

## DETAILS OF TENDER CALL NOTICE

**NO-2605 Dated-3.8.2013**

Sealed tenders are invited from reputed manufacturers/ authorized dealers of solar PV systems in the country having valid test certificates from MNRE authorized test centres for their products for supply, installation, commissioning and maintenance of Solar PV power plants with battery back up in different places of Odisha as mentioned below. Tenders will be received up to 3.30 PM of 30.8.2013 and the technical bids will be opened on 3 day at 4.00 PM.

| Sl.No | Item   | Place of installation                         | Capacity | Quantity | EMD<br>(Rs. In<br>Lakh) |
|-------|--|---|----------|----------|-------------------------|
| 1     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Residential school Langalbord, Boden, Nuapada | 4Kwp     | 1        | 0.60                    |
| 2     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Residential school Soseng, Komna, Nuapada     | 4Kwp     | 1        |                         |
| 3     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Residential school Khaligaon, Komna, Nuapada  | 4Kwp     | 1        |                         |
| 4     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Bhitarakanika, Rajnagar, Kendrapara           | 4Kwp     | 1        |                         |
| 5     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Klajhar, UCO, Bank, Kiajhar, Jajpur           | 3 Kwp    | 1        |                         |
| 6     | Supply, installation, commissioning and maintenance of solar PV power plant for a period of 5 years. | Sarade, Jamankira Sambalpur                   | 10Kwp    | 1        |                         |

Bid document for the above work can be had from OREDA, S-3-59, Mancheswar Industrial Estate, Bhubaneswar-10 on all working days in between 11.00 A.M. to 3.00 P.M. till 29.8.2013 on payment of Rs. 10500/- (Rupees Ten Thousand Five Hundred) only which includes VAT @ 5%. Payment can be made in cash at OREDA cash counter or through Account payee Demand Draft in favour of Chief Executive ,OREDA Payable at Bhubaneswar. The bid documents can also be downloaded from OREDA Website. In case of downloaded documents the cost of bid document may be paid in shape of Demand Draft drawn on any Nationalised bank in favour of Chief Executive, OREDA payable at Bhubaneswar. The cost of the bid document in shape of Demand draft has to be submitted along with the technical bid only. The bids shall be accompanied with the required EMD and valid STCC/VAT clearance certificate without which the same shall be rejected. Bids will be received up to 3.30 P.M of 30.8.2013 and the technical bid will be opened on the same day at 5.30 P.M in presence of the bidders or their authorized representatives.

Chief Executive, OREDA reserves the right to accept / reject any or all the bids without assigning any reason thereof.

CHIEF EXECUTIVE  
OREDA

Memo no-2610/OREDA

Dtd-3.8.2013

Copy forwarded to The Commissioner-cum- Secretary to Govt., Science & Technology Department , Govt. of Orissa, Bhubaneswar for favour of information and necessary action.

CHIEF EXECUTIVE  
OREDA

Memo no-2611/OREDA

Dtd -3.8.2013

Copy forwarded to the District Welfare Officer, Nuapada for favour of information and necessary action.

Copy forwarded to the Divisional Forest Officer, Rajnagar Wild Life Division, Rajnagar, Kendrapada for favour of information and necessary action.

Copy forwarded to the Zonal Manager, UCO bank, Ashok Nagar, Bhubaneswar for information and necessary action.

Copy forwarded to PA, ITDA, Kuchinda for information and necessary action.

CHIEF EXECUTIVE  
OREDA

Memo No -2012/OREDA

Dtd-3.8.2013

Copy forwarded to Dr. G. Prasad ,Director(SPV) MNRE, Govt. of India, 14 CGO Complex, Lodi Road, New Delhi-110 003 for favour of information and necessary action.

CHIEF EXECUTIVE  
OREDA

Memo No-2613/OREDA

Dtd-3.8.2013

Copy forwarded to the PSO & Head, Regional Office(ER), MNRE, Govt. of India, Plot No.N-2/176, Ground Floor, I R C village,Nayapalli,Bhubaneswar-751 015 for favour of information and necessary action.

CHIEF EXECUTIVE  
OREDA

Memo no-2614/OREDA

Dtd-3.8.2013

Copy to Director (Admn), OREDA for information and necessary action.

Copy to all divisional heads of OREDA for information and wide circulation.

Copy to Notice Board / Web sites of OREDA and S&T Department, Govt. Of Orissa

CHIEF EXECUTIVE  
OREDA

| Important Dates                 |            |
|---------------------------------|------------|
| Pre-bid Meeting                 | 22.08.2013 |
| Last date of submission of bids | 30.08.2013 |

*No.2605 / OREDA*

## TENDER DOCUMENT

### FOR

Supply, Installation, Commissioning and Maintenance of  
Rooftop Solar PV Power Plants

in Odisha

ISSUED BY

ODISHA RENEWABLE ENERGY DEVELOPMENT AGENCY

S-59, MIE, BHUBANESWAR-751010

Tel No. 0674-2580554, Fax- 0674 -2586368

Email- [ceoreda@oredaorissa.com](mailto:ceoreda@oredaorissa.com)

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

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This bid document along with Annexures as per Index is issued to

M/s \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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 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.
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.

OREDA  
Tel:(0674)2580554  
Fax: (0674) 2586368  
Email:ceoreda@oredaorissa.com  
Place: Bhubaneswar

## **Background**

As per the requirement of different Government departments OREDA intends to set up Roof Top Solar PV power Plants in the said building as detailed below.

1. Residential school Langalbord, Boden, Nuapada.
2. Residential school Soseng, Komna, Nuapada.
3. Residential school Khaligaon, Komna, Nuapada.
4. Bhitarkanika, Rajnagar, Kendrapara.
5. Kiajhar, UCO, Bank, Kiajhar, Jajpur
6. Residential school Sarade, Jamankira Sambalpur

In view of the above this tender is being floated which entirely focuses on successful installation of the rooftop solar PV power plants and effective maintenance of the systems initially for a period of five years so as to provide uninterrupted power supply to the concerned police stations



### Important Dates

|          |  |                                    |
|----------|--|------------------------------------|
| <b>1</b> | <b>Commencement of sale of bid documents</b> | <b>07.08.2013</b>                  |
| <b>2</b> | <b>Last date of sale of bid documents</b>    | <b>3.00 P.M. of<br/>29.08.2013</b> |
| <b>3</b> | <b>Pre bid meeting</b>                       | <b>4.00 P.M. of<br/>22.08.2013</b> |
| <b>4</b> | <b>Last dates for submission of bids</b>     | <b>3.30 P.M. of<br/>30.08.2013</b> |
| <b>5</b> | <b>Date of opening of technical bids</b>     | <b>5.30 P.M. of<br/>30.08.2013</b> |

### Check List of Documents

| SI No | Document   |  |
|-------|--|--|
| 1     | Certificate of incorporation of the Company  |  |
| 2     | Copy of valid STCC/ VAT clearance certificate  |  |
| 3     | Copy of audited balance sheet for 2009-10, 2010-11 and 2011-12 clearly indicating the turnover from solar PV business duly signed by a Chartered Accountant on each page |  |
| 4     | Last IT return Statement   |  |
| 5     | Proof of production capacity.  |  |
| 6     | Recent test certificates from appropriate authorized test centres of MNRE, GOI   |  |
| 7     | Copy of Demand Draft submitted as Earnest Money  |  |
| 8     | Undertaking for Indignity of the supplied item   |  |
| 9     | Undertaking to open a local office at Bhubaneswar before commencement of work in case no local office is presently functioning in Bhubaneswar                            |  |
| 10    | Undertaking to open cluster level service centres at suitable places as will be indicated by OREDA.  |  |
| 11    | Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any.  |  |
| 12    | Technical bid in prescribed format in Annexure A   |  |
| 14    | Certificates from the authorized officer of the concerned SNA/ copy of the work order as proof of experience in RVEP   |  |
| 15    | Price bid in Annexure B  |  |
| 15    | Filled in bid document duly signed and stamped at the bottom of each page  |  |
| 16    | Organizational profile   |  |
| 17    | Covering letter  |  |

### **List of Abbreviations**

|       |   |
|-------|---|
| Admn  | Administration                            |
| AH    | Ampere Hour                               |
| Asst  | Assistant                                 |
| BG    | Bank Guarantee                            |
| BIS   | Bureau of Indian Standards                |
| BOS   | Balance of Systems                        |
| CCTN  | Crime and Criminal Tracking Network       |
| CMC   | Comprehensive Maintenance Contract        |
| DD    | Demand Draft                              |
| EMD   | Earnest Money Deposit                     |
| GOI   | Government of India                       |
| GPS   | Global Positioning System                 |
| IEC   | International Electrotechnical Commission |
| IS    | Indian Standards                          |
| JCC   | Joint Commissioning Certificate           |
| JnNSM | Jawaharlal Nehru National Solar Mission   |
| KHz   | Kilo Hertz                                |
| mA    | Mili Ampere                               |

|       |   |
|-------|---|
| MNRE  | Ministry of New and Renewable Energy        |
| OATC  | Other Authorized Test Centers               |
| OREDA | Orissa Renewable Energy Development Agency. |
| PCBs  | Printed Circuit Boards                      |
| PS    | Police Station                              |
| PV    | Photo Voltaic                               |
| RFID  | Radio Frequency Identification              |
| SEC   | Solar Energy Centres                        |
| SNA   | State Nodal Agency                          |
| SPV   | Solar Photo Voltaic                         |
| Sqm   | Square Meter                                |
| SCRB  | State Crime Records Bureau                  |
| STC   | Standard Test Conditions                    |
| STCC  | Sales Tax Clearance Certificate             |
| TIN   | Temporary Identification Number             |
| V     | Volts                                       |
| VAT   | Value Added Tax                             |
| W     | Watt  |
| Wp    | Watt Peak                                   |

## 1. Eligibility Criteria

1.1 The bidder must be a manufacturers of any major component like module/battery/ invertors /System Integrators of solar PV power plants and must have got its products tested and qualified by any of the authorized test centres and have submitted information to the test centre about the company along with a copy to the Ministry in the MNRE format will be eligible to participate. (List of test centres given at Annexure C)

1.2 The bidder must have valid STCC/ VAT clearance certificate.

*(Pl. attach copy of valid STCC/ VAT clearance certificate)*

1.3 The bidder must have a minimum annual turnover of Rs crore during each of last three years in the business of solar PV alone.

*(Pl. attach copy of audited balance sheet for 2009-10, 2010-11 and 2011-12 clearly indicating the turnover from solar PV business). The balance sheet must be signed by the Chartered Accountant of the bidder company.*

1.4 The bidder must have installed roof top solar PV power plants for an aggregate capacity of at least 100KWp in Government buildings in any part of the country during last 3 years under JnNSM or the bidder must have completed /received purchase orders for installation of roof top solar PV power plants in Government buildings for an aggregate capacity of at least 300 KW in any part of the country during last 3 years starting from 2010-11.

*(Pl. attach certificates from the authorized officer of the concerned SNA/attach copy of the work order)*

1.5 The bidder must be having capacity to roll out at least 50 sets of different capacity solar power plants in any given month from its own facility.

*(Pl. Submit proof thereon .....)*

1.6 The product must conform to technical requirements/ standards for off-grid /stand alone solar systems to be deployed under the National solar Mission and the firm must have established necessary quality assurance systems and organization in line with the same.

*(Pl. attach copies of recent test certificates from SEC/ other authorized Test Centres of MNRE, GOI as well as details of quality assurance systems as proof thereof)*

## 2. Scope of the work

The Bidder should act as a System Integrator for providing an End-to-End solution for the identified locations including but not limited to design, supply providing of the required Solar Photo Voltaic power plant, battery bank with accessories, grid tied inverter peripherals like cables, junction boxes, earthing, etc. and installation, performance testing, commissioning, warranty, annual maintenance, etc. The bidders have to ensure planning and smooth execution of the project as per the time schedules provided in the tender document document.

The broad scope of the work shall mean and include

- 2.1 Design, supply, installation, commissioning and successful performance of the system over its designed life period i.e. 25 years. While designing various components and sub-components of the system the bidder must take all prevailing local conditions as well as all functional requirements in to consideration so as to ensure the committed level of performance
- 2.2 Installation of the supplied systems on the rooftops or on ground within the premises of the desired Govt. buildings as the case may be as directed by the designated officials of OREDA in consultation with the user organization.
- 2.3 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
- 2.4 Execution of Comprehensive Maintenance Contract (CMC) of the complete system for five years warranty period. The date of commencement of CMC shall be reckoned from the date of commissioning of the system.
- 2.5 Opening of service centre/keeping servicing personnel and making available all essential spares in the vicinity of the plant such that the power plants will give the desired performance with least interruption.
- 2.6 Training at least two designated persons from each of the user organization as well as all designated technical persons of OREDA in day to day maintenance and upkeep of the system.
- 2.7 Submission of all details of the installed systems like site details, systems details, installation report, etc. in the formats to be provided at the time of issue of purchase order. The details will also include Photographic proof of delivery of the system to the genuine beneficiary, GPS location of the police station.
- 2.8 Submission of periodic reports and returns as per the MIS prescribed by OREDA

## **Functional requirements:**

### **Installation:**

- a) While installing solar power plants on rooftops the physical condition of the rooftop should be taken into consideration.
- b) There should not be any damage whatsoever to the roof top due to setting up of the solar power plant so that on a later day there is leakage of rain water, etc. from the roof top.
- 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. .
- d) The solar PV array must be installed on the roof top in such a way that there is sufficient space on the roof top for maintenance etc.
- e) If the roof top does not have any access such as stairs or Ladder, a proper and safe ladder must be provided to ensure easy access to the roof top mainly for the purpose of maintenance and inspection.
- f) While cabling the array care must be taken such that no loose cables lie on the rooftops.
- g) The roof top should look clean and tidy after installation of the array.
- h) Cables running from the roof top to the PCU down below should be made concealed to the maximum extent possible. In no case the cables should be allowed to pass through windows making the windows non operational.
- i) For smaller systems up to 2-10 kW the PCUs must be made wall mounted unless otherwise ground mounting is warranted for some reasons.
- j) The battery bank must be kept in a dry and airy space close to the PCU. The batteries must be stacked in a suitable rack.
- k) Neatness, tidiness and aesthetics must be observed while installing the systems.

### **System Requirements:**

- i) The batteries must remain in full charged condition all the time.
- ii) The batteries should first receive charge from the solar array provided there is sun.
- iii) In case there is no sunshine the batteries should receive charge from the utility grid supply.
- iv) Once the batteries are fully charged and floating condition is achieved additional solar energy, if any, should flow to the main AC panel subject to availability of loads.

- vi) The PCU- Inverter must have intelligent power / load management circuit to work as per the above functional requirements of the system.
- vii) Good quality and robust PCU-Inverters must be provided with the system so as to ensure more than 95% up time on quarterly basis.
- viii) The AC output at the inverter end must be properly metered. All such meters should be digital and should be provided in the PCU.
- ix) Minimum output of 3300 kwh/annum must be guaranteed.

### 3. Instructions to Bidders

- 3.1 Prior to submitting the bid document the bidder in his own interest may visit the sites in order to develop a clear understanding of the logistics and other features of the assigned sites.
- 3.2 Bidders must submit their bids for all items as stated in Table- 1.
- 3.3 Bids must be submitted in English language only.
- 3.4 Incomplete, telegraphic or conditional bids shall not be accepted.
- 3.5 Prices quoted must be firm and fixed. No price variation / escalation shall be allowed.
- 3.6 The bidders must sign and stamp 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.
- 3.7 Last IT return Statement /Valid TIN / VAT/ Sales tax clearance certificate duly attested must be submitted along with the bid.
- 3.8 Deviations in terms and conditions, Specification of material, Inspection clause etc. will not be accepted under normal conditions. However under exceptional situation the same may be considered at the discretion of OREDA.
- 3.9 Earnest money as specified in bid may be deposited in shape of Demand Draft drawn in favour of the Chief Executive, OREDA payable at Bhubaneswar from any Nationalized Bank. **Bids without E.M.D will not be accepted.**
- 3.10 Bids received late due to postal delay or otherwise **will not be considered.**
- 3.11 The quantity of materials intended to be purchased as mentioned in this documents is subject to alteration without any notice.
- 3.12 The bidders are required to furnish their offers in the price bid both in words & figures. In case of corrections ,if any, the original text/numerical must be clearly crossed out and re-written legibly above, below or on the side of the crossed out characters as per



availability of space and the authorized person must put his dated initial under such corrections. In case of any conflict between figures and words, the later shall prevail.

- 3.13 Since timely execution of works is of paramount importance, requests for extension of time shall not be ordinarily entertained.
- 3.14 Canvassing in any manner shall not be entertained and will be viewed seriously leading to rejection of the bid.
- 3.15 Certificate to the effect that the systems to be supplied are indigenous & not fully imported must be furnished.
- 3.16 All essential supplementing documents should be signed and stamped and in case of need for verification , originals should be produced.
- 3.17 Copy of Test Reports from Solar Energy Centers (SEC)/Other Authorized Test Centres (OATC) in regards to SPV Systems confirming to MNRE specifications spelt out in the Administrative Approval of Jawaharlal Nehru National Solar Mission vide MNRE communication would be a major criteria for evaluation of bids.
- 3.18 The bidders must be having / willing to open a local office at Bhubaneswar before commencement of work for close coordination with OREDA and also cluster level service centres at suitable places as will be indicated by OREDA during installation of the systems.
- 3.19 The bidders must submit information such as GPS locations of the site, photographs of the systems (array, battery, PCU separately) along with the installation & commissioning reports.
- 3.20 Bidders will be required to open Cluster Level Service Centres at suitable locations in consultation with the concerned Asst. Director of OREDA. At least one such service centre should be opened for a cluster of 20 to 25 Police stations. The service centres should have adequate spares and trained technicians to cater to day to day maintenance needs so as to guarantee trouble free operations of the systems.
- 3.22 Bidders will also be required to open at least one State Level Service Centre in Bhubaneswar having trained personnel, adequate spares & consumables. At least 10% of all spares including inverters should be kept in the State Level Service Centre.
- 3.23 Power of attorney to sign the agreement on behalf of bidders & partnership deed articles, if any, should be enclosed along with original bid documents.
- 3.24 Notice inviting tender, bid documents, prescribed Technical bid, price bid, terms & conditions will form the part of the tender.
- 3.25 All pages of the bid documents must be signed & sealed by the authorized person on behalf of the bidders.

- 3.26 Bids will be accepted & will be opened as per information mentioned in the notice-inviting tender. No receipt against submission of bid shall be issued by OREDA.
- 3.27 The last date of receipt of the bid is 30.08.2013 up to 3.30 P.M. sealed tenders may only dropped in the specified tender box kept in the Project Division, OREDA during office hours on working days. Bids received after due date & time will not be considered. The bids of such firms shall only be considered who have purchased the bid documents from the Agency by depositing the prescribed fee of the bid document (Non refundable) / downloaded from the website and submitted along with cost of the tender paper. If due to any reason the due date is declared as a holiday the bid will be opened on next working day at the same time.
- 3.28 The technical bid shall be opened on 30.08.2013 at 5.30 P.M in the OREDA office, Bhubaneswar in presence of such bidders or their authorized representatives, who may like to be present at the time of opening.

**3.29 Submission of bids**

**The first envelop** should be superscribed as “Technical Bid” at the top the envelop and name and address of the bidder should be given at the left hand side bottom of the envelope. The first envelop should be addressed to CE, OREDA shall contain the following:

- (a) DD of Rs. 10,500 forwarding cost of the tender if the document is downloaded.
- (b) Copy of the money receipt issued by OREDA in case of the document is purchased directly from OREDA.
- (c) Demand draft for Rs. 0.60 lakhs in form of EMD
- (d) Filled in Technical Bid Format
- (e) All other documents excepting the Price Bid

**The second envelop** should be superscribed as “Price Bid” at the top the envelop and name and address of the bidder should be given at the left hand side bottom of the envelope. The second envelop should be addressed to CE, OREDA shall contain the **Price Bid** only in the prescribed format.

**The third Envelop** should be superscribed as “Submission of Bid for supply, installation, commissioning and maintenance of desired Solar PV power plants in selected Govt. buildings of Odisha” at the top the envelop and name and address of the bidder should be given at the left hand side bottom of the envelope. The third envelop should be addressed to CE, OREDA shall contain the First and second envelops only.

**Note: All papers that comprise the bid document of the concerned bidder must be numbered at the top right hand corner of each page, properly stitched and hard bound. At the beginning an index of each page should also be provided.**

#### **4. Procedure for opening the bids**

The procedure of opening of the bid shall be as under

- 4.1 First envelope in the 'TECHNICAL BID " shall be opened at the time & date mentioned in the notice in the tender by OREDA in the presence of bidders, or their authorised representative.
- 4.2 Second envelope "PRICE BID" shall be opened after evaluation of technical suitability of the offers. The date for opening of second envelope (Price bid) shall be communicated subsequently. Second envelope of only those bidders shall be opened who qualify in the technical bid evaluation. If necessary, the firms may be called for Technical Presentation of their products as per the time intimated by OREDA.
- 4.3 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 OREDA it will have the right to suitably dispose of the same and forfeit the amount.
- 4.4 The supplied materials should strictly comply with the specifications as mentioned in the bid, otherwise the material would be liable for rejection.
- 4.5 Any clarification on the technical specification and commercial terms and conditions may be raised during the pre-bid meeting for discussion and decision.
- 4.6 Deviation of any commercial terms and condition and technical specification shall not be entertained under no circumstances.
- 4.7 Bidders may in their own interest visit the sites before submitting bids. OREDA will not be responsible for any incidental or consequential losses of the bidder while execution and till expiry of the period of CMC.
- 4.8 All the bidders shall essentially indicate the break-up of prices as shown in Price bid.
- 4.9 During the warranty period, MNRE/ State Agencies/ Users reserve the right to cross check the performance of the systems with the minimum performance levels specified in the MNRE specifications.

## 5. Acceptance/ Rejection of the bid documents

Chief Executive, OREDA reserves the right to

- i) reject or accept any or all bids without assigning any reason thereof.
- ii) to split the quantities against the bid on more than one firm for the same items/ work.

No reason will be assigned by OREDA for this and the same will be binding on 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

## 6. Commercial Terms & Conditions

### 6.1 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 will be installed as per the work order.

### 6.2 Sales Tax & Duties etc

All Taxes and duties as prescribed both under Central and State Government sales tax rules would be applicable.

### 6.3 Earnest Money Deposit

- 6.3.1 Earnest money deposit as specified 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.
- 6.3.2 Earnest money should be deposited in shape of a Demand Draft in favour of Chief Executive, OREDA from any Nationalised Bank Payable at Bhubaneswar and the proof of deposits should be attached to the bid.
- 6.3.3 E.M.D would be refunded to the unsuccessful Bidders after finalization of the bid without any interest.
- 6.3.4 EMD would be refunded to successful bidder(s) after submission of security deposit as detailed at clause 6.4.

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

6.3.6 In case of claim for exemption from deposition 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.

#### **6.4. Security Deposit/ Performance Guarantee Fees**

The successful bidder must deposit the Security amount / Performance Guarantee fees @ 10% of the ordered value with the Chief Executive, OREDA, Bhubaneswar-10 at the time of acceptance of the work order in shape of Bank Gurantee in two parts, 50 % value with 5 ½ years validity and the balance 50% value with 10 ½ years validity from the date of acceptance of the work order or till the completion of respective warranty periods whichever is later. The said deposit would be forfeited, if the supplies are not made as per the Terms & Conditions of the purchase order. 50% of the security deposit amount will be refunded after the expiry of the Warranty period and CMC period (ref. clause 2 of Scope of Work) of the systems, subject to satisfactory execution / performance of the systems. Balance 50% of the Security deposit shall be released after expiry of warranty period of 10 years provided for the SPV modules subject to the successful performance.

#### **6.5 Allocation of work:**

The entire work will be allotted to the bidder quoting the lowest price for aggregate price for all the 6 power plant.

**The decision of OREDA in this regard shall be final and binding.**

#### **6.6 Programme Execution Schedule**

6.6.1 Delivery , installation & commissioning

of systems at sites : months from the date of issue of the purchase order

6.6.2 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 authorised representative of SCRB. Following such inspection a joint commissioning report shall be brought out in the prescribed format, which shall form a part of the documents for release of payments. This certificate shall be issued within 30 days of intimation from the executing firm

6.6.3 The issuance of a JCC shall, in no way relieve the executing firm of its responsibility for satisfactory operation of the SPV systems.

#### **6.7 Quantity**

The quantities of Solar PV Power Plants mentioned in the bid are subject to revision according to the requirement.

## **6.8 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. The validity can be further extended with mutual consent.

## **6.9 STCC/ VAT**

The bidders must submit attested copy of valid up to date sales Tax / VAT clearance 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 placement of purchase order, if required.

## **6.10 Warranty**

The SPV Modules and the Balance of Systems (BOS) should be warranted against any manufacturing defect or bad workmanship for a period of 10 (Ten) and 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 concerned police station/District Renewable Energy Cell 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.

## **6.11 Penalty and termination of contract**

The systems shall be supplied, installed and commissioned within the scheduled time. 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 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.

## **6.12 Force Majeure**

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

## **6.13 Inspection**

6.13.1 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.

6.13.2 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.

## **6.14 Payment**

Payment for the work (excluding CMC charges) under normal circumstances will be done as detailed below;

1. **First Interim Payment @ 50%** of the total value of order (excluding AMC charges) after commissioning of the project. The check list of documents to be submitted with the bills for release of first instalment is annexed at Annexure- D
2. **Second interim payment @ 50%** of the total value after successful functioning of the system for six months. Measurement of all performance parameters for 2 days (with full sunny days) and submission of all documents as per check list given at Annexure E6.15 *Execution*  
Execution of work shall be carried out in an approved manner as outlined in the technical specification or where not outlined, in accordance with relevant Indian Standard Specification, to the reasonable satisfaction of the Authorized OREDA Officer.

## **6.16 Comprehensive Maintenance Contract**

CMC will be applicable from the date of commissioning of the system. The bidder must enter into a Comprehensive maintenance contract for the specified period before release of the first instalment of payment. Offer without such CMC shall not be considered. The scope of CMC must cover supply of spare parts ( including battery) / services during the contract in force. Order shall be placed only 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. Bids with very low/unrealistic CMC charges will be liable for rejection. The payment of annual maintenance charges under the Comprehensive Maintenance Contract shall depend upon the functionality

of the system duly certified by the concerned office/ Authorised officials of OREDA. Upon receipt of such certificates CMC amount as applicable shall be paid at the end of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> years. (Format to be issued to the successful bidder only)

#### **6.17 Limitation of Liability**

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

#### **6.18 Dispute**

For adjudication of any dispute between OREDA and the bidders arising in this case, reference can be made to any Law courts under the jurisdiction of 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



## Technical Specification & Features Of Solar Power Plant

### 1. PV Modules:

Only Poly crystalline modules of 250 Wp capacity at STC should be used in the solar power plants under this tender. All modules must comply with IEC 61215, 61730 part 1 & 2. Certificates from MNRE test centres in support of such compliance must be submitted along with the tender document. Other specifications of PV modules should be as under

| Particular                         | Specifications                |                               |                                |
|------------------------------------|-------------------------------|-------------------------------|--------------------------------|
|                                    | 3 Kwp                         | 4Kwp                          | 10 Kwp                         |
| Solar Panel Wattage at STC         | 250Wp                         | 250Wp                         | 250Wp                          |
| Type of PV Module                  | Poly Crystalline              | Poly Crystalline              | Poly Crystalline               |
| Module efficiency                  | ≥14%                          | ≥14%                          | ≥14%                           |
| Cell efficiency                    | ≥16%.                         | ≥16%.                         | ≥16%.                          |
| Open Circuit Voltage of each panel | 42Vdc                         | 42Vdc                         | 42Vdc                          |
| Max mppt Voltage of each panel     | 36Vdc                         | 36Vdc                         | 36Vdc                          |
| No of cells in each panel          | 72 Cells per panel            | 72 Cells per panel            | 72 Cells per panel             |
| Total No of panels                 | 12 No's                       | 16 No's                       | 40 No's                        |
| Total Wattage                      | 3000wp                        | 4000wp                        | 10000wp                        |
| Arrangement                        | 2 Series 6 parallel of series | 2 Series 8 parallel of series | 2 Series 20 parallel of series |

PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 20 years.

### IDENTIFICATION AND TRACEABILITY

Each PV module used in solar power projects under this tender must use a RF identification tag (RFID), which must contain the following information. The RFID should be laminated inside the module and but must be able to withstand harsh environmental conditions.

- (i) Name of the manufacturer of PV Module.
- (ii) Name of the manufacturer of Solar cells.
- (iii) Month and year of the manufacture (separately for solar cells and module).
- (iv) Country of origin (separately for solar cells and module).
- (iv) I-V curve for the module.
- (v) Peak Wattage,  $I_m$ ,  $V_m$  and FF for the module.
- (vi) Unique serial No and Model No of the module.
- (vii) Date and year of obtaining IEC PV module qualification certificate.

(viii) Name of the test lab issuing IEC certificate.

**SPV panels must be warranted against any manufacturing/ design for a minimum period of 25 years.**

## **2. Power Conditioning Unit (PCU):**

The Power Conditioning Unit to be provided along with the systems under this tender should be MPPT type with a rating on 3Kw and the nominal System voltage should be 48Vdc. The PCUs must comply with IEC 61683/IS61683 and IEC 60068—2(1,2,14,30) or equivalent BIS standards and Other Specifications of the PCU are as follows

|                      |  | <b>Specifications of Solar PCU</b>        |   |   |
|----------------------|--|---|---|---|
|                      |  | <b>3Kwp</b>                               | <b>4Kwp</b>                               | <b>10 Kwp</b>                             |
|                      | Rating                                 | <b>3500W</b>                              | <b>4500W</b>                              | <b>10000W</b>                             |
| <b>Solar</b>         | Solar charge Controller Type           | MPPT                                      | MPPT                                      | MPPT                                      |
|                      | Vmax range (Vdc)                       | 50-79                                     | 50-79                                     | 50-79                                     |
|                      | Max Open circuit Voltage (Vdc)         | 88  | 88  | 88  |
|                      | System Voltage(Vdc)                    | 48  | 48  | 48  |
|                      | Max array capacity(Wp)                 | 3000                                      | 4500                                      | 10000                                     |
|                      | Solar Charging Type                    | Boost and Float, suitable for Gel battery | Boost and Float, suitable for Gel battery | Boost and Float, suitable for Gel battery |
|                      | <b>System Operating Modes/Priority</b> | Solar>Grid>Battery                        | Solar>Grid>Battery                        | Solar>Grid>Battery                        |
| <b>Inverter</b>      | Rated Output power(Max)                | 3000W                                     | 45000W                                    | 10000W                                    |
|                      | Output Wave Form                       | Pure Sine wave                            | Pure Sine wave                            | Pure Sine wave                            |
|                      | Inverter Efficiency                    | >85%                                      | >85%                                      | >85%                                      |
|                      | Output Voltage                         | 230V±5%                                   | 230V±5%                                   | 230V±5%                                   |
|                      | Output Frequency                       | 50Hz±3                                    | 50Hz±3                                    | 50Hz±3                                    |
|                      | Inverter Overload Capacity             | 150% for 4 Min, 125% for 4Min             | 150% for 4 Min, 125% for 4Min             | 150% for 4 Min, 125% for 4Min             |
|                      | Power factor                           | >0.8 lag                                  | >0.8 lag                                  | >0.8 lag                                  |
|                      | THD                                    | <3%                                       | <3%                                       | <3%                                       |
| <b>Grid</b>          | Grid input voltage                     | 165-265Vac                                | 165-265Vac                                | 165-265Vac                                |
|                      | Grid frequency range                   | 47-53Hz                                   | 47-53Hz                                   | 47-53Hz                                   |
|                      | Grid Charging Current                  | 41A                                       | 41A                                       | 41A                                       |
| <b>Environmental</b> | Operating temperature                  | -5 to 45°C                                | -5 to 45°C                                | -5 to 45°C                                |
|                      | Altitude                               | <1000m                                    | <1000m                                    | <1000m                                    |
|                      | Relative Humidity                      | >95%<br>Non Condensing                    | >95%<br>Non Condensing                    | >95%<br>Non Condensing                    |
| <b>Enclosure</b>     | Body                                   | IP 20                                     | IP 20                                     | IP 20                                     |
|                      | Cooling                                | Forced Cool                               | Forced Cool                               | Forced Cool                               |

## **3. Battery bank**

The Battery Bank should comply with the relevant BIS standards for Tubular GEL Batteries and is to be designed to provide 6 hours back up for above mentioned load.

Charge and discharge of battery should lie in between 100% to 25% .Remaining 25% should be always be inside battery. Other specification of battery bank are as under:

| Sl.No | Description          | Specifications   |  |  |
|-------|----------------------|--|--|--|
|       |                      | 3Kwp   | 4Kwp   | 10Kwp  |
| 1     | Battery rating       | 48 V- 400Ah at C10 to 1.80 ECV at 27°C                         | 48 V- 500 Ah at C10 to 1.80 ECV at 27°C                        | 48 V- 1000 Ah at C10 to 1.80 ECV at 27°C                       |
| 2     | Type of Battery      | Tubular Gel Maintenance Free Valve Regulated Lead Acid Battery | Tubular Gel Maintenance Free Valve Regulated Lead Acid Battery | Tubular Gel Maintenance Free Valve Regulated Lead Acid Battery |
| 3     | Battery Voltage      | 2V   | 2V   | 2V   |
| 4     | Cell capacity        | 400Ah at 10 hour rate to 1.80 ECV at 27°C                      | 500 Ah at 10 hour rate to 1.80 ECV at 27°C                     | 1000 Ah at 10 hour rate to 1.80 ECV at 27°C                    |
| 5     | No of cells          | 24 cells   | 24 cells   | 24 cells   |
| 6     | Applicable standards | IEC 60896 – 21 & 22, IEC 61427,DIN 43539 P5                    | IEC 60896 – 21 & 22, IEC 61427,DIN 43539 P5                    | IEC 60896 – 21 & 22, IEC 61427,DIN 43539 P5                    |
| 7     | AH Efficiency        | > 95%  | > 95%  | > 95%  |
| 8     | WH Efficiency        | > 85%  | > 85%  | > 85%  |
| 9     | Self discharge       | < 0.5% per week at 27°C  | < 0.5% per week at 27°C  | < 0.5% per week at 27°C  |
| 10    | Design float life    | 20 years design life at 27°C                                   | 20 years design life at 27°C                                   | 20 years design life at 27°C                                   |
| 11    | Design cycle life    | 2100 Cycles at 80% depth of discharge at                       | 2100 Cycles at 80% depth of discharge at                       | 2100 Cycles at 80% depth of discharge at                       |

|    |                                       |  |   |   |
|----|---------------------------------------|--|---|---|
|    |                                       | 35°C<br>6000 Cycles at 20%<br>depth of discharge at<br>35°C  | 35°C<br>6000 Cycles at 20%<br>depth of discharge at<br>35°C   | 35°C<br>6000 Cycles at 20%<br>depth of discharge at<br>35°C   |
| 12 | Charge Controller setting             | <b>Pulse width modulation( CV CONTROLLER) Type:</b><br><br>Regulation voltage:<br>2.400±0.005 V/cell at<br>27°C<br><br>Low voltage disconnect:<br>1.850±0.005 V/cell at<br>27°C<br><br>Load reconnection<br>voltage: 2.080±0.005<br>V/cell at 27°C | <b>Pulse width modulation( CV CONTROLLER) Type:</b><br><br>Regulation voltage:<br>2.400±0.005 V/cell at<br>27°C<br><br>Low voltage<br>disconnect:<br>1.850±0.005 V/cell at<br>27°C<br><br>Load reconnection<br>voltage: 2.080±0.005<br>V/cell at 27°C | <b>Pulse width modulation( CV CONTROLLER) Type:</b><br><br>Regulation voltage:<br>2.400±0.005 V/cell<br>at 27°C<br><br>Low voltage<br>disconnect:<br>1.850±0.005 V/cell<br>at 27°C<br><br>Load reconnection<br>voltage: 2.080±0.005<br>V/cell at 27°C |
| 13 | Recommended max.<br>period of storage | 6 months at 27°C   | 6 months at 27°C  | 6 months at 27°C  |
| 14 | Operating temperature<br>range        | -20°C to +55°C   | -20°C to +55°C  | -20°C to +55°C  |
| 15 | Grid Alloy                            | Lead Calcium tin alloy   | Lead Calcium tin alloy  | Lead Calcium tin<br>alloy   |
| 16 | Container & Lid Material              | Poly propylene co-<br>polymer  | Poly propylene co-<br>polymer   | Poly propylene co-<br>polymer   |
| 17 | Sealing Method                        | Heat sealing   | Heat sealing  | Heat sealing  |
| 18 | Safety vent                           | Self resealing, Pressure<br>Regulating Valve with<br>Flame arrestor  | Self resealing, Pressure<br>Regulating Valve with<br>Flame arrestor   | Self resealing,<br>Pressure Regulating<br>Valve with Flame  |

|    |                     |  |  |  |
|----|---------------------|--|--|--|
|    |                     |  |  | arrestor   |
| 19 | Ventilation         | Normal ventilation is required                             | Normal ventilation is required                             | Normal ventilation is required                             |
| 20 | Positive Plate type | Tubular  | Tubular  | Tubular  |
| 21 | Separator           | Micro porous synthetic separator                           | Micro porous synthetic separator                           | Micro porous synthetic separator                           |
| 24 | Electrolyte         | Gel type   | Gel type   | Gel type   |
| 25 | Terminals & ICC     | Lead plated brass & copper with PP Moulding.               | Lead plated brass & copper with PP Moulding.               | Lead plated brass & copper with PP Moulding.               |
| 26 | Cell enclosure      | Steel Enclosures with Acid Resistant Epoxy Powder coating. | Steel Enclosures with Acid Resistant Epoxy Powder coating. | Steel Enclosures with Acid Resistant Epoxy Powder coating. |
| 27 | Mounting            | Mounting frame with acid resistant coating                 | Mounting frame with acid resistant coating                 | Mounting frame with acid resistant coating                 |

- **Designed life of battery should not be less than 5 years.**

#### **4. Junction Boxes**

Array Junction Box should comply with IP 54 as per IEC 529 and should be provided with reverse blocking diodes, fuses and Isolators of suitable ratings.

DC Distribution board should comply with IP 21 as per IEC529. It should be equipped with suitable rating of DC isolators for solar input from array junction box and fuse of suitable rating between PCU and battery.

AC distribution board should comply with IP 21 as per IEC529 and should be equipped with suitable rating of MCB between PCU and load.

All switches , circuit breakers and connectors should comply with IEC 60947 ( part i,ii,iii)/ IS 60947 (part i,ii,iii)

## **5. Module Mounting Structures**

Module mounting structure should be installed on roof.

Module mounting structure designed to install solar panels should be made of MS hot dip galvanized.

Thickness of galvanizing should be 80µm(Microns)

Minimum clearance of Solar panels from roof should be 500mm.

All fasteners used to fix solar panels with module mounting structure should be of SS304.

All exposed metallic parts should be properly grounded.

Only Anti- theft fasteners should be used in mounting structures.

## **6. Cables**

Cables running between solar panels and array junction box should be 4 Sqmm copper flexible.

Cables running between AJB and DCDB should be of 25Sqmm copper flexible cable .

Cable running between PCU and battery should be 25Sqmm coppers flexible cable.

Cable running between PCU and ACDB should be 6 Sqmm Copper cables.

All copper flexible cables should comply to IS651 and make should be Polycab, Havells or equivalent .

Color code should be followed for over all wiring i.e, red for positive, black for negative , green for earth .

**Supply, installation, commissioning and maintenance of rooftop Solar Power Plants**

We conform the following technical specification.

| <b>Sl. No</b> | <b>Item</b>                                      | <b>Description</b> |
|---------------|--|--------------------|
| 1.            | PV Module  |                    |
| 2.            | PV Array   |                    |
| 3.            | Array Junction Boxes                             |                    |
| 4.            | PCU  |                    |
| 5.            | Battery  |                    |
| 6.            | Battery bank                                     |                    |
| 7.            | Wires and cables                                 |                    |
| 7.            | Electronics Protection                           |                    |
| 8.            | Array structure and other<br>Mechanical Hardware |                    |
| 9.            | Meters   |                    |
| 10            | Other features                                   |                    |

SIGNATURE and SEAL

VENDOR

ANNEXURE-B

PRICE BID

Supply & installation

| Sl. No | Item   | Rate per system      |      |       |
|--------|--|----------------------|------|-------|
|        |  | 3Kwp                 | 4Kwp | 10Kwp |
| 1.     | Supply of 2.5 kWp Solar PV Power plant comprising of PV array, array mounting structure, PCU, battery bank, inter-connection wires and cables, etc, all complete as per technical specifications, operation instructions and maintenance manual all complete including packing & forwarding, loading and unloading charges and cost of insurance and transportation, delivery FOR assigned site. |                      |      |       |
| 2.     | Taxes & Dues, if any, on item-1 (mention separately)   |                      |      |       |
| 3.     | Sub-Total (A)  |                      |      |       |
| 4.     | Installation & commissioning of the system at the given location and proper documentation thereof.   |                      |      |       |
| 5.     | Taxes & duties, if any on Item-4 mention separately.   |                      |      |       |
| 6.     | Sub-Total (B)  |                      |      |       |
| 7.     | Annualized Comprehensive maintenance contract for five years .   | 1 <sup>st</sup> year |      |       |
|        |  | 2 <sup>nd</sup> year |      |       |
|        |  | 3 <sup>rd</sup> year |      |       |
|        |  | 4 <sup>th</sup> Year |      |       |
|        |  | 5 <sup>th</sup> Year |      |       |
| 8.     | Taxes & Duties, if any, on item 7 (mention separately).  |                      |      |       |
| 9.     | Sub Total (C)  |                      |      |       |
| 11.    | GRAND TOTAL (A+B+C )   |                      |      |       |

Bidders are required to follow the details of technical specification while quoting rates for each item .

SIGNATURE & SEAL OF BIDDER

**List of Authorised Test Centres of MNRE, GOI**

| Lab/<br>Organisati<br>on | PV Module | Lighting System | Battery | Inverter >100W | Charge Controller |
|--------------------------|-----------|-----------------|---------|----------------|-------------------|
|                          |           |                 |         |                |                   |



|               |   |  |                                    |                     |  |                                    |                                   |                                    |
|---------------|---|--|------------------------------------|---------------------|--|------------------------------------|-----------------------------------|------------------------------------|
|               |   | As per MNRE Specification                    | Environmental                      |                     | Efficiency                               | Environmental                      | Protections                       | Environmental                      |
| SEC           | Yes (IEC61215 upto 100WP) NABL Accredited                               | Yes MNRE Accredited                          | Yes (Including IP) MNRE Accredited | Yes MNRE Accredited | Yes (up to 100KVA) MNRE Accredited       | Yes (Including IP) MNRE Accredited | Yes MNRE Accredited               | Yes (Including IP) MNRE Accredited |
| ERTL (East)   | STC Test Facility MNRE Accredited                                       | Yes NABL/ MNRE Accredited                    | Yes NABL/ MNRE Accredited          | Yes upto 1000 AH    | Yes NABL/ MNRE Accredited                | Yes NABL/ MNRE Accredited          | Yes NABL/ MNRE Accredited         | Yes NABL/ MNRE Accredited          |
| ETDC (B)      | Yes (IEC61215) under ICEEECB, IEC 61701 (upto 100WP) NABL Accredited    | Yes NABL/ MNRE Accredited                    | Yes NABL/ MNRE Accredited          | Yes upto 100 AH     | Yes (up to 3 KVA) NABL/ MNRE Accredited  | Yes NABL/ MNRE Accredited          | Yes NABL/ MNRE Accredited         | Yes NABL/ MNRE Accredited          |
| CPRI (B)      | No  | Yes NABL/ MNRE Accredited                    | Yes NABL/ MNRE Accredited          | Yes upto 1000 AH    | Yes (up to 10 KVA) NABL/ MNRE Accredited | Yes NABL/ MNRE Accredited          | Yes NABL/ MNRE Accredited         | Yes NABL/ MNRE Accredited          |
| ERTL (N)      | No  | Only Electronics & luminaire NABL Accredited | Yes NABL Accredited                | No                  | Yes Upto 5 KVA NABL Accredited           | Yes NABL Accredited                | Yes up to 5 KW (NABL Accredited)  | Yes NABL Accredited                |
| UL (B)        | Yes (IEC61215 IEC 61730 Pt.II and IEC 61701) upto 400WP NABL Accredited | Yes Except Battery NABL Accredited           | Yes NABL Accredited                | No                  | Yes Upto 6 KVA NABL Accredited           | Yes NABL Accredited                | Yes up to 6 KW (NABL Accredited)  | Yes NABL Accredited                |
| TUV Rhineland | Yes (IEC61215 IEC 61730 Pt.II upto 400WP NABL Accredited                | No   | Yes NABL Accredited                | No                  | Yes Upto 10 KVA NABL Accredited          | Yes NABL Accredited                | Yes up to 10 KW (NABL Accredited) | Yes NABL Accredited                |
| Inter Tek     | No  | Only Electronics & luminaire NABL Accredited | Yes NABL Accredited                | No                  | Yes Upto 5 KVA NABL Accredited           | Yes NABL Accredited                | Yes up to 5 KW (NABL Accredited)  | Yes NABL Accredited                |

**ANNEXURE-D**

**Check List for submission of information/documents after commissioning of the project**

| S/N | Information/document to be submitted | Whether submitted |
|-----|--------------------------------------|-------------------|
|-----|--------------------------------------|-------------------|

|          |   |  |
|----------|---|--|
| <b>1</b> | <b>Site Details</b><br>Name of the police station<br>Postal Address<br>Phone No.<br>Fax No.<br>Name of the OIC/Contact Person   |  |
| <b>2</b> | <b>System details</b><br><b>a. Solar PV Modules</b><br>Make of the modules<br>Year of manufacturing<br>Module test report from MNRE authorised test centre<br>Serial Number and IV curve of each module may be submitted in a separate sheet<br><b>b. PCU</b><br>Make<br>Model<br>Yr of manufacturing<br>Serial Number of the PCU<br>Test report from MNRE authorised test centre<br><b>c. Battery bank</b><br>Make<br>Model<br>Yr. of manufacturing<br>Test report from MNRE authorised test centre<br>Serial Number of each battery may be submitted in a separate sheet<br><b>d. Wires and cables</b><br>Make of the wires/ cables<br>Length( Meter) and Thickness in sq. mm of all wires and cables used<br>BIS test certification for the wires and cables used.<br><b>e. Any other feature of the system that needs special mention</b> |  |
| <b>3</b> | <b>Warranty/ Guarantee of the composite system</b>  |  |
| <b>4</b> | <b>Training details</b><br>Date of training<br>No. of persons trained<br>Name & designation of the persons  |  |
| <b>5</b> | <b>Service Centre Details</b><br>Name /address / contact details of the service centre that will cover the project<br>Name & mobile No. of the person of the service centre in-charge of the project  |  |
| <b>6</b> | <b>Performance details</b> (as per enclosed format)   |  |
|          |   |  |

Annexure E

| <b>SRI No.</b> | <b>Document to be submitted</b>  |  |
|----------------|--|--|
| 1              | Material handing over report ( in prescribed format)   |  |
| 2              | Signed Copy of CMC   |  |
| 3              | Performance Report by OREDA  |  |
| 4              | Measurement of performance parameters if any done  |  |
| 5              | Report of daily/monthly wise generated/ consumed with proper resource in case of short fall. |  |

**ORISSA RENEWABLE ENERGY DEVELOPMENT AGENCY  
S-59, MANCHESWAR INDUSTRIAL ESTATE,  
BHUBANESWAR-751010**

**FORMAT FOR WARRANTY CARD TO BE SUPPLIED WITH EACH SOLAR POWER PLANT CCTN project)**

|  |  |
|--|--|
| 1. Name & Address of the Manufacturer/Supplier of the System   |  |
| 2. Name & Address of the police station  |  |
| 3. Date of installation of the system  |  |
| <b>4 Details of SPV module (s) supplied in the system</b><br>Make (Name of the manufacturer)<br>Model<br>Serial No. (s)<br>Wattage of the PV Modules under STC<br>Warranty valid up to |  |
| <b>5 Details of Battery Bank</b><br>Make (Name of the manufacturer)<br>Model<br>Batch/Serial Nos.(s)<br>Rated V & AH capacity at C/20/C/10 rate at 20 C<br>Warranty valid up to        |  |
| <b>6 Details of PCU</b><br>Make (Name of the manufacturer)<br>Model<br>Serial No (s)<br>Warranty valid up to   |  |
| <b>7 Details of BOS</b><br>Make (Name of the manufacturer)<br>Model<br>Serial No (s)<br>Warranty valid up to   |  |
| 8 Designation & Address of the person to be contacted for claiming warranty obligations.   |  |

( During the warranty period MNRE / OREDA authorized Officer / Users reserves the right to cross check the performance of the system as per the minimum performance levels specified.)

Signature & Stamp

VENDOR

Place:

date: