

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY



BID DOCUMENT

FOR

Design, supply, installation and 5 years CMC for restoration of an existing 20 Kwp hybrid roof top Solar Power Plants at Rajbhawan, integration with existing SPV array and load distribution (including swapping of defective PCU, battery).

Date of release of bid	8.11.19
Date & time of pre-bid conference	16.11.19, at 11-30 AM OREDA Conference hall
Final online bid document hoisting	18.11.19
Date and time of last submission online	28.11.19 at 5.00 PM
Last date and time of submission of hard copy of online documents.	30.11.19 at 1.00 PM
Opening of Techno-commercial bid (Part-I)	30.11.19 at 3-30 PM
Date of opening of the price bid(part-II)	To be informed to the qualified bidders.

Tender Call Notice No- 5130/OREDA

Dt- 08.11.19

S-3/59, MANCHESWAR INDUSTRIAL ESTATE, BHUBANESWAR-751010

Phone : (0674)2585898,2580554. 2581552, Fax:2586368

Website: www.oredaorissa.com,

Email: ceoreda@oredaorissa.com

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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. It is responsibility of the Prospective Bidder to keep close watch on the OREDA website and tender wizard for any amendment / clarification /modification before submission of the same.
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

S-3/59, MANCHESWAR INDUSTRIAL ESTATE, BHUBANESWAR-751010

Phone : (0674) 2588260,2586398,2580554. Fax:2586368

Website: www.oredaorissa.com, Email: ceoreda@oredaorissa.com

E-TENDER NOTICE NO: /OREDA DTD-

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY invites sealed e-tenders **in two part bidding system** from local manufacturer, system integrator, EPC firms for design, manufacture, supply, installation, testing, commissioning, including Warranty and Comprehensive Maintenance Contract for a period of 5 years for restoration of an existing 20 Kwp roof top solar power plant by replacement of inverter, battery (swap of components) in Rajbhavan. The schedule of events is as follows,

Date of release of bid	8.11.19
Pre-bid conference	16.11.19, at 11-30 AM OREDA Conference hall
Final online bid document hoisting	18.11.19
Date and time of last submission	28.11.19 at 5.00 PM
Date and time of submission of hard copy of online documents.	30.11.19 at 1.00 PM
Opening of Techno-commercial bid (Part-I)	30.11.19 at 3-30 PM
Date of opening of the price bid(part-II)	To be informed to the qualified bidders.

Interested prospective bidders may visit OREDA's website www.oredaorissa.com and www.tenderwizard.com/OREDA for details relating bidding process and all other terms and conditions. The bidders can view the tender documents from www.oredaorissa.com website free of cost. No further advertisement on this matter in the News paper shall be issued. All amendments and corrigendum shall be available in the designated websites only.

Chief Executive, OREDA

DETAIL OF NOTICE INVITING TENDER

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY invites sealed e-tenders **in two part bidding system** from manufacturer, system integrator, EPC firms for design, manufacture, supply, installation, testing, commissioning, including Warranty and Comprehensive Maintenance Contract for a period of 5 years for restoration of an existing 20 Kwp roof top solar power plant by replacement of inverter, battery and integration with existing Solar array and load distribution in Rajbhavan.

Particulars	Earnest Money Deposit (Rs. in Lakhs)	Tender processing fee Non refundable (in Rs.)	Non refundable Cost of Bid document	Last date/time for submission of bids	Date and time of opening of bid
Supply, installation, commissioning including warranty and Comprehensive Maintenance Contract for 5 years for supply of Solar Power Conditioning unit, battery and integration with the existing solar array and load distribution in all respect as per the technical specification, schedule of materials and terms and condition of the of the work award on the basis of the lowest price arrived at within a period of minimum six months of the valid tender under the scope of work.	100,000	2300	Rs. 10500/-	Online 28.11.19, 5-00 PM , Hard copy 30.11.19, 11-00 AM	30.11.19, 3-30 PM

Interested prospective bidders may visit OREDA's website www.oredaorissa.com and www.tenderwizard.com/OREDA for details relating bidding process and all other terms and conditions. The bidders can view the tender documents from www.oredaorissa.com website free of cost. The authority reserves the right to accept / reject any part thereof or all the bids without assigning any reason.

Chief Executive,
OREDA

1. Instruction to bidders for online submission

The prospective bidders who do not have the supporting documents of proofs of all the eligibility (qualification) conditions must not submit the bid document.

(i) The bidders who want to submit bid shall have to pay the tender cost for the package (As mentioned in TENDER SCHEDULE, non-refundable which is inclusive VAT @ 5%), in the form of Demand draft only, drawn in **favour of Chief Executive, OREDA payable at Bhubaneswar.**

(ii) The bidders shall have to submit the non-refundable tender processing fee (As mentioned in TENDER SCHEDULE, *which is inclusive of service tax@15%*) in the form of e-payment mode

(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).

(iii) The bidders shall have to scan the Demand Draft / Bank guarantee towards **EMD , Tender Cost , signed copy of tender document (all pages)** as a token of acceptance and **other additional documents** against the tender and upload the same in the prescribed form in .pdf or .jpg format in addition to sending the original as stated below.

(iv) The prospective bidders are advised to register their user ID, Password, company ID from website www.tenderwizard.com/OREDA by clicking on hyper link “**Register Me**”.

(v) 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

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For and on behalf of OREDA

2. SUBMISSION OF BIDS ONLINE

MODE OF SUBMISSION OF BID:-

(A) (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 of the OREDA by the date and time indicated in the Tender notice.

(ii) Bids submitted by telex/telegram will not be accepted.

(iii) The OREDA reserves the right to reject any bid, which is not submitted in electronic mode and according to the instruction, stipulated above.

(A-1) 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) Contractors / Vendors / Bidders / Suppliers are requested to follow the below steps for registration.

(A-2) 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 being done the e-tender user id will be enabled/provided.

(A-3) 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). If any Bidder wants to participate in the tender he has to follow the instructions given below.

(i) Insert the PKI (which consist of your Digital Signature Certificate) in your System.

(ii) (Note: Make sure that necessary software of PKI be installed in your system).

(ii) Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).

(iii) Go to Start > Programs > Internet Explorer. Type **www.tenderwizard.com/OREDA**

in the address bar, to access the Login Screen.

(iv) Enter e-tender User Id and Password, click on “Go”. 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

(v) Click “Un Applied” to view / apply for new tenders.

(vi) 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.

(vi) Click to view the tender documents which are received by the user. Tender document screen appears.

(vii) 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

The bidders shall have to scan the Demand Draft / Bank guarantee towards EMD , Tender Cost , signed copy of tender document (all pages) as a token of acceptance and other additional documents against the tender and upload the same in the prescribed form in .pdf or .jpg format in addition to sending the original except bid sheets (.xls) prior to last date and time of receipt of bids as specified in tender Notice. Tender processing fees is mandatory & to be paid on e-payment mode as stated elsewhere in the document.

(B-1) PROPER FILLING UP OF THE PRICE SCHEDULE:

The bidder should fill up the Techno commercial and price schedule properly and fill in the bid sheets provided in .xls format and up-load the same without changing the file name. The tender may be rejected if the schedule of price is submitted in incomplete form.

NB: 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.

(i) After completing all the formalities Bidders will have to submit the tender as specified NIT and they 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 down / take a print of bid control number once it displayed on the screen

(ii) Tender Opening event can be viewed online.

(iii) Competitors bid sheets are available in the website for all participated bidders.

NOTES:

For any e-tendering assistant contact help desk number,

080- 40482000(Bangalore). OREDA HELP DESK- 09937140591

(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 Bid Security, 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.

(ii) OREDA may, at its discretion, extend this deadline for submission of bids by amending the Bidding Documents in accordance with ITB 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

(i) Soft part of the bid cannot 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., bid security, tender cost & any other document) within the stipulated deadline, its bid shall be considered as late bid. The hard copy submitted [specific documents (viz., bid security, tender cost.)] shall be returned unopened to the bidder.

ii) Hard copy of the bid security of the bid received by OREDA after the deadline for submission of bid prescribed by the GTCC will be considered as late bid even if the

bidder has uploaded the soft part 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:-

(i) Bidder may modify or withdraw its bids through the relevant provisions on the portal **www.tenderwizard.com/OREDA** up to due date and time of submission of bid indicated in tender notification.

(ii) The Bidder’s modifications shall be done and submitted as follows:

Modified Electronic form of the bid as per the provision of portal therein.

(iii) Bidder may withdraw its bid through the relevant provisions of portal only.

(iv) No bid shall be modified/ withdrawn subsequent to the dead line for submission of bids. Withdrawal/modification of bid before the expiry of bid validity shall result forfeiture of Bidder’s bid security.

2. SEALING AND MARKING OF BID:-

(A) Hard copy of the followings should be submitted with OREDA:

- (i) Demand draft towards cost of bid document.
- (ii) Tender processing fee acknowledgement copy.
- (iii) Bid Security in shape of DD/BG as described.

Technical Bid document in **hard bound form** with each page legibly numbered comprising of the following

All the papers of bid documents except the price bid duly signed & should be uploaded in e-tender portal. Hard copy (i.e EMD, Tender cost & signed e-tender document) shall be submitted OREDA office at S-57, Mancheswar Industrial Estate, Bhubaneswar 751010 before tender closing date and time.

**Contactors/Vendors are advised to upload their tender documents well in advance to avoid last minutes disappointed*

Check list of documents to be submitted along with the bid as serialised below

Sl no	Particulars	Complie d	Page-no / Flag
1	Bank draft for Rs.10,500/- or original money receipt issued by OREDA as proof of purchase of E O I paper or exempt as admissible with proof	Bank No Dt	Envelope
2	Bank draft / BG for Rs.1,00,000/- towards Earnest Money deposit or exempt as admissible with proof.	Bank No Dt	Envelope
3	Forwarding letter duly signed and stamped by the bidder & notarised self certificate as per eligibility clause.		
4	Undertaking duly signed and stamped by the bidder. Undertaking to unconditionally accept all terms and conditions of the bid document with copy of Board Resolution		
5	Valid document registering the status of the bidder as manufacturer /systems integrator / EPC		
6	Organizational profile containing the original documents defining the constitution or legal status, place of registration / branches.		
6	Copy of the PAN card of the bidder's firm		
7	Copy of the TIN card of the bidder's firm		
8	Copies of Tax returns, VAT / CST clearance or return		
9	Chartered Accountants Certificate on turnover for last 3 years.		
10	Proof of installation of 100 Kwp Solar power plant in Govt / PSU /Govt Agencies or as applicable as per eligibility. Copies of certificates given by the concerned government agencies.		
11	Declaration /Original Board resolution to undertake the work under the jurisdiction of the local office, if qualified.		

12	Valid Test reports of components of solar power plant from MNRE accredited test lab as applicable.		
13	Self certificate of not under black listed / debarred in govt / PSU / Govt Agencies execution in any manner		
14	Undertaking for Indigenouness of the supplied items		
15	Filled in bid document duly signed and stamped at the bottom of each page except the price bid format.		
16	Price bid in separate sealed envelope on line only .		
17			

UNDERTAKING BY THE BIDDER

I/we here by undertake that

1. We have thoroughly read and examined the notice inviting E O I and the E O I 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 E O I/supply / installation order.
3. All terms and conditions of the E O I including the rates quoted by us shall remain valid for a period of one year or as may be agreed upon from the date of opening of the technical bids.
4. In case our E O I is incomplete in any respect or we violate any of the prescriptions given in the E O I 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 E O I 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 E O I 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 E O I document has been discussed in the Board meeting and a resolution has been concurred for participation in the E O I (copy enclosed)

10. We are not involved in any litigation that may have an impact of affecting or compromising the delivery of services as required under this E O I
11. We are not under blacklisted / defaulted in any manner by any Central / State Government / Public Sector Undertaking in India.
12. 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.
10. 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: Submission of e-tender for the restoration of 20Kwp solar power plant at Rajbhwan

Ref: E-tender Call Notice No. -----/ OREDA, dtd -----.

Sir,

I/we hereby authorise Ms. /Mr. _____, Designationof our company to sign all relevant documents on behalf of the company/firm in dealing with the above e-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 e-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.

Signature attested

Name and designation of the attesting officer with stamp.

Yours faithfully
Head of the organisation

1. Eligibility Criteria

In order to be eligible to participate in the E O I, the bidder must fulfill the following eligibility criteria. Any discrepancy or deviation from the same shall make the bidder ineligible for participating in the E O I and such E O I documents shall be rejected.

- a) The bidder must be a company registered under the a firm registered under GST.
- b) The bidder must be a manufacturer of any component of solar system or a solar system integrator or EPC firm of the same. A copy of the registration certificate (DIC, NSIC, MSME, Register of Companies) to that effect is to be attached.
- c) The firm must have associated with OREDA during last 2 years and has installed solar PV power plants for an aggregate capacity of at least 100 Kwp (of individual capacity of one 20 Kwp) in Government / PSUs / Govt Institute / Co-op Society buildings in the State only during last 3 years. **The certificates only to that effect from the authorised officers are to be attached.**
- d) The bidder company must have average annual turnover of Rs. 1.00 crore for last 3 years (2016-17 to 2018-19). **A certificate from Chartered Accountant only is to be attached to that effect.**
- e) The firm is not under debarred / blacklisted / defaulted by any Govt. Dept, agency, PSUs / institution / agencies / autonomous organisations. **A self-certificate by an authorized person of the bidder's company/firm is to be attached.**

2.Scope of the work

The Bidder should act for design, supply providing of the required Solar Photo Voltaic power plant, with accessories, grid tied inverter, all recommended meters, peripherals like cables, junction boxes, earthing, lightning arrester and installation, performance testing, commissioning adhering to the technical specification, warranty, annual maintenance as per OERC/ MNRE/BIS/ IEC and or such standard etc.etc. The bidders have to ensure planning and smooth execution of the project as per the time schedules provided work order.

On issue of work assignment the allotted REO / PIA has to

2.1

2.2 A clear understanding of the logistics and other feasible features of the sites.

2.3 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.

2.4 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.

2.5 Installation of the supplied systems and commissioning of the same as per the prevailing electrical norms of the competent authority on the rooftops or on ground within the premises of the users, as the case may be as directed by the designated officials of OREDA in consultation.

2.6 Training at least one designated persons from each for day to day maintenance and upkeep of the system.

2.7 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.

2.8 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

3.0 Shall have service centre/keeping servicing personnel and making available all essential spares of the plant such that the power plants will give the desired performance with least interruption

3.1 Submission of periodic reports and returns as per the MIS prescribed by OREDA

3.2. **Other compliances**

- a) While installing new system the physical condition of the existing SPV should be taken in to consideration.
- b) There should not be any damage what so ever 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.
- c) 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.
- e) 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.
- f) 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.
- g) Extend both periodic and on call maintenance services through the CRC of OREDA as detailed elsewhere in this document.

3. Instructions to Bidders

Intending bidders are requested to carefully study the instructions contained hereunder before preparing their bid documents for submission.

1. A Bidder shall submit a single offer-bid only. The bidders shall be responsible for properly uploading the relevant documents in the e-tender portal (on line) in the specified location and Tender Inviting Authority shall not be held liable for errors or omissions done while uploading the online bid.
2. Bidders must submit their bids for all items as stated in this bid document above.
3. Demand Drafts towards cost of document and EMD in shape of DD / BG should be submitted in a separate envelop placed inside the envelope containing the technical bid.
4. Bids must be submitted in English language only.
5. Incomplete, telegraphic or conditional bids shall not be accepted.
6. Prices quoted must be firm and fixed. No price variation / escalation shall be allowed during the validity of the EOI.
7. The bidders must sign at the bottom of each page of the bid documents at the time of submission in token of unconditional acceptance of the departmental terms and conditions, technical specifications etc.
8. Valid GST / E-filing submission document must be submitted along with the bid. **All rules and circulars of Finance Department, Govt of Odisha issued from time to time will be applicable during project period from issue of E-tender to the completion of 5 years CMC.**
9. Deviations in terms and conditions, Specification of material, Inspection clause etc. will not be accepted under any condition.
10. The bidders should furnish the information on all past supplies and satisfactory performance.
11. 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.
12. The bidder shall furnish a brief write up backed with adequate data, explaining 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.

13. Bids without E.M.D and tender cost will not be accepted unless exempt.
14. Bids received late due to postal delay or otherwise **will not be considered**.
15. The bidders are required to furnish their offers in the price bid both in words & figures neatly computer typed. Any correction shall liable the document to be rejected. In case of any conflict between figures and words, the latter shall prevail.
16. Since timely execution of supply / installations is of paramount importance, requests for extension of time shall not be ordinarily entertained.
17. Canvassing in any manner shall not be entertained and will be viewed seriously leading to rejection of the bid.
18. Certificate to the effect that the systems to be supplied are indigenous & not fully imported must be furnished.
19. Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any, should be enclosed along with original bid documents.
20. Notice inviting E O I, bid documents, prescribed Technical bid, price bid, terms & conditions will form the part of the E O I.
21. All pages of the bid documents must be signed & sealed by the authorized person on behalf of the bidders.
22. Bids will be accepted & will be opened as per information mentioned in the notice-inviting E O I. No receipt against submission of bid shall be issued by OREDA.
23. **A pre bid meeting will be convened on ----- at 11.30 A.M. in the conference hall of OREDA. After discussion, deliberation and written statement / suggestions of the representative, the final E-tender document revised and approved by the technical committee is uploaded on the website replacing the previous one. Any amendment / corrigendum subsequently till the opening of tender will be announced in the specified websites only No clarification to queries in any manner will be entertained.**
24. Deviation of any commercial terms and condition and technical specification shall not be entertained under any circumstances
25. OREDA will not be responsible for any incidental or consequential losses of the firms while execution and till expiry of the period of maintenance.

26. If qualified, the bidder must open a local office at Bhubaneswar before commencement of the supply / installation for coordination of all jobs and service centres fully equipped with technical person and spare parts at cluster level in the district where solar pumps installed. Such facility must have proper mailing address with contact person detail from time to time for all documents. **All supply / installation orders shall be placed with the state local registered office of the qualified empanelled bidders.**

27. On award of contract the qualified bidder shall be termed as Renewable Energy Operator / Project Implementing agency.

28. Opening of the bids:

The procedure of opening of the bid shall be as under

i) The technical bid opening is ONLINE. The date of opening of the technical bid is only published in advanced. The date of opening of the price bid will be decided after verification of those bidders who qualify in the technical bid evaluation and will be informed in advance.

ii) The online opening of the technical bid and the price bid shall be done by the Chief Executive / or his authorised representative as per bid schedule. The prospective bidders can access to the online opening by logging in to the e-tender portal with the registered digital signature. Bidders / its authorised representative may not come to this office of OREDA for the opening of the technical or price bids.

iii) In the event of the specified date for opening of the bids being declared holiday, the bid shall be opened at the appointed time and venue on the next working day.

iv) In the event of the bid and claims in the online documents are materially missing or of substantial error or want of required qualifications, shall stand disqualified and rejected.

30. Evaluation of Bids

The documents submitted as technical bids shall be scrutinized by a bid evaluation committee duly appointed.

ii) The bid evaluation committee may also verify the veracity of claims in respect of the known performances of the items offered, the experience and reputation of bidder in the field, the financial solvency. The Tender Inviting Authority, if

required reserves the right to inspect the facility of the bidder for verification of information furnished in the bid.

iii) The decisions of the bid evaluation committee on whether the bidders are responsive or non responsive.

iv) The verification of the items shall be conducted by the Technical Committee in which the external experts from the user institutions / funding agency.

v) The decision of the technical committee will be published

31. Price bid opening

i) The opening of the on line price bid shall be done online by the Tender Inviting Authority or the authorized representative and only the price bids in the proper format of the those firms qualified in the evaluation of the technical bids shall be opened.

ii) The lowest rate quoted in proper format complete in all respect the will be accepted.

32. 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

Chief Executive

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

Signature of Bidder with Seal

4.Commercial Terms & Conditions

The Chief Executive, OREDA shall award the contract to the successful bidders whose bids shall be qualified after evaluation in terms of the responsiveness and lowest standardised rate determined on the basis of price bids.

4.1 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 as per the technical spec will be installed as per the requisition /work order from the user / consumer. All taxes of the end user will be paid separately as per tax invoice.

4.2 Tax & Duties etc

i) All statutory deductions at source will be made

ii) As works contract, the contractor will submit the execution certificate be deducted from each bill and certificate for such deduction will be issued. This will be subject to bifurcation of supply of materials, installation & commissioning and CMC.

4.3 Earnest Money Deposit

4.3.1 Earnest money deposit as specified in Table-1 is required to be deposited along with the bid without which the bid will not be accepted. No interest will be payable for the EMD amount under any circumstances.

4.3.2 Earnest money can be deposited in shape of a Demand Draft in favour of Chief Executive, OREDA from any Nationalised Bank Payable at Bhubaneswar / BG in the prescribed format valid for 120 days and the proof of deposits should be attached to the bid.

4.3.3 E.M.D would be refunded to the unsuccessful Bidders after finalization of the bid without any interest.

4.3.4 EMD would be refunded to successful bidder(s) after submission of security deposit as detailed at clause 5.4 once S D / PGF amount exceeds the EMD amount.

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

4.3.6 In case of claim for exemption from deposition of Earnest money sufficient proof in support of claim for exemption of EMD for NSIC registered firms as prescribed in Govt. of India Notification is to be attached with the bid. All benefit as per the relevant govt policies

4.4. Security Deposit/ Performance Guarantee Fees

The successful bidders must deposit a bank guarantees (Annexure-C) 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 as follows

5 % of the ordered value in shape of irrevocable Bank Guarantees with 5 years validity from the date of supply, installation and commissioning till the completion of respective warranty and CMC period of the composite system.

The said deposit would be forfeited, if the supplies are not made and performances are not as per the Terms & Conditions of the purchase order. The security deposit amount will be refunded after the expiry of the Warranty period and CMC period of the systems i.e 5 years after commissioning of each system, subject to satisfactory execution / performance of the systems.

4.5 Programme Execution Schedule

1. Delivery of systems at sites: 2 month from the date of issue of the work order
2. Installation & Commissioning 1month from the date of preliminary inspection, physical verification and handing over of systems for installation
3. 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 the user. Following such inspection a joint commissioning report / installation report shall be brought out in the prescribed format, which shall form a part of the documents for release of payments.
4. The issuance of a JCC shall, in no way relieve the executing firm of it's responsibility for satisfactory operation of the SPV systems.

4.6 Quantity

The Solar Power plant of 20 Kwp capacity is not working due to failure of the existing PCU and battery backup. These components are to be replaced and substituted with new systems as the per technical specification. The systems is made function integrating the existing solar panel array.

4.7 Validity of offer

The offer must be kept valid for a period of one year from the date of opening of the technical bid. No escalation clause except the admissible tax component under the period of consideration would be accepted.

4.8 STCC

The bidders must submit a copy of valid up to date sales Tax / VAT/ E-return along with the bid. The bid would not be considered without this document. The original certificate would be produced at the time of opening of the bid, or, before placement of purchase order, if required.

4.9 Warranty

The Balance of Systems (BOS) should be warranted against any manufacturing defect or bad workmanship 5 (five) years respectively from the date of commissioning of the systems.

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 the authorised officer of OREDA. The warranty period shall be extended by the period during which the systems remain non-operative due to reasons within the control of the executants. Care should be necessarily taken to make the system operational within a week of reporting of defect. If the system is not made operational within fifteen days, OREDA may rectify the same and charge all expenses incurred on the said account to the vendor. The defects should not be ordinarily attributed to tempering by the users. The firm has to devise suitable mechanism to ensure non-tempering of systems.

4.10 Penalty and termination of contract

The systems shall be supplied, installed and commissioned within the scheduled time as specified in the work awarded. If the supplier 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 10% of the contract price for delayed goods or installation and commissioning. Once the maximum is reached (i.e 10 weeks of delay) OREDA may consider termination of the contract and forfeit the security deposit without

prejudice to the other remedies of the contract along with recovery of mobilization advance by forfeiture of bank guarantee.

However, Chief Executive, OREDA may at his own discretion allow reasonable time extension upon written application of the supplying firm. If the delay is considered intentional or due to negligence of the vendor 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.

4.11 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 God, acts of public enemy, acts of Government, fires, floods, epidemics, strikes, freights, embargoes and unusually severe weather.

4.12 Inspection

All tests and inspections shall be made at the place of delivery unless otherwise specifically agreed upon by the bidder and OREDA at the time of purchase. Authorized OREDA Officer 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 has the right to have the tests carried out at its own cost by an independent agency at any point of time. Pre- delivery inspection at the factory site if necessary will be carried out by OREDA.

4.13 Payment

Payment will be made against the total price of the system installed out of the total supply / installation order issued against the respective executants in the following manner

- i) Total value of systems with full taxes / duties (excluding CMC charges) will be made after commissioning of the project. The check list of documents to be submitted along with the bills for release will be as per the purchase order issued.

For processing of the payment the indicative documents are to be submitted like all technical detail of the installed system, inspection, testing report and

function report, location map of the System, GPS based photograph wherever available, System handing over report, Warranty certificate, Joint commissioning certificate or any other documents as may be required.

- ii) The CMC amount will be paid annually as admissible from time to time on receipt of servicing reports endorsed by the user agency / OREDA authorised personnel.

4.14 Execution

In case of L1 rate being quoted by more than one bidder the firm with the higher experience will be assigned.

In case the L1 bidder fails to execute the work adhering to conditions of the work order, L2 / L3(in that order) may be asked to execute the work if they match the L1 rate.

4.15 Comprehensive Maintenance Contract

CMC will be applicable on expiry of the warranty period. The bidder must enter into a Comprehensive maintenance contract for the specified period at the time of execution of the order with the use. Offer without such CMC shall not be considered. The scope of CMC must cover supply of spare parts 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. Upon receipt of such certificates CMC amount as applicable shall be paid at the end of 1st, 2nd, 3rd, 4th and 5th years.

4.16 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 as per prevalent laws and acts. The Executants shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations as admissible.

4.17 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 Orissa 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

OREDA

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

5. TECHNICAL SPECIFICATION

Annexure-A

This is minimum generic Technical Specification. Any other specification / compliances as per MNRE norms have to be adhered to at the time issue of work award.

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.

A.SOLAR CHARGE CONTROLLER (SCC)			
1	Charge Controller Type	MPPT	
2	Charger Topology	Buck Type	
3	PV Nominal Capacity(Total)	20	kWp
4	No of MPPT Channels	1	
5	Per Channel PV Capacity	20	kWp
6	Max. Open Circuit PV Volts(Voc)	720	Volts
7	MPPT Voltage Range	330-598	Volts
8	PV Minimum Voltage	264	Volts
9	Max I/P Amps per channel	60.6	Amps
10	Max Battery Amps during PV	63	Amps
11	Max SCC O/P Amps	72	Amps
12	Battery type Supported	LMLA, VRLA, TubGel VRLA, Lithium Ion	

13	Min. Battery AH Required	300	AH
14	Peak Charging Efficiency	94	%
B.SOLARINVERTER			
1	No of Phases/Connection Type	3-Phase/4wire	
2	Nominal Battery Voltage	240	Volts
3	Nominal Output Voltage/Frequency	400/50	Volts/Hz
4	Nominal Capacity(Total/Per Phase)* ³	020/6.67	KW
5	Output Amps per Phase * ³	28.9	Amp
6	Voltage Regulation(in Standalone Mode)	+/-2	%
7	Freq. Regulation(in Standalone Mode)	+/-0.5	Hz
8	THD	<than5	%
9	Efficiency: Peak/100% Load/20% Load	>88/>85/>80	%
10	Load Power Factor	0.8lag to unity	
11	Over Loads: 60sec/30sec/5sec* ¹	110/125/150	%
12	Max Allowed Phase Imbalance	30	%
13	Auto Bypass Feature* ²	Provided	
14	Parallel Operation with Grid/DG	Provided	
15	Power Export to Grid Facility	Provided	
16	Anti Islanding from Grid	Provided	
C.GRIDCHARGER			
1	Grid Voltage Range (Voltage Sync. Range)	0.1-0.2	VAC
2	Grid Frequency range(Freq. Sync Range)	0.05-0.05	Hz
3	Max Grid Import Power	20	KW
4	Max Battery Amps during	54	Amps

5	Peak Charging Efficiency	80	%
NOTE (*1) Overload protection at load end is applicable only in			
(*4) dimension can be change during details engineering.			

D.PROTECTIONS
PV Side: Reverse Polarity, Surge Protection (ClassD)
Battery Side: Reverse Polarity, Over/Under Voltage, Current
Grid Side: Over/under Voltage, Over/Under Frequency, Surge
Load Side: Overloads, Short circuit
System Protection: Over Temperature

E.USERINTERFACE
1.DISPLAYED PARAMETERS
Battery Side: Voltage, Current, Import kWh
PV Side: Voltage, MPPT Charger O/P Amps, MPPT Charger O/P
Grid Side: Phase Voltage, Frequency, Power, Power Factor
Load Side: Phase Voltage, Phase Current, Frequency, Power,Power
System level: Mode of Operation, Active Faults, Heat Sink/IGBT temperature, System Mimic
2.INDICATIONS/AUXILIARY
Indications: Mains On, Alarm, Buzzer Mute.
User Keypad for Settings Change.
Breakers at all Inputs
Local Data Storage (Provision of Micro SD card up to 32GB)*
Remote monitoring: Optional**
NOTE (*) Micro SD card not in our scope
(**) All parameters on display can be remotely accessed via GPRS

F.MISCELLANEOUS		
1	Degree Of Protection	IP-21
2	Cooling Method	Temp Controlled Force
3	Operating Temperature	0-55 degrees(without
4	Humidity	Max. 95% Non-Condensing
5	Altitude	1000mabove sea level
6	Housing	Sheet Metal, Floor Standing,
7	Color shade	Black
8	Cable Entry	Bottom
9	Cable Termination Type	Bus Bar Type with ring type
10	Terminal Sizes(PV/	M6/M6/M6 /M6
11	Dimensions(HXWXD)*4	As applicable
12	Weight(kg)	As applicable

Power Conditioning Unit (PCU)

The PCUs required shall be of 20 KVA having provision for full battery back-up for the peripheral lights during night, should convert DC power produced by SPV modules in to AC power and adjust the voltage & frequency levels to suit the local grid conditions.

Common Technical Specification:

Control Type	: Voltage source, microprocessor assisted, output regulation
Out put voltage	: 3 phase, 415 V ac (+12.5 %, - 20 % V ac)
Frequency	: 50 Hz (+3 Hz, -3 Hz)
Continuous rating	: 20 KVA with battery backup,
DC link voltage range	: 0 to 600 V
Nominal Power	: 20 KVA
Total Harmonic Distortion	: less than 3%
Operating temperature Range	: 0 to 55 deg C
Housing cabinet	: PCU to be housed in suitable switch cabinet, Within IP 20 degree of ingress protection
PCU efficiency	: 94 % and above at full load,
Power Control	: MPPT

Other important Features/Protections of PCU :

- Mains (Grid) over-under voltage and frequency protection
- Fool proof protection against Islanding.
- Included authentic tracking of the solar array's maximum power operation voltage (MPPT).
- Array ground fault detection.
- LCD and piezoelectric keypad operator interface Menu driven
- Automatic fault conditions reset for all parameters like voltage, frequency and/or black out. MOV type surge arresters on AC and DC terminals for over voltage protection from lightning-induced surges.
- PCU should be rated to operate at 0 -55 deg. Centigrade unless provision for air conditioning is included in PCU
- All parameters should be accessible through an industrial standard communication link.
- Over load capacity (for 10 sec) should be 200% of continuous rating.

- 1 The PCU shall be self commuted and shall utilize a circuit topology and components suitable for meeting the specifications listed above at high conversion efficiency and with high reliability.

The Hybrid PCU shall be self commuted and shall utilize a circuit topology / DSP technology to meet the specifications listed above at high conversion efficiency and with high reliability. The PCU shall be Hybrid One and shall give the preference to feed the Loads from Solar Energy being produced and shall draw the additional power from mains to meet the load requirements in the case load is more than solar energy being produced.

Conversely it should feed the solar power to the Grid if the load is less than the solar energy generated. It shall also draw the Power from Mains for charging of Battery Bank in case of Low Battery conditions. The PCU shall also have the ability for automatic starting, transfer and no-break transfer to an optional generator for extended grid failure periods.

- 2 Since the PCU is to be used in solar photo voltaic energy system, it should have high operational efficiency. The DC to AC conversion efficiency shall at least be 93 percent for output ranging from 20 percent of full load to full load. The idling current -it no load must not exceed 2 percent of the full-load current.
- 3 In PCU there shall be a direct current isolation provided at the output by means of a suitable isolating transformer.
- 4 The PCU output shall be 415 VAC, 50 Hz 3 phase,
- 5 The PCU shall be capable of operating in parallel with the grid utility service and shall be capable of interrupting line-to-line fault currents and line-to-ground fault currents.
- 6 The PCU shall be able to withstand an unbalanced output load to the extent of 30 %
- 7 The PCU shall include appropriate self protective and self diagnostic features to protect itself and the PV array from damage in the event of PCU component failure or from parameters beyond the PCU'S safe operating range due to internal or external causes. The self-protective features shall not allow signals from the PCU front panel to cause the PCU to be operated in a manner which

may be unsafe or damaging. Faults due to malfunctioning within the PCU, including commutation failure, shall be cleared by the PCU protective devices and not by the existing site utility grid service circuit breaker.

3.8 The PCU shall go to the shut down/ standby mode with its contacts open under the following conditions before attempting and automatic restart after an appropriate time delay in insufficient solar power output.

a) Utility-Grid Over or Under Voltage

The PCU shall restart after an over or under voltage shutdown when the utility grid voltage has returned to within limits for a minimum of two minutes.

b) Utility-Grid Over or Under Frequency

The PCU shall restart after an over or under frequency shutdown when the utility grid voltage has returned to the within limits for minimum of two minutes.

3.9 The PCU generated harmonics measures at the point of connection to the utility services when operating at the rated power shall not exceed a total harmonic current distortion of 4 percent, a single frequency current distortion of 4 percent and single frequency voltage distortion of 1 percent when the first through the fiftieth integer harmonics of 30 Hz are considered.

3.10 The PCU Power factor at the point of utility service connection shall be 0.95 lagging or leading when operating at above 25 percent of the rated output, but may be less than 0.95 lagging below 25 percent of the rated output.

3.11 The high voltage and power circuits of the PCU shall be separated from the low-voltage and control circuits. The internal copper wiring of the PCU shall have flame resistant insulation. Use of PVC is not acceptable. All conductors shall be made of standard copper.

3.12 The PCU shall withstand a high voltage test of 2000 V rms, between either the input or the output terminals and the cabinet (chassis).

3.13 Full protection against accidental open circuit and reverse polarity at the input shall be provided.

3.14 The PCU shall not produce Electromagnetic interference (EMI) which may cause malfunctioning of electronic and electrical instruments including communication equipment, which are located within the facility in which the PCU is housed.

3.15 The PCU shall have an appropriate display on the front panel to display the instantaneous AC power output and the DC voltage, current and power input. Each of these measurement displays shall have an accuracy of 1 percent of full scale or better. The display shall be visible from outside the PCU enclosure. Operational status of the PCU, alarms, trouble indicators and AC and DC disconnect switch positions shall also be communicated by appropriate messages or indicator lights on the front of the PCU enclosure.

3.16 Communication Modbus protocol with LAN/WAN options along with remote access facility and SCADA package with latest monitoring systems

3.17 Electrical safety, earthing and protection

- a. Internal Faults : In built protection for internal faults including excess temperature, commutation failure, overload and cooling fan failure (if fitted) is obligatory.
 - b. Galvanic Isolation: Galvanic Isolation is required to avoid any DC component being injected into the grid and the potential for AC components appearing at the array.
 - c. Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations in the grid itself and internal faults in the power conditioner, operational errors and switching transients.
 - d. Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
 - e. Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
 - f. Fast acting semiconductor type current limiting fuses at the main bus-bar to protect from the grid short circuit contribution.
- 3.18 The PCU shall include an easily accessible emergency OFF button located at an appropriate position on the unit.
- 3.19 The PCU shall include ground lugs for equipment and PV array grounding.
- 3.20 All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.
- 3.21 The PCU enclosure shall be weatherproof and capable of surviving climatic changes and should keep the PCU intact under all conditions in the room where it will be housed. The INVERTER shall be located indoor and should be either wall / pad mounted. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.
- 3.22 Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.
- 3.23 All doors, covers, panels and cable exits shall be gasketed or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks. All openings shall be provided with grills or screens with openings no larger than 0.95 cm. (about 3x8 inch).
- 3.24 In the design and fabrication of the PCU the site temperature (5° to 55°C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking and thermal for blocking diodes and similar components.

Factory Testing:

- a. The PCU shall be tested to demonstrate operation of its control system and the ability to be automatically synchronized and connected in parallel with a utility service, prior to its shipment.

- b. Operation of all controls, protective and instrumentation circuits shall be demonstrated by direct test if feasible or by simulation operation conditions for all parameters that can not be directly tested.
- c. Special attention shall be given to demonstration of utility service interface protection circuits and functions, including calibration and functional trip tests of faults and isolation protection equipment.
- d. Operation of start up, disconnect and shutdown controls shall also be tested and demonstrate. Stable operation of the PCU and response to control signals shall also be tested and demonstrated.
- e. Factory testing shall not only be limited to measurement of phase currents, efficiencies, harmonic content and power factor, but shall also include all other necessary tests/simulation required and requested by the Purchasers Engineers. Tests may be performed at 25,30,75 and 100 percent of the rated nominal power.
- f. A factory Test Report (FTR) shall be supplied with the unit after all tests. The FTR shall include detailed description of all parameters tested qualified and warranted.'
- g. Factory testing of the PCU/PCU,s should be carried out and witnessed by the Purchaser's Engineers at the manufacturers premises.

Plant Metering /Data Logging

- a) PV array energy production: Digital Meters to log the actual value of AC/DC Voltage, Current & Energy generated by the PV system shall have to be provided. Two way LT 415V energy meter (Import - Export metering) shall be incorporated in the system on the main LT AC Grid supply.
- b) Solar Irradiance An integrating pyranometer (Class II or better) should be provided with the sensor mounted in the plane of the array. Readout should be integrated with data logging system.
- c) Wind Speed : An integrated wind speed measurement unit be provided.
- d) Temperature Sensor: Integrated temp, sensors for measuring the module surface temp., inverter inside enclosure temp, and ambient temp to be provided complete with readouts integrated with the data logging system.
- e) A data logging system (Hardware and software) for plant control and monitoring shall be provided with the following features :
 - 1no's suitable Computers : 2.7 GHz Pentium with 80GB HDD, 1GB RAM, 2 Parallel & 2 Serial Port, Wi-Fi Lan Card, DVD RW Drive , 20" LCD, USB Scroll Mouse, along with 1 KVA ups .
- f) GSM Modem / Wi Fi modem in case GSM connectivity is used or Wireless Router + modem in case Ethernet connection is being used for remote access must be provided.
- g) Remote Supervisory Control and data acquisition through SCADA software at the purchasers 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.

All major parameters should be available on the digital bus and logging facility for energy auditing through the internal microprocessor and can be read on the digital front panel at any time the current values, previous values for up to a month and the average values. The following parameters should be accessible via the operating interface display.

- AC Voltage
- AC Output current
- Output Power
- DC Input Voltage
- DC Input Current
- Time Active
- Time disabled
- Time Idle
- Temperatures (C)
- Invertor Status

Protective function limits (Viz – AC overload voltage, AC under voltage, Over frequency. Under frequency, ground fault. PV starting voltage, PV stopping voltage, Over voltage delay, Under voltage delay, over frequency, Ground fault delay, PV starting delay, PV stopping delay).

3.27 PCU/ARRAY SIZE RATIO

The PCU continuous power rating shall be above 94% at full load.

PCU

Technical data sheet:-

The PCU shall continuously and control the utility interface within the stipulated range:-

On three Phase side:-

Output voltage	415(+12.5-20%) VAC
Frequency	50HZ(+3 HZ, -3 HZ)
Maximum current ripple	4% PP
Reactive Power	0.95 inductive to 0.95 capacitive

Maximum Power Point Tracker (MPPT)

Maximum power point tracker shall be integrated in the PCU to maximize energy drawn from the array. The MPPT should be micro processor based to minimize power losses. The details of working mechanism of MPPT shall be mentioned. The MPPT must have provision (.manual setting) for constant voltage operation.

Disconnection and Islanding

Disconnection of the PV generator in the event of loss of the main grid supply is to be achieved by in built protection within the power conditioner. this may be achieved through rate of change of current, phase angle, unbalanced voltage or reactive load variants.

Operation outside the limits of power quality as described in the technical data sheet should cause the power conditioner to disconnect the grid. Additional parameters requiring automatic disconnection are: Neutral voltage displacement Over current Earth fault And reverse power In case of the above, cases, tripping time should be less than (15 seconds. Response time in case of grid failure due to switch off or failure based shut down should be well within 5 seconds. In case of use of two PCUs capacity .suitable equipment for synchronising the AC out put of both the PCUs to the ACDB/Grid should be provided.

Automatic reconnection after the grid failure is restored

PCU shall have the facility to reconnect the PCU automatically to the grid following restoration of grid subsequent to grid failure condition.

Array Junction Box, Main Junction Boxes :

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

Made of FRP or cast aluminium

Copper bus bars/terminal blocks housed in the junction box with suitable termination threads

Conforming to IP65 standards and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single compression cable glands.
Provision of earthing

Suitable capacity MOVs provided within the box to protect against lightning

Plant Control, data logger & plant monitoring unit

Basically, this unit should perform the following .

- ◆ Measurement and/or recording of energy parameters.
- ◆ Simple data logger or energy meter to record the energy data on a pre determined interval basis.
- ◆ Measurement & continuous acquisition of ambient air temperature, wind speed, solar radiation, PV module temperature, PCU output voltage and current, output frequency
- ◆ Operating state monitoring and failure indication.
- ◆ Representation of monitored data in graphics mode or in tabulation mode.
 - ◆ Controlling & monitoring the entire power system through remote terminal .
 - ◆ Necessary hardwares & softwares shall have to be supplied by the contractor. Both the softwares and hardwares required for interfacing the plant with office including CPUs, modems UPS are to be supplied and installed by the contractor.

- ◆ Remote control/ Instrumentation : The microprocessor control unit should have the provision for installation of RS – 232/485 communication link, should remote

DC Distribution Board

DC Distribution panel to receive the DC output from the array field with analog measurement meter for voltage, current and power from different MJBs so as to check any failure in the array field.

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

AC Distribution Panel Board

7.1 AC Distribution Panel Board (DPB) shall control the AC power from PCU, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar to be carried out and complete equipment along with metering to be installed in the ACDB. Requirement/specifications of DCDB and ACDB may be changed as per site conditions. An ACDB to be provided at the cable terminating point emanating from 30KVA PCU for interconnection control of dedicated electrical loads.

7.2 All switches at the, circuit breakers, connectors should confirm to IEC 60947, part I, II and III.

Cables & Wires

Cabling in the yard and control room : Cabling in the yard shall be carried out as per IE Rules. All other cabling above ground should be suitably mounted on cable trays with proper covers.

Wires: Only FRLS copper wires of appropriate size and of reputed make shall have to be used.

Cables Ends: All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of Cable Glands.

Cable Marking: All cable/wires are to be marked in proper manner by good quality ferule or by other means so that the cable can be easily identified.

Any change in cabling schedule/sizes if desired by the bidder/supplier be got approved after citing appropriate reasons, All cable schedules/layout drawings have to be got approved from 'he purchaser prior to installation. All cable tests and measurement methods should confirm to IEC 60189.

8.5) cable specifications:

- Multi strand, annealed high conductivity copper conductor
- PVC type 'A' pressure extruded insulation
- Overall PVC insulation for UV protection and confirm to IEC 69947
- Armoured cable for under ground laying
- All cables shall conform to BiS standards (IS 694) and (IS 1554)

- The size of each type of cable selected shall be based on minimum voltage drop, however, the maximum drop shall be limited to 2%
- Selected cable should carry a current density of minimum 1.2Amp/Sq.mm
- All electrical cables / wires inside the building to be fixed in accordance with specifications for electrical works .
- Proper laying of cables have to be ensured in appropriate cable trays, pipes / trenches as per site requirement.
- A.C. supply cables to be terminated at the DB / LT bus bar.
- For laying / termination of cables, latest BIS / IEC codes / standards be followed

Fire Extinguisher :

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

- Portable fire extinguishers in the control room for fire caused by electrical short circuits.
- Sand buckets in the control room

The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing the batteries and PCUs as well as on the roof top where the PV arrays have been installed.

Lightening Protection:

There shall be the required number of suitable lightning arrestors installed in the array field. Lightning protection shall be provided by the use of metal oxide varistors and suitable earthing such that induced transients find an alternate route to earth. Protection shall meet the safety rules as per Indian Electricity Act

11. Earthing Protection

Each array structure of the PV yard should be grounded properly. In addition the lightning arrester/masts should also be provided inside the array field. Provision should be kept be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian electricity Act./IE Rules. Earth resistance should be tested in presence of the representative of OREDA after earthing by calibrated earth tester. PCU ACDB & DCDB should be earthed properly.

Battery Bank

The battery bank is to be designed to provide the backup power for feeding the dedicated loads during night for the peripheral illuminations of the entire front of the main building and the Administrative block.

Storage Capacity: 350-400Ah @ 240V

Type: VRLA batteries

The battery cells shall have high ampere hour efficiency so as to quickly pick up the charge of the order 95%. High watt hour efficiency of at least 85%.

All recommended racks / stacks with vertical space utilization

Tools, Tackles & Spares :

After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the contractor for maintenance purpose. List of tools and tackles to be supplied by the contractor for approval of specifications and make from OREDA.

A list of requisite spares in case of PCU comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MCCBs etc along with spare set of PV modules and batteries 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.

Danger Boards

Danger boards should be provided as and where necessary as per IE Act./IE rules as amended up to date.

Drawing & 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.

Scope of operation & maintenance (CMC) of SPV power plant for a period of 5 years.
Annexure-B

All materials, components of the power plant during the period of maintenance shall be the property of OREDA / MNRE / Temple Administration.

Regular operation & maintenance of the SPV Power Plant for a period of five years of warranty / CMC after commissioning along with supply of consumable items as and when necessary and submission of daily performance data of power plant shall come, under the operation & maintenance contract.

The break down maintenance of the entire system including supply of necessary spare parts, if any are already under the coverage of warranty clause of the General Terms & Condition and special terms & condition for a period of 60 months from date of commissioning of power plant. The operation and maintenance schedule of the SPV power plant during the 5 years contract period shall be as detailed below.

1. 5 years operation and maintenance period shall begin on the date actual commissioning for the power plant. The requisite numbers of qualified and trained personnel are required to be deputed round the clock from that very day.
2. The security of the power plant will rest with the suppliers till such time operation and maintenance of the power plant is not handed over to the purchaser.
3. The deputed personnel shall be qualified and well trained so that they can handle any type of operation hazard quickly and timely.
4. The deputed personnel shall have to keep daily log sheet for the power plant as per format to be supplied after commissioning of the power plant.
5. The deputed personnel shall be in a position to check and test all the equipment regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any equipment shall be brought to the notice of OREDA immediately for appropriate action.
6. The deputed personnel shall keep clean the power plant in all time. Other activities in the control room will not be allowed under any circumstances.
7. Normal and preventive maintenance of the power plant such as cleaning of module surface, all electrical connection, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals etc.
8. During operation & maintenance period of 5 years of the power plant, if there is any loss or damage of any component of the power plant (not due to miss management / miss handing of user) due to any other reasons, what-so-ever, the supplier shall be responsible for immediate replacement / rectification. The

damaged component may be repaired, if it is understood after examination that after repairing performance of the component shall not be degraded, otherwise the defective component shall have to be replaced by new one without any extra cost.

9. List of spare parts & measuring instruments are to be supplied along with the systems may be specified in the bid.

10. Operation & Maintenance Instructions:

10.1 The successful bidder shall furnish before three months prior to completion of the works. 4 copies of operating and maintenance instruction in English for approval and supply 5 sets of the approved manuals of instructions at the time of inspection and taking over of the equipment. These manuals shall properly bound in book form and contain all information, description of equipment, diagram etc. necessary to enable the customer to operate and maintain the whole scheme.

10.2 Proper Operation & Maintenance of the plant shall be carried out by the contractor during O & M period of 60 months with 6 monthly / annual review check up of plant and equipment in detail with purchaser.

10.3 Properly qualified and trained personnel well versed in O&M of SPV plants and know

10.4 ledge of computers with approval from purchaser shall be deployed at site for operation & maintenance.

10.5 Proper repainting, re-coating of exposed surfaces to prevent rusting & replacement of worn out parts shall be carried out along with the maintenance of the PCU and battery bank.

- Plant personnel shall be deputed on such basis so that a qualified / trained person with a minimum Technical qualification) Diploma in Engineering) should be available at site always during the operation & maintenance period.

- Supplier shall depute on engineer of their company for the operation and maintenance of the plant who shall be fully responsible for the complete O&M and optimum operation of the plant. The name and contract nos. of this engineer shall be notified to the purchaser for the purpose of contract, responsibility and correspondence with regard to all trouble shooting.

- Replacement & repair of damaged parts shall be carried out immediately during the O&M period so as to ensure at least 95% uptime.

- Plant operation reports in a format prescribed by the purchaser shall be furnished by the supplier on a weekly and monthly basis.

- Plant shall be operated as per the standard IER practices to ensure proper safety measures.
- The supplier shall ensure replacement of worn out parts and component including battery back during the operation & maintenance period for which purpose the supplier shall carry and maintain minimum inventory levels of spares at the plant and its works.
- In case of delay in repair & maintenance and non observance of purchasers O&N schedule, the purchaser shall have the right to impose any penalties including forfeiture of performance security.
- Round the clock maintenance (routine preventive breakdown and capital maintenance) of complete plant and equipments including battery banks, SPV Array, PCU, SCADA system with dedicated telephone lines shall be carried out by the supplier in accordance with manufacturer's instructions, manufacturer's procedures, relevant safety codes, Indian Electricity Act, Indian Electricity Rules, purchaser's instructions, prudent utility practices etc.
- In case of any fault, the fault must be removed within 12 hours failing which a penalty of Rs.1,000/- per day shall be charged. In case of any part to be imported the maximum period for repair should not be more than 5 days. However, under Force Majeure circumstances penalty can be waived off.

10.6 Routine, preventive, breakdown& Capital Maintenance:

- Routine and Preventive maintenance shall include such checks and maintenance activities round the clock on hourly, shift wise, daily, weekly, fortnightly, monthly quarterly, half yearly and yearly basis which are required to be carried out on all the components of the power plant to minimize breakdown and to ensure smooth and trouble free running of the power plant. The supplier shall be responsible to carryout routine and preventive maintenance and replacement of each and every component/ equipment of the power plant and he shall provide all labour, materials, consumables etc. for routine and preventive maintenance of his own cost.
- Breakdown maintenance shall mean the maintenance activity including repairs and replacement of any component or equipment of the power plant which is not covered by routine and preventive maintenance and which is required to be carried out as a result of sudden failure / breakdown of that particular component or equipment while the plant is running. The supplier shall be responsible to carry out breakdown maintenance of each and every

component of the power plant and he shall provide the required manpower, materials, consumables, components or equipment etc. for breakdown maintenance at his own cost irrespective of the reasons of the breakdown/failure.

- Capital maintenance shall mean the major overhaul of any component or equipment of the power plant which is not covered by routine, preventive and breakdown maintenance which may become necessary on account of excessive wear & tear, aging which needs repair / replacement. The capital maintenance of power plant and all civil structures shall normally be planned to be carried out on an annual basis. For this purpose a joint inspection by the supplier and purchaser shall be carried out of all the major components of the power plant, about two months in advance of the annual maintenance period. In order to ascertain as to which components of the power plant require capital maintenance. In this regard the decision of the purchaser will be final and binding. However, if the condition of any plant and component warrants its capital maintenance at any other time, a joint inspection of the purchaser and supplier shall be carried out immediately on occurrence of such situation and capital maintenance shall be carried out by arranging the shutdown of the plant / part of the plant. If required, in consultation with concerned authorities. The decision of the purchaser shall be final and binding.

FORMAT FOR BANK GUARANTEE FOR EMD

On stamp paper of requisite amount

Annexure_C

B.G. No:.....

This Deed of Guarantee made this day of (.... month) of 2012 (Year Two thousand twelve) we, ...(name and address of the bank)...., (herein after referred to as 'The Bank') which expression shall unless the counterpart otherwise admit include its legal representative, successors and the Chief Executive, Orissa Renewable Energy Development Agency, S-59, Mancheswar industrial Estate, Bhubaneswar referred to as the 'OREDA') which expression shall include its legal representative, successors and assignees.

Whereas 'OREDA' has invited tender for the work of Design, supply, installation, commissioning and maintenance of SPV Systems vide Tender Call Notice No.-----/OREDA AND WHEREAS M/S. (Name and address of the firm), who having submitted their tender hereinafter referred to as the 'Tenderer' and have agreed to deposit to the 'OREDA' an amount of Rs..... (Rupees) as per the terms and conditions of the Tender Document AND WHEREAS the 'OREDA' also willing to accept a Bank guarantee in lieu of payment by demand draft of any amount equivalent to the amount of earnest money required to be deposited by the Tenderer to the 'OREDA' i.e. an amount equal to Rs..... which as guarantee will be kept valid up to -----.

In consideration of the 'OREDA' having agreed to consider the Bid proposals submitted by the tenderer without depositing the amount of earnest money and against this Bank guarantee, we(name and address of the bank) hereby undertake and guarantee to make payment to the 'OREDA' the amount of Bid earnest money deposit at any time (time being the essence of the contract) when the 'OREDA' asks for the same as per the terms and conditions of the tender Document.

The bank further undertakes not to revoke this guarantee during its currency except with the previous consent of the 'OREDA' in writing and the guarantee shall be continuous and irrevocable guarantee up to a sum of Rs..... (Rupees.....)only provided always that any indulgence or relation on the part of the 'OREDA' to the said tenderer with or without the consent of the bank shall not prejudice or restrict remedies against the bank nor shall the same in any event be a ground of defence by the Bank against the 'OREDA'.

In case the 'OREDA' Force puts forth a demand in writing on the Bank for the payment of amount full or in part against this bank guarantee, the bank will consider that such demand by itself is a conclusive evidence and proof that the tenderer has failed in complying with the terms and conditions stipulated by the 'OREDA' in its bids and payment will be made to the 'OREDA' without raising any disputes regarding the reasons for such failure on the part of the tenderer.

The bank shall not be discharged for release from this guarantee by any arrangement between the tenderer and the 'OREDA' with or without the consent of the bank or any alterations in the obligations of the parties or by an indulgence, forbearance shown by the 'OREDA' to the tenderer.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the 'OREDA' may have or hereafter possess against the tenderer and the 'OREDA' shall be under no obligations to marshal in favour of the bank any such securities or fund or asset that the 'OREDA' at its absolute discretion may vary, exchange, renew, modify or refuse to complete or enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the 'OREDA' on 'OREDA' serving a notice requiring the payment of the amount and such notice shall be served on the bank either by actual delivery thereof to the Bank or by dispatching thereof to the bank by Registered post at the address of the said Bank. Any notice sent to the Bank at its address by Registered Post shall be deemed to have been duly served on the Bank notwithstanding that the notice may not in fact have been delivered to the Bank.

In order to give full effect to the provisions of this guarantee the bank thereby waives all rights inconsistent with the above provisions and which the bank might otherwise as a guarantor be entitled to claim and enforce.

We,.....(name and address of the bank), lastly undertake not to revoke this guarantee during its currency except with the previous consent of the 'OREDA' in writing.

“Notwithstanding anything contained herein”,

- (i) Our liability under this guarantee shall not exceed Rs..... (Rupees only).
- (ii) This Bank Guarantee shall be valid up to -----

(iii) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if we receive from you a written claim or demand on or before ----- (date of expiry of Guarantee)".

Dated:-.... day of 2016

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

PRICE BID

Annexure-E

For online only

(Name of the firms-----)

Sl no	Schedule of works	Price excluding taxes
1	Supply of PCU of 20 Kwp as per technical compliances	
2	Supply of 3.6 Kw / Kw battery as per technical specification with all accessories.	
3	Installation, testing, commissioning, including warranty for restoration of an existing 20 Kwp roof top solar power plant by replacement of inverter, battery including swapping of the inverter and battery available .	
4	Comprehensive Maintenance Contract for a period of 5 years	
5	1 st year	
6	2 nd year	
7	3 rd year	
8	4 th year	
9		

The above rates are FOR with packing, insurance, loading, unloading and all incidental expenses.

Signature of the bidder with seal and date