

**ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY,
BHUBANESWAR**

Invites Tender

For

**Design, Supply, Installation and commissioning of SPV Energized
Water Chilling System with RO Plant at 5 locations at Angul district.**

Date of release of bid	10.10.2017
Pre-bid conference to hold at OREDA	18.10.2017 at 11.30 AM
Revised & final online bid document	24.11.2017
Date and time of last submission online	11.12.2017 at 5.00 PM
Date and time of submission of hard copy of documents.	13.12.2017 at 1-00 PM
Opening of Techno-commercial bid (Part-I) at OREDA	13.12.2017 at 3-30 PM
Date of opening of the price bid(part-II)	To be informed to the qualified bidders.

**Tender Call Notice-3809
Dt-18.10.2017**

Revised and Final tender documents

S-3/59, MANCHESWAR INDUSTRIAL ESTATE, BHUBANESWAR-751010
Phone : (0674) 2585898,2581552,2580554. Fax:2586368
Website: www.oredaorissa.com, Email: ceoreda@oredaorissa.com

Index

Sl No	Particulars	Page No
1	Details of Notice Inviting Tender	5
2	General Information	6-12
3	Program Background:	13
4	Undertaking By the Bidder	15
5	Scope of Work:	17
6	Eligibility Criteria:	18
7	Instructions to Bidders	19-21
8	Commercial Terms & Conditions	22-28
9	Technical Specifications Of SPV Energized Water Chiller with Ro Plant System	29-40
10	Sample Format For C.M.C	41-43
11	Price bid for SPV Energized Water Chiller with Ro Plant System(submission for only online)	44

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 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) 2588260,2586398,2585898, 2581552, 2580554. Fax:2586368

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

NOTICE INVITING E-TENDERNO: 3809 /OREDA DTD.18.10.2017

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY invites sealed e-tenders **in two part bidding system** from registered manufacturer, system. integrator, EPC firms for Supply, Installation (Erection), Testing, Commissioning, Warranty and Comprehensive Maintenance Contract years for SPV Energized Water Chiller with RO Plant at various locations at Angul district

Date of release of bid	10.10.2017
Pre-bid meeting conference to hold at OREDA	18.10.2017 at 11.30 AM
Revised & final online bid document hoisting	24.11.2017
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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. Amendments if any will be published in the OREDA website only. No further notification will be made in the news paper.

Sd/-dt-22.11.2017
Chief Executive, OREDA

DETAIL OF NOTICE INVITING TENDER

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY invites sealed e-tenders **in two part bidding system** from registered manufacturer, system integrator, EPC firms for Supply, Installation (Erection), Testing, Commissioning, Warranty and Comprehensive Maintenance Contract of Design, Supply, Installation and Commissioning of SPV Energized Water Chiller with RO Plant at various locations at Angul district.

Particulars	Estimated Cost (Rs.)	Earnest Money Deposit (Rs.)	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 a period of 5 year of Solar Modules of 2 kwp capacity, Module mounting structure, Junction boxes, Power conditioning unit (PCU), Cable and other accessories, Earthing & Protection, RO water purifier ,Water chillers system, Water discharge as per the technical specification(MNRE/IEC /BIS), schedule of materials and terms and condition of the of the work award from time to time on the basis of the lowest price arrived at within a period of minimum one year of the valid tender under the scope of work	5 sets, Rs.19,00,000; likely to enhance	20,000	2300 or as admissible	Rs. 10500/-	Online Dt. 11.12.2017 at 5.00 PM Hard copy Dt. 13.12.2017 at 1-00 PM	Dt.13.12.2017 at 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.

Sd/-dt-22.11.2017

Chief Executive, OREDA

SECTION- I

General Information

- i) 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.**
- ii) Bidders who want to submit bid shall have to pay the **tender cost**. The tender cost is required to be paid in shape of **Demand draft** only, drawn in **favour of Chief Executive, OREDA payable at Bhubaneswar**. The tender cost is inclusive of GST and is non refundable.
- ii) The bidders shall have to submit the non-refundable tender processing fee in e-payment mode only. The processing is inclusive of GST.
(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).
- iv) 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.
- v) 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"**.
- (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.

SECTION-II

SUBMISSION OF ONLINE BIDS:

A. MODE OF SUBMISSION OF BID:-

- i)** The bidder shall submit the bid in Electronic Mode 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 following 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 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.

(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.

1. Insert the PKI (which consists of your Digital Signature Certificate) in your System. **(Note: Make sure that necessary software of PKI be installed in your system)**
2. Click / Double Click to open the Microsoft Internet Explorer
3. (This icon will be located on the Desktop of the computer).
4. Go to Start > Programs > Internet Explorer. Type www.tenderwizard.com/OREDA in the address bar, to access the Login Screen.
5. 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
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.
8. Click to view the tender documents which are received by the user. Tender document screen appears.
9. 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 “unconditional acceptance of all terms and conditions of the tender”, Signed copy of “confirmation to technical specification” and other documents as required for 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. The attachments should be properly renamed before uploading.

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

The bidder should fill up the Techno commercial and price schedule properly 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 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 down / take a print of bid control number once it displayed on the screen

- (i) Tender Opening event can be viewed online.
- (ii) Competitors bid sheets are available in the website for all participated bidders.

NOTES:

For any assistant, Contact:

E-Tendering help desk number: 080-40482000/121/133/140(Bangalore) OREDA Help Desk-09776823641/09937140591

(C) DEAD LINE FOR SUBMISSION OF BIDS

- i) 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 including uploaded Techno-commercial Bid must be received by OREDA at the address specified not later than the time and date stated in the tender notification.**

- ii) 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.
- iii) 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

- i) 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., 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.
- i) Hard copy of the bid security i.e EMD in shape of DD/BG 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:-

- i) Bidder may modify or withdraw their 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 Bidders may modify and resubmit their bids as per the provisions given in the portal.
- iii) Bidders may withdraw their bids through the relevant provisions of mentioned in the portal.
- iv) **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 bid security.**

SUBMISSION OF HARD COPIES OF THE BIDS AND SEALING AND MARKING:-

(A) 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:
 - Uploaded Techno-commercial Bid Sheet.
 - Technical Specifications of all materials to be supplied.
 - Valid VAT / Sales tax clearance certificate, Income Tax return, PAN card, Service Tax Registration Certificate.
 - Unconditional acceptance of all Terms and conditions.
 - Indignity Certificate, Organizational profile.
 - Certificate and proof as per qualification criteria.

(B) 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.

(C) Financial bid:

The Electronic Form/Template of the Price bid (as available on the portal) shall be duly filled in.

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.

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) Bid security is not deposited either in shape of Bank Draft in favor of OREDA payable at Bhubaneswar or in Bank Guarantee.

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

- ii) Complete Technical details are not enclosed.

- iii) Tender is received after the last date for what-so-ever reasons.

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.

1. Program Background:

The development and implementation of a solar powered RO unit with cooling system will not only be of great benefit for communities in rural areas, but is also seen as a cost effective method of supplying potable water from raw sources in disadvantaged and or market areas. With addition to provide purified water along with water cooling system is an innovative move to avail cold water for drinking purpose in areas of extreme weather conditions where summer atmospheric temperature reaches above 40 degree C.

The decision was made to develop a pilot demonstration unit to evaluate the feasibility of the combined technologies; as well as the operation, application and commercialisation in the local market. The concept is relevant to areas where small communities are spread over large areas, where the high cost of erecting large water treatment water, or alternatively the piping of fresh water from other sources, is not practically viable. The use of solar panels, which generate the power required to drive the RO unit & Cooling Unit constitutes an initial capital investment that can be offset over the lifetime of the unit. Results gained from the test runs with the demonstration unit will significantly contribute toward the optimisation of future units and plants of increased capacity.

Forwarding Letter
(To be submitted in the letter head of the bidder)

To,
The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
S.59. MIE, Bhubaneswar -751010
Odisha

Sub: Submission of tender for Supply, Installation, testing, Commissioning & Maintenance for 5 years of Design, Supply, Installation and commissioning of SPV Energized Water Chiller with RO Plant

Madam,

Having studied the Tender document carefully i/we, the undersigned, offer to submit our tender for the supply / installation of Design, Supply, Installation and commissioning of SPV Energized Water Chiller with RO Plant.

I/We have also read the various provisions of the Tender and confirm that the same are acceptable to us. We further declare that any additional conditions, variations, deviations, if any, found in our Tender offer shall not be given effect to. We further understand that any deficiency / illegibility in documents shall make our tender liable for rejection.

I/we submit our tender understanding fully well that

- (a) The bid and other documents submitted along with the same will be subject to verification by appropriate authorities.
- (b) OREDA reserves the right to accept or reject any application or the bid process itself without assigning any reasons thereof and shall not be held liable for any such action.
- (c) Any genuine changes made by OREDA in the interest of the supply / installation with respect to the technical requirement during the course of project implementation will be acceptable.
- (d) All acts, rules, regulations, norms and conditions of Govt of India and Govt of Odisha shall be applicable during the process of tender and during the period of execution of project including CMC period.

We hereby declare that all the information and statements made in this proposal are complete, true and correct and also accept that any misinterpretation contained in it may lead to our disqualification.

We hereby declare that our Tender is made in good faith and the information contained is true and correct to the best of our knowledge and belief.

Yours faithfully,
Signature of bidder

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 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 work order.
6. In case we fail to commission the allotted numbers of Water Coolers as per the time schedules given by OREDA 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 above security deposit made by us against award of work order..
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. 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

Dated

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 tender for Supply, Installation, testing, Commissioning & Maintenance for 5 years of Design, Supply, Installation and commissioning of SPV Energized Water Chiller with RO Plant.

Madam,

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 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, if any.

Signature of the authorise persons

- 1. _____
- 2.....

Signature attested

Name and designation of the attesting officer with stamp.

Yours faithfully

Head of the organization

2. Scope of Work:

- a) Broad scope of the works is installation of solar PV powered water chilling plant with RO systems per technical specification including all civil and safety arrangement as per following schedule of works.

Sl no	Schedule of works	Capacity	Warranty
1	Solar PV power supply systems with all accessories of PCU and control as per MNRE specification	2 kwp	5 years
2	RO water purifier system	1 hp as per technical specification	1 year
3	Water Chilling Plant	1hp as per technical specification	1 years
4	Installation and commissioning with all required plumbing works	Connecting to existing solar dual pump	

- b) Bidders shall conduct site survey before submitting their bids.
- c) Bidder must start the work at site within 30 days from the date of issue of purchase order.
- d) Contractor shall make his own arrangement for safe storage of their as well as OREDA material at site.
- e) To co-ordinate with OREDA officials for verification of completed works along with all the required documentation.
- f) Materials, wherever supplied, shall be provided with fresh quality. Work man ship shall be neat & clean. In case of any observation by OREDA official regarding materials & workmanship, the same have to replaced and/ or repaired to the satisfaction of ORDEDA official.
- g) Contractor shall arrange all the utilities required to complete the work. No payment on this account shall be paid by OREDA.
- h) Any other work as required on the site for completion of the project.
- i) The contractor shall furnish on first day of every week, a progress showing progress of finalization of designs and drawings, materials received at site and the works carried out during the preceding weeks and plan for the next week.
- j) Follow all recommended safety and security measures during installation and post installation works.

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 a registered manufacturing company or system integrator in Design Engineering / Construction/ EPC turnkey in solar energy sector.
- b) The bidder should have valid GST Registration certificate in the state only. A copy of which should be enclosed.
- c) The bidding company/firm must have a minimum cumulative turnover of Rs 1(one) Crores, over last three years exclusively. As proof of the same a certificate to the 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.
- d) The bidder must have installed minimum 5 Solar based water chiller/RO system in last 3 years in Govt/ PSU/Co-op. The certificates to this effect must be attached.
- e) The firm must not have been debarred / blacklisted / defaulted by any Govt. Dept, agency, PSUs / institution / agencies / autonomous organizations. As proof of the same the bidder shall submit duly notarized a self-certificate by an authorized person of the bidder's company/firm.
- f) The bidder shall not assign or transfer sub-contract to the supply / installation orders given by any government/ PSU/ agency except in case of govt organization having associates experienced in Turnkey project in the state of Odisha only.

4. Instructions to Bidders

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

- a. A Bidder shall submit a single offer-bid only.
- b. Bids must be submitted in English language only.
- c. Incomplete, telegraphic or conditional bids shall not be accepted.
- d. Prices quoted must be firm and fixed. No price variation / escalation shall be allowed during process of completion of the project or for a period of one financial year whichever is earlier.
- e. 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.
- f. Valid GST submission document duly attested 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 tender to the completion of 5 years CMC period.**
- g. Deviations in terms and conditions, Specification of material, Inspection clause etc. will not be accepted under any condition.
- h. The bidders should furnish the information on all past supplies and satisfactory performance.
- i. 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.
- j. 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.
- k. The bidders shall submit reports on the financial standing of its company/firm such as auditor's reports, bankers' certificates etc.

- l. Bids without E.M.D will not be accepted unless exempt.
- m. Since timely execution of supply / installations is of paramount importance, requests for extension of time shall not be ordinarily entertained.
- n. Canvassing in any manner shall not be entertained and will be viewed seriously leading to rejection of the bid.
- o. Certificate to the effect that the systems to be supplied are indigenous & not fully imported must be furnished.
- p. Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any, should be enclosed along with original bid documents.
- q. Notice inviting Tender, bid documents, prescribed Technical bid, price bid, terms & conditions will form the part of the tender.
- r. All pages of the bid documents must be signed & sealed by the authorized person on behalf of the bidders.
- s. 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 of the same and forfeit the amount.
- t. Any clarification on the technical specification and commercial terms and conditions may be clarified in writing from OREDA.
- u. Deviation of any commercial terms and condition and technical specification shall not be entertained under any circumstances
- v. OREDA will not be responsible for any incidental or consequential losses of the firms while execution and till expiry of the period of maintenance.
- w. All the bidders shall essentially indicate the break-up of prices as shown in Price bid.
- x. 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 standardized rate determined on the basis price bids
- y. If qualified, the bidder must open a local office at Bhubaneswar before commencement of works and a service centres fully equipped with technical Person and spare parts at cluster level in the district where Water Coolers 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 having valid Odisha TIN/ OVAT as per the FD circular no 5439 dtd 25.02.14.

- z) On award of contract the qualified bidder shall be termed as executing agency.

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.

Sd/dt-22.11.2017

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**

5.COMMERCIAL TERMS & CONDITIONS

5.1 Rate:

The offer should indicate the unit cost of the system Installation & Commissioning charges and taxes & duties separately in online-format, Annexure-A. The unit cost must be inclusive of packing, forwarding, loading & unloading charges, cost of insurance and transportation FOR destinations throughout entire state where the system will be installed as per the order.

5.2 Tax & Duties etc.:

All taxes and duties applicable (revised at the time of delivery of materials) from time to time will be paid. All statutory deductions applicable for the period of the project shall be effected.

5.3 Earnest Money Deposit:

5.3.1 Earnest money deposit Rs. 20,000/-(twenty thousand) as specified earlier is required to be deposited along with the bid without which the bid will not be accepted. No interest will be payable on the EMD amount under any circumstances.

5.3.2 Earnest money shall be submitted in shape of a Demand Draft in favour of Chief Executive, OREDA from any Nationalized Bank Payable at Bhubaneswar or in the form of Bank guarantee and the proof of deposits should be attached to the bid. E.M.D would be refunded to the unsuccessful Bidders after finalization of the bid without any interest.

5.3.3 E. M. D would be forfeited in case of non- compliance of the purchase order by the successful bidders. EMD submitted shall be returned to successful bidders only after deposit of SD-cum-PGF.

5.3.4 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. All benefits as per the State Govt policies will be applicable for local eligible firms of the state only.

5.4 Security Deposit/ Performance Guarantee Fees:

The successful bidders must deposit a **bank guarantee** towards Security Deposit-cum-Performance Guarantee fees with the Chief Executive, OREDA, Bhubaneswar for the along with acceptance of work order as follows

7% of the order value for 1 year and 3% of the order value for 5 years in shape of two separate irrevocable Bank Guarantees **from the date of acceptance of the work order** till the completion of respective warranty and CMC period of the composite system.

The said deposit would be forfeited or BG invoked in part or full depending upon the significance of the performance or deficiency of services, if the supplies are not made and performances are not as per the Terms & Conditions of the purchase order. Every year the validity shall lapse with Warranty and CMC period discharged of the systems after commissioning of each system, subject to satisfactory execution / performance of the systems.

The solar module should be guaranteed on the performance as per the MNRE recommended technical specification. OREDA may at point of time get the performance test checked in any approved manner during period of guarantee. In case of deficiency of the same the whole lot of supply on that said order shall remain liable to be replaced. In case non adherence of quality, the executing agency shall be penalised suitably by the authority, besides, other measures of suspension, de-registration and blacklisting will be invoked.

All benefits as per the State Govt policies will be applicable for local eligible firms of the state only.

5.5 Work Execution Schedule:

Execution of work shall be carried out in an approved manner as outlined in the technical specification or where not outlined, in accordance with the relevant Indian Standard Specification, to the reasonable satisfaction of the Authorized OREDA Officer.

Upon intimation about commissioning of the systems by the vendor a joint inspection will be carried out by OREDA, representative of the sponsoring Govt. department/agency and the vendor.

After such inspection a Joint Commissioning Report (JCR) shall be taken out with signatures of all above officers as well as the concerned user which shall form a major document for release of payment.

5.6 Validity of offer:

The price bid 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.

5.7 Tax return:

The bidders must submit attested copy of valid up to date GSTclearance / e-filling submission certificate 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 issue of purchase order, if required.

5.8 Warranty:

The Supplier warrants that the Goods(as per the test report issued by authorized test centre) supplied under this Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in conditions prevailing in the country of final destination.

This warranty shall remain valid for 12 months after the non-solar components or 60(months) for solar components as the case may be, have been delivered to and commissioned and accepted at the final destination indicated in the Contract.

The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall repair or replace the defective Goods or parts thereof, without cost to the Purchaser other than, where applicable, the cost of inland delivery of the repaired or replaced Goods or parts from the port of entry to the final destination.

If the Supplier, having been notified, fails to remedy the defect(s), the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

5.9 Penalty and termination of contract:

The systems shall be supplied, installed and commissioned within the scheduled time as mentioned in the supply / installation order. 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 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.

If at any time during the performance of the Contract the supplier should encounter conditions impeding timely delivery of the Goods and performance of the Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the OREDA shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

A delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of liquidated damages pursuant, unless an extension of time is agreed upon without the application of liquidated damages.

5.10 Termination for Default

The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or in part:

- if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser; or
- if the Supplier fails to perform any other obligation(s) under the Contract.
- If the supplier, in the judgment of OREDA has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

For the purpose of this clause:

“Corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution or a contract to the detriment of the borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the borrower of the benefits of free and open competition.

In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

5.11 Inspection:

Pre delivery inspection of major components may be carried out by a team of designated officials of OREDA any other department as may be considered appropriate at the factory site of the vendor/manufacturer. Before dispatch of consignment intimation shall be given sufficiently ahead so that no delay occurs for deputing officials and inspection at the premises / test site. The rest of the 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. The water output as per technical specification has to be guaranteed without any controversies of variation of water table.

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

5.12 Payment:

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

Total value of systems with full taxes / duties will be made after commissioning of the project. The check list of documents to be submitted along with the bills and Security cum Performance Bank Guarantee for release will be as per the purchase order issued.

5.13 Allocation of supply / installation & Execution:

All supply / installation orders shall be placed with the state local registered office of the qualified L1 bidder having valid Odisha GST as per the FD circular no 5439 dt. 25.02.14.

In case L1 rate being quoted by more than one bidder, the work to be executed shall be equally divided among them.

5.14 Comprehensive Maintenance Contract:

CMC will be applicable during the period of the warranty period of 5 years for the solar components and 1 year for the rest of the materials. 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 Annexure). The scope of CMC must cover supply of all spare parts, services and performance reports 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 be made on submission periodic maintenance reports duly certified by the concerned authorized officials of the Project Implementing Agency and countersigned by the authorized officer 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.

5.15 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 supply / installation. All safety measures as per prevailing norms should be adopted. 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. The executants shall take all steps towards the security compliances.

5.16 Force Majeure:

In no event shall either Party have any liability for failure to comply with this Agreement, if such failure results directly from the occurrence of any contingency beyond the reasonable control of the Party, including, without limitation, strike or other labor disturbance, riot, major power failure, war, natural calamities including but not limited to floods, earthquakes, fire, volcanic eruptions, epidemics, National Emergency, interference by any government or governmental agency, embargo, seizure, or enactment or abolition of any law, statute, ordinance, rule, or regulation (each a " Force Majeure Event"). In the event that either Party is unable to perform any of its obligations under this Agreement because of a Force Majeure Event, the Party who has been so affected shall as soon as may be, after coming to know of the Force Majeure Event, inform the other Party and shall take

reasonable steps to resume performance as soon as may be after the cessation of the Force Majeure Event. If the period of non performance due to a Force Majeure Event exceeds thirty days, the Party whose ability to perform has been so affected may, by giving written notice, terminate this Agreement.

5.17 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 Odisha High court only. The Chief Executive, OREDA reserves the right to accept or reject any or all bids without assigning any reason thereof.

Sd/dt-22.11.2017

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 the bidder
with Seal**

6. TECHNICAL SPECIFICATIONS OF SPV ENERGIZED WATER CHILLER WITH RO PLANT SYSTEM

1.1 SYSTEM DESCRIPTION:

1.1 Solar Photovoltaic (SPV) Water Chillers system shall consist of mainly the following: -

- i) Solar Modules
- ii) Module mounting structure
- iii) Junction boxes
- iv) Power conditioning unit (PCU)
- v) Cable and other accessories
- vi) Earthing & Protection
- vii) RO WATER PURIFIER SYSTEM
- viii) Water chillers system
- ix) Water dispensation.

1.2 The PV array converts the light energy of the sun to DC power. The module mounting structure shall be used to hold the module in position. The DC power shall be converted to AC by PCU to supply AC load to the water chilling system

1.3 DC distribution board/ combiner shall be provided in between solar array and PCU. It shall have DC Disconnect/MCCB of suitable rating for connection and disconnection of array section. Type II Surge Arrestor should be incorporated for surge protection.

1.4 AC distribution board shall be provided in between PCU and loads. Though not mandatory, firms are however encouraged to also offer the facility for recording the energy output data of each inverter
The system shall comply IEC 60364-7-712 and 62446.

2.0 GENERAL REQUIREMENTS:

2.1 Solar panels and array junction boxes shall be installed on shade free roof / in ground. Even though roof-top mounting of solar panels shall be the preferred option, if necessary, OREDA can at their option specify a ground mounted solar system for part or full system KWp capacity.

2.2 Array structure of PV yard and all electrical equipments such as PCU, inverters, etc. shall be grounded properly. Towards this end, the contractor will supply and install an adequate number and appropriate size of IS:3043 – 1987 compliant earthing kits for AC circuit, DC circuit and lighting protection system.

2.3 Suitable marking shall be provided on the bus for easy identification.

2.4 The reverse current of blocking diodes (connected in series), if required/ provided, shall be rated for 2 X VOC STC of the PV string.

3.0 TECHNICAL REQUIREMENTS:

3.1 The DC output from the modules shall be fed to array junction box and the strings are paralleled at sub Main & Main junction boxes. Then PCU shall convert DC energy produced by the solar array to AC energy. The AC power output of the inverter shall be fed to the chilling system

3.2 The system shall automatically wake-up in the morning and supply power, provided there is sufficient solar energy and the grid voltage and frequency are in range.

25

3.3 When the grid voltage and/or frequency go out of preset range, the inverter shall be immediately disconnected from the grid. The inverter will reconnect after a predetermined time when the grid is back in the range.

3.4 Array to inverter voltage drop shall be less than 3% at the maximum power output of the array.

3.7 The performance and generation data shall be recorded using a data logger. The monitoring system shall comprise of the following main components:

3.7.1 PCU will log the inverter performance data and transmit the same to the data logger. It shall also monitor basic parameters like power generated, etc.

3.7.2 Data logger shall gather information and monitor the performance of the inverter. It shall also support measurements from the external sensors. Data Logger shall also monitor the Solar Insolation and Temp of Array Yard.

3.7.3 Data logging system/software shall enable automatic long-term storage of measured data from PV plant. It shall allow visualization, monitoring, commissioning and service of the installation. The data logger shall be web enabled. It should be possible to access the data logger with any standard web browser like internet explorer, google chrome, etc. and for this purpose, relevant software/ hardware will be supplied by the contractor. In addition to the web portal, it should also be possible to retrieve the data directly from the data logger. The software for access/ visualization of data from data logger should also be provided by the supplier. Necessary executable files, if any, will be required to be given free of cost by the supplier on a CD/ any other storage device.

3.7 Communication interface

The system should offer RS232/RS485 port and LAN/ WAN interface to facilitate remote monitoring of the system.

3.8 Module Mounting Structure

3.8.1 The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels.

3.8.2 The structure shall be designed to allow easy replacement of any module by authorized personnel and shall be in line with the site requirements. Bird spike shall be provided so as to avoid bird sitting on the solar modules at the highest point of the array/module structure.

3.8.3 The array structure shall be made of hot dipped galvanized MS angles (or alternate MS sections) of suitable size. Galvanization thickness shall be of min. 85µm. If the systems are installed in coastal/ corrosive areas, the minimum galvanization thickness of array structure shall be 120µm. Unless the purchaser has specifically asked for 120 µm thickness, normally 85 µm will be supplied.

3.8.4 The foundation for module mounting structure shall be 1:2:4 RCC construction or any other combination based on the local site condition requirement for which design details shall be submitted.

3.8.5 The support structure, design and foundation shall normally be designed to withstand wind speed upto 180 kmph.

3.8.6 The clearance between lowest part of the module structure and the developed ground level shall normally not be less than 500mm. However, in exceptional cases, lower clearances may be allowed on case to case basis.

3.8.7 The module alignment and tilt angle shall be calculated to provide the maximum annual energy output. This shall be decided based on the location of array installation. The SPV panel shall have a provision for angular adjustment of the mounting structure to get maximum utilization of incident sunlight. It shall be mounted facing south and tilted to an angle equal to the latitude (where being used), for optimum performance.

3.8.8 Fasteners shall be of stainless steel SS304. To prevent pilferage, anti-theft fasteners shall be provided at appropriate locations.

3.9 Junction Boxes

Array sub-main and main junction boxes, shall have the following properties:

- a. They shall be dust, vermin & waterproof and made of Polycarbonate- Glass Fibre Substance (PC-GFS) thermoplastic. The enclosure should be double insulated with protection class II as per IEC 61439-1. Material and the protection class shall be marked on the enclosure.
 - b. The enclosure shall have a transparent front lid for enabling easy visibility.
 - c. The enclosures shall have IP 65/66 protection in accordance with IEC 60529. Third party conformance certificate is required to be given for IP 65/ IP 66 degree of protection.
 - d. Minimum requirements for fire protection in the event of internal faults: Glow wire test in accordance with IEC 60695- 2-11 at 960 °C for box and 850 °C for conducting components.
 - e. Burning Behavior: Base part of Polycarbonate Enclosure shall be UL94-V-0 compliant and Lid part of PC Enclosure shall be UL94-V-2 compliant.
 - f. The enclosures shall have IK 08 degree of protection for mechanical load.
 - g. The material used shall be halogen, silicon free conforming to RoHS directive 2002/95/EC.
 - h. The enclosure shall have a usage temperature rating of -10 °C to 55 °C.
 - i. The enclosure should be chemically resistant to acid, lye, petrol, mineral oil & partially resistant to benzene.
 - j. The enclosures shall have a rated insulated voltage of 1000V DC and dielectric strength of 4.65 KV DC.
 - k. The material of the enclosure shall be UV stabilized.
 - l. Though not mandatory, manufacturers are encouraged to provide breather glands in the array junction boxes to prevent overheating and explosions.
- ii) SPDs Class II as per IEC 61643-1, shall be used at the terminals of array junction boxes for external surge protection. Internal Surge protection (SPDs) shall consist of three MOV type arrestors connected from + ve and - ve terminal to earth (Via Y arrangement) for higher withstand of the continuous PV-DC voltage during earth fault condition. SPD shall have safe disconnection & short circuit interruption arrangement through integrated DC in-built bypass fuse (parallel) which should get tripped during failure mode of MOV, extinguishing DC arc safely (created by inbuilt thermal disconnection) in order to protect the installation against fire hazards. Nominal discharge current (In) at 8/ 20 microseconds shall be minimum 10 KA with maximum discharge current (Imax) of minimum 20 KA at 8/20 microseconds with visual indication (through mechanical flag) in all modules to monitor the life of SPD.

The I_{sc} wpv (Short Circuit current withstand capacity of arrester) would be at least 10% more than Nominal output current of the combiner box and AJB. Detailed internal schematic for the above SPDs, compliant to these specifications, should be submitted by the contractor.

- iii) The junction boxes shall have suitable cable entry points with cable glands of appropriate sizes for both incoming and outgoing cables. Though not mandatory, manufacturers are encouraged to provide suitable cable entry points fitted with MC-4 Connectors.
- iv) Suitable markings should be provided on the bus bar for easy identification, and cable ferrules shall be fitted at the cable termination points for identification.
- v) The Array Junction Box should preferably have maximum 08 input with SPD and Terminal block.

3.10 Earthing for PV array, Balance of System (BOS), lightning protection and other components.

- i. The photovoltaic modules, Balance of system (BOS) and other components of power plant require proper grounding for protection against any serious faults as guided by IEC 60364.
- ii. The earthing resistance must not exceed the limits generally in practice for such applications.
- iii. The Bidder shall submit the detailed scheme of earthing and grounding.
- iv. The contractor will supply and install an adequate number and appropriate size of IS:3043 – 1987 compliant earthing kits for AC circuit, DC circuit and lightning protection system.
- v. The source of over voltage can be lightning or other atmospheric disturbance. Main aim of over voltage protection is to reduce the overvoltage to a tolerable level before it reaches the PV or other sub-system components. Lightning protection should be provided as per IEC 62305.
- vi. Necessary concrete foundation or any other arrangement for holding the lightning conductor in position is to be made after giving due consideration to shadow on PV array, maximum wind speed and maintenance requirement at site in future.
- vii. The lightning conductor and structures shall be earthed through flats as per applicable Indian Standards with earth pits. Each lightning conductor shall be fitted with individual earth pit as per required Standards including accessories, and providing masonry enclosure. Else, a matrix of lightning conductors is to be created which will be required to be connected to an earth.
- viii. If necessary, more numbers of lightning conductors may be provided.
- ix. The Bidder shall submit the drawings and detailed specifications of the PV array lightning protection equipment.

3.11 Power Conditioning Unit (PCU)

PCU shall supply the DC energy produced by array to DC bus for inverting to AC voltage using its MPPT (Maximum Power Point Tracking) control to

extract maximum energy from solar array and produce 230V (+15% and -15%) AC, 1 phase, 50 ± 5% Hz to synchronize with the local grid. The array output should be well within the input voltage range of the inverter so that the inverter works in MPPT range for most of the solar insolation range. This should be applicable for the whole life of the solar array and needs to be substantiated through design calculations. PCU should be able to handle maximum open circuit DC voltage of 1,000V.

3.9.1 MPPT controller, inverter and associated control and protection devices, etc. all shall be integrated into the PCU.

6.12.2 PCU/ string inverter shall provide 1 phase, 230V (with grid tracking of +15%/-15%), 50 Hz (with grid tracking of ±5% i.e. 47.5 to 52.5 Hz) supply on AC side with voltage THD of less than 3% and current THD of less than 5%.

3.9.4 For transformer-less design, efficiency shall be minimum 96%.

3.9.5 Degree of protection will be minimum IP20 for non-electronics portion where transformer, etc. are mounted, if any and for the rest of the portion including electronics, it will be IP31 for units of capacities upto 15KWp and IP41 for units of capacities greater than 15KWp. For inverters to be installed outdoors, IP65 protection shall be required. In future, OREDA will actively consider upgrading the requirement of IP protection, keeping in view the highly dusty environment in Indian subcontinent. Therefore, manufacturers are encouraged to develop even higher IP protected systems for future requirements of IR.

3.9.6 OREDA should carefully weigh the option of indoor vs. outdoor location for string inverter.

3.9.7 The inverter shall be efficient with IGBT based reliable design. The control system should be of highest reliability preferably based on Digital Signal Processors. Though not mandatory, the manufacturers are encouraged to provide the control system of redundant type.

3.9.8 The PCU shall be capable of complete automatic operation, including wake-up, synchronization and shut down.

3.9.9 PCU shall have the facility to display the basic parameters of the system on a typical 4 line by 20 characters type LED/LCD display. Displays of a bigger size can also be provided.

3.9.10 PCU shall be able to synchronize independently and automatically/ phase-lock with POWER SUPPLY AUTHORITY grid power line frequency to attain synchronization.

3.9.11 Built-in data logging to monitor plant performance through external PC shall be provided.

3.9.12 Inverter shall be tested for islanding protection performance.

3.9.13 Only isolated inverters shall be grounded on DC side.

3.12 Indications (through LEDs/ LCD display)

Following is an indicative list of indications:

- i) Inverter ON
- ii) Grid ON
- iii) Inverter under voltage/over voltage
- iv) Inverter over-load
- v) Inverter over-temperature
- vi) Earth Fault
- vii) Chilling temperature

3.13 Protections

Following is an indicative list of protections:

- i) Over-voltage both at input and output
- ii) Over-current both at input and output
- iii) Over/under grid frequency
- iv) Over temperature
- v) Short circuit on AC side
- vi) Reverse polarity protection
- vii) Array ground fault protection
- viii) Protection against lightning induced surges Class II, 10 kA as per IEC 61643-1
- ix) Protection against surge voltage induced at output due to external source

3.14 Cables and Hardwares

The cables used in module/array wiring shall be TUV 2Pfg 1169/08.2007 or VDE EPV 01:2008-02 or UL4703 certified.

Cables of appropriate size to be used in the rest of the system shall have the following characteristics:

- i) Temp. Range -10 C to +120 C.
- ii) Voltage rating 600/1000V
- iii) Excellent resistance to heat, cold, water, oil, abrasion, UV radiation, ozone and weathering
- iv) Halogen-free, low smoke, low toxicity.
- v) Flame retardant
- vi) Flexible

- vii) Ful fills IEC 60332-1 requirements. Accredited lab test report/Manufacturer's test report shall be attached.
- viii) Conductor class IEC 60228 class 5. Accredited lab test report/Manufacturer's test report shall be attached.

3.10.1 Cabling on DC side of the system shall be as short as possible to minimize the voltage drop in the wiring. Components and hardware shall be vandal and theft resistant. All parts shall be corrosion-resistant.

3.10.2 Voltage drop on the DC side from array to the inverter should not be more than 3%. Necessary calculations in this regard shall also be submitted during design approval.

3.10.3 Overload protection may be omitted to PV string and PV array cables when the continuous current-carrying capacity of the cable is equal to or greater than 1.25 times ISC STC at any location. Necessary calculations in this regard shall be submitted during design approval.

3.10.4 Overload protection may be omitted to PV main cable if the continuous current-carrying capacity of the cable is equal to or greater than 1.25 times ISC (STC) of the PV generator. Necessary calculations in this regard shall be submitted during design approval.

3.11 The system description, general/technical requirements, etc. are given for general guidance only. The supplier/manufacturer shall submit the detailed design of the complete solar generating system by using their software to optimize the combination of modules considering the specific location, insolation, nature of load, etc.

3.15 RO WATER PURIFIER SYSTEM SPECIFICATION

ASSUMPTIONS :

No. Of working days: 360 days

No. Of working hours: 4 TO 5 hours

Capacity utilization: 91 -95%

INPUTS (Waste water Quality):

Total Dissolved Solids: 1 000 PPM

OUTPUT (Treated Water Quality):

Total Dissolved Solids Less Than :<50 PPM

Flow rate:

Feed water:500- 1000LPH

Treated water : 60-100LPH

Reject water :Depend on Water property

Client Scope: Power supply, Water supply, Raw Water Tank & Treated Water Tank Customer Scope.

RAW WATER PUMP

Purpose: To feed the Dual Media Filter at pressure more than 2.0 bar, which is min. operating pressure for filter.

Capacity: 1 HP/2900rpm

Make: CRI/Krilsoker/ANY OTHER EQUIVALEMNT FOR ABOVE CAPACITY

Quantity : 01no.

MICRON FILTER

Purpose: To remove the find particles up to 05 microns and reduce silt density index levels to acceptable level. Cartridge Filter & Housing

Specifications Cartridge Filter & Housing

Big Blue Housing:

a) MOC of Housing : PP

b) Length : 20"

c) Diameter : 5.5"

d) Quantity :1 no.

Cartridge:

f) Make: Reputed

g) Cartridge MOC : Polypropylene

h) Length : 20"

i) Diameter :4"

j) Quantity :2 no.

k) Micron rating : 5micron

Technical Data (RO Plant)

HIGH PRESSURE PUMP: 01 no.

Purpose : To feed the Reverse Osmosis Membranes at pressure more than the osmotic pressure taking into consideration flux rate, flow and recovery.

Specifications

a) MOC :CI

b) Type :H

c) Flow Rate :11 00 litres per hour

e) Power Required : 1.5hp

f) Electrical : 220 V, I phase,

g) Cycle : 2900 rpm

Make CRI Pumps/Sumo Pump/ ANY OTHER EQUIVALEMNT FOR ABOVE CAPACITY

Reverse Osmosis Unit:

Purpose : To remove the major part of TDS upto 98% by Reverse Osmosis Membranes arranged and designed to give adequate flow and

recovery.

Membrane Size : 4040

Quantity 01 No.

Make : CSM/Vontron / ANY OTHER EQUIVALEMNT FOR ABOVE CAPACITY

RO PRESSURE TUBE

Purpose: To pack Reverse Osmosis Membranes and operate at high pressure upto 250psi

Specifications

- a) MOC : FRP Composite
- b) Diameter of Pressure Vessel :4.2”
- c) Length 1mtr.
- d) No. Pressure Vessels : 1
- e) Position : Horizontal Series

CONTROL INSTRUMENT

Purpose

- a) **Flow Meter** : To measure the online flow of water
- b) **Low Pressure Switch** : To protect RO Pump
- c) **Pressure Gauges** : For calculate P for each unit in RO system

Flow Meter	01 nos.
Pressure Gauge Feed	02 nos..
Low Pressure Switch	01 no.
Control Panel	01 no.

PLUMBING & FITTINGS

- a) Valves, pipelines before RO module is in PVC (16 bar tested
- b) The System with be on common MS painted base frame

4.0 INSTALLATION & COMMISSIONING:

The installation shall be done by the supplier/manufacturer who is responsible for system performance, direction of installation and structural stability. The supplier shall conduct a detailed site assessment. The PV installer shall obtain data specific to the site, rather than relying on general data. While making foundation design, due consideration shall be given to weight of the module assembly, maximum wind speed at the site, etc.

5.0 DOCUMENTATION:

The supplier shall provide easy-to-use illustrated installation and operation manual in English for easy installation and trouble-free usage. Manual shall contain complete system details such as array layout, schematic of the system, working principle, clear instruction on regular maintenance, trouble-shooting of the solar generating system, emergency shutdown procedure, etc.

6.0 AFTER SALES SERVICE:

The details of service centers in India shall be provided along with the offer. All essential materials and manpower shall be placed at the service centers to ensure quick and efficient after sales service.

7.0 LOG BOOKS:

OREDA shall maintain a logbook detailing inspection and operating activities. This logbook must be kept in a secure place and shall be made available, whenever required for inspection. Testing of all protection devices shall be carried out at regular intervals (no longer than six months) by the customer.

8.0 WATER CHILLER:

IN-SITU PUF insulation A unique In-situ PUF insulation ensures that water remains cool for a longer period in case of power failure and hence saves power.

- ECO friendly refrigerant: CFC-Free refrigerant ensures that there's no damage to the environment.
- High efficiency heat transformer coil: High quality copper tubes with Rippled Aluminium Fins for its air-cooled condenser ensures highest heat transfer efficiency.
- Speedy drainage: The extra large stainless steel water tray prevents splashing acid ensures faster drainage of water.
- Adjustable parts for easy levelling: So that they stand steady on uneven surfaces.
- Faster cooling; High Energy Efficient Compressor speeds up the cooling process so that you get cold water faster it also ensures less power consumption.
- Partial Stainless Steel (PSS):Pre-coated outer body for better corrosion resistance.
- Compact space saving design: This allows them to fit even in cramped spaces.
- Food grade plastic parts: Plastic parts that come in contact with water are of food grade quality ensuring hygiene.

Technical Specifications of Water Coolers	
Model	60/120
Type	Storage
Dimensions (mm)	
a) Width	564
b) Depth	705
c) Height	1397
Weight (without water) (kg)	67
Maximum current (amps)	3.1
Cooling capacity (ltrs/hr)*	60
Storage capacity (litrs)	120
No. of cold water taps	2
Refrigerant	R.134a
Compressor	Hermic type with sunction gas cooled motor equipped with overload protector.
Condenser fan	Propeller type (Quiet)
Thermostat	Automatically controls temperature
Power supply	230 Volts \pm 10%,50Hz single phase
Water Supply	3m to 12 head Use pressure reducing valve, if the water is higher that 12m
Power connection	5 amps 3pin plug with proper earth connection for models 20/20 20/40 40/40 and 60/40
Water connection	From RO
a)Inlet	12.7 mm BSP connection
b)Drain	25.4 and 12.7 mm BSP connection

9.0 OPERATION AND MAINTENANCE MANUAL

An Operation and Maintenance Manual in Odiya language, should be provided with the Water Coolers The Manual should have information about Refrigerant, Compressor, Condenser fan, Thermostat, Power supply, Water Supply.

It should also have clear instructions about cooling capacity and Storage capacity DO's and DONT's and on regular maintenance and Trouble Shooting of the WATER COOLING system. Name and address of the person or Centre to be contacted in case of failure or complaint should also be provided. A warranty card for the Water Coolers set should also be provided to the beneficiary.

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 Energised Water Chilling Plant with RO supplied and install by M/S

.....

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 Ist. party and M/S

.....

..... herein after called as 2nd party, for maintenance of sets offor a period of five years with effect from AD, supplied, installed and commissioned vide purchase order No Dated in village blocks of Districts.

The 2nd party will maintain these Systems as per the terms and conditions mentioned here under.

1.It has been envisaged in the purchase order No/ OREDA dated under clause No that these No/sets of shall be warranted against any manufacturing defect and bad workmanship at least for a period of 1year for the system and 10 years for the PV modules from the date of commissioning . As these systems have been commissioned and handed over to the 1st party through its Assistant Director (Tech) / authorized OREDA official at DRDA During all these systems , as such are covered under warranty period up to, and respectively. Hence, the 2nd party is fully responsible for their trouble free maintenance and the 2nd party is liable to rectify / remove any defect noticed within the aforesaid period free of cost.

2.The 2nd party will impart training to two nos. of youth from each completed village to be able to provide first aid repair service for the SPV Energised Water Chilling Plant with RO installed in the _____

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 5 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 theseSets), 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. 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.
13. It will be the liberty of the 1st party to cross check the systems maintained by the 2nd party. Random verification of the maintenance may be carried out by the 1st party wherever necessary.

14. The 2nd party may continue to maintain the gadgets after expiry of the maintenance period of 10 years provided the beneficiaries/1sr 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

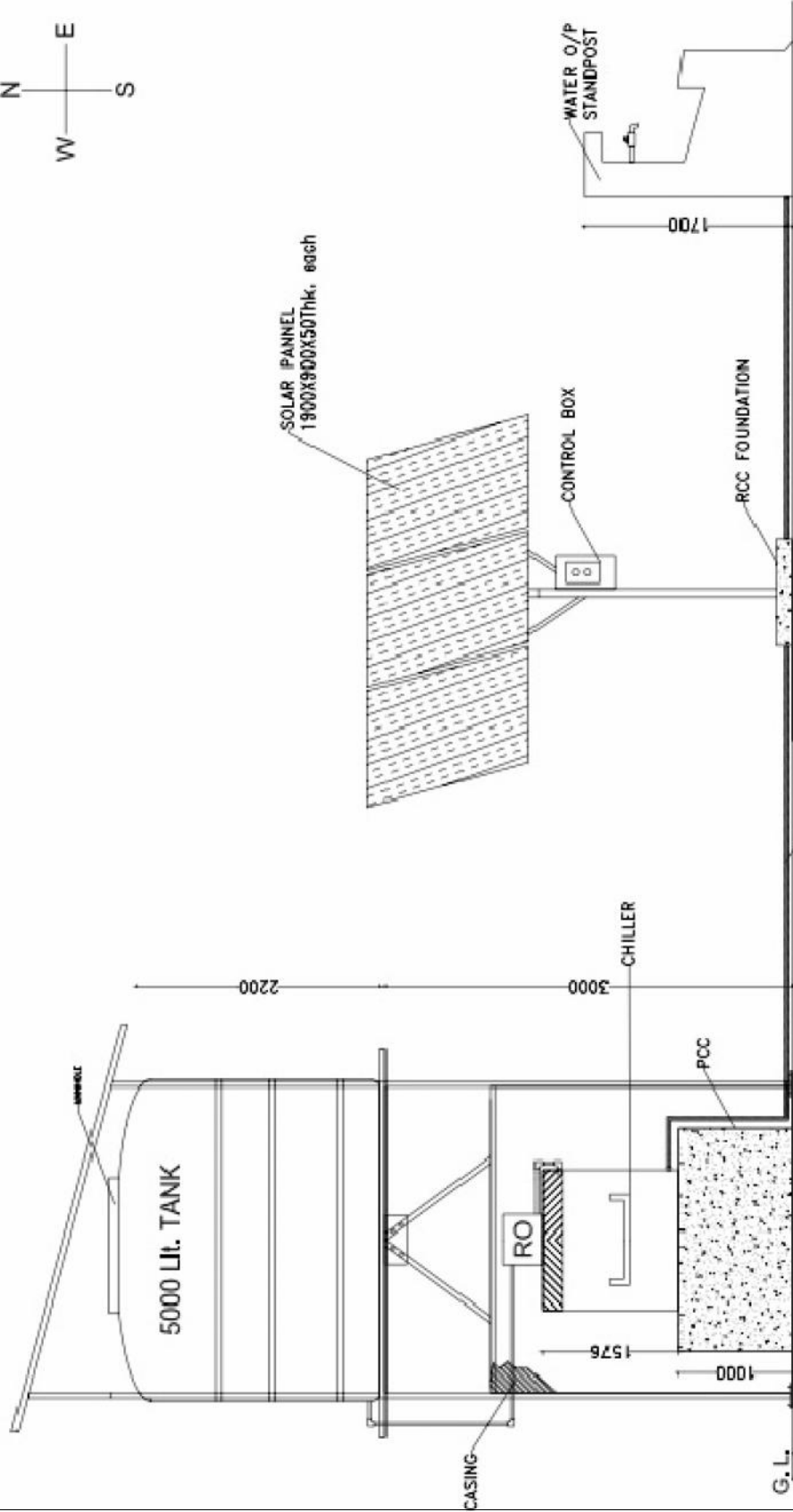
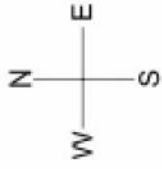
(1st Party)

(2nd party)with Seal

PRICE BID FOR SPV ENERGIZED WATER CHILLER WITH RO PLANT SYSTEM
(to be filled in On-line Only)

Sl no	Particulars	Price(Rs.)
1	Supply, including warranty for a period of 5 year of Solar Modules of 2 kwp capacity, Module mounting structure, Junction boxes, Power conditioning unit (PCU), Cable and other accessories, Earthing & Protection as per MNRE specification. Supply RO water purifier ,Water chillers system, Water discharge as per the technical specification (IEC /BIS), schedule of materials and terms and condition of the of the work award from time to time on the basis of the lowest price arrived at within a period of minimum one year of the valid tender under the scope of work.	
2	Taxes and Duties	
3	Total	
4	Installation and Commissioning	
5	Taxes	
6	Total	
7	Grand Total(3+6)	

Signature of the Bidder with seal and date



SOLAR PANEL
1800X900X50Thk. each

CONTROL BOX

RCC FOUNDATION

BONDED
PRE-INSULATED PIPE

WATER O/P
STANDPOST

1700

2200

3000

CHILLER

RO

PCC

1576

1000

G.L.

NOTES -
ALL DIMENSIONS ARE TO BE READ NOT BE MEASURED.
ALL DIMENSIONS ARE IN MM UNLESS MENTIONED IN DRAWING.

