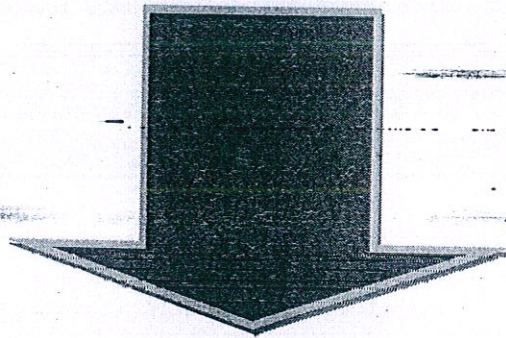


**SOLAR CENTRALISED POWER PLANTS TO  
ENERGISE STREET LIGHTS IN SELECTED  
VILLAGES OF THE DISTRICT:**

**TENDER  
DOCUMENTS**



**UNDER NEW SOURABELAKU SCHEME-2014-15.**

**RURAL DEVELOPMENT AND PANCHAYATH RAJ**

**DEPARTMENT.**

**ZILLA PANCHAYATH - KARNATAKA STATE.**



Government of Karnataka.

Rural Development & Panchayath Raj Department.

Zilla Panchayath, -----,  
----- District, Karnataka State, India

\*\*\*

**E-PROCUREMENT TENDER NOTIFICATION**

**FOR SUPPLY, INSTALLATION AND MAINTENANCE OF  
Centralized off grid solar power plant with LED Based  
Street lighting system of various capacities like 1.0 KW,  
2.0 KW, 3.0 KW , 5.0 KW and 10 KW, at various locations  
of ----- DISTRICT IN KARNATAKA STATE UNDER  
NEW SOURA BELAKU PROGRAMME DURING THE YEAR  
2014-15.**

**\*\*\* TENDER DOCUMENT \*\*\***

**Address for communication:**

**Office of the Chief Executive Officer,**

**Zilla Panchayath: -----,**

**----- District, Karnataka State, India**

**Telephone -----,**

**fax:-----**

**e-mail: -----**

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Zilla Panchayath, -----.

Telephones :-----

Dated : - -2014.

e-mail: -----

No -----

**INVITATION FOR e-procurement Bid**  
**SECTION-1**

Zilla Panchayat, -----, District -----, Karnataka State, India, hereby invites bids for supply of centralized off grid solar power plant with LED Based Street lighting of various capacities like 1.0 KW, 2.0 KW, 3.0 KW , 5.0 KW, and 10 KW at various locations in ----- DISTRICT IN KARNATAKA STATE UNDER NEW SOURA BELAKU PROGRAMME DURING THE YEAR 2014-15 from MNRE, Govt. of India approved registered manufactures. The procurement is as per the provisions of Karnataka Transparency in Public Procurement Act 1999 & Amendment 2000.

1	Tender Reference No.	NO ----- Dated -----2014
2	Last date & Time for submission Bids	xx-xx-xxxx, 5.PM.
3	Date & Time of opening of first Cover (Technical Bid) & Second Cover (Financial bids)	Xx/xx/2014,11.00 A.M Dt: -
4	(a) Earned Money Deposit (b) Tender Processing Fee(non refundable)	Rs __As per E portal As per e-procurement portal
5	Venue of acceptance and opening of tenders,	Zilla Pañchayat, -----
6	Submission of sample & address for communication	Office of the CEO Zilla Panchayat, ----- ----- district Karnataka state India.
7	Last date & Time for submission of sample	Sample need to be submitted when called for.

Interested and eligible bidders can submit the application through E-Procurement process at <https://www.eproc.karnataka.gov.in>

Chief Executive Officer,  
Zilla Panchayat,-----

## SECTION-II

### INSTRUCTION TO BIDDERS

#### INSTRUCTIONS:

Zilla Panchayath, -----, District, ----- Karnataka State, India proposes to procure VARIOUS CAPACITIES OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS AT VARIOUS LOCATIONS IN ----- DISTRICT IN KARNATAKA STATE under New Soura Belaku Programme for the year 2014-15

A. Technical and Commercial Bids are hereby invited from MNRE Govt. of India approved registered manufactures for Various Capacities OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS AT VARIOUS LOCATIONS IN ----- DISTRICT IN KARNATAKA STATE as per the particulars given below.

In Extream rare case the purchase of Stand alone solar LED based street lighting systems will be procured for scattered /remote located Houses if requirred in selected villages of the scheme.

#### 1. Eligibility to bidders:

##### 1.1 Minimum eligibility criteria to participation in the Bid.

- a. Tenders should be manufacturer's of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS and should have his own manufacturing unit, technically qualified staff and relevant machineries/inventories/R&D/testing laboratory facilities etc.,
- b. The manufacturer should submit balance sheet statement obtained from C.A ,including 3CB &3CD for the last 3 years and should also submit Income Tax and Sales Tax Clearance Certificate from the competent authority .The bidder transaction for financial year 2011-12, 2012-13 and 2013-14 shall be minimum of Rs 100.00 Lakhs to participate in this tender
- c. In the event of procuring SPV panels from other manufacturers, the tenderer shall have an agreement with SPV module manufacturer for supplying the same, as per MNRE specifications, accordingly MOU in this regard is to be submitted in technical bid. There should also specific clause for support by the SPV module manufacturer in case of repairs & replacement during warranty.
- d. Bidder should submit list of Govt. customers who have procured OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS, with regard to installations and performance certificates from the appropriate authorities.
- e. All certificates shall be attested by Gazetted officer /Notary.
- f. The Bidder in any circumstances should not have violated any of the conditions regarding manufacturing /supplying of orders and should not have been blacklisted by the Government.
- g. Bidders are required to furnish Tender Processing Fee as per e-procurement portal in the form of e-mode payment (Non-refundable) towards processing of submitted tenders. The tenders without processing fee will not be considered for processing. (Refer Section II © 1.2)

##### 1.2 Interested and eligible bidders may furnish the Technical & Commercial Bids for supply of OFF GRID CENTRALIZED SOLAR POWER PLANTS AND WITH LED STREET LIGHTING SYSTEMS.

- 1.3 All bids must be accompanied by EMD as specified in the Section-I and submitted on or before the prescribed date and time given in Section-I of this document. Bids submitted without EMD will be

summarily rejected. Zilla Panchayath, -----, District -----, intends to follow a single stage, electronic process developed & maintained by the centre for e-governance D.P.A.R. (A.R.) Government of Karnataka, for the selection of the successful bidder for the project. Bidder would need to submit the documents through electronic mode as part of their proposal.

- 1.4 The document is available on the internet in the website: <https://www.eproc.karnataka.gov.in>. The same can be downloaded from the internet.
- 1.5 It may be noted that all subsequent notifications, changes and amendments on the project/document would be posted only on the following website: <https://www.eproc.karnataka.gov.in>.
- 1.6 The bidders will be required to register themselves with the centre for e-governance to participate in the bidding process and also get necessary digital signature certificates. The details of the process of registration and obtaining the digital signature certificates are available on the website <http://www.eproc.karnataka.gov.in>. Necessary training and hands on experience in handling e-procurement system could be obtained from the centre for e-governance. Necessary details could also be obtained over telephone at **080-25501216/25501227**.
- 1.7 Interested and eligible Bidders may obtain further information or clarification either in person or through phone during office hours from the office of the Chief Executive Officer Zilla Panchayath, -----  
District Ph : Ph:----- Fax :-----

## **2 Cost of Biding:**

- 2.1 The bidder shall bear all costs associated with the preparation and submission of bid and the Chief Executive Officer Zilla Panchayath, -----, District ----- herein after referred to as "the Purchaser" will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

## **3 Content of bidding documents:**

- 3.1 The Bidding documents for supply of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS and stand alone white LED solar street lighting system to the selected villages contain the following particulars :-

- 1) Invitation for Bids – Section-1
- 2) Instructions to Bidders-Section-11
- 3) Description and scope of the contract Section-III
- 4) Terms and Conditions of Contract (General and Special) – Section-IV
- 5) Technical Specifications as per section section-V(A) and V(B)
- 6) Details of Organisation as per Table –I
- 7) Bid Form as per Table-II
- 8) EMD, as per Table-III
- 8(a): E- Procurement Processing Fee, as per Table III (A)
- 8b). Contract Form, as per Table III (B)
- 9) Statement of past performance as per Table-IV
- 10) Acceptance of Implementation schedule as per Table-V
- 11) Undertaking as per Table-VI
- 12) Check list of documents to be submitted in First Envelope (Technical Bid) as per Table –VII.
- 13) Site Details, as per Table –VIII
14. Price Schedule (Commercial Bid) to be submitted in Second Cover as per Table-IX.

- 3.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information required, by the Bidder, documents or submission of a Bid not substantially responsive to the Bidding documents in every respect or incomplete bid document will be at the Bidder's risk and may result in rejection of its Bid.

#### **4 Amendment of Bidding Documents**

- 4.1 The amendment if any will be notified on web publication. The same will be binding to the Bidders.
- 4.2 In order to allow prospective Bidders reasonable time in which to take the amendment into account in preparing their bid, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

### **B. Preparation of E-Tender /E-Procurement**

#### **5 Language of Bid**

The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the English language & Bid can be submitted in English.

#### **6 Documents Comprising the Bid**

The Bid prepared by the Bidder shall be submitted in 'Two stages' comprising the following components:

#### **7. (a) Technical Proposal shall contain:**

- i. Attested copies of documents along with photo copies of all particulars showing that the bidder has the Financial, Technical and Service capability necessary to perform the contract and meet the criteria outlined in the qualification requirements and to fulfill this all Bids submitted shall include the following information.
- ii. Attested photocopies showing the place of registration & principal place of business of the firm.
- iii. Attested Copies of Sales tax Registration and Sales tax returns filed during the last 3 years i.e. 2011-12, 2012-13 & 2013.14.
- iv. Attested copies of acknowledgement of Income tax returns filed in the last 3 Years Viz. 2011-12, 2012-13 & 2013.14
- v. Attested photocopies showing that the firm has been registered in State Govt. / Central Govt. / Related Authority.
- vi. Particulars of the Firm as per Table -I
- vii. Bid form as per Table II.
- viii. Statement of past performance during the last 3 years as per Table IV
- ix. Format of Acceptance of Implementation schedule as per Table V.
- x. Undertaking as per Table VI.
- xi. Checklist of Documents to be submitted in First Envelope as per Table VII.
- xii. Site details for installation of lights, Table - VIII
- xiii. Relaxation is given for sample submission in the first cover. Sample material i.e., OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS along with all the accessory and I.V. Curve is to be submit to CEO, Zilla Panchayat, -----, District -----, for Technical Specification verifications and should reach immediately whenever called for.
- xiv. The bidder has to submit acceptance letter of guarantee for 5 years for the total performance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS.
- xv. The bidder has to provide nearest service centre details
- xvi. The bidder has to sign all the pages of the documents as token of acceptance of all terms and conditions.
- xvii. Furnishing of details of EMD remitted is compulsory

#### **7 (b) Commercial bid shall contain:**

The rate quoted for manufacturing & supply OFF GRID CENTRALIZED SOLAR POWER PLANTS AND WITH LED STREET LIGHTING SYSTEMS / stand alone LED solar street lights / Solar still-distill water manufacturing Unit -2 no. - to the

villages in ----- District. The rate quoted should include all taxes levied by the State & Central Govt., Packing, forwarding charges including loading and unloading, installation and commissioning etc.

#### 4. Price Schedule

The Bidder shall complete the price schedule as per Table IX furnished in the Bidding Documents, indicating the total cost towards supply, installation and commissioning of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS as per the Technical specifications mentioned in the Section V the Chief Executive Officer Zilla Panchayath, -----, District ----- will not pay any extra charges over and above rate quoted by the Bidder.

##### 8.1. Fixed price:

Prices quoted by the Bidder is firm final and binding not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non responsive and rejected.

The Bidder must submit all the documents listed under Clause 3.1 of GCC in Sec.II along with the Bid form, sample OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS and EMD as per Table III in the Technical bid, in order to qualify for consideration in the opening of the Commercial bid containing the PRICE SCHEDULE as per Table IX.

1. Any Bid not in accordance with clause 10 and 11 of GCC in Sec.II above will be rejected.
2. E.M.D (Earnest Money Deposit)
  - 2.1 Proposals would need to be accompanied by a EMD Security for an amount of as per E-portal.
  - 2.2 The EMD shall be credited to the account of Centre for e-procurement through
    - a) Credit card
    - b) Debit card
    - c) National Electronic Fund Transfer (N E F T )
    - d) Remittance over the counter (O.T.C.)
    - e) The Manufacturer bid will be evaluated only on confirmation of receipt of the payment (EMD) in the GoK's Central Pooling A/c.

**EMD amount will have to be submitted by the Manufacturer taking into account the following conditions:**

- a) EMD will be accepted only in the form of electronic cash (and not through Demand Draft or Bank Guarantee) and will be maintained in the Govt.'s Central Pooling Account until the contract is closed.
- b) The entire EMD amount for a particular tender has to be paid in a single transaction.
- c) The EMD shall be returned to the unsuccessful Bidders within a period of eight (8) weeks from the date of announcement of the Successful Bidder.
- d) Any EMD security not secured in accordance with Clause 11 of GCC in Sec.II above will be rejected by the Purchaser as non-responsive.
- e) Unsuccessful Bidder's EMD will be discharged/returned as promptly as possible but not later than 8 weeks.
- f) Any Interlineations, erasures or overwriting or cancellation shall be valid only if they are initiated by the person or persons signing the Bid.
- g. **The EMD security will be forfeited:**
  - a) If a Bidder withdraws his Bid during the period of Bid validity specified by the Bidder on the Bid Form; or
  - b) In case of a successful Bidder, if the Bidder fails,



- i. To sign the contract agreement with in the stipulated time  
Or
- ii. To furnish performance security, i.e., 5 years total performance guarantee of **OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS** on Rs.200/- Government Stamp paper duly signed by the successful bidder.

#### **4.2 Period of Validity of Bids:**

- 4.2.1 Bids shall remain valid for one year after the date of opening of **Second** Envelope (Commercial Bid) . A Bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.
- 8.2.2. In exceptional circumstances, the purchaser may solicit the Bidder's consent to an extent of the period of validity. The EMD provided under Clause 12 of GCC in Sec.IV shall also be suitably extended. A Bidder may refuse the request without forfeiting his EMD. A Bidder granting the request will not be required nor permitted to modify his bid. The EMD in respect of the Bidder who has refused to extend the validity of Bids cannot be forfeited by the purchaser.

#### **8.3 Format and Signing of Bid**

The Bidder shall give a set of hard copies of all the documents which are uploaded through e-procurement in the sealed cover along with the sample. In the event of any discrepancy between them, the original uploaded shall govern.

#### **8.4 Mode of submission of bids.**

**The Bids could be submitted through E-Procurement process.**

- 8.4.1 Bids sent by any other mode like in person, post, Telex or Fax or E-mail will be rejected.

#### **8.5 Deadline for Submission of Bids**

Bids must be received by the Purchaser through E-procurement process not later than the time and date specified in the **invitation for Bids (section I)**. In the event of the specified date for the submission of Bids being declared a holiday for the Purchaser, the Bids will be received up to the appointed time on the next working day.

The Purchaser may, at its discretion, extend this deadline for submission of bids by amending the Bid Documents in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

#### **8.6 Late Bids**

Any Bid received by the Purchaser after the deadline for submission of bids prescribed by the purchaser pursuant to clause 16 of GCC in Sec.II will be rejected or returned unopened to the Bidder.

#### **9. Tender Opening and Evaluation of E-Tenders**

- 9.1 Opening of Bids by the purchaser. The purchaser will open the technical bid of the Bidder, through e-Procurement process.
- 9.2 The Technical & Financial bids are opened on same day itself or later separately. The financial bids (Second Cover) of only Technically qualified bidders will be opened.
- 9.3 The Bidders Names, Bid Modifications, or Withdrawals, Bid prices, Discounts and the presence or absence of the requisite and such other details as the Purchaser, at its discretion, may consider appropriate will be announced at the time of opening. No Bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the bidder.
- 9.4 Bids that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances. Withdrawn bids will be returned unopened to the bidders.
- 9.5 The Purchaser will prepare minutes of the Bid opening and will circulate them to all the bidders.

## **10 Clarification of Bids:**

- 10.1 During evaluation of Bids, the purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in prices or substances of the Bid shall be sought, offered or permitted.

## **11 Preliminary Examination :**

- 11.1 The purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- 11.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between words and figures, the amount in words will prevail and the bid shall stand corrected to that effect. If the supplier does not accept the correction of errors, its bid will be rejected. The purchaser may waive any minor infirmity or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any bidder. If there is a discrepancy between words and figures, the lowest of the two shall prevail.
- 11.3 Prior to the detailed evaluation, pursuant to Clause 23 of GCC in Sec.IV, the Purchaser will determine the substantial responsiveness of each bid to the Bidding Documents. For purposes of these Clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security, Applicable Law and taxes and duties will be deemed to be a material deviation. The purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 11.4 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

## **12 Evaluation and Comparison of Bids**

- 12.1 The Purchaser will evaluate and compare the bids previously determined to the substantially responsive, pursuant to clause 21.3 of GCC in Sec.IV.
- 12.2 The rates quoted by the bidder for the supply of Centralised L.E.D Solar Street Lighting System will be evaluated as per the Table IX.

## **13. ACCEPTANCE OR REJECTION OF BIDS:**

- a) CEO, Zilla Panchayat, ----- reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability or any obligation to inform the affected bidder or bidders of the grounds for the said action.
- b) Any Bid with incomplete information is liable for rejection.
- c) For each category of pre-qualification criteria, the documentary evidence is to be produced duly attested by the contractor, serially numbered and enclosed with the bids. If the documentary proof is not enclosed for any/all criteria the Bid is liable for rejection.
- d) If any information given by the contractor is found to be false/ fictitious, the Manufacturer will be debarred for 3 years from participating in any other tenders of Govt., of Karnataka and will be black listed.

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**SECTION – III**  
**DESCRIPTION AND SCOPE OF THE CONTRACT**

The Bidder, herein after called "the agency" are required to Supply, Installation & Maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in the selected villages herein after called "the Contract" for which Bids are invited.

The Total quantity OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS to be supplied is enclosed in Table VIII.

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**SECTION – IV**  
**TERMS AND CONDITIONS OF CONTRACT**

The following are the **General Conditions of Contract** for Supply of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in the selected Grama Panchayats/ villages of \_\_\_\_\_, as per the specifications given in the document.

**GENERAL CONDITIONS OF CONTRACT**

**1 Definitions :**

**1.1 In this Contract, the following terms shall be interpreted as indicated:**

- a) "The Contract" means the agreement entered into between the purchaser and the manufacturer, as recorded in the contract form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein;
- b) "The Contract Price" means the price payable to the Manufacturer under the Contract for the full and proper performance of its contractual obligation;
- c) "The Goods" means all the Supply of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS which the Manufacturer is required to supply to the purchaser under the contract;
- d) "Services" means services ancillary to the supply of the goods, such as transportation and insurance, and any other incidental services. Such as installation, commissioning, provision of technical assistance, training and other obligations of the Manufacturer covered under the contract;
- e) "GCC" means the General Conditions of Contract contained in this section
- f) "SCC" means the Special Conditions of Contract
- g) "The Supplier" means the individual or firm supplying the goods and services under this contract
- h) "The Government" means the Government of Karnataka State
- i) "The Project Site", where applicable, means the place or places named in SCC
- j) "Day" means calendar day

**2 Application**

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the contract.

### **3 Standards:**

The goods supplied under this contract shall conform to the standards mentioned in the Technical specifications and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods country of origin and such standards shall be the latest issued by the concerned institution.

The OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS supplied by the manufacture should have a guarantee for the period of 5 years from the date of installation. The manufacturer should attend any troubles within 3 days and suitable arrangements to make daily maintenance & trouble free working of the system.

#### **4. Service Level Agreement SLA.**

The successful vendor(supplier) will enter into an service level agreement(SLA) with Zilla Panchayat ----- to provide satisfactory service during five years warranty period. The SLA will include the following.

- 2.1 The vendor shall compulsorily carryout preventive maintenance once in three months such as topping of batteries, checking battery terminals, cleaning of SPV modules etc.
- 4.2 In case of faulty/failed LED luminar or batteries etc sufficient spares should be stocked in the nearest service centre and the time to replace failed part shall be within 2 days of intimation by the Grama panchayat/TP/ZP.
- 4.3 All should be done free of cost, as it is in the guarantee/warranty period. Failure to adhere to the time limit will attract penalty of Rs 500/-per day till repairs are attended and compliance report obtained. The time frame for attending repairs /replacement will be Two days.

The vendor shall put a call/complaint logging system within one month of installation. A dedicated Service engineer shall be assigned to ----- district for attending all repairs/ servicing etc.

The supplier shall maintain OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS for the period of 5 years.

### **3. Use of Contract Documents and Information; Inspection and Audit by the Government**

- 3.1 The Manufacturer shall not, without the purchaser's prior written consent, disclose the contract or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only, so far as may be necessary for purposes of such performance.
- 3.2 The Manufacturer shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in GCC Clause 4.1 except for purpose of performing the Contract.

3.3 Any document, other than the contract itself, enumerated in GCC Clause 4.1 shall remain the property of the purchaser and shall be returned (in all copies) to the purchaser on completion of the supplier performance under the contract if so required by the purchaser.

3.4 The supplier shall permit the Government to inspect the Manufacturer's accounts and records relating to the performance of the Manufacturer and to have them audited by auditors appointed by the Government, if so required by the Government.

#### 4. Patent Rights:

4.1 The Manufacturer shall indemnify the purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

#### 5. Performance Security

a) The successful bidder's shall submit performance security of value of 10% of the total bid amount in the form of Bank guarantee from Nationalized Bank valid for 2 months beyond guarantee/ warranty period.

b) The performance security furnished by the successful Bidder in respect of his bid will be returned to him after 2 month from the date of satisfactory performance of the contract. ( after 5 years only)

c) If the successful Bidder after signing the contract agreement fails to perform any contractual obligation, his EMD shall be forfeited.

#### 8. Inspections and Tests :

Approval of Sample : The bidder has to submit the complete one set OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS along with all accessories and that sample will be subjected to third party inspection & testing and based on the satisfactory test results approval or rejection of the sample/technical bid will be accorded. (Sample need to be submitted immediately whenever called for.)

The successful bidder has to start the manufacturing of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS only after receiving the supply order. It is also required to inform this office for pre-delivery inspection. The office will conduct pre-delivery inspection and give permission to supply. After supply post delivery third party inspection will be conducted.

8.1 The Purchaser or its representative/Third party shall have the right to inspect or to test the goods to confirm their conformity to the contract specifications at no extra cost to the purchaser. See the Technical Specifications shall specify what inspections and tests the purchaser requires and where they are to be conducted. The purchaser shall notify the supplier in writing in a timely manner of the identify of any representatives/ Third party retained for these purposes.

8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and / or at the goods final destination. If conducted on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data - shall be furnished to the inspectors at no charge to the purchaser. Should any inspected or tested goods fail to conform to the specifications, the purchaser may reject the goods and the supplier shall either replace the rejected goods or make alterations necessary to meet specifications requirements free of cost to the Purchaser.

8.3 The purchaser's right to inspect, test and where necessary, reject the Goods after the Goods arrival at Project Site shall in no way be limited or waived by reason of the goods having previously been inspected, tested and passed by the purchaser or its representative prior to the goods shipment.

8.4 Nothing in GCC Clause 7 shall in any way release the supplier from any warranty or other obligations under this contract.

## **8.5 Manuals and Drawing**

Before the goods and equipment are taken over by the purchaser, the manufacturer shall supply operation and maintenance manuals together with drawings of the goods and equipment. These shall be in such detail as will enable the purchaser to operate, maintain, adjust and repair all parts of the equipment as stated in the specifications.

8.6 The manuals and drawings shall be in the ruling language (English) and in such form and numbers as stated in the contract.

8.7 Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purpose of taking over until such manuals and drawings have been supplied to the supplier.

## **9 Packing**

9.1 The manufacturer shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods final destination and the absence of heavy handlings facilities at all points in transit.

9.2 The packing, marking and documentation within and outside the item shall comply strictly with such special requirements as shall be provided for in the contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Purchaser.

## **10 Delivery and Documents**

10.1 Delivery of the goods shall be made by the Manufacturer in accordance with the terms specified by the purchaser in the notification of award. The details of shipping and / other documents to be furnished by the supplier are specified in SCC.

### **10.2 Insurance :**

The goods supplied under the contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. For delivery of goods at site, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from "Warehouse To Warehouse" (final destinations) on "All Risks" basis including War risks and Strikes.

### **10.3 Transportation**

Where the Manufacturer is required under the contract to transport the goods to a specified place of destination defined as Project site, transport to such place of destination including insurance, as shall be specified in the contract, shall be arranged by the supplier, and the related cost shall be included in the contract price.

## **11 Payment :**

**The terms of payment will be as follows:**

After the successful implementation of the contract regarding supply, installation and maintenance of **OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS** in the selected Grama Panchayats/villages of -----, as per following details Payment will be made to the Manufacturer as per as SCS clause-3.

- a) The Manufacturer to whom supply work is allotted should also under take of the same to the Head Quarters of the Grama Panchayats/villages of the ----- District as per the particulars to be supplied by the Purchaser. Payment will be made to the Manufacturer after the successful supply installation & commissioning work and as per the report given by the third party & concerned Project Engineer, IREP, Zilla Panchayat, ----- District.
- b) Payment will be made to the Manufacturer after ascertaining whether the contract has been

executed satisfactorily and towards this the supplier should furnish the necessary certificate from the accepting authorities i.e. Grama Panchayats of selected Grama Panchayat of ----- district.

**11.2 Payment will not be made to the contractor unless the work entrusted is executed satisfactorily. Further the purchaser will not make any advance payment or part payment.**

**12 . Prices :**

12.1 Prices payable to the Manufacturer as stated in the contract shall be firm during the performance of the contract.

**13 Change Orders**

13.1 The purchaser may at any time, by written order given to the Manufacturer pursuant to GCC Clause 3.1 of GCC in Sec.IV , make changes within the general scope of the contract in anyone or more of the following:

- a) Drawings, designs, or specifications, where goods to be furnished under the contract are to be specifically manufactured for the purchaser;
- b) The method of shipping or packing;
- c) The place of delivery; and / or
- d) The services to be provided by the supplier

13.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Manufacturer performance of any provisions under the contract, an equitable adjustment shall be made in the contract price or delivery schedule, or both, and the contract shall accordingly be amended. Any claims by the supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the receipt of purchaser's, change order.

**14 Contract Amendments.**

14.1 Subject to GCC Clause 17. no variation in or modification of terms of the contract shall be made except by written amendment signed by the parties.

**15 Assignment.**

15.1 The suppliers shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

**16 Sub-contracts**

16.1 Subcontract is strictly prohibited except entering in to consortium with another firm as mentioned in Section II

**17 Delays in the Supplier's Performance**

17.1 Delivery of the goods and performance of the services shall be made by the supplier in accordance with the time schedule specified by the purchaser in the schedule of Requirements.

17.2 If at any time during performance of the contract, the supplier or its sub contract(s) should encounter conditions impeding timely delivery of the goods and performance of 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 suppliers notice, the purchaser shall evaluate the situation and may, as 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.

17.3 Except as provided under GCC Clause 24, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of liquidated damages pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of liquidated damages.

## **18. Liquidated Damages**

- 18.1 Subject to GCC Clause 24, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 0.5% of the delivered price of the delayed goods or unperformed services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of 10% of the contract price. Once the maximum is reached, the purchaser may consider termination of the contract pursuant to GCC Clause 23.

## **19. Termination for Default**

- 19.1 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 part:
- a) If the supplier fails to deliver any or all the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21; or
  - b) If the Manufacturer fails to perform any other obligation(s) under the contract.
  - c) If the supplier, in the judgment of the purchaser 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 any thing 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 of 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.**

- 19.2 In the event the purchaser terminates the contract in whole or in part, pursuant to GCC Clause 23.1, 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.

## **20. Force Majeure :**

- 20.1 Notwithstanding the provisions of GCC Clause 21, 22, 23, the supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
- 20.2 For purposes of this Clause "Force Majeure" means an event beyond the control of the supplier and not involving the suppliers fault or negligence and not foreseeable. Such event may include, but are not limited to, acts of the purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 20.3 If a Force Majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure.



## **21 Termination for Insolvency**

- 21.1 The Purchaser may at any terminate the contract by giving written notice to the supplier, if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

## **21. Termination for Convenience**

- 22.1 The purchaser by written notice sent to the supplier, may terminate the contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the purchaser's convenience, the extent to which performance of the Manufacturer under the contract is terminated, and the date upon which such termination becomes effective.
- 22.2 The goods that are complete and ready for shipment within 30 days after the supplier's receipt of notice of termination shall be accepted by the purchaser at the contract terms and prices. For the remaining goods, the purchaser may elect:
- To have any portion completed and delivered at the contract terms and prices; and /or
  - To cancel the remainder and pay to the supplier an agreed amount for partially completed goods and for materials and parts previously procured by the supplier

## **22. Settlement of Disputes**

- 23.1. The purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the contract.
- 23.2 If, after thirty (30) days, the parties have failed to resolve their dispute by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.
- 23.3 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the goods under the contract.
- 23.4 Arbitration proceeding shall be conducted in accordance with the rules of procedure specified in the SCC.
- 23.5 Notwithstanding any reference to arbitration herein,
- The parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
  - The purchaser shall pay the supplier any monies due to the suppliers
- 23.6 The purchasing authority reserves right to place order for supply to extent of availability of funds/grants/may cancel the project due to unforeseen obligations.

## **24 Limitation of Liability**

- 24.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 5,
- The supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay liquidated damages to the purchaser; and
  - The aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

## **25 Governing Language**

25.1 The contract shall be written in English language. Subject to GCC Clause 30, English language version of the contract shall govern its interpretation. All correspondence and other documents pertaining to the contract which are exchanged by the parties shall be written in the same language.

## **26 Applicable Language**

26.1 The contract shall be interpreted in accordance with the laws of the Union of India.

## **27 Notices:**

27.1 Any notice given by one party to the other pursuant to this contract shall be sent to other party in writing or by cable, telex or facsimile and confirmed in writing to the other party's address specified in SCC.

27.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

## **28 Taxes and Duties**

28.1 Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted goods to the purchasers selected villages in \_\_\_\_\_ District.

## **29 AGREEMENT:**

- a) The successful Bidder(s) shall execute an agreement for the fulfillment of the contract on Rs. 200/- non-judicial stamp paper in the prescribed format provided, within seven (7) days from the date of acceptance of the Bid and intimation of the award of contract vide clause 1.1.a of GCC in Sec.IV.
- b) The incidental expenses of execution of agreement shall be borne by the successful Bidder(s). Hereafter the successful Bidder shall be referred to as "Manufacturer".
- c) The conditions stipulated in the agreement should be strictly adhered to and violation of any of the conditions in full or in part will entail termination of the contract without prejudice to the rights of Government of Karnataka 1 Purchase and recovery of any consequential loss from the contractor.

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## 4.4 SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses.

### **1. Definitions (GCC Clause 1)**

- a) The Purchaser is CEO, Zilla Panchayat, ----- district
- b) The Manufacturer is .....

### **2. Delivery and Documents (GCC Clause 9)**

Upon Delivery of the goods, the supplier shall notify the purchaser and the insurance company by cable/telex/fax the full details of the shipment including contract number, railway receipt number and date, description of goods, quantity, name of the consignee etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

- i) Four copies of the supplier invoice showing contract number, goods description, quantity, unit price, total amount;
- ii) Railway receipt / acknowledgement of receipt of goods from the consignee(s)
  - i) Four copies of packing list identifying of each package;
  - ii) Manufacturer's / supplier's warranty Certificate
  - iii) Inspection certificate issued by the third Party inspector/ Project Engineer- Zilla Panchayat, -----, and the suppliers factory inspection report; and
- iv) Sl.No. , product details, like S.P.V.No., Battery No, Luminar No. should be printed on metallic plate and riveted to batter box of every system.
- v) Every SPV Module inside should have a label laminated with "New Soura Belaku 2014-15.
- vi) Write boldly ~~Karnataka Sarkara, NEW Soura Belaku 2014-15~~, Zilla Panchayat, ----- on Battery box/Out side of the power plant Room.
- vii) The above documents shall be received by the purchaser before arrival of the goods (except where the goods have been delivered directly to the consignee with all documents) and, if not received, the supplier will be responsible for any consequent expenses.

### **3. Payment (GCC Clause 12)**

Payment will be made after completion of the project in a complete manner & only after certification and issue of Stock Certificate from the respective Grama Panchayat , Third Party inspection & Project Engineer IREP ZP -----.

### **4. Settlement of Disputes (Clause 27)**

The dispute settlement mechanism to be applied pursuant to GCC Clause 24 in Sec. IV shall be as follows:

- a) In case of Dispute or difference arising between the purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996, by a Sole Arbitrator. The Sole Arbitrator shall be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the Indian Council of Arbitration / President of the Institution of Engineers (India) / The International Centre for Alternative Dispute Resolution (India). A certified copy of the appointment Order shall be supplied to each of the parties.
- b) Arbitration proceedings shall be held at ---- District, Karnataka, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.
- c) The decision of the arbitrators shall be final and binding upon both parties. The cost and expenses of

Arbitration proceedings will be paid as determined by the Arbitrator. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings shall be borne by each party itself.

d) Any disputes under the contract is subject to ----- Jurisdiction only.

## **5. Notices (Clause 31)**

For the purpose of all notice, the following shall be the address of the purchase and supplier.

Purchaser:

Supplier: (To be filled in at the time of contract signature) \_\_\_\_\_

## **6. Right to use defective equipment:**

If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the equipment proves to be unsatisfactory, the purchaser shall have the right to continue to operate or use such equipment until rectifications of defects, errors or omission by repair or by partial or complete replacement is made without interfering with the purchaser's operation.

## **7. Supplier Integrity:**

The supplier is responsible for and obliged to conduct all contracted activities in accordance with the contract using state-of-the-art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

## **8. Supplier's Obligations:**

- 8.1 The Supplier is obliged to work closely with the purchaser's staff, act within its own authority and abide by directives issued by the purchaser and implementation activities.
- 8.2 The supplier will abide by the job safety measures prevalent in India and will free the purchaser from all demands or responsibilities arising from accidents or loss of life the cause of which is the supplier's negligence. The supplier will pay all indemnities arising from such incidents and will not hold the purchaser responsible or obligated.
- 8.3 The Supplier is responsible for managing the activities of its personnel or subcontracted personnel and will hold itself responsible for any misdemeanors.
- 8.4 The supplier will treat as confidential all data and information about the purchaser, obtained in the execution of his responsibilities, in strict confidence and will not reveal such information to any other party without the prior written approval of the purchaser.
- 8.5 Additional Points to be noted in the contract relating to and supply, installation, maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS.
  - a) The contractor should supply and install the OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS as per the particulars to be supplied by the Purchaser and to all the selected sites of villages of ----- districts, strictly in accordance with the Term & Conditions of the contract and without any defects.
  - b) The work relating to supply of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS should be executed without any delay as per the implementation schedule mentioned in this document.
  - c) The Purchaser reserves the right to depute officers from his office for the supervision and inspection at the time of implementation of the contract. The contractor should submit report to the concerned officer regarding the implementation of the contract.
  - d) The contractor should supply OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED

STREET LIGHTING SYSTEMS using good quality material strictly in accordance as sample supplied along with Technical Bid.

- e) All the OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS supplied in systematic manner.
- f) If any defect is noticed after supply and installation same will have to be replaced by the Contractor at his own expenses.
- g) The successful bidder should indicate the name and address of there nearest service centre, that can take up immediate on complaint
- h) If the contract is not executed within the stipulated period as per implementation schedule the Purchaser namely The CEO, Zilla Panchayat, ----- reserves the right to cancel the contract and the Purchaser will not be liable for any pecuniary loss or damage incurred by the Contractor in this regard.

**9. IMPLEMENTATION SCHEDULE:**

The work supply, installation and maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS should be implemented by the manufacturer as per the following implementation schedule :-

1. Signing of Contract	7 days from date after the finalization of the bid minutes.
2. Manufacturing, Pre delivery Inspection and supply Installation of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS to the selected sites of the district of Karnataka state.	45 days from the date of issue of work order.

**10. PENALTY AND TERMINATION FOR NON-FULFIMENT OF CONTRACT:**

- a. If the manufacturer does not execute the work as per the implementation schedule, penalty will be imposed at the rate of 0.5% of the contract amount for a week's delay or part there of.
- b. The contractor entrusted with the work of supply, installation and maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS should execute the work in good condition as per the section V clause 4.5. Using the inferior material, found before/after installation, such defective materials will be rejected outright. The contractor will have to replace the rejected items at his own responsibility & expertise.
- c. The OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS will have to be supplied in good condition with out causing any damage to the items, to all the selected sites in villages of ----- District. If any defect is found, If any report in this regard is received from the Project Engineer, IREP, Z.P ----- district such defective materials will be rejected and the contractor will have to bear the cost of such defective materials. Penalty will also be imposed by the purchaser depending upon the extent of error/ defect noticed. The quantum of penalty will vary from a minimum of 1% and subject to a maximum of 10% of the contract amount. This penalty will be in addition to the liquidated damages as per clause 19 of GCC.

**11. GENERAL POINTS TO BE OBSERVED:**

The Bidder should execute under taking in the prescribed form stipulating that he has agreed to the Terms & Conditions mentioned in the tender for submission of Technical & Commercial Bids.

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## SECTION-V (A)

### TECHNICAL SPECIFICATIONS OF 1.0 KW, 2.0 KW, 3.0 KW, 5.0 KW, 10.0 KW, SPV POWER PLANT WITH LED STREET LIGHTING SYSTEMS

ITEM	DESCRIPTION
SPV Module	<p>The photovoltaic modules should be Mono /Poly Crystalline with a total array capacity of</p> <p>i) For 1.0 KW SPV power plant- Power output under STC should be 1.0 KW</p> <p>ii) For 2.0 KW SPV power plant- Power output under STC should be 2.0 KW</p> <p>iii) For 3.0 KW SPV power plant- Power output under STC should be 3.0 KW</p> <p>iv) For 5.0 KW SPV power plant- Power output under STC should be 5.0 KW</p> <p>v) For 10.0 KW SPV power plant- Power output under STC should be 10.0 KW</p> <ul style="list-style-type: none"> <li>• The Photovoltaic modules must be qualified as per IEC 61215(revised) / IS 14286 standards and in addition, the modules must conform to IEC 61730-1 requirements for construction &amp; Part-2 requirements for testing, for safety qualification.</li> <li>• The PV modules must be tested and approved from any of the NABL/BIS/ MNRE Accredited Testing Calibration Laboratories..</li> <li>• The supplier shall provide performance guarantee for the PV-modules used in the power plant 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 25 years.</li> <li>• The efficiency of the PV modules should be minimum 14%.</li> <li>• Indigenously manufactured PV modules should be used.</li> </ul>
System autonomy	<b>1+ 1day</b>
Energy Meters	<i>The supplier shall provide the Energy meter with the system to know the units consumed from the system.</i>
Battery Bank	<p><b>The battery bank should be :</b></p> <p>For 1.0 KW SPV power plant- 12 cells of 2 Volt, 400Ah Cells will be connected in series/ parallel to form 24 volt 400 Ah battery bank</p> <p>For 2.0 KW SPV power plant- 24 cells of 2 Volt, 400Ah Cells will be connected in series/ parallel to form 48 volt 400 Ah battery bank</p> <p>For 3.0 KW SPV power plant- 24 cells of 2 Volt, 600Ah Cells will be connected in series/ parallel to form 48 volt 600 Ah battery bank ,</p> <p>5KW SPV power plant- 60 cells of 2 Volt, 500Ah Cells will be connected in series/ parallel to form 120 volt 500 Ah battery bank .</p> <p>For 10.0 KW SPV power plant- 120 Cells of 2 Volt, 500Ah will be connected in series/ parallel to form 120 volt 1000 Ah battery bank .</p> <p><u>VRLA tubular GEL type batteries conforming to National / international standards IEC-61427 &amp; IS-1651 /IS 13369 standards, low maintenance, stationery at C/10 rate). It will be staged in racks duly painted with acid resistant paint to cover less space.</u></p>
Power Conditioning Unit with inbuilt charge controller	Power conditioner unit with inbuilt charge controller of capacity 1.0 KW 2.0 KW, 3.0 KW, 5.0 KW, 10.0 KW, solar power plants should convert DC power in to AC power must

	confirm to standards IEC 61683 with following DC input and AC output voltages
For 1.0 KW solar power plant	- 24 volt DC to 230 volt AC single phase
For 2.0 KW solar power plant	- 48 volt DC to 230 volt AC single phase
For 3.0 KW solar power plant	48 volt DC to 230 volt AC single phase
For 5.0 KW solar power plant	- 120 volt DC to 230 volt AC, single phase
For 10.0 KW solar power plant	- 120 volt DC to 440 (phase to phase) volt AC three phase.

**The PCU will have following features:**

**A. MOSFET/ IGBT based MPPT / PWM charging Wide input voltage range .**

- a) Output voltage 230  $\pm$  2% of modified/ pure sine wave upto 5.0 KW capacity plant.
- b) Output voltage 440  $\pm$  2% (phase to phase) of modified/ pure sine wave in case of 10.0 KW capacity and above capacity power plant.
- c) Out frequency: 50 Hz $\pm$ 0.5 Hz
- d) Capacity of PCU/ Inverter is specified at 0.8 lagging power factor. Efficiency: > 90% at full load
- e) THD: less than 3%

**B. Protections:**

- Over voltage (automatic shut down)
- Under voltage (automatic shut down)
- Overload
- Short circuit (circuit breaker & electronics protection against sustained fault).
- Battery, PV reverse polarity

**C. Indications:**

- a. Battery low
- b. Overload
- c. Inverter ON
- d. Input & output voltage
- e. Input & output current
- f. Frequency
- g. Power output

**D. Display parameters :**

- a. Charging current
- b. Charging voltage
- c. Voltage of PV panels
- d. Output voltage
- e. Grid voltage
- f. Inverter loading
- g. Output frequency
- h. Cooling: Air cooled

When battery bank is fully charged, the PCU should have the feature to feed the power generated from solar to load and draw the additional power from main supply to meet the load requirements in the case load is more than solar energy produced.

The system shall be used only to energise LED Street Light at night. Accordingly, the line on which load of LED street light is feed, have the feature of dust to down operation so that these light may automatically switch on and off.

In case some manufacturer has different input voltage of PCU i.e. 48 Volt, 96 Volt

and 120 Volt then the PCU should be able to deliver output of 230 Volt 50 Hz AC irrespective of what DC voltage input they are feeding to the PCU upto 5.0 KW capacity power plant and 415 Vac (Three Phase) 50 Hz AC for 10 KW capacity power plant and above. The battery bank used should be of same watt hour capacity given above. The inbuilt Charge Controller shall be according to the system voltage selected for the PCU.

<p><b>Junction boxes</b></p>	<p>The junction boxes shall be dust and water proof and made of thermo plastic the terminals will be connected to copper lugs or bus-bar of proper sizes. The junction boxes will have suitable cable entry points fitted with the cables. Suitable markings shall be provided on the lugs or bus-bars for easy identification at cable ferrules will be fitted at the cable terminations points for identification. Each main junction box shall be fitted with appropriate rating reverse blocking diode. The junction boxes shall be of reputed make. The junction boxes shall have suitable arrangement for the following:</p>
	<p>a) Combine groups of modules into independent charging sub-arrays that will be wired into the controller.</p>
	<p>b) Provide arrangement for disconnection for each of the groups.</p>
	<p>c) Provide a test point for each sub group for quick fault location.</p>
	<p>d) To provide group array isolation. e) The rating of the JBS shall be suitable with adequate safety factor to inter connect the Solar PV array.</p>
<p><b>Structure for module frame</b></p>	<p>Modules shall be mounted on supporting structure made out of Rust-proof, galvanized MS angle of required structural strength. (hot dip galvanized) either on the roof top or at ground as per the site requirement</p>
	<p><b>Structure:-</b> The size of Rust-proof, Galvanized M.S. angle (suitable for outdoor applications) should be 50 x 50 x 6 mm. The structures are to be fitted either on the roof top or at ground properly and south faced. It should withstand wind speed up to 150 Km/hour.</p> <p>5. <b>Foundation</b> – The legs of the structure made with hot dip GI angles will be fixed and grouted in the RCC foundation columns of size 300mmx300mm made with 1:2:4 cement concrete. The minimum ground clearance from the lowest part of any module shall be 500 MM. While making foundation design due consideration will be given to wait of module assembly, maximum wind speed of 150 km per hour.</p> <p>6. The work includes necessary excavation, concreting, back filling, shoring and shuttering etc.</p> <p>7. Brick paving of first class bricks with cement mortar (1:6) as per PWD specifications on edge type plate form is to be provided under the modules structure area with minimum 1 meter more than structure.</p>



Connecting cables	<p><b>For 1, 2, 3 and 5 KW solar power plant;-</b>  PVC insulated copper cables (ISI marked) for :</p> <ul style="list-style-type: none"> <li>• Module interconnections (4.0 mm<sup>2</sup> copper single core multi strand)</li> <li>• Module parallel interconnection (10mm<sup>2</sup> copper single core multi strand)</li> <li>• Array or AJB to charge controller (16 mm<sup>2</sup> copper two cores).</li> <li>• Charge controller to battery (16 mm<sup>2</sup> copper two core multi strand)</li> <li>• Battery to PCU (16 mm<sup>2</sup> copper single core multi strand) might be double cables if required .</li> </ul> <p>PCU to load / change over (Single core copper cable 6.0 mm<sup>2</sup> multi strand) and for further distribution points (Single core copper cable 4.0 mm<sup>2</sup> and 2.5 mm<sup>2</sup> multi strand)</p>
	<p><b>For 10.0 KW solar power plant;-</b></p> <ul style="list-style-type: none"> <li>• Module interconnections (4.0 mm<sup>2</sup> copper single core multi strand)</li> <li>• Module parallel interconnection (10mm<sup>2</sup> copper single core multi strand)</li> <li>• Array or AJB to PCU (25 mm<sup>2</sup> copper two cores).</li> <li>• Battery to PCU (25 mm<sup>2</sup> copper single core multi strand) might be double cables if required .</li> <li>• PCU to load / change over switch (Single core copper cable 10.0 mm<sup>2</sup> multi strand) and for further distribution points (Single core copper cable 4.0 mm<sup>2</sup> and 2.5 mm<sup>2</sup> multi strand)</li> </ul>
<p><b>Note: All above capacities of the systems connections having:</b></p> <ul style="list-style-type: none"> <li>• All cables to be supplied should be as per BIS and should have proper current carrying capacity and should not be heated.</li> <li>• All cables shall be adequately supported .</li> <li>• Out side of terminal / panels /enclosers shall be protected by conduits.</li> <li>• Cables shall be provided with dry type compression glands where ever they enter junction boxes, panels, enclosures.</li> </ul>	
LED STREET LIGHTING	The number of LED Street Lighting System to be installed on each capacities power plant with pole, pole to pole wire with all fitting accessories etc along with Specification is enclosed at Annexure Section v
Indoor wiring	All indoor wiring is to be done in a casing capping system. As and when required flexible pipe may also be used.
Lightning Protection	Suitable nos. of lightning arrestors shall be provided in the array field.
Earthing Protection	Each array structure and all metal casings of the plant etc. shall be earthed properly.
Tool Kit and spares	One necessary tools kit and spares will have to be provided by the supplier
Display Board	<p>A display board of size 4 ft x 3 ft made of MS 40mmx40mm square pipe and flexes is to be erected at the plant site indicating;</p> <p>Capacity of Solar Power Plant : .....</p> <p>Promoted by : GOK , Name of the Scheme: NEW sourabelaku 2014-15.</p> <p>Name of the Supplier : M/s.....</p> <p>Contact numbers ::</p>

**CODES AND STANDARDS FOR ALL CAPACITY SOLAR POWER PLANT WITH LED STREET LIGHTING**

The BoS items / components of the SPV power plant must conform to the latest edition of IEC/ equivalent BIS Standards as specified below:

BoS item / component	Standard Description	Standard Number
Power Conditioning Unit Inverter	Efficiency Measurements Environmental Testing	IEC60068 2 (6, 21, 27, 30, 75,78)
Charge controller/ MPPT units*	Design ,Qualification Environmental Testing	IEC 62093 IEC 60068 2 (6,21, 27, 30,75,78)
Storage Batteries	General Requirements & Methods of Test Tubular type	IEC 61427 IS 1651/ IS 13369
Armed UG Cables	general Test and Measuring methods PVC insulated armed UG cables for working voltages upto and including 1100 V-Do-, UV for UG-installations. 4 sq.mm upto 5 kw and 6sq.mm upto 10kw	as per IEC/IS standards
Switches/Circuit Breakers/Connectors	General Requirements Connectors-Safety.	IS/ IEC 60947 part I, II & III EN.50521
junction Boxes/Enclosures	General Requirements	IP 65 ( for outdoor) / IP/21 (for indoor) IEC 62208
SPV System design	PV Stand-alone Systems- design verification	IEC 62124
Installation Practices	Electrical Installations of buildings-requirements for SPV power supply systems	IEC 60364-7-712
LED Street lighting	DNIT Specification and test report from MNRE/NABL/IEC certified LAB.	Section v

**\*Must additionally conform to the relevant national/ International Electrical Safety Standards.**

**IDENTIFICATION AND TRACEABILITY FOR MODULE OF ALL CAPACITY SOLAR POWER PLANT WITH LED STREET LIGHTING**

Each PV modules used must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate, but must be able to withstand harsh environmental conditions.

- (i) Name of the Manufacturer of PV Modules
- (ii) Name of the Manufacturer of Solar Cells
- (iii) Month and year of the manufacturer (separately for solar cells and module)
- (iv) Country of origin (separately for solar cells and modul)
- (v) I-V curve for the module
- (vi) Peak Wattage,  $I_m$ ,  $V_m$  and FF for the module
- (vii) Unique Serial No and Model No of the module
- (viii) Date and year of obtaining IEC PV module qualification certificate
- (ix) Name of the test lab issuing IEC certificate
- (x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

**SPECIFICATIONS OF SUPPLY, INSTALLATION AND COMMISSIONING OF 20 WATT LED STREET LIGHTING SYSTEM ON DIFFERENT CAPACITIES SOLAR POWER PLANTS WITH 5 YEARS WARRANTY ALONG WITH POLE, TO POLE WIRING 25 \* METER DISTANCE APART AND ALL FITTING ACCESSORIES.**

\* depends on site conditions .

ITEM	DESCRIPTION	
Nos. of LED Street lights	Capacity of Solar power plant	Nos. of 20 watt LED street lights**
	1 Kw	15 Nos.
	2 Kw	30 Nos.
	3 Kw	45 Nos.
	5 Kw	75 Nos.
	10 Kw	150 Nos.
	**This is tentative maximum nos of LED lights to be installed on Solar power plant. However, the actual nos. may be varies upon requirement of village and the nos. of LED lights may be reduced to 5 to 10 in small power plant and 10 to 20 in big capacity power plant depend on village requirement of a particular Solar power plant as the said system is designed to energize LED Street lighting at night. The cost of additional 20 Wattage LED street lights shall be deducted from cost of various capacities solar power plants with LED street lights to determine exact cost and design of a particular Solar power plant with LED street lighting.	
LED Luminaire	Parameters	- Value
	Wattage	20 Watt
	Input Voltage	90-270 V AC 50 Hz
	LED Lamp Efficacy	Minimum 100 lumens/watt
	Uniformity	ratio of minimum and average illumination should be minimum 0.3
	Usage hours	10- 12 hrs per day
	Power Factor	> 0.90
	Life expectancy	Above 50,000 hours with 70% Lumens
	Rated Wattage	20 W
	Luminous Flux	Minimum 2000 lumens
	Colour Temperature	5500 – 7500 K
	LED	High Power LED ( Min 1 Watt )
	Working Humidity	10% to 90% RH
	Working Temperature	5 degree to 50 degree
	Ingress Protection-	IP 65
	Colour Rendering Index (CRI)	Ra > 70
	Total harmonic distortion (THD)	< 15% maximum
Average lighting/ beam Angle	120 degree	
Luminary casing	Pressures Die Cast Aluminum with toughened glass cover. Fixture should be water proof.	
System components	All printed circuit board-used in driver must be glass proxy FR-4 and Metal Core PCB for LEDs	

	Control circuit	Compatible to LED
	Lamp starting time	Should not be more than 10 seconds
	Energy Consumption of the system	Not more than 1.2 times of the rated wattage
	Thermal management of LED	Good thermal management system should be provided and LED must be mounting on heat sink conductive aluminum with suitable large areas surface by means of fins to dissipate the heat to ambient air
	Electrical connector	Lead wire with minimum one meter long
	System power efficiency	More than 85 %
	Applicable Standard	The fixture should confirm to applicable BIS/IES Standards/ IESNA LM-79-80 and the fixture should capable to Withstand 160 MPH Wind Velocity.
	Make of LED	Luxeon, Nichia, Cree, Philips, Osram, Seoul Semiconductor and Avago make
Testing of Luminaire	Test report of LED Luminaire	for Lamp Efficacy, Power Factor, Colour Rendering Index (CRI); System power efficiency from MNRE/NABL/IEC certified laboratories.
Provision for Auto dimming of LED Street lights.	The luminaire to be designed split night profile such that the light glows at full illumination from dusk to 12.00 AM. and from 12.00 Am to Dawn at 50% of the rated intensity.	
Sample of LED Luminaire	The bidder shall submit the sample of the LED Luminaire. The offer received without sample will be rejected.	
<b>POLE AND OTHER FITTING ACCESSORIES:</b>		
Pole	The pole should be Anticorrosive Hot dipped galvanized GI Pipe of size 75mm outer dia with total height of 6 meters with suitable grouting legs and provisions for arm 1.5 mtrs length with suitable clamp and Bend pipe etc., to mount LED luminaire.	
Pole to pole wiring	25 * meter length apart ,Three Phase Sealed wiring for 10 Kw capacity, Single phase Sealed wiring for 1 Kw to-5 Kw Along with Copper UG cable wiring as pole to pole wiring. * depends on site conditions	
Junction boxes	IP 54(for outdoor)/ IP 21(for indoor) as per IEC.	
Structure for Pole	Pole shall be mounted on supporting structure at ground as per the site requirement. The work includes necessary excavation, concreting, back filling, shoring and shuttering etc	
Connecting UG cable	as per IEC/IS standards	
Switches/ Circuit Breakers/ connectors	General Requirements IS/ IEC 60947 part I, II & III Connectors-safety-EN 50521	

**Battery room and control room:-**

- Before supply the successful bidder shall inspect the selected existing sites /buildings and upon satisfaction supply should be made to install power plant.

Interested Companies must verify, solar isolation levels and general site conditions on their own before bidding. The bidder shall accordingly ensure that the equipment and the design submitted shall be able to perform as per guaranteed performance levels in the available site conditions. The design of the plant and the equipment offered shall be evaluated for its quality and adaptability to the site conditions. The supplier/contractor shall train the users for the operation & maintenance of the plant

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2014.

The above technical specifications read , understood complied and signed

~~Signature of the bidder and address with seal~~

\*\*\*\*\*

## SECTION-V (B)

### TECHNICAL SPECIFICATIONS ( Stand alone white L.E.D SOLAR STREET LIGHTING )

MNRE ,GOI approved registered Manufacturers for the supply and installation and maintenance of LED solar street lighting systems if required in the selected villages of New Sourabelaku scheme 2014-15

Sl.	Particulars	Specifications
1	Whole Structure	Anti corrosive hot dipped galvanized,GI pipe ( suitable for Outdoor applications) of size 7.5 cms outer dia with a total height 15.7 ft with suitable grouting legs and provisions for arm and to mount SPV module.
2	Grouting	The pole should be grouted in the excavated pit of size 1 x 1 x 2.5 ft using cement concrete of mixture 1:3:6
3	Arm fixation	Luminar arm should be fixed at 12 ft height from ground level and it should have provision to change the vertical & rotary tilt angle of the luminary.
4	Fastening	Threads of bolts and nuts of SPV Module and the arm etc., should be jammed in order to avoid thefts.
5	Module	The SPV module used should be of 12 Volts, 45 wp under STC, measured at 16.4 Vat load, Module Voc minimum of 21 V to enable to dusk to dawn operation. SPV module should have laminated plate containing, <u>Govt. Of Karnataka, Soura Belaku, Z.P. 2014-15 . SI.No. of panel.</u>
6	Battery Box fixation	Battery Box should be fixed to the pole at the height of 8 ft from the ground level.
7	Battery Box Protection	A good locking system has to be provided to the battery box and care should be taken to provide suitable holes at the right places such that while Topping, the spilled out electrolyte drain easily. Battery should be placed on wooden plank inside the Battery box.
8	Battery	<u>Flooded electrolyte type, positive tubular plate, low maintenance lead acid battery. The battery will have a minimum rating of 12 V, 40AH (at C/10) discharge rate. 75% of the rated capacity of the battery should be between fully charged and load cut of conditions .</u>
9	LED Assembly and its regulating Electronics	The light source will be of white L.E.D type. Single lamp or multiple lamps can be used. Wider view angles of a minimum of 120 degree or more. The Luminous performance of individual L.E.D used should not be less than 90 lumen/ watt when measured luminaire as whole. The colour temperature of white L.E.Ds used in the system should be in the range of 5500 degree K – 6500 degree K use of L.E.Ds which emits ultraviolet light will not be permitted. The light output from the white L.E.D light source should be constant through out the duty cycle. The lamps should be housed in an aluminium casting assembly suitable for heat sink to dissipate heat generated during operation and for outdoor use. The temperature of LED should increase not more

		<p>than 15 degree above ambient temperature. This condition should be compiled even after two hours of operation at its maximum operation voltage ( ie. Just before over voltage cut off)</p> <p>A provision is to be made to operate the LED laminar both on Solar and 230 Volts, 50hz A.C. Mode. Life cycle of L.E.D should not be less than 80,000 hours. Average duty cycle of street lighting – Dusk to dawn.</p> <p>Autonomy- 3 days ( minimum 42 operating hours per permissible discharge)Electronics - Min.85% total efficiency</p>
10	LED Luminors Accessories	The L.E.D Solar Street Light should be installed with all relevant accessories, cables, clamps and non corrosive fixtures.
11	Installation	L.E.D Solar Street Lighting should be supplied to the respective sites/villages, and it has to installed, commissioned in a complete manner.
12	Intensity of light of LED	White color ( color temperature 5500 degree -6500 degree K ) minimum 20 LUX (15 watts) when measured from laminar and radius of 10 feet should be of Umbra , (ie., visibility) 20 to 30 ft. radius should be of penumbra ie. Visibility reduces.
13	Performance of the Guarantee of PV Module and System	The PV module will be guaranteed for a minimum period of 15 years from the date of supply and the complete white L.E.D Solar Street Lighting system including the battery should be guaranteed for a period of 5 years from the date commissioning. ( i.e, for the total performance of the system)
13a	Maintenance	The supplier shall supply, installation and maintenance for 5 years
14	Sample L.E.D Street Lighting Set	A complete set of L.E.D Solar Street Lighting System having above specification should be supplied and installed as sample for testing purpose before the date of opening of technical bid.
15	I.V .Curve of sample PV Module	Certified I.V Curve test report should be submitted (attested by Gezatted officer) along with sample.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2014

The above technical specifications read and understood and signed

- Signature of the bidder and address with seal

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**TABLE - I**

**DETAILS OF THE ORGANISATION**

1	Name of the Manufacturer	
2	Year of starting the organization & registration number (photo copy of registration certificate to be enclosed)	
3	Address of the Manufacturer (along with phone no.& pin code)	
4	Status of Manufacturer	Own / Partnership
5	a) C.S.T./K.S.T./T.I.N. No. b) Permanent PAN No. of Income Tax Dept.(Photocopy of I. T. returns for the last three years to be enclosed)	
6	Audit reports for the last 3 years (Certified copy of Chartered Account' report in P&L account to be enclosed)	
7	Particulars of Sales Tax returns for the last 3 years(photo copy of returns to be enclosed)	
8	Experience of Manufacturer/supplier relating to OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS (supporting certificates to be enclosed)	
9	Particulars of E.M.D.	
10	Particulars of Physical Infrastructure and total strength of staff available in the organization relating to Manufacture/ supply/ testing etc.,	

Signature of the bidder and address with seal

Date :

**TABLE-II**

**Bid form**

Ref. No:

Date:

TO:

The Chief Executive Officer,  
Zilla Panchayath,  
----- District, State of Karnataka, INDIA

Sir/Madam,

Having examined the Bidding Documents including Addenda Nos \_\_\_ the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply, installation and maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in District for which necessary Bid security amounting to Rupees. - at the prescribed rate is enclosed vide D.D. No. .... or Bank Guarantee in the prescribed form is enclosed herewith.

Conditions :-

1. We undertake, if our Bid is accepted, to supply OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS to selected villages in ----- District in accordance with the terms and conditions in the Bidding document.
2. If our bid is accepted we will obtain the guarantee of a Nationalised bank in a sum equivalent to 10 % of the Total Contract Price for the due performance of the Contract, in the form prescribed by the purchaser. .
3. We agree to abide by this bid for a period of 12 months after the date fixed for bid opening of Second Envelope under Clause 19 of the Instruction to Bidders and shall remain binding upon us and may be accepted at any time before the expiration of that period.
4. We understand that in competing for (and if the award is made to us, in executing the above contract,) we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".
5. We understand that you are not bound to accept the lowest or any bid you may receive.
6. We confirm that we comply with the eligibility requirements as per ITT Clause-1 of the Tender document.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2014

Signature: \_\_\_\_\_

**Duly Authorized to sign bid for and on behalf of office address seal**

Place: .....

**TABLE - III**  
**EARNEST MONEY DEPOSIT**

To,

The Chief Executive Officer,  
Zilla Panchayath,  
----- districts , Karnataka, India

Sir,

Whereas.....(hereinafter called "the Bidder") has submitted its bid dated.....2014 for supply & F.O.R destination of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in \_\_\_\_\_ District (here in after called the "Bid") we are herewith remitting a sum of Rs. .... by way of debit card/credit card/ NEFT/OTC vide.,. \_\_\_\_\_ on e-portal. Further we have clearly understood that the bid in this regard will not be opened without EMD. ( Scanned copy of the remittance is hereby attached)

**THE CONDITIONS of this obligation are:**

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:
  - (a) Fails or refuses to execute the Contract Form if required; or
  - (b) Fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders.

The guarantee will remain in force up to and including 12 months after the period of the bid validity.

Place:

Signature

Date:

Name & Address of the bidder with seal

**TABLE-III(A)**

**E-PROCUREMENT PROCESSING FEE DETAILS (Non-refundable)**

To

Chief Executive Officer,  
Zilla Panchayath, .....

Sir,

Whereas.....(hereinafter called "the Bidder") has submitted its bid dated.....2014 for supply & F.O.R destination of OFF GRID-CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in \_\_\_\_\_ District (here in after called the "Bid") we are herewith remitting a sum of Rs. ....by way of debit card/credit card/ NEFT/OTC vide., Challen No. \_\_\_\_\_ on \_\_\_\_\_ e-portal. Further we are clearly understood that the bid in this regard will not be opened without E-tendering Fee. ( Scanned copy of the remittance is hereby attached)

Signature

Place:

Date:

Name & Address of the bidder with seal

**TABLE-III (B)**

**CONTRACT FORM**

THIS AGREEMENT made the .....day of.....2014. Between  
(Name of purchaser) of .....,.....(Country of Purchaser)  
(hereinafter called "the Purchaser") of the one part and .....(Name of  
the Manufacturer) of.....(City and Country of Manufacturer ) (hereinafter called  
"the Manufacturer ") of the other part :

WHEREAS the Purchaser is desirous that certain Goods and ancillary services viz  
.....(Brief prescription of Goods and Services)  
and has accepted a tender by the Supplier for the supply, installation and  
maintenance of those goods and services in the sum of(Contract Price in Words  
and  
Figures) (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are Respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
  - a. the Tender Form and the Price Schedule submitted by the Tenderer;
  - b. the Schedule of Requirements;
  - c. the Technical Specifications;
  - d. the General Conditions of Contract;
  - e. the Special Condition of Contract; and
  - f. the Purchaser's Notification of Award.
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein conformity in all respects with the provisions of the Contract.

4. The Purchasers hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the goods and services which shall be supplied / provided by the Supplier are as under:

s1. No	Brief Description of Goods and Services	Quantity to be supplied	Amount put to tender	Total Price	Delivery Terms
	OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS				

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and the year first above written.

Signed, Sealed and Delivered by the

said ..... (For the Purchaser)

in the presence of .....

Signed, Sealed and Delivered by the

said ..... (For the Supplier)

in the presence of .....

\*\*\*\*\*

**TABLE-IV**

**STATEMENT OF PAST PERFORMANCE**

(Proforma for performance statement (for a period of last Three years from 2011-12, 2012-13 & 2013-14) relating to sourabelaku programme in GOK, and RDPR schemes & other Govt depts.

**Manufacture / supply work**

Name of the Firm \_\_\_\_\_

Name of the organization and address to which service was provided	Contract No.& date of the agreement extended with the organization	Description of the contract	Total Value of contract	Period of contract ( mentioned the span of time schedule)	If there is delay, in performance, reasons for the same	Has the work entrusted completed satisfactorily (Attach certificate From an Officer who entrusted the work)
1	2	3	4	5	6	7

**Signature and seal of the Bidder with office seal**

Place: \_\_\_\_\_

Date: \_\_\_\_\_

**TABLE - V**

**ACCEPTANCE OF IMPLEMENTATION SCHEDULE**

To

Chief Executive Officer,  
Zilla Panchayath,  
District  
Karnataka State, India.

Sir,

We M/s.....(Name of the bidder) here in after  
Called "the Manufacturer" have furnished the bid for Manufacture / supply,  
installation and maintenance of OFF GRID CENTRALIZED SOLAR POWER  
PLANTS WITH LED STREET LIGHTING SYSTEMS to selected villages in  
\_\_\_\_\_ District do here by agree to the implementation schedule of the  
said project. Failing which the Chief Executive Officer, Zilla  
Panchayat, \_\_\_\_\_ will have discretion to either reject or cancel the contract  
agreement.

Yours faithfully,

Place:

Date:

Signature of the bidder and with office seal



**TABLE-VI**  
**UNDERTAKING**

To

Chief Executive Officer,  
Zilla Panchayath,  
District  
Karnataka State, India.

Sir,

We M/s.....(Name of the bidder) here in after Called "the Manufacturer" do hereby affirm and undertake to abide by all the terms, conditions and specifications given in the bidding document while performing the contractual obligations relating to Manufacture/supply, installation and maintenance of OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS in the selected villages of \_\_\_\_\_ District with in stipulated time. We also adhere to guarantee clause as specified under clause 3.2 of GCC in Sec.IV.of the terms and conditions of the contract.

Yours faithfully,

Place:

Date:

Signature of the bidder and with office seal

**TABLE-VII****CHECK LIST OF DOCUMENTS TO BE SUBMITTED IN THE FIRST ENVELOPE (TECHNICAL BID)**

Sl. No.	Description	Whether the Document is enclosed or not	Page No. From and To
1	Details of Organisation as per Table -I	YES/NO	
2	Bid form as per Table II	YES/NO	
3	EMD as per Table III	YES/NO	
3(a)	E-tender processing fee as per Table III(A)	YES/NO	
4	Statement of past performance as per Table IV	YES/NO	
5	Format of acceptance of implementation schedule as per Table V	YES/NO	
6	UNDERTAKING as per Table VI	YES/NO	
7	Acceptance to Technical Specification as per Section V	YES/NO	
8	Site details Table -VIII	YES/NO	
7	Attested copies showing the legal status , places of registration and principal place of business of the firm	YES/NO	
8	Attested copies of audited financial statements including 3CB & 3 CD for the last 3 years i.e, 2011-12,2012-13&2013-14 is compulsory.	YES/NO	
9	Attested copies of sales tax registration and sales tax returns filled in the last 3 years i.e, 2011-12, 2012-13&2013-14	YES/NO	
10	Attested copies of income tax registration and income tax returns filled in the last 3 years i.e, 2011-12, 2012-13&2013-14	YES/NO	
11	Attested copies of recognition from state govt./central govt		
12	Scan & upload the copy of sample submitted acknowledgment.	Not applicable	
13	Acceptance to give 5 years guarantee for trouble free operation and maintenance	YES/NO	
13A	Undertaking to maintain for 5 years.	YES/NO	
14	IV Curve of the solar module ( sample)	YES/NO	
15	-MOU in case of non PV manufacturer	YES/NO	
16	Sample module with name laminated	YES/NO	
17	Address of the nearest official Service Centre of the company.	YES/NO	
18	Hard copies of the documents submitted through e-bidding should be enclosed in sealed cover for are uploaded e-procurement process is enclosed	YES/NO	
19	Acceptance for Service level agreement	YES/NO	

DATE: I abide by all the above terms & conditions.

PLACE: SIGNATURE OF THE BIDDER and with office seal

**Annexure-1**  
**Site Details**

Sl.No	Particulars	Name of the Taluk Selected	Name of the Grama Panchayth	Name of the Selected villages	Solar power plant with No.of Solar Street Lights( Nos)
1.	OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS as per Section-V(A)			1	
				2	
				Total	
2	stand alone solar street lighting white LED systems.if requirred ( as per Section-V(B)			1. 2	
3	Solar Distilled water plant suitable for maintanance of power plant Section-V(C)			1. 2	
4	OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED LIGHTING SYSTEMS for Selected GP Office as per Section-V(D)				

We are agreeable to install OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS as per Section-V in the above mentioned sites.

**Signature and Seal of the Bidder**

**Place :**

**Date :**

**Table-IX itemwise separate rate to be submitted.**

**PARTICULARS TO BE SUBMITTED IN THE COMMERCIAL BID (SECOND COVER)**

**PRICE SCHEDULE FOR MANUFACTURING, SUPPLY, INSTALLATION AND MAINTENANCE OF OFF GRID CENTRALIZED SOLAR POWER PLANTS WITH LED STREET LIGHTING SYSTEMS**

**Rates quoted by the bidder:**

- The rates should be mentioned item wise clearly both in words and figures  
Itemwise details of rates quoted

SL NO	DESCRIPTION	.Qty (nos)	Total Cost Rs
Cost of each system having five years warranty of complete systems including battery bank and SPV modules should be warranted for its peak output 90% at the end of 10 years and 80% at the end of 25 years with FOR including transportation / packaging / installation/ VAT/CST/ Octroi Etc in Rs			
1	1.0 Kw centralized Off grid Solar Power plant alongwith 15 nos. of 20 watt LED Street Lighting including accessories pole to pole wire etc		
		Rs _____ Rupees in words _____	
2	2.0Kw centralized Off grid Solar Power plant alongwith 30 nos. of 20 watt LED Street Lighting including accessories pole to pole wire etc		
		Rs _____ Rupees in words _____	
3	3.0Kw centralized Off grid Solar Power plant alongwith 45 nos. of 20 watt LED Street Lighting including accessories pole to pole wire etc		
		Rs _____ Rupees in words _____	
4	5.0 Kw centralized Off grid Solar Power plant alongwith 75 nos. of 20 watt LED Street Lighting including accessories pole to pole wire etc		
		Rs _____ Rupees in words _____	
5	10.0 Kw centralized Off grid Solar Power plant alongwith 150 nos. of 20 watt LED Street Lighting including accessories pole to pole wire etc		
		Rs _____ Rupees in words _____	

Additional LED Based Street Lighting System			
6	20 watt LED lighting system with 5 yrs warranty along with pole to pole wiring 25 meters apart with all fittings and accessories	Rs _____ Rupees in words _____	

(Rate has to be quoted Through e-procurement portal only).

**CONDITIONS**

1. If our tender is accepted, we are here by undertake to abide as per the stipulated Terms and Conditions, to manufacture and supply, installation and maintenance the Off grid Centralized Solar power plant with led street lighting system to respective Grama Panchayats/villages as per the item awarded.
2. We agree to abide by this Tender for bid validity of 12 months after the date fixed for opening of Second Envelope under clause 12.1 of this Tender document and shall remain binding upon us and may be accepted at any time before the expiry of the period.
3. We agree to abide by this tender for and if the award is made to us, in executing the above contract we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of corruption act 1988".
4. We understand that you are not bound to accept a lowest offer that you may receive after Tender validity.

Dated this .....day of .....2014

Signature \_\_\_\_\_

(Name and Address of the Tender with seal)

(In the capacity of ..... Duly authorized to sign the Tender for and on behalf of)

the bidder and with office seal

**Table-IX itemwise separate rate to be submitted.**

**PARTICULARS TO BE SUBMITTED IN THE COMMERCIAL BID (SECOND COVER)**

**PRICE SCHEDULE FOR MANUFACTURING ,SUPPLY, INSTALLATION AND MAINTENANCE OF Stand alone white LED solar street lighting systems**

**Rates quoted by the bidder:**

- The rates should be mentioned item wise clearly both in words and figures
- Itemwise details of rates quoted

SL NO	DESCRIPTION	.Qty (nos)	Total Cost Rs
Cost of each system having five years warrantee of complete systems including battery bank and SPV modules should be warranted for its peak output 90% at the end of 10 years and 80% at the end of 25 years with FOR including transportation / packaging / installation/ VAT/CST/ Octrai Etc in Rs			
Stand alone white LED solar street lighting systems if required in Selected villages of the New sourabelaku scheme 2014-15			
1	Stand alone white LED solar street lighting systems specification in Section V (B)	Rs _____ Rupees in words _____	

(Rate has to be quoted Through e-procurement portal only).

**CONDITIONS**

5. If our tender is accepted, we are here by undertake to abide as per the stipulated Terms and Conditions, to manufacture and supply, installation and maintenance the Off grid Centralized Solar power plant with led street lighting system to respective Grama Panchayats/villages as per the item awarded.
6. We agree to abide by this Tender for bid validity of 12 months after the date fixed for opening of Second Envelope under clause 12.1 of this Tender document and shall remain binding upon us and may be accepted at any time before the expiry of the period.
7. We agree to abide by this tender for and if the award is made to us, in executing the above contract we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of corruption act 1988".
8. We understand that you are not bound to accept a lowest offer that you may receive after Tender validity.

Dated this. ....day of. ....2014

Signature

(Name and Address of the Tender with seal)

(In the capacity of ..... Duly authorized to sign the Tender for and on behalf of the bidder and with office seal

**Table-IX itemwise separate rate to be submitted.**

**PARTICULARS TO BE SUBMITTED IN THE COMMERCIAL BID (SECOND COVER) —  
PRICE SCHEDULE FOR MANUFACTURING, SUPPLY, INSTALLATION AND MAINTENANCE OF OFF  
SOLAR DISTILLED WATER MANUFACTURING PLANTS WITH SUITABLE ACCESSORIES**

**Rates quoted by the bidder:**

- The rates should be mentioned item wise clearly both in words and figures  
Itemwise details of rates quoted

SL NO	DESCRIPTION	.Qty (nos)	Total Cost Rs
1	Solar Distilled water plant suitable for selected sites.		
	Rs _____ Rupees in words _____		

(Rate has to be quoted Through e-procurement portal only).

**CONDITIONS**

9. If our tender is accepted, we are here by undertake to abide as per the stipulated Terms and Conditions, to manufacture and supply, installation and maintenance the Off grid Centralized Solar power plant with led street lighting system to respective Grama Panchayats/villages as per the item awarded.
10. We agree to abide by this Tender for bid validity of 12 months after the date fixed for opening of Second Envelope under clause 12.1 of this Tender document and shall remain binding upon us and may be accepted at any time before the expiry of the period.
11. We agree to abide by this tender for and if the award is made to us, in executing the above contract we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of corruption act 1988".
12. We understand that you are not bound to accept a lowest offer that you may receive after Tender validity.

Dated this.....day of.....2014

Signature

(Name and Address of the Tender with seal)

(In the capacity of ..... Duly authorized to sign the Tender for and on behalf of)

the bidder and with office seal

**Table-IX itemwise separate rate to be submitted.**

**PARTICULARS TO BE SUBMITTED IN THE COMMERCIAL BID (SECOND COVER)**  
**PRICE SCHEDULE FOR MANUFACTURING, SUPPLY, INSTALLATION AND MAINTENANCE OF OFF GRID**  
**3.0 or 4. Kwp centralized Off grid Solar Power plant with LED Lighting systems ,**  
**including accessories etc complete for GP office energisation with solar power.**

**Rates quoted by the bidder:**

- The rates should be mentioned item wise clearly both in words and figures
- Itemwise details of rates quoted

SL NO	DESCRIPTION	.Qty (nos)	Total Cost Rs
Cost of each system having five years warrantee of complete systems including battery bank and SPV modules should be warranted for its peak output 90% at the end of 10 years and 80% at the end of 25 years with FOR including transportation / packaging / installation/ VAT/CST/ Octrai Etc in Rs			
1	3.0 or 4. Kwp centralized Off grid Solar Power plant with LED Lighting systems , including accessories etc complete for GP office energisation with solar power.	Rs _____ Rupees in words _____	

(Rate has to be quoted Through e-procurement portal only).

**CONDITIONS**

- If our tender is accepted, we are here by undertake to abide as per the stipulated Terms and Conditions, to manufacture and supply, installation and maintenance the Off grid Centralized Solar power plant with led street lighting system to respective Grama Panchayats/villages as per the item awarded.
- We agree to abide by this Tender for bid validity of 12 months after the date fixed for opening of Second Envelope under clause 12.1 of this Tender document and shall remain binding upon us and may be accepted at any time before the expiry of the period.
- We agree to abide by this tender for and if the award is made to us, in executing the above contract we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of corruption act 1988".
- We understand that you are not bound to accept a lowest offer that you may receive after Tender validity.

Dated this.....day of.....2014

Signature

(Name and Address of the Tender with seal)

(In the capacity of ..... Duly authorized to sign the Tender for and on behalf of)  
the bidder and with office seal.



**TECHNICAL SPECIFICATION OF 3.0 KW, 5.0 KW and OFF GRID SOLAR POWER PLANTS FOR CAPTIVE USE**

ITEM	Description
SPV Module	<p>The photovoltaic modules should be mono/Poly Crystalline with a total array capacity of</p> <ol style="list-style-type: none"> <li>1. For 3.0 KW SPV power plant –Power output under STC should be 1.0 KW.</li> <li>2. For 5.0 KW SPV power plant –Power output under STC should be 5.0 KW.</li> </ol> <p>The photovoltaic modules must be qualified as per IEC 61215(revised)/IS 14286 standards and in addition ,the modules must conform to IEC 61730-1 requirements for construction &amp; part-2 requirements for testing, for safety qualification. The PV modules must be tested and approved from any of the NABL/IEC/ MNRE Accredited Testing Calibration Laboratories. The supplier shall provide performance guarantee for the PV modules used in the power plant 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 25 years. The efficiency of the PV modules should be minimum 14%. Indigenously manufactured PV modules should be used.</p>
System autonomy	-As per Battery bank prescribed in the said Specification
Battery Bank	<p>The battery bank should be</p> <ol style="list-style-type: none"> <li>1. For 3.0 KW SPV power plant- 12 cells of 2 Volt, 300Ah Cells will be connected in series/ parallel to form 24 volt 300 Ah battery bank.</li> <li>2. For 5.0 KW SPV power plant- 12 cells of 2 Volt, 300Ah Cells will be connected in series/ parallel to form 24 volt 300.Ah battery bank.</li> </ol> <p>VRLA /VRLA tubular GEL type batteries conforming to National / international standards <b>IEC-61427 &amp; IS-15549 standards</b>, low maintenance, stationery at C/10 rate).</p> <p>It will be staged in racks duly painted with acid resistant paint to cover less space.</p>
Power conditioning unit with inbuilt charge controller	<p>Power conditioner unit with inbuilt charge controller of capacity <b>3.0 KW, 5.0 KW solar power plants</b> should convert DC power in to AC power must confirm to standards <b>IEC 61683</b> with following DC input and AC output voltages</p> <ol style="list-style-type: none"> <li>1. For 3.0 KW solar power plant- 24 Volts DC to 230 Volts AC single phase.</li> <li>2. For 5.0 KW solar power plant- 24 Volts DC to 230 Volts AC single phase.</li> </ol> <p>The PCU will have following features:  MOSFET/ IGBT based MPPT / PWM charging  Wide input voltage range  Output voltage 220 ± 2% of modified/ pure sine wave in case of 3.0 and 5.0 KW.  Output voltage 440 ± 2% (phase to phase) of modified/ pure sine wave in case of 10.0 KW.  Output frequency: 50 Hz±0.5 Hz  Capacity of PCU/ Inverter is specified at 0.8 lagging power factor.  THD: less than 3%  Efficiency: &gt; 80 % for 1 KW, &gt; 85% for 2 KW to 5 KW &amp; 90% for 10 KW and above at full load.  Ambjent Temp 50 degree Celsius-(max)  Operating humidity 95% maximum</p> <p><b>Protections:</b></p> <ul style="list-style-type: none"> <li>- Over voltage (automatic shut down)</li> <li>- Under voltage (automatic shut down)</li> <li>- Overload</li> <li>- Short circuit (circuit breaker &amp; electronics protection against sustained fault).</li> </ul>

	<ul style="list-style-type: none"> <li>- Over Temperature</li> <li>- Battery, PV reverse polarity</li> </ul> <p>Indications:</p> <ul style="list-style-type: none"> <li>- Array on</li> <li>- MPPT/ PWM charger on</li> <li>- Battery connected, charging</li> <li>- Inverter ON</li> <li>- Load on solar/ battery</li> <li>- Grid charger on</li> <li>- Load on Grid</li> <li>- Grid on</li> </ul> <p>Display parameters</p> <ul style="list-style-type: none"> <li>- Charging current</li> <li>- Charging voltage</li> <li>- Voltage of PV panels</li> <li>- Output voltage</li> <li>- Grid voltage</li> <li>- Inverter loading</li> <li>- Output frequency</li> </ul> <p>Cooling: Air cooled</p> <p><b>When battery bank is fully charged, the PCU should have the feature to feed the power generated from solar to load and draw the additional power from main supply to meet the load requirements in the case load is more than solar energy produced.</b></p> <p>In case of 5.0 kW solar power plant if some manufacturer has different input voltage of PCU i.e. 48Volt and 96 Volt then the PCU should be able to deliver output of 230 Volt 50 Hz AC irrespective of what DC voltage input they are feeding to the PCU. The battery bank used should be of same watt hour capacity given above. The inbuilt Charge Controller shall be according to the system voltage selected for the PCU.</p>
Junction Boxes	<p>The junction boxes shall be dust and water proof and made of thermoplastic the terminals will be connected to copper lugs or bus-bar of proper sizes. The junction boxes will have suitable cable entry points fitted with the cables. Suitable markings shall be provided on the lugs or bus-bars for easy identification at cable ferrules will be fitted at the cable terminations. points for identification. Each main junction box shall be fitted with appropriate rating reverse blocking diode. The junction-boxes shall be of reputed make. The junction boxes shall have suitable arrangement for the following:</p> <ul style="list-style-type: none"> <li>Combine groups of modules into independent charging sub-arrays that will be wired into the controller.</li> <li>Provide arrangement for disconnection for each of the groups.</li> <li>Provide a test point for each sub group for quick fault location.</li> <li>To provide group array isolation.</li> <li>The rating of the JBS shall be suitable with adequate safety factor to inter connect the Solar PV array.</li> </ul>
Structure for module frame	<p>Modules shall be mounted on supporting structure made out of galvanized MS angle of required structural strength. (hot dip/galvanized) either on the roof top or at ground as per the site requirement</p> <p>Structure:-</p> <ol style="list-style-type: none"> <li>1. The size of M.S. (Galvanized) angle should be 50 x 50 x 5 mm. The structures are to be fitted either on the roof top or at ground properly and south faced. It should withstand wind speed up to 120 Km/hour.</li> <li>2. Foundation – The legs of the structure made with hot dip GI angles will be fixed and grouted in the RCC foundation columns of size 300mmx300mm made with 1:2:4 cement concrete. The minimum ground clearance from the lowest part of any module shall be 500 MM. While making foundation design due consideration will be given to wait of module assembly, maximum wind speed of 120 km per hour.</li> <li>3. The work includes necessary excavation, concreting, back filling, shoring and shuttering etc.</li> <li>4. Brick paving of first class bricks with cement mortar (1:6) as per PWD specifications on edge type plate form are to be provided under the modules structure area with minimum 1 meter more than structure.</li> </ol>

Connecting cables	<p><b>I. For 3.0 KW solar power plant;-</b></p> <p>PVC insulated copper cables (ISI marked) for :  Module interconnections (4.0 mm<sup>2</sup> copper single core multi strand)  Module parallel interconnection (6 mm<sup>2</sup> copper single core multi strand)  Array or AJB to PCU (10 mm<sup>2</sup> copper two cores).  Battery to PCU (16 mm<sup>2</sup> copper single core multi strand) might be double cables if required  PCU to load / change over switch (Single core copper cable 4.0 mm<sup>2</sup> multi strand) and for further distribution points (Single core copper cable 4.0 mm<sup>2</sup> and 2.5 mm<sup>2</sup> multi strand)</p> <p><b>I. For 5.0 KW solar power plant;-</b></p> <p>PVC insulated copper cables (ISI marked) for :  Module interconnections (4.0 mm<sup>2</sup> copper single core multi strand)  Module parallel interconnection (10 mm<sup>2</sup> copper single core multi strand)  Array or AJB to PCU (16 mm<sup>2</sup> copper two cores).  Battery to PCU (16 mm<sup>2</sup> copper single core multi strand) might be double cables if required  PCU to load / change over switch (Single core copper cable 6.0 mm<sup>2</sup> multi strand) and for further distribution points (Single core copper cable 4.0 mm<sup>2</sup> and 2.5 mm<sup>2</sup> multi strand)</p> <ul style="list-style-type: none"> <li>- All cables to be supplied should be as per BIS and should have proper current carrying capacity and should not be heated.</li> <li>- All cables shall be adequately supported.</li> <li>- Outside of terminal/panels/enclosures shall be protected by conduits. Cables shall be provided with dry type compression glands wherever they enter junction boxes, panels, enclosures.</li> </ul>
Indoor wiring	All indoor wiring is to be done in a casing capping system. As and when required flexible pipe may also be used.
Load Connection	The supplier shall also ensure that main points of the building should be connected keeping in view the capacity of the plant.
Lighting Protection	Suitable nos of lighting arrestors shall be provided in the array field for the protection.
Earthing Protection	Each array structure and all metal casings of the plant etc. shall be earthed properly.
Tool Kit and Spares	One necessary tool kit and spares will have to be provided by the supplier.
Energy meter	Supplier shall provide energy meter to measure the DC power in KW hrs being fed to the plant.

## 2. CODES AND STANDARDS

The BoS items / components of the SPV power plant must conform to the latest edition of IEC/ equivalent BIS Standards as specified below:

BoS item / component	Standard Description	Standard Number
Power Conditioning Unit Inverter	Efficiency Measurements	IEC61683/IS 61683
	Environmental Testing	IEC60068 2 (1, 2, 14, 30)/ equivalent BIS standard
Charge controller/ MPPT units*	Environmental Testing	IEC60068 2 (1, 2, 14, 30)/ equivalent BIS standard
Storage Batteries	General Requirements & Methods of Test	<b>IEC 61427</b>
	VRLA-Tubular GEL type	<b>IS 15549/ as per relevant BIS standard</b>

Cables	General Test and Measuring Methods PVC insulated cables for working voltages upto and including 1100 V-Do-, UV resistant for outdoor installation	<b>IEC 60227</b>  <b>IS 694 / IS 1554 (Pt I and II)</b>
Switches / Circuit Breakers / Connectors	General Requirements  Connectors-safety  AC/DC	IEC 60947 part I, II & III/ IS 60947 part I, II & III   EN 50521
Junction Boxes/ Enclosures for inverters/ charge controller	General Requirements	IP54 ( for outdoor) / IP/21 (for indoor) as per IEC 529

\*\*In case if the Charge controller is in-built in the inverter, no separate IEC 62093 test is required and must additionally conform to the relevant national/international Electrical Safety Standards wherever applicable.

### **3. IDENTIFICATION AND TRACEABILITY**

Each PV modules used must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside/ outside the module laminate, but must be able to withstand harsh environmental conditions.

- (i) Name of the Manufacturer of PV Modules
- (ii) Name of the Manufacturer of Solar Cells
- (iii) Month and year of the manufacturer (separately for solar cells and module)
- (iv) Country of origin (separately for solar cells and module)
- (v) I-V curve for the module
- (vi) Peak Wattage,  $I_m$ ,  $V_m$  and FF for the module
- (vii) Unique Serial No and Model No of the module
- (viii) Date and year of obtaining IEC-PV module qualification certificate
- (ix) Name of the test lab issuing IEC certificate
- (x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.