ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY
BHUBANESWAR

BID DOCUMENT

DETAILS OF TENDER CALL NOTICE No. 791/OREDA DTD- 17.03.2018

Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 10 kWp) with different capacities of Battery Bank

<table>
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<tr>
<th>Date of Hoisting of the bid document on Website</th>
<th>19.03.2018</th>
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<td>Date &amp; time of pre-bid meeting</td>
<td>03.04.2018 at 11:00 AM in OREDA Conference hall</td>
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<td>Date of hoisting of final revised bid document</td>
<td>06.04.2018</td>
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<td>16.04.2018 up to 1.00 P.M.</td>
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S-3/59, MANCHESWAR INDUSTRIAL ESTATE, BHUBANESWAR-751010
Phone: (0674) 2588260, 2586398, 2580554, Fax:2586368
Website: www.oredaorissa.com Email: ceoreda@oredaorissa.com
Disclaimer

Kindly Note:

1. This document is not transferable

2. Though adequate care has been taken for preparation of this document, the bidder shall satisfy himself that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any bidder on the pre bid meeting or within ten days from the date of issue of the bid document, it shall be considered that bid document is complete in all respects and has been received by the bidder.

3. The Odisha Renewable Energy Development Agency (OREDA) reserves the right to modify, amend or supplement this bid document keeping in view the necessity in implementation of the scheme.

4. While the bid document has been prepared in good faith, neither OREDA nor their employees or advisors make any representation, warranty, express or implied or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability and completeness of this bid document, even if any loss or damage is caused by any act or omission on their part.
ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY
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Phone: (0674) 2588260, 2586398, 2580554, Fax: 2586368
Website: www.oredaorissa.com, Email: ceoreda@oredaorissa.com

DETAIL OF NOTICE INVITING TENDER

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY invites e-tenders for rate contract for Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 10 kWp) with different capacities of Battery Bank

<table>
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<th>Particulars</th>
<th>Earnest Money Deposit (in Rs.)</th>
<th>Tender processing fee Non refundable (in Rs.)</th>
<th>Non refundable Cost of Bid document (in Rs.)</th>
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<tr>
<td>Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 30 kWp) with different capacities of Battery Bank</td>
<td>5,00,000/-</td>
<td>5900/-</td>
<td>10500/-</td>
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</table>
1. **Scope of Works**

- The broad scope of the work includes design, supply, installation, testing commissioning & maintenance for 5 yrs of off-grid solar PV power plants of capacities ranging between 1 kWp to 10 kWp with battery backup anywhere in the state of Odisha.
- Supply of the complete systems, including all necessary components, sub-components, spares, tools, tackles etc. as per technical specifications given in this document including packing, forwarding, safe storage, handling, commissioning, trial and performance testing and handing over, insurance coverage, operation & maintenance for 5 years with warranty including CMC for corresponding period.
- Providing pedestals if required for mounting of the PCU'S and control panels.
- RCC structures (matrix of stay / leg / beams) to support the structure, steel frame work depending on design approval should be provided by the bidder.
- Complete water proofing and grading of the rooftop space actually used for installation of the solar power plant have to be carried out after installation of the structures.
- All structural drawings to be approved from OREDA / any other competent authority.
- Storage facility to be provided by the vendor for pre-installation inspection at intermediate points for facilitating inspection by the designated official of OREDA, if necessary.
- Supply of complete systems (BOQ) as per technical specifications given in this document and as specified in the work order depending upon the demand of the job.
- Comprehensive Maintenance Contract (CMC) of the complete system for five years warranty period. The date of commencement of CMC shall be reckoned from the date of commissioning of the system.
- Training at least two designated persons from each for the Govt. office as well as all designated technical persons of OREDA in day to day maintenance and upkeep of the system.
- The successful bidder shall after completion and commissioning of the systems submit all details as per the online format of the installed systems like site details, systems details, installation report, etc. in the formats supplied by OREDA from time to time.
- Installation of all necessary protection devices to protect the power plant from lightening, sudden surges in voltage and current and to ensure safety of the grid to which the plant is connected. The bidder should also ensure protection of life and property likely to be endangered due to the installed solar power plant.
- Opening of service centre/keeping servicing personnel and making available all essential spares in the vicinity of the plant such that the power plants will give the desired performance with least interruption.
- Submission of periodic reports and returns as per the MIS prescribed by OREDA.
• While installing solar power plants on rooftops the physical condition of the roof should be taken into consideration.
• There should not be any damage whatsoever to the roof top due to setting up of the solar power plant so that on a later day there is leakage of rain water, etc. from the roof top.
• In case small damages are inevitable for erecting the footings for the module mounting structure etc. the roof top may be given a suitable grading plaster with suitable leak proof compound so as to render the roof entirely leak proof.
• The solar PV array must be installed on the roof top in such a way that there is sufficient space on the roof top for maintenance etc.
• If the roof top does not have any access such as stairs or Ladder, a proper and safe ladder must be provided to ensure easy access to the roof top mainly for the purpose of maintenance and inspection.
• While cabling the array care must be taken such that no loose cables lie on the rooftops. The roof top should look clean and tidy after installation of the array. Display board is to be fixed in a prominent place.
• Collect and Compile the Customer’s Information and hand it over to the CRM Dept of OREDA for assignment of Customer ID and building up of master Consumer Database.
• Extend both periodic and on call maintenance services through the CRC of OREDA as detailed elsewhere in this document.

2. **IMPORTANT INFORMATION:**

• The bids are to be submitted online only.
• Interested bidders may visit OREDA’s website www.oredaorissa.com or www.tenderwizard.com/OREDA for details. **Tender documents can be viewed free of cost.**
• Bidders desirous of participating in the tender shall have to pay the tender cost as mentioned in shape of Demand draft only, drawn in favour of Chief Executive, OREDA payable at Bhubaneswar. The tender cost is inclusive of taxes and is non-refundable.
• All participating bidders shall have to deposit non-refundable tender processing fee as mentioned in TENDER SCHEDULE, in e-payment mode only. The processing is inclusive of taxes.

  **NOTE:** For tender processing fee to K.S.E.D.C. Ltd. Bangalore, the bidder can use various modes of e-payment facility available through Tender wizard Portal, i.e. by Credit Card, Debit Card, Net Banking).
• The bidders shall have to scan the Demand Draft / Bank guarantee towards EMD, Tender Cost, Signed copy of unconditional acceptance of all terms and conditions of the tender, Signed copy of Confirmation to Technical Specifications and all other documents as required in the tender and upload the same in the prescribed form in .pdf
or .jpg format in addition to sending the originals.

- The bidders are advised to register their user ID, Password, company ID on website www.tenderwizard.com/OREDA by clicking on hyper link “Register Me”.
- Any clarifications regarding the scope of work and technical features of the project can be had from the undersigned during office hours

NB: All subsequent addendum/Corrigendum to the tender shall be hoisted in OREDA’s official web site www.oredaorissa.com and www.tenderwizard.com/OREDA only.

3. INSTRUCTIONS TO BIDDERS:

- All bidders must be registered under GST.
- Deviations in terms and conditions, Specification of material, Inspection clause etc. will not be accepted.
- The bidders should furnish the information on all past supplies and satisfactory performance.
- The bidder shall submit copies of documents defining the constitution or legal status, place of registration and principle place of business of company or firm or partnership.
- The bidder shall furnish a brief write up backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required systems, equipments within the specified time of completion after meeting all their commitments.
- The bidders shall submit reports on financial standing of the bidder such as audited profit and loss statements, balance sheets and auditor’s reports for the past, bankers’ certificates. All accounting statements submitted should be duly audited and with proper auditor’s note on accounts and accounting standards.
- Earnest money as specified in bid should be deposited shape of Demand Draft drawn in favour of the Chief Executive, OREDA payable at Bhubaneswar from any nationalized bank or as Bank guarantee (BG).
- Bids without E.M.D will not be accepted (EMD is exempted for companies/firms registered under NSIC or as Local MSME.)
- Hard copies of the bids received late due to postal delay or otherwise will not be considered.
- Since timely execution of works is of paramount importance, requests for extension of time shall not be ordinarily entertained.
- Canvassing in any manner shall not be entertained and will be viewed seriously leading to rejection of the bid.
- Certificate to the effect that the systems to be supplied are indigenous & not fully imported must be furnished.
- Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any, should be enclosed along with original bid documents.
- Notice inviting tender, bid documents, prescribed Technical bid, price bid, terms & conditions will form the part of the tender.
- Bids will be accepted & will be opened as per information mentioned in the notice-inviting tender. No receipt against submission of bid shall be issued by OREDA.
- If due to any reason the due date is declared as a holiday the bid will be opened on next working day at the same time.
- All Taxes applicable at the time of supply will be admissible.
- In case of supply of any defective material or substandard material, the materials will be rejected & it will be the responsibility of the supplier for taking back & replacing the rejected materials at their own cost. In case of non-lifting of such rejected materials within a reasonable time offered by the office it will have the right to suitably dispose off the same and forfeit the amount.
- The supplied materials should strictly comply with the specifications as mentioned in the bid, otherwise the material will be liable for rejection.
- Any clarification on the technical specification and commercial terms and conditions may be clarified in writing from OREDA.
- Deviation of any commercial terms and condition and technical specification shall not be entertained under no circumstances.
- OREDA will not be responsible for any incidental or consequential losses of the firms while execution and till expiry of the period of maintenance.
- During the warranty period, MNRE/ State Agencies/ Users reserve the right to cross check the performance of the systems with the minimum performance levels specified in the MNRE specifications.
- Chief Executive, OREDA shall award the contract to the successful bidder whose bid shall be qualified after evaluation in terms of the responsiveness and lowest rate determined on the basis price bids.
- On award of contract the qualified bidder shall be termed as contractor / supplier / executor /turnkey operator.

**SUBMISSION OF BIDS**

**A. MODE OF SUBMISSION OF BID:**

i) The bidder shall submit the bid in Electronic Mode only i.e. in www.tenderwizard.com/OREDA portal. The bidder must ensure that the bids are received in the specified website as per the date and time indicated in the Tender notice.

ii) The OREDA reserves the right to reject any bid, which is not submitted in electronic mode and according to the instruction, stipulated above.
PARTICIPATION IN e-TENDER:-

ACQUISITION OF DIGITAL SIGNATURE CERTIFICATE

i) For all the users it is mandatory to procure the Digital Signatures of Class III only.
ii) All bidders are requested to follow the following steps for registration.

REGISTRATION IN TENDER WIZARD PORTAL

i) Log in www.tenderwizard.com/OREDA Click “Register”, fill the online registration Form.
ii) Payment for an amount of Rs. 2300/- shall be made to KSEDCL, Bangalore for vendor registration in tender wizard portal in e-payment mode only.
iii) As soon as the verification is done the e-tender user ID will be enabled/provided.

ON-LINE REQUEST FOR e-TENDER DOCUMENTS

After viewing Tender Notification in www.tenderwizard.com/OREDA if bidder intends to participate in tender, he has to use his e-tendering User ID and Password which has been received after registration and acquisition of DSCs (Digital signature certificate) and to follow the instructions given below.

1. Insert the PKI (which consists of your Digital Signature Certificate) in your System.
   (Note: Make sure that necessary software of PKI has been installed in your system)
2. Click / Double Click to open the Microsoft Internet Explorer
   (This icon will be located on the Desktop of the computer)
3. Go to Start > Programs > Internet Explorer. Type www.tenderwizard.com/OREDA in the address bar, to access the Login Screen.
4. Enter e-tender User Id and Password, click on “Go”.
5. Click on “Click here to login” for selecting the Digital Signature Certificate. Select the Certificate and enter DSC Password. Re-enter the e-Procurement User Id Password.
6. Click “Un Applied” to view / apply for new tenders.
7. Click on Request icon for online request. After making the request, bidder has to pay the requisite tender processing fee (as indicated in tender notice) through e-payment facility only available in the portal. Bidders will receive the Tender Documents which can be checked and downloaded by following the below steps.
   ▪ Click on the “Show form” icon.
   ▪ Tender documents will appear on the screen.
   ▪ Click “Click here to download” to download the documents.

NOTE: For vendor registration and payment of tender processing fee to KESDCL, the bidder can use various modes of e-payment facility available through Tender wizard Portal, i.e. by Credit Card, Debit Card, Net Banking.
B. ONLINE SUBMISSION OF BID

SUBMISSION OF EMD AND TENDER COST:

The bidders shall have to scan the Demand Draft towards EMD and Tender Cost and upload the same in .pdf or .jpg format.

SUBMISSION OF TECHNO-COMMERCIAL BIDS:

- The techno-commercial bid sheets in .xls format are to filled up and up-load without changing the file name. Submission of incomplete techno commercial bid sheets will be liable for rejection of the bid.

- Scanned copies of all related documents as per the checklist shall be uploaded in .pdf or .jpg format prior to last date and time of receipt of bids as specified in tender Notice.

SUBMISSION OF PRICE BIDS:

- The bidder should fill up price schedule in the given bid sheets in .xls format and up-load the same without changing the file name. The bid will be rejected if the schedule of price is submitted in incomplete form.

After completing all the formalities, Bidders will have to submit the tender as specified in NIT and must take care of all instructions. Prior to submission, verify whether all the required documents have been attached and uploaded to the particular tender or not.

Note:

- The bid sheets (.xls file) shall be uploaded in www.tenderwizard.com/OREDA portal, prior to online closing of the tender. By no other means (except online) price bid shall be accepted for evaluation of tender.

- Please note down or take a print of bid control number once it displayed on the screen.

- Tender Opening event can be viewed online.

C. DEAD LINE FOR SUBMISSION OF BIDS

- Soft copy of the bid shall be uploaded through the portal www.tenderwizard.com/OREDA on or before the online submission time and date as stipulated in the bidding document.

DD towards Tender cost, DD/BG towards EMD, tender processing fee acknowledgement & a set of all uploaded documents must be received by OREDA at the address specified not later than the time and date stated in the tender notification.

- In the event of the specified date for the submission of bids being declared a holiday
for OREDA, the bids will be received on the next working day as per the time indicated in tender notification.

- OREDA may, at its discretion, extend this deadline for submission of bids by amending the Bidding Documents in accordance with Instruction to Bidders for the reasons specified therein at any time prior to opening of, in which case all rights and obligations of Employer and bidders will thereafter be subject to the deadline as extended.

D. **LATE BIDS**

- Soft copy of the bid will not be uploaded on the portal after expiry of submission time and the bidder shall not be permitted to submit the same by any other mode. In such case, even if the bidder has submitted the specific documents in hard copy in original (viz., EMD, tender cost & any other document) within the stipulated deadline, its bid shall be considered as late bid. The hard copy submitted [specific documents (viz., EMD, tender cost.)] shall be returned unopened to the bidder.
- Hard copy of the EMD in shape of DD if received by OREDA after the last date for submission of the bid the same will be considered as late bid even if the bidder has uploaded the soft copy of the bid within the stipulated deadline.
- In such a case, the soft part of the bid uploaded on the portal shall be sent unopened to “Archive” and shall not be considered at all any further.

E. **MODIFICATION AND WITHDRAWAL OF BIDS:**

- Bidder may modify or withdraw their bids through the relevant provisions on the portal [www.tenderwizard.com/OREDA](http://www.tenderwizard.com/OREDA) up to due date and time of submission of bid indicated in tender notification
- The Bidders may modify and resubmit their bids as per the provisions given in the portal.
- Bidders may withdraw their bids through the relevant provisions of mentioned in the portal.
- **No bid shall be modified/ withdrawn after the dead line for submission of bids.** Withdrawal/modification of bid before the expiry of bid validity shall result forfeiture of Bidder’s EMD.

F. **SUBMISSION OF HARD COPIES OF THE BIDS AND SEALING AND MARKING:**

- Along with the e-tender, bidders must also submit their bids for all items as stated above in the form of a single hard bound book properly page numbered and Indexed. **No loose/ separate paper or spiral bound documents will be accepted.**
  
  Hard copies of the following items should only be submitted to OREDA

1) Demand draft towards cost of bid document
2) Copy of acknowledgement of tender processing fee.
3) EMD in shape of “Demand Draft/ Bank guarantee”
4) Signed copy of “Confirmation to Technical Specifications”
5) Signed copy of “Certificate of Unconditional Acceptance of the tender”
6) Technical Bid document in **hard bound form** with each page legibly numbered comprising of the following:
   - All Test certificates from MNRE approved laboratories as prescribed.
   - Technical Specifications of all materials to be supplied
   - Income Tax return, PAN card and GST Registration certificate
   - Bid documents duly signed & sealed on every page as token of unconditional acceptance of all Terms and conditions mentioned in the bid document.
   - Indignity Certificate
   - Organizational profile
   - Balance sheets and profit & loss accounts
   - Certificate and proof as per qualification criteria
   - Brochure, literature etc. if any

The **Hard bound copy must be submitted in OREDA office at S-57, Mancheswar Industrial Estate, Bhubaneswar 751010 on or before the stated date in the manner prescribed elsewhere in the document. Submission extra/ unrelated documents may be avoided.**

Price bid to be only filled up in the specified bid sheet and to be uploaded.

**G. TECHNICAL BID:**
The Electronic Form/Template of the bid for the Techno – Commercial bid, as available on the portal, shall be duly filled and scanned copies of documents in support of meeting the minimum qualifying requirement of the tender shall be given as attachments.

**H. FINANCIAL BID:**
- The Electronic Form/Template of the Price bid (as available on the portal) shall be duly filled in.
- Prices quoted must be firm and fixed. No price variation / escalation shall be allowed during process of completion of the project.
- **Any condition in regards to financial aspects, payments, terms of rebate etc beyond the prescribed financial terms of OREDA will make the bid invalid.**
- Therefore it is in the interest of the bidders not to write anything extra in the Price Bid except price.
1. **ACCEPTANCE/REJECTION:**
OREDA reserves the right to accept / reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase orders. Tender will be summarily rejected if:

i) EMD is not deposited either in shape of Bank Draft in favor of OREDA payable at Bhubaneswar or in Bank Guarantee (BG). This shall not apply to those who are eligible for exemption from depositing EMD under NSIC etc. subject to submission of such exemption certificates.

   **Note:** EMD against previous Tenders, if any, will not be adjusted towards EMD against this Tender.

ii) Complete Technical details are not enclosed.

iii) Tender is received after the last date for whatsoever reasons.

iv) Hard copy of the tender is submitted loose or spiral bound.

2. **PROCEDURE FOR OPENING THE BIDS:**

   The procedure of opening of the bid shall be as under

   - The TECHNICAL BID shall be opened at the time & date mentioned in the bid notice by OREDA in the presence of bidders, who choose to be present. If necessary, the firms may be called for Technical Presentation the schedule for which will be intimated by OREDA.

   - The Price bid shall be opened after evaluation of technical suitability of the offers. The date for opening of Price bid shall be communicated subsequently. The Price Bid of only those bidders shall be opened who qualify in the technical bid.

3. **ELIGIBILITY CRITERIA:**

   In order to be eligible to participate in the tender, the bidder must fulfill the following eligibility criteria. Any discrepancy or deviation from the same shall make the bidder ineligible for participating in the tender

   a. The bidder must be manufacturer of any or all of the 3 major components of the solar PV power plant namely Solar PV panels, Invertors and battery or an integrator of solar PV power plants. In either case the bidders must submit the test reports of all major components issued by any of the authorized test centres of MNRE, GoI in favour of the OEM.

   b. The bidder must have valid GST registration certificate.
c. The bidder after getting the work order must be willing to register under SGST if required.

d. The bidder must have a minimum cumulative turnover of Rs. 2 Crore over last three years exclusively in the business of solar PV. As proof of the same a certificate to that effect duly signed and stamped by a registered chartered accountant in the letter head of the CA’s firm must be included in the tender document.

e. The bidder must have commissioned minimum 100 kWP (cumulative) capacity rooftop solar power plants during last 3 years in the range of 1 to 10 kWP in Govt / PSUs/ Govt agency/ bodies/Private institution. The bidders have to submit proper documents against the experience and against the experience of private institution, the bidder have to submit the information as Beneficiary details, Detailed work order issued, installation photograph, Joint commission certificate, corresponding with MNRE if any.

f. The firm must have adequate capacity to design, manufacture, test, supply, erection, and commission the power plant within the given time schedule.

g. The products must conform to minimal technical requirements specified under the National Jawaharlal Nehru Solar Mission.

h. The bidder’s company/firm must have established quality assurance systems and organization in line with the requirements under ISO 9001:2015 and ISO 14001:2015 certification. MSMEs those have not established such quality assurance systems may participate in the tender and upon their selection they must establish the above before issue of work orders.

i. The firm must not have been debarred / blacklisted by any Govt. Dept, agency, PSUs / institution / agencies / autonomous organisations. The bidder shall submit a self certification by an authorized person duly notarized to this effect.

j. Local SMEs (Should have proper certificate) subject to their meeting all the specifications and terms/conditions (except Experience, Rating from MNRE approved agency, ISO certification and Turnover) and matching L1 price can be considered to execute the above mentioned work. Maximum 10% of the entire work will be allocated to eligible start-ups.
5. **Acceptance/ Rejection of the Bid Documents:**

Chief Executive, OREDA reserves the right to reject or accept any bid or annul the bidding process at any time prior to award of contract, without having prejudice of incurring any liability to the affected bidders or any obligation to inform the bidders.

6. **Commercial Terms & Conditions:**

*Rate:*

The offer should indicate the unit cost of the system, Installation & Commissioning charges, CMC Charges and taxes & duties separately. The unit cost must be inclusive of packing, forwarding, loading & unloading charges, cost of insurance and transportation FOR destination where the system will be installed as per the work order. The prices quoted should be firm, fixed and reasonable. In order to ensure reasonability in pricing a mechanism for submission of bid bond is being introduced as elaborated below: for the purpose of fixation of bid bond the benchmark price (Rs/kWp) determined by MNRE, GoI for different items will be considered as the base price (MNRE notification No. 30/11/2012-13/NSM, Dtd: 17.03.2017). Any bidder quoting below such base price has to deposit bid bond in the form of DD @ Rs 1,000/- for reduction of every 1 Re below the benchmark price. For example if a bidder quotes a rate which is Rs 500 below the specified benchmark price of the item the bidder before issuance of work order shall have to deposit a bid bond of 5.00 lakh in the form of Demand Draft drawn in favour if Chief Executive, OREDA in any nationalized bank having jurisdiction in Bhubaneswar. Such bid bonds will only be refunded after successful completion of the work including the 5 years maintenance period.

*Taxes & Duties etc.:*

All Taxes and duties as prescribed under GST norms shall be applicable.

*Earnest Money Deposit:*

- Earnest money deposit as specified above is required to be deposited along with the hard copy of bid without which the bid will not be accepted. No interest will be payable for the EMD amount under any circumstances.

- E. M. D would be adjusted against security deposit in case of successful bidders.

- E. M. D would be forfeited in case of non-compliance of the purchase order by the successful bidder.

- In case of claim for exemption from deposit of Earnest money sufficient proof in support of claim for exemption of EMD as prescribed in Govt. of India Notification is to be attached with the bid.
Security Deposit/ Performance Guarantee Fees:

The successful bidders must deposit five numbers of bank guarantees (BG) each of value equal to 2 % of ordered value towards Security cum Performance Guarantee fees with the Chief Executive, OREDA, Bhubaneswar along with bills, challans and all other documents as per payment clause before processing of payment. The BGs will remain valid for 1, 2, 3, 4 and 5 years respectively from the date of installation of the systems.

Forfeiture of security deposit/performance Bank Guarantee

The said deposit would be forfeited in the following cases

- If the systems are not installed and commissioned as per given schedules.
- If the systems are not properly maintained and the performance of the systems do not meet the standards mentioned in the work orders.

7. **Work Execution Schedule:**

- All ordered systems must be installed and commissioned in all respects within 90 days of receipt of firm work order from OREDA.
- Under exceptional circumstances the period of execution can be extended reasonably only upon written request by the vendor.
- Upon intimation about commissioning of the systems by the executing firm a joint inspection will be carried out by the representatives of the executing firm, OREDA and User organization.
- The issuance of a JCC shall, in no way relieve the executing firm of its responsibility for satisfactory operation of the power plant.

8. **Allocation of Supply / Installation & Execution:**

The entire work will be distributed amongst successful local SME and non-SME bidders in the ratio of 10:90 as per the notification issued by the Ministry of New & Renewable Energy (MNRE), Govt. of India. Distribution of work among non-SME bidders 90% of the total work will be distributed amongst the first 5 (five) bidders in the order of their quoted price (i.e L1,L2,L3,L4&L5) provided the L2-L5 bidders submit their acceptance to the L1 price. However care will be taken to allot minimum 30% of the total order in this segment to the L1 bidder and the balance will be distributed among other 4 bidders based on their performance.
Distribution of work among successful SME sector bidders 10% of the total work will be distributed amongst the first 3 successful SME sector bidders (i.e L1,L2 & L3) in the order of their quoted prices provided the L2 and L3 bidders submit their acceptance to the L1 price. Care will be taken to allot minimum 30% of the total order in this segment to the L1 bidder and the balance will be distributed among other 2 bidders based on their performance.

9. **Validity of offer:**
   The offer must be kept valid for a period of one year from the date of opening of the technical bid or till the completion of the project whichever is later. No escalation clause except the admissible tax component under the period of consideration would be accepted.

10. **Warranty:**
   - The complete system should be warranted against any manufacturing defect or bad workmanship at least for a period of 5 (five) years from the date of commissioning of the systems.
   - Major system sub-component SPV modules must be warranted against any manufacturing defect of bad workmanship for a period of 5 years.
   - Warranty certificate to the above effect must be furnished along with the commissioning reports. Any defect noticed during warranty period should be rectified / replaced by the supplier free of cost upon due intimation by OREDA.

11. **Penalty and termination of contract:**
   - The systems shall be supplied, installed and commissioned within the scheduled time. If the bidder fails to adhere to the schedule, OREDA shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damages a sum equivalent to 1% of the delivery price of the delayed goods or unperformed services for each week of delay until actual delivery or installation/commissioning up to a maximum deduction of 5% of the contract price for delayed goods or installation and commissioning. Once the maximum is reached (i.e 5 weeks of delay) OREDA may consider termination of the contract and forfeit the security deposit without prejudice to the other remedies of the contract.
   - However, Chief Executive, OREDA may at own discretion allow reasonable time extension upon written application of the supplying firm. If the delay is considered intentional or due to the negligence of the vendor, no extension can be allowed with imposition of penalty. If the delay is considered to be genuine time extension can be allowed without imposition of penalty.
12. **Force Majeure:**

The supplier of the SPV system shall not be charged with liquidated damages nor shall his security for performance be forfeited when failure of the supplier in making delivery is due to any event beyond the control of the supplier and could not have been foreseen, prevented or avoided by a prudent person. These include, but are not restricted to acts of nature, acts of public enemy, acts of Government, fires, floods, epidemics, strikes, freights, embargoes and unusually severe weather.

13. **Inspection:**

- All tests and inspections shall be made at the place of delivery. Officers authorized by OREDA shall be entitled at all reasonable time to inspect and supervise and test during erection and commissioning. Such inspection will not relieve the executing firm of their obligation in the contract.

- OREDA shall have the right to have the tests carried out at its own cost by an independent agency at any point of time.

14. **Payment:**

100% of the cost of system and installation charge along with all applicable taxes shall be released upon successful commissioning of the systems at the location specified in the purchase order and upon due verification by authorised officers and submission of following documents

- Performance report signed by the Assistant Director, OREDA
- JCC
- Warranty
- GPS based photograph
- Sharing of User-ID, Password for access to Remote monitoring system
- I-V Curves
- Operation manual
- Dos & Don’ts in the form of a booklet
- Conducting training programme

15. **Execution:**

Execution of work shall be carried out in an approved manner as outlined in the technical specification or where not outlined, in accordance with relevant Indian Standard Specification, to the reasonable satisfaction of the Authorized OREDA Officer.
16. **COMPREHENSIVE MAINTENANCE CONTRACT (CMC):**

- The bidder must enter into a Comprehensive maintenance contract for the specified period at the time of execution of the order. Offer without such CMC shall not be considered. (sample format of CMC enclosed at Annex - ).

- The scope of CMC must cover supply of spare parts (including wherever necessary) / services during the contract in force. Order shall be placed on bidders who agree to offer such CMC. The CMC charges quoted by the bidder must be realistic in view of actual rendering of after sale services. The payment of annual maintenance charges under the Comprehensive Maintenance Contract shall depend upon the functionality of the system duly certified by the concerned Authorised officials of OREDA.

17. **LIMITATION OF LIABILITY:**

OREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any worker or outsider in course of transport or execution of work. All the expenditure including treatment or compensation will be entirely borne by the Executants. The Executants shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations.

18. **DISPUTE:**

For adjudication of any dispute between OREDA and the bidders arising in this case, reference can be made to any Law courts under the jurisdiction of Odisha High court only. The Chief Executive, OREDA reserves the right to accept or reject any or all bids without assigning any reason thereof.

Chief Executive

I/We have carefully read and understood the above terms and conditions of the bid and agree to abide by them.

**SIGNATURE OF BIDDER WITH SEAL**

For any assistant, Contact:

E-Tendering help desk number: 080- 40482000/121/133/140(Bangalore)

OREDA Help Desk- 09776823641/09937140591
## Check list of documents to be submitted along with the hard copy of the bid

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Particulars</th>
<th>Complied</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cost of Tender document for Rs.10,500/- or exempt as admissible with proof.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Acknowledgement for tender processing fee.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bank draft for Rs.5,00,000/-Rupees Five Lakh only towards EMD in shape of Bank draft/Bank Guarantee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Forwarding letter duly signed and stamped by the bidder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Undertaking duly signed and stamped by the bidder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Document stating the status of the bidder as manufacturer/systems integrator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Copy of the PAN card of the bidder’s firm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Copy of the TIN No. of the bidder’s firm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Tax return, Odisha VAT/STCC/E-submission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Annual turnover in solar business, audited report</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2014-15</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2015-16</td>
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<tr>
<td></td>
<td>2016-17</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>No of Solar PV Power plant installation, cumulative capacity proof</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Proof of production capacity of SPV power plant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Proof of Quality assurance systems, organisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Valid Test report of Solar PV module</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Valid test report of PCU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Valid test report of Battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Willingness- Opening of service centre in the state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Undertaking to supply Indigenous items as per relevant guidelines of MNRE, GoI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Undertaking to unconditionally accept all terms and conditions of the bid document with copy of Board Resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Power of attorney to sign the agreement on behalf of bidders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Organizational profile containing the original documents defining the constitution or legal status, place of registration and principle place of business.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UNDERTAKING BY THE BIDDER

I/we here by undertake that

1. We have thoroughly read and examined the notice inviting tender and the tender document along with all its schedules, annexure etc.

2. The rates quoted by us are firm and final and are meant for execution of the allotted supply / installation within the time frame stipulated in the tender/supply / installation order.

3. All terms and conditions of the tender including the rates quoted by us shall remain valid for a period of min one year from the date of opening of the technical bids.

4. In case our tender is incomplete in any respect or we violate any of the prescriptions given in the tender for submission of the same OREDA shall , without prejudice to any other right or remedy , be at liberty to forfeit the earnest money deposited by us.

5. In case of award of supply / installation in our favour OREDA shall have the right to convert the EMD deposited by us in to full or part (as the case may be) of the security deposit to be deposited by us against award of the supply / installation.

6. In case we fail to commence or complete the supply / installation as per the time schedules or fail to fulfill any of the terms and conditions given in the tender OREDA shall , without prejudice to any other right or remedy , be at liberty to forfeit the security deposit made by us against the award of the supply / installation.

7. I/We hereby declare that I/We shall treat the tender documents, specifications and other records connected with the supply / installation as secret/confidential and shall not communicate information derived there-from to any person other than a person to whom I/We have authorized to communicate the same or use the information in any manner prejudiced to the safety of OREDA/the State Govt.

8. I/We shall abide by all the laws prevailing at the time of the execution of the supply / installation and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

9. The entire tender document has been discussed in the Board meeting and a resolution has been concurred for participation in the tender (copy enclosed)

10. We are not blacklisted / debarred / defaulted in any manner by any Central / State Government / Public Sector Undertaking in India.

11. In case any false documents submitted and found any time in future the firms shall be liable to be proceeded against as per prevailing laws.

12. Our state commercial tax / TIN registration no. is ________________________________ and CST registration No. ________________________________

The PAN No. under the Income Tax Act is ________________________________ and GST Registration No. is ________________________________
13. I/We shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to do so, I/we hereby authorize OREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

Signature of bidder with stamp & date

Letter of Authorization
(to be submitted in the letter head of the bidder)

To,
Chief Executive
Odisha Renewable Energy Development Agency
S-59, MIE, Bhubaneswar-751010
Odisha

Sub: Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 10 kWp) with different capacities of Battery Bank

Ref: Tender Call Notice No. -------------/OREDA, dtd -------------.

Sir,
I/we hereby authorise Ms. /Mr. ___________________ , Designation..........................................of our company to sign all relevant documents on behalf of the company/firm in dealing with the above tender. She / He is also authorized to attend all meetings and submit technical and commercial information as may be required by OREDA in the course of processing of the tender.

We further authorise Ms. /Mr. _______________ designation............................ of our company to make technical presentation on behalf of the company.

Signature of the authorise persons
1. _________________________
2. _____________________________

Yours faithfully
Head of the organization

Name and designation of the attesting officer with stamp.
DECLARATION

(To be submitted on the letter head of the company)

To,

The Chief Executive,
Odisha Renewable Energy Development Agency,
S-59, MIE, Bhubaneswar 751 010,
Odisha.

Sub:- Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 10 kWp) with different capacities of Battery Bank

Ref:- Tender call Notice No. /OREDA, dt.

Sir,

I/we hereby declare the following in the context of the aforementioned tender that:

a) The entire tender document has been discussed in the Board meeting and a resolution has been passed for participation in the tender (copy enclosed)

b) We are not involved in any litigation that may have an impact of affecting or compromising the delivery of services as required under this tender

c) We are not blacklisted / defaulted in any manner by any Central / State Government / Public Sector Undertaking in India.

d) In case any false documents submitted and found in future the firms shall be liable to be proceeded against as per prevailing laws.

Yours faithfully,

Authorised signatory

(Stamp).
**TECHNICAL SPECIFICATION**

The general scope under this contract includes to design, manufacture, testing, inspection, packing and forwarding, transportation up to project site, loading & unloading, storage in safe custody, erection, carrying out preliminary tests at site, commissioning, performance testing, operation and maintenance for 5 years & handing over to all the equipment of SPV Power plant on the respective sites / as per instruction from time to time. The illustrative Schedule of requirements is in accordance with the specifications contained in this document.

1. **Solar PV Modules:**

   The modules having capacity above 200Wp should only be provided in the array to obtain the required array power output. Indigenously produced PV module(s) containing mono/ multi crystalline silicon solar cells should only be used.

   All modules must comply with to IEC 61215, 61730 part 1 & 2 (Certificates from MNRE test centres in support of such compliance must be submitted along with the tender document. The other criteria are as follows:

   - Crystalline Silicon Solar Cell Modules IEC 61215 Edition (II)
   - PV modules must have quality to IEC 61730 Part I & II, for safety qualification testing and to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.
   - PV modules used in solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
   - Full rated output of the SPV Array to be ensured after one year of operation. Number of modules and array capacity will depend on the rated output of individual modules. The peak power rating of the Solar PV array should not be less than as per rated capacity of PV Module.
   - Each PV module used in solar power project under this tender must use a RF identification tag (RFID), which must contain the following information. The RFID should be laminated inside the module and but must be able to withstand harsh environmental conditions.

     - Name of the manufacturer of PV Module.
     - Name of the manufacturer of Solar cells.
     - Month and year of the manufacture (separately for solar cells and module).
     - Country of origin (separately for solar cells and module).
     - I-V curve for the module.
     - Peak Wattage, Im, Vm and FF for the module.
- Unique serial No and Model No of the module.
- Date and year of obtaining IEC PV module qualification certificate.
- Name of the test lab issuing IEC certificate.

2. **Module Mounting Structure:**
   - Solar PV modules are to be installed & fixed with the module mounting structures with appropriate size stainless steel nuts & bolts.
   - The array structure shall be made of hot dip galvanized MS angles of size not less than 50mm X 50mm X 6 mm size. The minimum thickness of galvanization should be at least 120 microns. All nuts & bolts shall be made of very good quality of stainless steel. The minimum ground clearance of the lowest part of the module structure shall be 500 mm.
   - The structure should be appropriately designed to withstand high wind velocities up to 200 km per hour. *(The Successful bidder is required to submit a certificate from an authorized chartered engineer with regards to the strength and durability of the structure)*
   - The structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly. There shall be no requirement of welding or complex machinery at site.

3. **Array Foundation:**
   The legs of the structures made with hot dip GI angles will be fixed and grouted in the RCC foundation columns made with 1:2:4 cement concrete. The work includes necessary excavation, concrete-ing, back filling, shoring & shuttering etc.

4. **Junction Boxes (JBS):**
   The junction boxes shall be dust and waterproof and made of thermo-plastic. The terminals will be connected to copper lugs or bus bar of proper sizes. The junction boxes will have suitable cable entry points fitted with cables glands. Suitable markings shall be provided on the legs or bus bar for easy identification and cable ferrules will be fitted the cable termination points for identification. Each main junction box shall be fitted with appropriate rating blocking diode. The junction boxes shall be of reputed make.
   - Array Junction Box should be IP 54 as per IEC 529 and should provided with reverse blocking diodes, fuses and Isolators of suitable ratings.
   - DC Distribution board should comply with IP 21 as per IEC 529. It should be equipped with suitable rating of DC isolators for solar input from array junction box and fuse of suitable rating between PCU and battery.
   - AC distribution board should comply with comply with IP 21 as per IEC 529 and should be equipped with suitable rating of MCB between PCU and load.
   - All switch, circuit breakers and connectors should comply with IEC 60947 (part –i, ii, iii) / is 60947 (Part-i, ii, iii).
5. **Battery Bank:**
There will be one battery bank comprising of appropriate capacity for respective SPV Power Plant (Off-Grid). The batteries should be of tubular plate Gel / VRLA Type and shall have long service life. The cells should confirm IEC 61427 / IS 1651 / IS 133369 and as per specification given below shall be provided.

<table>
<thead>
<tr>
<th>Battery Bank Capacity</th>
<th>7.2 VAh/Wp or 3.6 VAh/Wp or 1.2 VAh/Wp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container</td>
<td>Polypropylene Co-polymer/hard rubbers with carrying handle.</td>
</tr>
<tr>
<td>Terminals</td>
<td>Made of lead alloy suitable for bolted connection. The terminals should be greased with petroleum gel.</td>
</tr>
<tr>
<td>Self Discharge</td>
<td>Less than 3% per month at 30 degree C</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>1500 cycle duty at 27degree C at 80% depth of discharge 3000 cycle duty at 50% discharge.</td>
</tr>
<tr>
<td>Battery Voltage</td>
<td>2 Volt</td>
</tr>
<tr>
<td>Approval</td>
<td>Batteries shall have to be approved by ERTL or CPRI or any MNRE approved test centers</td>
</tr>
<tr>
<td>Service Life</td>
<td>Should perform satisfactory for a minimum period of 5 year under operating conditions as mentioned.</td>
</tr>
</tbody>
</table>

6. **Power Conditioning Unit (PCU):**
As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels before powering equipment designed for nominal mains AC supply. 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” OR simply PCU. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to maximize Solar PV array energy input into the System. PCU should conform IEC 61683, IEC 60068 as per specifications.

PCU refers to combination of charge controller, inverter and AC charger and shall be supplied as integrated unit or separate units.

*Inverter:*

The inverter will be highly efficient. The inverter should confirm IEC 61683 /IS 61683, IS 16169/IEC 62116, IEC 60068 and should be based on MPPT design. Inverters would display its
own parameters and the parameters of battery bank connected to the inverter. Beyond the maximum load the inverters will trip. The inverters should be designed to be completely compatible with the charge controllers and distribution panels and are of integrated design.

Salient features of the inverters shall be as follows:

- The PCU should be designed to be completely compatible with the SPV array voltage.
- The combined kVA rating of all PCUs shall not be less than corresponding KVA at standard temperature.
- Optimum numbers of central inverter with MPPT shall be used with the power plant for maximum efficiency and shall be efficient based on PWM MPPT with IGBT/ reliable power based design.
- The sine wave output of the inverter shall be 220V, Single phase, 4 wire 50 HZ AC LT voltage for power plant capacity less than 5 kWp. For power plant capacity equal to and more than 5 kWp capacity, the output shall be 415V, 3 phase, 4 wire 50 HZ AC LT voltage.
- **There should be provision to charge the battery using Grid power as long as grid voltage is between 170V-265V. In case Grid voltage falls below 170V up to 130V, Grid charging shall stop but load shall continue to run using Grid supply not by Solar. In case of three phase system, Phase to neutral voltage shall be in this range for all three phase.**
- The peak inverter efficiency inclusive of built in isolation transformer shall exceed 85% at full load
- There should be provision to export excess PV power to grid in case the load consumption is less than the actual generation only for the plants having capacity equal to and more than 5 KW. This is futuristic feature and provision should be there to enable or disable this export feature.
- Inverter shall provide display of PV array DC voltage & current, Battery Voltage & Current, Inverter Voltage & Current, Grid voltage & Current, Battery charging status and required parameters when fault occurs. Remote monitoring of inverter parameters should be possible.
- Operating temperature Range shall be 0 to 55 deg C
- Maximum Power Point Tracker (MPPT) shall be integrated in the power conditioner unit to maximize energy drawn from the Solar PV array.
- The charge controller/ MPPT units should qualify to IEC standards.
- Online microprocessor based Data Acquisition Systems and Remote Monitoring facility for 365 days with data Recovery from remote location should equip.
- Firm should have sufficient enclosure on report preparation and should provide energy generation report on demand of officials.
- All PCUs must be provided with remote monitoring and data acquisition systems.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inverter Capacity</strong></td>
<td>1 Phase for less than 5 kWp, 3 Phase for 5 kWp and above</td>
</tr>
<tr>
<td><strong>Nominal Battery Bank Voltage</strong></td>
<td>Annexure-A</td>
</tr>
<tr>
<td><strong>Output frequency</strong></td>
<td>50 Hz +/- 0.5 Hz</td>
</tr>
<tr>
<td><strong>Overload Capacity</strong></td>
<td>200% for 5 Second.</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td>80% at 50% of load and More than 90% at full load 0.8 PF</td>
</tr>
<tr>
<td><strong>Short Circuit Protection</strong></td>
<td>Circuit Breaker and Electronics protection against sustained fault.</td>
</tr>
<tr>
<td><strong>Low Battery Voltage</strong></td>
<td>Automatic Shut Down</td>
</tr>
<tr>
<td><strong>Total Harmonic Distortion</strong></td>
<td>Less than 3%</td>
</tr>
<tr>
<td><strong>Over Voltage</strong></td>
<td>Automatic Shut Down</td>
</tr>
<tr>
<td><strong>AC over Current/Load</strong></td>
<td>Automatic Shut Down</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>Over Voltage both at Input &amp; Output</td>
</tr>
<tr>
<td></td>
<td>Over Current both at Input &amp; Output</td>
</tr>
<tr>
<td></td>
<td>Over Frequency</td>
</tr>
<tr>
<td></td>
<td>Surge voltage inducted at output due to external source.</td>
</tr>
<tr>
<td><strong>Protection Degree</strong></td>
<td>IP20/IP21</td>
</tr>
<tr>
<td><strong>Instrumentation &amp; Indication</strong></td>
<td>Input &amp; Output voltage, Input &amp; Output Current, Frequency, Power output, different status of inverter, kind of fault by audio signal.</td>
</tr>
</tbody>
</table>

**Charge Controller Unit:**

The Charge Controller shall be dual input type, where under normal condition the input is fed from a SPV panel and in the absence of SPV power or low SPV power conditions an external single phase AC source can be used for battery charging. A selector switch shall be provided for choosing between those modes. When the batteries are charged from external AC sources, the charging current should be set manually depending on the capacity of the source and the charging requirement of the batteries. The charge controller shall be of MPPT type / PWM type employing IGBT switching elements.

Charge controller should confirm IEC 62093 / IEC 60068 as per specification.

The charging sequence from SPV array or external AC source shall be as follows:

**From SPV Array:**

The battery shall be charged at the maximum rate depending on the solar radiation until the battery terminal voltage reaches 2.25 volts per cell. The battery charging should be automatically terminated when the rate of increase of battery voltage is steady (dv / dtsensing). The charger shall switch on the „trickle charge after this.
**From AC Source:**

The battery shall be charged at the rate manually set depending on the battery condition or capacity of AC source. The maximum rate shall be internally preset. The battery charging should be automatically terminated when the rate of increase of battery voltage is steady (dv/dt sensing) or when the battery terminal voltage reaches 2.75 volts per cell.

Salient features of the Charge Controller shall be as follows:

- **Switching elements**: IGBT/MOSFET
- **Type of Charger**: PWM
- **Input**: From Solar PV array
- **Output Voltage**: Suitable for charging nominal battery bank from respective capacity of SPV array.
- **Protections**: Short Circuit, Deep Discharge, Input Surge Voltage, Over Current (load), Battery Reverse Polarity, Solar array reverse polarity.
- **Indication**: String „ON“, Main „ON“, Charging „ON“, 80% Charged, 100% Charged, Charger Overload, Battery On Trickle.


MIMIC Diagram: To indicate power flow and operation of the charge controller/ battery charger; shall have provision for visual indications of existing power input/output through MIMIC diagram.

You may design Power Conditioning Unit (PCU), which consist of a solar charge controller & inverter as per design mentioned above. In addition, it should have a Grid Charger.

It provides the facility to charge the battery bank either through Solar or Grid set. The PCU continuously monitors the state of Battery Voltage, Solar Power output and the loads. Due to sustained usage of power, when the Battery Voltage falls below a preset level, the PCU will automatically transfer the load to the grid power and also charge the Batteries through the in-built Grid Charger. Once the batteries are charged to the present level, the PCU cuts off the Grid power from the system and will restore to feeding the loads from the battery bank & continue to charge the battery bank from the available solar power.

The PCU always gives preference to the solar power and will use Grid power only when the solar power / battery charge is insufficient to meet the load requirement.
Salient Features:

- Priority of charging is from Solar panels.
- Over heating Protection.
- Dual Display Showing PV & Inverter output.
- Short circuit & Over load Protection.
- Inbuilt Heavy Duly Solar Charge Controller.
- No Load Shut Down for load = 5% (not applicable for > 1 kVA systems) Fully equipped with powerful Grid Charger.
- User friendly client and Web based Software.

7. **AC Distribution Panel Board:**
The AC Distribution Board shall consist of the components as per designed PCU.

8. **Cables & Wirings:**
All cables shall be supplied conforming to IEC 60227/ IS 694 & IEC 60502/IS 1554. Voltage rating: 1,100V AC, 1,500V DC. For the DC cabling, XLPE or XLPO insulated and sheathed, UV stabilised single core flexible copper cables shall be used. Multi-core cables shall not be used. For the AC cabling, PVC or XLPE insulated and PVC sheathed single or multi-core flexible copper cables shall be used. Outdoor AC cables shall have a UV-stabilised outer sheath. The total voltage drop on the cable segments of entire system should not exceed 2.0%. The DC cables from the SPV module array shall run through a UV stabilised PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm. The minimum DC cable size shall be 4.0 mm2 copper. The minimum AC cable size shall be 4.0 mm2 copper.

9. **Danger Plates:**
The bidder have to provide at least 8 Danger Notice Plates of 200 mm X 150 mm made of mild steel sheet, minimum 2 mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required. The inscription shall be in English and local language. Out of eight, four danger notice shall have to be provided at PV Yard & Four-danger notice at Control Room & Battery room.

10. **Lightening & Over Voltage Protection System:**
- The SPV power plant should be provided with Lightning and over voltage protection, connected with proper earth pits. The main aim of over voltage protection is to reduce the over voltage to a tolerable level before it reaches the PV or other sub-system components. The source of over voltage can be lightning or other atmospheric disturbance.
• The lightning Conductors shall be made of 25 mm diameter 4000 mm long GI spike as per provisions of IS 2309-1969. Necessary concrete foundation for holding the lightning conductor in position to be made after giving due consideration to maximum wind speed and maintenance requirement at site in future. The lightning conductor shall be earthed through 20 mm X 3 mm thick GI flat earth pits/earth bus made with 25 mm X 5 mm GI flats.

11. **Earthing Systems:**
Chemical Earthing (Maintenance Free) system including Lightning & Surge Protection arrangement to be provided. Earthing system design should be as per the standard practices and should conform to the latest edition of IS 3043.

12. **Display Board:**
You shall provide the display board of size 3 ft x 3 ft that gives detailed circuit diagram of the system with its description.

13. **Comprehensive Maintenance Contract (CMC):**
The PV module(s), battery bank, Inverter and other sub-components will be warranted as per the given clause. The manufacturers can also provide additional information about the system and conditions of warranty as necessary.

Scope of Operation & Maintenance of SPV Power Plant for a period of 5 years from date of commissioning

Regular maintenance of the SPV Power Plant for a period of 5 years after commissioning along with supply of consumable items.

The breakdown maintenance of the entire system including supply of necessary spare parts if any shall be for a period of 5 years from the date of commissioning of power plant

- 5 years maintenance period shall begin on the date actual commissioning of the power plant.
- Normal and preventive maintenance of the power plant such as topping up of batteries, tightening of all electrical connections, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals, etc. Shall be covered under CMC.
- During maintenance period of the power plant, if there is any loss or damage of any component of the power plant due to miss management/miss handling or due to any other reasons pertaining to the vender’s deputed personnel, what-so-ever, the vender shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component. It is understood after examination the performance of the component or the system shall not degrade.
14. **Drawings & Manuals:**
2 copies 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 and distribution for street lighting system along with protection equipment. Approved ISI and reputed makes for equipment be used. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to OREDA before progressing with the installation work.

15. **Remote Monitoring System:**
For better appreciation, the Solar PV Power plant must be provided with remote monitoring system for all capacity of plants ranging from 1 kWp to 10kWp. In case of mobile network is not available, the same may be provided with data dumping system.

16. **Tool kits:**
Necessary tools kit is to be provided along with the each Power Plant for any routine maintenance or immediate repair.
Certificate of Unconditional Acceptance of the tender

(to be submitted on the letter head of the company)

We_______________________________________________________________a prospective bidders for the work of “Design, supply, installation, commissioning and maintenance for a period of 5 years of off-grid solar PV power plants (1 kWp to 10 kWp) with different capacities of Battery Bank” here by certify that we have carefully studied and understood the contents of the entire bid document hoisted on the website of OREDA as well as tenderwizard.com/OREDA on _________ and hereby confirm our unconditional acceptance to each and every line of the said bid document.

Date:....................

(Signature)...................................................……………..

Place:...................

(Printed Name)..........................................………………

(Designation)................…………............................……..

(Common Seal).…………........................................……..
Confirmation to Technical Specifications
(to be submitted on the letter head of the company)

Certified that we have carefully read and understood the technical specifications of the products and services to be provided under this tender and we hereby confirm our total adherence to the given technical specifications. The test certificates provided by us also base on the same technical specifications/parameters.

Date:.....................

(Signature)........................................................................

Place:.....................

(Printed Name)....................................................................

(Designation)........................................................................

(Common Seal).....................................................................
Model Bank Guarantee Format for Performance Security

Annexure-II of Finance Department Office Memorandum 4939 dtd 13.2.12, Govt of Odisha
[Ref Para 22(i1)]

To
WHEREAS-------------------------------------------------------------(name and address of the supplier)
(hereinafter called "the supplier") has undertaken in pursuance of contract no-------------
dated------------- to supply -----------------------------------------------------------(description of goods and services)
(herein after called "the contract") AND WHEREAS it has been stipulated by you in
the said contract that the supplier shall furnish you with a bank guarantee by a scheduled
commercial bank recognized by you for the sum specified therein, as security for compliance
with its obligations in accordance with the contract;
AND WHEREAS we have agreed to give the supplier such a bank guarantee; NOW THEREFORE
we hereby affirm that we, are guarantors and responsible to you on behalf of the supplier. up
to a total of --------------- .(Amount of the guarantee in words and figures).and we undertake to
pay you. Upon your first written demand declaring the supplier to be in default under the
contract and without cavil or argument, any sum or sums within the limits of (amount of
guarantee)as aforesaid. Without your needing to prove or to show grounds or reasons for your
demand or the sum specified therein.
We hereby waive the necessity of your-demanding the said debt from the supplier before
presenting us with the demand.
We further agree that no change or addition to or other modification of the terms of the
contract to be performed there under or of any of the contract documents which may be
made between you and the supplier shall in any way release us from any liability under this
guarantee and we hereby waive notice of any such change, addition or modification.
This guarantee shall be valid until the day of---------20------ Our branch at * (Name & Address
of the ____ * branch) is liable to pay the guaranteed amount depending on the filing of claim
and any part thereof under this Bank Guarantee only and only if you serve upon us at our-------
--- * branch a written claim or demand and received by us at our ____ * branch on or before
Dt.---------otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

(Signature of the authorized officer of the Bank)
Name and designation of the officer
Seal.name& address of the Bank and address of the Branch
SAMPLE FORMAT FOR C.M.C

(Subject to modification as per suitability of system and project requirement)
Comprehensive Maintenance Contract (CMC) for maintenance of SPV power plant supplied
and install by M/S ................................................................. ............................................................. for five years.

This Comprehensive Maintenance Contract (CMC) is executed between the Orissa Renewable Energy
Development Agency (OREDA), S-3-59, Mancheswar Industrial Estate, Bhubaneswar-10, represented by
its Deputy Director (Tech), Project Division herein after called as 1st. party and M/S
.................................................................

.................................................................

... two nos. of youth from each completed village to be able to
provide first aid repair service for the SPV systems installed in the village.
3. The 2nd party will ensure a formal training of such identified youth (2 from each village) at a cluster
level of villages in consultation with the 1st party.
4. An amount of 10% of the ordered value shall be kept as fees towards Performance guarantee for a
period of 10 years of warranty & maintenance. After expiry of the successful and satisfactory
maintenance period of 10 years which remains valid up to ......................... AD, the security deposit / PGF
shall be returned to the 2nd party thereafter only.
5. The CMC includes repair/ replacement of all spares and consumable, including CF Lamp, battery & PV
module during the maintenance period.
6. The 2nd party will setup a state level office at Bhubaneswar duly headed by a Service Engineer.
7. The 2nd party shall undertake the periodical maintenance work of these ...... sets prescribed formats
attached herewith (Format I) on the 10th of every succeeding quarter duly countersigned by the
concerned Assistant Director (Tech), / Authorized Officer, R.E. Cell, DRDA .........................
8. The 2nd party should be in readiness to attend to the defects of any system (out of these .......... Sets)
as and when required by the beneficiary/ 1st party and ensure rectification of defects and restore
functionality within seven days of lodging the complaints. The 2nd party shall furnish the status report
after the maintenance work are over, which shall invariably bear the signature of the beneficiaries as per the format annexed herewith (format- II ).

9. The 2nd party shall appraise the 1st party about the requirements and supply of spares during warranty as well as CMC period.

10. The 2nd party will ensure to submit quarterly reports of visits made by their representatives to the completed villages every three months during the warranty and CMC period.

11. The 1st party in consultation and cost sharing with the 2nd party will maintain a central complaint cell at Bhubaneswar alongwith adequate stock of spare parts as a backup.

12. Separate bills/ invoices in triplicate enclosing the prescribed formats duly filled in (Format-I and II ) are to be submitted by the 2nd party to 1st party for effecting payment after end of the each year from the date of maintenance of the systems.

13. Certificates in support of successful maintenance of the system(s) shall be obtained from the users which should be countersigned by the Assistant Director ( Tech), / Authorised Officer, RE Cell , DRDA ........................ in token of verification of maintenance done.

14. It will be the liberty of the 1st party to cross checks the systems maintained by the 2nd party. Random verification of the maintenance may be carried out by the 1st party wherever necessary.

15. The 2nd party may continue to maintain the gadgets after expiry of the maintenance period of 10 years , provided the beneficiaries/ 1st party desires.

16. For adjudication of any dispute between the two parties arising on execution of this CMC , the matter shall first be brought to the notice of Chief Executive, OREDA.

17. In case, there will be no amicable settlement of the issues, the matter can be referred to the court of law having jurisdiction at Bhubaneswar only. The Annual Maintenance contract is signed jointly between the two parties today i.e on dated ................. day of 2016 and shall come into force from the date of its signature(s).

For and on behalf of Odisha Renewable Energy Development Agency,
Bhubaneswar .........................

For and on behalf of M/S

( 1st Party) .............................
( 2nd party) .............................with Seal
Sample Price Bid format for off-grid SPV Power Plant (To be filled in Softcopy only)

Rate contract for Design, supply, installation, commissioning & comprehensive maintenance for five years of Off-grid solar power plant anywhere in the state as per the technical specification of MNRE (Battery Bank Capacity of 1.2 VAh/Wp, 3.6 VAh/Wp & 7.2 VAh/Wp)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Solar power plant Capacity</th>
<th>Basic System cost excluding taxes Rs./kWp</th>
<th>GST@5% levied on Basic system cost</th>
<th>Cost of Installation &amp; commissioning (I&amp;C) excluding taxes Rs./kWp</th>
<th>GST@18% levied on I&amp;C</th>
<th>5 years CMC charges excluding taxes</th>
<th>GST@18% levied on 5year CMC charge</th>
<th>Total cost Excluding taxes</th>
<th>Total cost Including taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 kWp (With 1-Phase inverter)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>2 kWp (With 1-Phase Inverter)</td>
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<td></td>
<td></td>
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<tr>
<td>3</td>
<td>3 kWp (With 1-Phase Inverter)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5 kWp (With 1-Phase Inverter)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5 kWp (With 3-Phase Inverter)</td>
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<td></td>
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</tr>
<tr>
<td>6</td>
<td>6 kWp (With 1-Phase Inverter)</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>7</td>
<td>6 kWp (With 3-Phase Inverter)</td>
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<td></td>
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</tr>
<tr>
<td>8</td>
<td>8 kWp (With 1-Phase Inverter)</td>
<td></td>
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</tr>
<tr>
<td>9</td>
<td>8 kWp (With 3-Phase Inverter)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>10 kWp (With 3-Phase Inverter)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Minimum Battery Bank Voltage with Battery Voltage 2V and 12 V *

<table>
<thead>
<tr>
<th>Capacity of Plant (KWP)</th>
<th>Battery Bank Voltage (V)</th>
<th>Battery Capacity Ah @ 1.2 VAh/Wp</th>
<th>Battery Capacity Ah @ 3.6 VAh/Wp</th>
<th>Battery Capacity Ah @ 7.2 VAh/Wp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kWp (With 1-Phase inverter)</td>
<td>24</td>
<td>50</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>2 kWp (With 1-Phase Inverter)</td>
<td>48</td>
<td>50</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>3 kWp (With 1-Phase Inverter)</td>
<td>48</td>
<td>75</td>
<td>225</td>
<td>450</td>
</tr>
<tr>
<td>5 kWp (With 1-Phase Inverter)</td>
<td>96</td>
<td>63</td>
<td>188</td>
<td>375</td>
</tr>
<tr>
<td>5 kWp (With 3-Phase Inverter)</td>
<td>120</td>
<td>50</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>6 kWp (With 1-Phase Inverter)</td>
<td>96</td>
<td>75</td>
<td>225</td>
<td>450</td>
</tr>
<tr>
<td>6 kWp (With 3-Phase Inverter)</td>
<td>120</td>
<td>60</td>
<td>180</td>
<td>360</td>
</tr>
<tr>
<td>8 kWp (With 1-Phase Inverter)</td>
<td>96</td>
<td>100</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>8 kWp (With 3-Phase Inverter)</td>
<td>120</td>
<td>80</td>
<td>240</td>
<td>480</td>
</tr>
<tr>
<td>10 kWp (With 3-Phase Inverter)</td>
<td>240</td>
<td>50</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

* Battery Voltage: i) 2 Volt for 200 Ah and above
  ii) 12 Volt for below 200 Ah