

TENDER BID DOCUMENT

e-TENDER for

Design & supply of about 500 kWp Grid connected Rooftop SPV Power Plant, Installation & Commissioning including integration to grid and Maintenance & Performance Warranty Contract (MPWC) for 5 years at Govt. Institutions in Manipur

NIB No. 2/SPP/RT/MANIREDA/2016-17

Under

**Jawaharlal Nehru National Solar Mission
Of
The Ministry of New and Renewable Energy**

For the Year 2016-17

Manipur Renewable Energy Development Agency (MANIREDA)

2nd Floor, South Block, Secured Office Complex, A.T. Line, Near Hotel Imphal, Imphal-795001
Tele Fax : 0385-2421594, e-mail : manireda99@yahoo.com, Website : www.manireda.com

(This tender document is having 42 pages including this page)

Cost of bid document: Rs. 10,000/-

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No. 62/21/2014/SPP/RT(Pt-I)/MANIREDA:

Imphal, dated 15/9/2016

NOTICE INVITING BID

Online tenders are invited from eligible MNRE accredited channel partners/firms of Grid connected Rooftop Solar Photo Voltaic (SPV) power plant programme for design, supply, installation and commissioning including integration to grid and 5 years Maintenance & Performance Warranty Contract (MPWC) at different Govt. Institutions in Manipur.

| Tender Specification No. | Cost of Bid Document | Pre-Bid discussion | Last date & time for submission of E-Tender |
|---|-----------------------------|---------------------------|--|
| NIB No. 2/SPP/RT/MANIREDA/2016-17 dtd. 15/9/2016 | Rs. 10000/- | 11.00 a.m. 29/09/2016 | 06/10/16 upto 12.00 Noon Sharp |

Tender Document can be downloaded from the website www.manipurenders.gov.in or www.manipur.gov.in or www.manireda.com. Bidders have to upload their bid at www.manipurenders.gov.in

Last date & time of submission of Hard copy of Bid Document is 12.00 Noon of 6th of Oct., 2016

Sd/-

(L. Manglem Singh)
Director, MANIREDA

2. Bid at a glance

TENDER FORM NO :

ISSUED TO : M/s

TENDER FEE DETAILS : Vide Receipt No..... Dt

DD No Bank

| Sl | Description | Details |
|----|--|---|
| 1. | Notice Inviting Bid (NIB) | 2/SPP/RT/MANIREDA/2016-17 dated 15/09/2016 |
| 2. | Scope of work | (i) Design & supply of plant and necessary equipments of aggregate capacity of 500 kWp Grid connected Rooftop SPV Power Plant (ii) Installation & Commissioning including integration to grid (iii) 5 years Maintenance and Performance Warranty Contract (MPWC) at Govt. Institutions in Manipur. |
| 3. | Capacity of the power plants to be installed | The quantity mentioned above is tentative & is subject to increase or decrease depending on the actual requirement at the time of placing order and resources available and as per discretion of MANIREDA. |
| 4. | Last date of uploading of bid document in the e-tender | Date : Up to 12.00 noon of 4 th October, 2016 e-tendering site : https://manipur-tenders.gov.in |
| 5. | Last date & time of submission of Hard copy of bids | Date : 6 th October, 2016 Time : Upto 12.00 noon (submission of documents after 12.00 noon will not be accepted at any circumstances and not eligible) |
| 6. | Date & time of opening of Technical Bid | Date: 6 th October, 2016. Time : 2 .00 pm sharp. Venue : Office of the Director, MANIREDA, 2 nd Floor, South Block, Secured Office Complex, AT Line, Imphal. |
| 7. | Cost of bid document (Non-refundable) | Rs 10,000/- in the form of D.D. favoring Director MANIREDA payable at Imphal. |
| 8. | Earnest Money Deposit (Refundable) | Rs. 11.00 lakhs only in the form of D. D. favoring Director MANIREDA, payable at Imphal. |
| 9. | Pre-Bid Discussion | i) A Pre-Bid Meeting of the Prospective Bidders will be held at 11.00 a.m. on 29/09/2016 at the office of Director, MANIREDA, 2 nd Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel, Imphal-795001, Manipur. ii) The specific site/ building, capacity of the power plant to be installed shall be finalised at the time of pre-bid discussion. iii) Bids of only those Bidders who attend the Pre-Bid Meeting will be eligible for the tender. |

| | | |
|-----|---|--|
| 10. | Place of submission of bid documents and address for communication/ Bid Opening Meeting | Manipur Renewable Energy Development Agency (MANIREDA), 2 nd Floor, South Block, Secured Office Complex, AT Line, Near Hotel Imphal, Imphal - 795001. Phone No. 0385-2421594; Fax No. : 0385-2421594, Website : www.manireda.com , E-mail : manireda99@yahoo.com |
| 11. | 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. |
| 12. | Time of completion | Within one (1) year from the date of placement of work order |
| 13. | Validity of offer | The offer shall remain valid up to 365 days from the date of submission of offer. |
| 14. | 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. |
| 15. | 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)

2nd 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

NIB No. : 2/SPP/RT/MANIREDA/2016-17

Date: 15/09/2016

Sub : Design, supply, installation & commissioning including integration to grid and testing of aggregate capacity of 500 kWp Grid connected rooftop SPV Power Plant with 5 years Maintenance and Performance Warranty Contract(MPWC) from the date of commissioning in different Govt. Institutions in Manipur.

Dear Sir/Madam,

Manipur Renewable Energy Development Agency (MANIREDA), Imphal is inviting offers 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. : 2/SPP/RT/MANIREDA/2016-17 dated 15/09/2016.

1.2 This Bid Document comprises of total 19 chapters 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, 2nd 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 Manipur E-Tender website (www.manipur.tenders.gov.in) and MANIREDA website (www.manireda.com) and submit the cost of the bid document amounting Rs 10,000/-, as applicable, along with Technical Bid.

3. Earnest Money

3.1 EMD for an amount of Rs. 11.00 lakhs 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 earnest money will be rejected.

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

3.4 No interest will be paid on EMD.

3.5 The earnest money 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

- 4.1 **In case of claim for exemption from deposition of cost of Tender and Earnest Money, sufficient proof in support of claim for exemption of EMD as prescribed in Govt. of India Notification and other competent authority is to be attached with the Bid.**

5. Submission of Bids:

Bidders have to upload the document mentioned in Para 6.1 in the e-tender website (<https://manipurenders.gov.in>). Bidders shall also have to submit hard copies of the uploaded documents as well as stated at Para 6.4 & 6.5:

- 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 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. Any part of the bid, which is not specifically signed by the authorized signatory and not affixed with company seal, shall not be considered for the purpose of evaluation.
- 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 Hard copy of Bid Document should be submitted in Hard Bond or Spiral Binding.
- 5.8 The Bid Document should have proper paging and flagging of Annexures/details.
- 5.9 Documents without proper binding and proper paging etc. will not be considered in the evaluation.
- 5.10 Any Overwriting /illegible/erasing, etc. in the documents submitted by the firms shall not be accepted.
- 5.11 Insertion, post-script, addition and alteration in Hard Copy shall not be recognized unless confirmed by bidder's signature and stamp.
- 5.12 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.
- 5.13 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 to both upload document as well as submit hard copy as stated below:

- 6.1 The bidder shall submit/upload the scanned copies of the following documents with Digital Signature certificate in the E-tender:
 - (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 Rooftop Solar power plants under JNNSM with credit rating
- (vii) Test Reports of components like PV module, Inverter, Energy meters etc. from approved/competent testing centres.
- (viii) Bidders should have installed and commissioned at least one 50 kWp capacity of Grid connected Rooftop SPV Power plant and a cumulative achievement of 500 kWp on-grid or more capacity whose work order issued in the name of the bidder to Govt. aided/Govt. Deptt./Institutions/Private Institution.
- (ix) A summarized sheet of turnover for last 3 yrs certified by registered Chartered Accountant.
- (x) Letter of authorized dealer/service provider registered as per MVAT Act in Manipur
- (xi) ISO 9001 certificate
- (xii) ISO 14001 certificate.
- (xiii) Registration Certificate of Company/Firm.

- 6.2. The bidder shall download the template of Price Bid/Schedule of Works /Bill of Quantity (BOQ) as mentioned in the Proforma-9 which is uploaded in the Tender in the aforesaid site (<https://manipurenders.gov.in>). After downloading the BOQ, the bidder shall fill their rate & quantity of the items as per BOQ, digitally signed and upload the filled BOQ in the same site.
- 6.3. The bidder need not submit BOQ/Price Bid in hard copy as done.
- 6.4. The bidder also must submit Hard copy of documents stated above at Para 6.1(i) to 6.1(xiii) with all supporting documents like copies of work orders in support of cumulative experience clearly indicating Amount and capacity of work.
- 6.5 In addition, the bidder must submit hard copy of other remaining Proformas and Annexures as listed in the Check list with supporting documents.
- 6.6 The hard copy of Technical Bid should be submitted in a sealed envelope superscribed "NIB No.: 2/SPP/RT/MANIREDA/2016-17 (Technical Bid)", to the office of MANIREDA, 2nd 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 (for the bidders who have downloaded the bid document from web site).
 - (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.
- 6.7 Only one copy of Technical Bid (hard copy) should be submitted.
- 6.8 The hard copy with earnest money and cost of tender document has to be submitted during the period upto 12 noon of 6th October, 2016 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) Visit to the Work site / building,
 - b) Plant and equipments to be installed,
 - c) Smooth implementation of the project, etc.
- 7.3 **E-Tenders of the Bidders who do not attend this Pre-Bid Meeting will be outrightly rejected & Technical Bids submitted by them will not be opened during Technical Bid. Bidders are advised to quote their Price only after seeing the Work site. The capacity of the power plant with the specific site shall be finalized at the time of Pre-Bid discussion. Any complaint beyond the Pre-Bid discussion shall not be entertained under any circumstances.**

- 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 Rooftop Solar Power Plants (installed & commissioned). The Bidders should have designed, supplied, installed & commissioned and tested a minimum of 50 kWp and a cumulative achievement of 500 kWp on grid connected Rooftop 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 Rooftop 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) and those bidders whose application is under process are not eligible for the Tender.
- 8.3 Bidder should have Test Certificate for the components of tend ered capacity of Grid connected Rooftop Solar Power Plant like PCU/Inverter, PV module, 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 (2013-14, 2014-15 & 2015-16) should be at least **10.00 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 Scope of work as mentioned in the 'Bid at a glance'. 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.
- 9.2 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 Capacity of rooftop solar power plant for a particular building will be on the basis of available rooftop area and other parameters. Capacity of 500 kWp mentioned in the tender may be increased or decreased as per availability of fund, rooftop area and other conditions as decided by MANIREDA.
- 9.4 The bidders should beforehand thoroughly familiarized with the sites 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/price/cost of the work due to any reason will not be entertained at any circumstances.
- 9.5 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.
- 9.6 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.
- 9.7 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) regularly and keep themselves informed.
- 9.8 Bidders shall download the 'Manipur Grid Interactive Rooftop Solar Power Plant Policy 2014" from the website www.manireda.com and should be thorough in it.
- 9.9 As per the existing Grid connected rooftop Policy of the State Govt., integration voltage of the power plant to grid shall be as follows:
- | | |
|------------------------------------|--------------------------------|
| Load upto 8 KW | : to low voltage single phase; |
| Supply Load >8kW and upto 75kW | : low voltage three phase and |
| Supply Load >75 kW and upto 500 KW | : 33kV/11KV. |
- 9.10 The prices shall be evaluated for SPV Power Plant on the Total Price (P):-
- (a) System cost including, insurance, transportation etc. FOR at different destinations assigned by MANIREDA in Imphal,
 - (b) Installation & Commissioning including VAT, Labour Cess, Service Tax etc.
 - (c) Injection to the grid and to be tested and
 - (d) MPWC for 5 years period including Service Tax.
- 9.11 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 of grid connected rooftop power plant at different Govt. Institutions.

10.0 Price

10.1 The Bidder shall quote price as per Proforma - 9. 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 from MNRE, GoI or other sources. 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 from MNRE, GOI or other sources and after submission of :-
- 11.2.1. Certificate of supply of grid connected rooftop 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 rooftop solar power plant received by the consignee as specified in Proforma – 7.
 - 11.3.2. Details of the module, PCU/Inverter utilization report of SPP installed under the SPV Program as specified in Proforma-8
 - 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 in soft copy(CD/DVD).
 - 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. |
|--|--------------|---------------------|----------------|-----------------|-----------|-----------|---------|
|--|--------------|---------------------|----------------|-----------------|-----------|-----------|---------|

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 conform 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 Capacity Required

- 15.1 The capacity required as given in the Bid Details of Notice Inviting Bid is tentative and is subject to increase or decrease depending upon the actual requirement at the time of placing order and resources available.

16.0 Effective Date of Contract

- 16.1 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.

17.0 Contract Price

- 17.1 The total contract price and 5 years MPWC. in full and complete set including SPV module, control electronics & inverter, energy meter, mechanical components, etc. should be quoted in Proforma - 9. The price shall be for the total scope as defined in this document.
- 17.2 The income tax shall be deducted as applicable at the existing rate.
- 17.3 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 - 9).

18.0 Statutory Variations in Taxes and Duties:

- 18.1 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.

- 18.2 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.

19.0 Agreement:

- 19.1 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.

20.0 Inspection of the Factory and Tests:

- 20.1 MANIREDA reserves the right to inspect the manufacturer's works/factory to ascertain the capability/availability of necessary equipment & infrastructure required for the items offered before opening of the Financial Bid of the bidders.
- 20.2 MANIREDA shall have access and right to inspect the work or any part thereof at any stage.
- 20.3 MANIREDA shall have the right to inspect and test the goods to confirm their conformity to the technical specifications after delivery of goods to consignee.
- 20.4 Successful bidder shall inform MANIREDA at least 25 days in advance of schedule dispatch.

21.0 Dispatch Instructions:

- 21.1 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.

22.0 Transit Insurance:

- 22.1 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.

23.0 After Sales Service and Availability of Spare Parts:

- 23.1 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.

24.0 Completion Schedule:

- 24.1 The delivery of goods at FOR destination in full as per the terms and conditions of the contract/order shall be completed within **three (3) months** from the date of issue of the Work Order whichever is earlier.

25.0 Guarantee/Warranty Period:

- 25.1 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 consignee/MANIREDA.
- 25.2 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.
- 25.3 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.

26.0 Assignment/Sub Letting/Pre Bidding Tie Up:

- 26.1 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.
- 26.2 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.
- 26.3 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.

27.0 Liquidated Damages for Delay in Completion:

- 27.1 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.
- 27.2 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.
- 27.3 The liquidated damages for delayed completion shall be recovered from the Supplier's Bill / Bank Guarantee deposited as Performance Guarantee.
- 27.4 Deductions/payment of liquidated damages shall in no way relieve the Supplier from his contractual responsibility to complete the works.

28.0 Cancellation of Order :

- 28.1 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.

29.0 Arbitration :

- 29.1 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.
- 29.2 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.
- 29.3 The venue of arbitration proceeding shall be within Jurisdiction of Court of Law at Imphal only.
- 29.4 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.

30.0 Force Majeure :

- 30.1 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, acts of foreign enemy, 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.
- 30.2 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.
- 30.3 The above-mentioned force majeure conditions/clause shall also apply in the works of sub-contractors/suppliers of the contractor.
- 30.4 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 cancelation of subsidy in full or part as decided by MANIREDA & Competent Authority's decision will be final and binding on the bidder.

1. DEFINITION

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.

- 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.

1.1. SOLAR PHOTOVOLTAIC MODULES:

1.1.1. The PV modules used should be made in India.

1.1.2. 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-1- requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

- a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to 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 250 Wp 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. MANIREDA 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. I-V curves at STC should be provided by bidder.

1.1.3. Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules (This can be inside or outside 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, I_m , V_m 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

1.1.4. 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.

2. 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 insolation. However to accommodate more capacity the angle of 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 Manipur-wind speed of 200 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 MANIREDA. 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 bearing capacity of the roof and need to 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/m².
- h) The minimum clearance of the structure from the roof level should be 300 mm.

3. 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 JB's 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.

4. 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.

5. 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

6. 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.

7. 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° 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

- 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.

8. 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.

9. 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.

10. 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 meter (0.5 S class) 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 MANIREDA before commissioning of SPV plant.
- d) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

11. 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 MANIREDA or MNRE. Decisions of appropriate authority like DISCOM, state regulatory commission may be followed.

12. PROTECTIONS:

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

12.1. 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 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.

12.2. SURGE PROTECTION

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

12.3. 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.

12.4. 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

13. 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 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. 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 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 %.

14. 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 |

- a) The maximum permissible capacity for rooftop shall be 500 kW for a single net metering point.
- b) Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.
- c) 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.

15. 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.

16. 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.

17. 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.

18. DRAWINGS & MANUALS:

- a) 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.
- b) Approved ISI and reputed makes for equipment be used.
- c) For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to MANIREDA/owners before progressing with the installation work.

19. PLANNING AND DESIGNING:

- a) 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 to MANIREDA/Owner for approval.
- b) MANIREDA 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.
- c) The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder should submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

20. DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT

- a) The Contractor shall furnish the following drawings Award/Intent and obtain approval.
- b) General arrangement and dimensioned layout.
- c) Schematic drawing showing the requirement of SPV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- d) Structural drawing along with foundation details for the structure.
- e) Itemized bill of material for complete SPV plant covering all the components and associated accessories.
- f) Layout of Solar Power Array
- g) Shadow analysis of the roof.

21. SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT

The Solar PV system on the rooftop of the selected buildings will be installed for meeting upto 90% of the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the office buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

22. 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.

23. 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.

24. 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)

1.0 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 25 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 15th day of following month during the MPWC period. The Maintenance and Performance Warrantee Contract (PWMC) 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.: 2/SPP/RT/MANIREDA/2016-17

To,

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

Sub: Offer in Response to Notice Inviting Bid No. 2/SPP/RT/MANIREDA/2016-17 for (i) Design & supply of plants and equipments of aggregate capacity of 500 kWp Grid connected rooftop Solar Power Plant (ii) Installation & Commissioning including integration to grid and (iii) 5 Years Maintenance & Performance Warranty Contract (MPWC) at different Govt. buildings in Manipur under Solar Photovoltaic Programme.

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. The components of SPV systems shall be indigenously manufactured.
3. We have never been debarred from executing similar type of work by any Central/ State/ Public Sector Undertaking/Department/Nodal Agency.
4. The Bid Document is downloaded from MANIREDA website and necessary document in support is enclosed.
5. We shall execute the offer/work order as per specifications, terms & conditions of the Bid Documents on award of work.
6. Our offer shall remain valid for placement of purchase orders up to 365 days from the due date of submission of offer.
7. 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.: 2/SPP/RT/MANIREDA/2016-17

Date:.....

To,

The Director

Manipur Renewable Energy Development Agency (MANIREDA),

2nd 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.: 2/SPP/RT/MANIREDA/2016-17

Date:.....

| Sl. | 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 | Production | Sales |
| | | 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

Details of Orders Received and Executed in Past Years

NIB No.: 2/SPP/RT/MANIREDA/2016-17

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.: 2/SPP/RT/MANIREDA/2016-17

Date:.....

To,

The Director
Manipur Renewable Energy Development Agency (MANIREDA),
2nd 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 anywhere in the bid and we agree that if any deviation is mentioned or noticed, our bid may be rejected.

Yours faithfully,

(Signature of Authorized Signatory) Name :

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

| |
|--|
| Format for Guarantee Card to be Supplied with Solar Power Plant |
|--|

NIB No.: 2/SPP/RT/MANIREDA/2016-17

Date:.....

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

Guarantee Card

| | | |
|----|--|--|
| 1. | Name & Address of the Manufacturer/ Supplier of the System | |
| 2. | Name & Address of the Purchasing Agency | |
| 3. | Date of Supply of the System | |
| 4. | Details of PV Module(s) Supplied in the System | |
| | (a) Name of the Manufacturer | |
| | (b) Make | |
| | (c) Model | |
| | (d) Serial No. | |
| | (e) Wattage of the PV Module(s) under STC | |
| | (f) Guarantee Valid Upto | |
| 5. | Details of PCU/Inverter & Other BOS Items | |
| | (a) Name of the Manufacturer | |
| | (b) Make | |
| | (c) Model | |
| | (d) Serial No(s). | |
| | (e) Month & Year of Manufacture | |
| | (f) Guarantee Valid Upto | |
| 6. | Energy Meters | Particulars and its configuration i) To be approved by CEA, ii) Prior approval from MSPDCL and MANIREDA to be accorded |
| 7. | 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 for Certificate of Supply, installation & commissioning of Grid Connected Rooftop Solar Power Plant Received by the Consignee as Proof of Compliance by the Supplier

NIB No.: 2/SPP/RT/MANIREDA/2016-17

Date:.....

CERTIFICATE

Consignee.....
Name of Department.....
Address.....

Certified that a 500kWp Grid connected Solar Power Plant comprising of (.....Nos. XWp) SPV Module complete with array structure, 25 kVA PCU/Inverter complete with ACDB, DCDB, cables, Exhaust Fan, Fire Extiguisher, etc.) has been supplied, installed and commissioned at different govt. institutions in Manipur by M/swith funding from Ministry of New and Renewable Energy(MNRE), Govt. of India and Govt. of Manipur in the state of Manipur as per terms of Work Order No..... dtd.....

Signature of Consignee.....
Name:.....
Designation:.....
Seal

14. Proforma - 8

Format for Details of the Module, Inverter etc Utilization Report of Grid connected rooftop Solar Power Plant (SPP) Installed Under Solar Photo Voltaic (SPV) Program

NIB No.: 2/SPP/RT/MANIREDA/2016-17

Date :

Name of Manufacturer/Supplier :.....

Name of Consignee

Address of Consignee :

(A) Solar Power Plant.

| Sl. No. | Name of Beneficiary with address of site | Module | | | Inverter/PCU | | | Date of Installation |
|---------|--|--------|------|---------------------|--------------|------|---------------------|----------------------|
| | | Number | Make | Year of Manufacture | Number | Make | Year of Manufacture | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

15. Proforma - 9

Format for Submitting the PRICE SCHEDULE/FINANCIAL BID (To be uploaded ONLINE only) for Design, Supply, Erection, Testing, Installation & Commissioning with Five years of Maintenance & Performance Warranty Contract (MPWC) of 50kWp to 500 kWp or more Grid connected Rooftop SPV Power Plant at different Govt. Institutions in Manipur.

NIB No.: 2/SPP/RT/MANIREDA/2016-17

Date :

To,

The Director

Manipur Renewable Energy Development Agency (MANIREDA),

2nd Floor, South Block, Secured Office Complex, AT Line, Near Imphal Hotel,

Imphal-795001.

Price Schedule

| Sl.No. | Item | Total Bid Quantity | Price in Rupees | |
|-------------|---|--------------------|-----------------|-------------|
| | | | Unit | Total Price |
| 1 | 2 | 3 | 4 | 5 = 3 x 4 |
| 1.00 | System Cost on Supply of 500 kWp Grid connected Rooftop Solar Plant(SPP) | | | |
| 1.01 | SPV Modules (500 kWp) | 1 | | |
| 1.02 | Module Mounting Structures (500 kWp) | 1 | | |
| 1.03 | PCU/Inverter (500 kVA) | 1 | | |
| 1.04 | Balance of Systems (BOS) such as Surge Protections, Busbars, Lightning arrestors, Earthing arrestors, Earthing equipments, Cable and wires, Cable protectors, Cable tray, ACDB, DCDB, Energy Meters | 1 | | |
| 1.05 | Grid interaction equipment at 33/11 KV for projects above 75 kW / building | | | |
| | System Cost | 1 | | |
| 2.00 | Transit Insurance | 1 | | |
| 3.00 | Transportation | 1 | | |
| 3.01 | Service Tax @3.625% on Transportation | 1 | | |
| 4.00 | Installation & Commissioning charge | 1 | | |
| 4.01 | Labour Cess @1% on Installation | 1 | | |
| 4.02 | Service Tax@15% on Installation | 1 | | |
| 4.03 | VAT @ 6% on Installation | 1 | | |
| 5.00 | MPWC (Maintenance & Performance Warranty Contract) | 1 | | |
| 5.01 | Labour Cess @1% on MPWC | 1 | | |
| 5.02 | Service Tax@15% on MPWC | 1 | | |
| 6.00 | Total (A) | | | |
| 6.01 | Add 3% Contingency on Total (A) above | | | |
| 7.00 | Total (B) (6.00+6.01) | | | |
| 7.01 | Add Agency Charges @ 11.75% of Total (B) | | | |
| 8.00 | Grand Total (C) (7.00+7.01) | | | |
| | Total in words | | Rupees only | |

(DO NOT SUBMIT FINANCIAL BID IN PHYSICAL FORM, TO BE UPLOADED ONLINE ONLY)

Certified that rates quoted for Grid connected Rooftop SPP are as per specifications, terms & conditions mentioned in the bid document.

Yours faithfully, (Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

16. 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) | | Both uploading & 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) | | Both uploading & hard copy |
| 3 | Annexure-III | A copy of the Certificate for solar module as per IEC Standards. | | Both uploading & hard copy |
| 4 | Annexure-IV | Test Certificate conforming to MNRE approved specifications of the components of Grid connected rooftop SPV Power Plant like Inverter/PCU, Module etc from a MNRE authorised testing centres/NABL accredited(Valid Test Certificate should have been issued on or after April,2013) | | Both uploading & hard copy |
| 5 | Annexure-V | A copy of valid CST/State VAT/TIN 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. Project completion certificate from the Institutions where grid connected rooftop systems are installed should be enclosed. | | Statement for uploading but details of work orders in 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) | | Both uploading & hard copy |
| 8 | Annexure-VIII | MNRE accredited Grid connected rooftop solar power plant Channel Partner/Programme Administrator with Credit Rating(from MNRE Accredited Rating Agency) | | Both uploading & hard copy |
| 9 | Annexure-IX | The bidder has ISO 9001 certification | | Both uploading & hard copy |
| 10 | Annexure-X | The bidder has ISO 14001 certification | | Both uploading & 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 | | Hard copy |

| | | | | |
|----|----------------|--|--|----------------------------|
| | | document/Photocopy of Demand Draft | | |
| 13 | Annexure-XIII | Letter of acceptance to furnish the information in Proforma – 7, Proforma – 8, Proforma – 9, | | hard copy |
| 14 | Annexure-XIV | Photographs of MD or Two Directors (in case of Ltd. Company.) | | Hard copy |
| 15 | Annexure-XV | Technical Particular data sheet of Grid connected SPP of Bidder | | Hard copy |
| 16 | Annexure-XVI | Copy of audited Balance Sheet and Profit & Loss Account for last 3 (three) years | | Hard copy |
| 17 | Annexure-XVII | Photographs of Registered Office & Factory attested by Proprietor of the firm. | | Hard copy |
| 18 | Annexure-XVIII | A tentative overall supply schedule in the form of Bar Chart | | Hard copy |
| 19 | Proforma – 1 | Forwarding Letter | | Both uploading & hard copy |
| 20 | Proforma – 2 | Authority Letter for Attending Bid Opening Meeting and Signing Bid Document. | | Both uploading & hard copy |
| 21 | Proforma – 3 | Information about the Bidding Firm | | Both uploading & hard copy |
| 22 | Proforma – 4 | Details of Orders Received and Executed in Past Years | | Both uploading & hard copy |
| 23 | Proforma – 5 | No Deviation Certificate | | Hard copy |
| 24 | Proforma-10 | Price Bid | | Only Uploading |

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.

17. Proforma-10
(On the Letter Head of the Firm)

| |
|--|
| PROFORMA OF APPLICATION FOR PAYMENT |
|--|

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

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

Dear Sir,

APPLICATION FOR PAYMENT

Pursuant to the above referred Contract datedthe 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/
 Authorised Signatory.

18. Proforma-11

MATERIALS INSPECTION CLEARANCE CERTIFICATE (MICC)

1. Name of the Work: Design, supply, erection, testing, installation and commissioning of 50 kWp to 500 kWp or more Grid connected rooftop Solar Power Plant including 5 years MPWC at Govt. Institutions in Manipur.
2. Name of Worksite/Location:
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 |
| 1.(a) | SPV Module | | | | | | | |
| (b) | Module/array Structure | | | | | | | |
| (c) | Junction Box | | | | | | | |
| 2.(a) | PCU/Inverter | | | | | | | |
| (b) | Electronics | | | | | | | |
| 3.(a) | Charge controlling unit | | | | | | | |
| (b) | ACDB,DCDB | | | | | | | |
| 4.(a) | Cable & Wire | | | | | | | |
| (b) | Earthing system, Lightning arrester | | | | | | | |
| (c) | Exhaust Fan, Fire Extinguishers, Sand Buckets, Sign Board. | | | | | | | |
| 5.(a) | Manual | | | | | | | |
| (b) | Others if any | | | | | | | |

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/sand found okay.

Date:
representative
Name:
Designation: Scheme Officer

Signature of authorized MANIREDA

19. Proforma - 12

COMPLETION CERTIFICATE

- 1. Name of the Work:** Design & supply, installation and commissioning including integration to grid of kWp Solar Power Plant including 5 years MPWC at different Govt. Institutions in Manipur.
- 2. Name of Worksite/Location:**
- 3. Name of the Firm/Contractor. :**
- 4. Work Order No.:** dated
- 5. Date of Completion of Installation:**.....
- 6. Date of Commissioning of the Solar Power Plant:**.....

| SL. No. | Item Description | Qty. | Make | Product Serial No. | Remarks if any |
|---------|---|------|------|--------------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1.(a) | SPV Modules | | | | |
| (b) | Module Mounting Structures | | | | |
| (c) | Junction Box | | | | |
| 2.(a) | PCU/Inverter (25 kVA) | | | | |
| (b) | Electronics | | | | |
| 3.(a) | Energy Meters | | | | |
| (b) | ACDB/DCDB | | | | |
| 4.(a) | Cable & wire | | | | |
| (b) | Earthing, Lightning arrester | | | | |
| (c) | Exhaust Fan, Fire Extinguishers, Sand Buckets, Solar Still, Sign Board. | | | | |
| 5.(a) | Manual | | | | |
| (b) | Others if any | | | | |

7. Enclosed documents: 3 copies of Completion Reports along with photographs of the system installed are hereby submitted to MANIREDA, both in hard and soft copies wherein details of equipment given in format above.

8. Signature of Beneficiary: Quantities shown in column 2 were received, installed and tested at the location intimated by us.

Date of received and installed:
Name:
Designation:

Signature of Scheme Officer, MANIREDA

9. Inspected on:and jointly by MANIREDA officials and representative of M/s
.....at the site and found okay.

10. For Contractor Use only: Endorsed and certified the above report on behalf of M/s.....

..... End of the Bid Document