letter of acceptance to furnish the true information in Proforma – 3, Proforma – 4 & Proforma – 5.		Hard copy
14.	Annexure-XV	Technical Particular data sheet of Grid connected SPP of Bidder		Hard copy
15.	Annexure-XVI	Copy of audited Balance Sheet and Profit & Loss Account for last 3 (three) years		Hard copy
16.	Annexure-XVIII	A tentative overall supply schedule in the form of Bar Chart		Hard copy
17.	Proforma – 1	Forwarding Letter		Hard copy
18.	Proforma – 2	Authority Letter for Attending Bid Opening Meeting and Signing Bid Document.		Hard copy
19.	Proforma – 3	Information about the Bidding Firm		Hard copy
20.	Proforma – 4	Details of Orders Received and Executed in Past Years		Hard copy
21.	Proforma – 5	No Deviation Certificate		Hard copy
22.	Proforma - 8	Price Bid		Hard copy

**Please ensure:**

1. That all information is provided strictly in the order mentioned in the check list mentioned above.
2. Note that this is a zero deviation tender. Bidders are advised to strictly confirm compliance to bid conditions and not to stipulate any deviation/conditions in their offer. Subsequent to bid submission, MANIREDA may or may not seek confirmations/clarifications and any offer(s) not in line with Bid conditions shall be liable for rejection.
3. Any clarification/confirmation bidder may require shall be obtained from MANIREDA before submission of the bid.
4. Bidder shall submit complete bidding document including subsequent amendment, modification and revision, duly signed and stamped as a token of having read, understood and accepted all the terms and condition mentioned therein.

..... End of the Bid Document .....