



# **Collectives for Integrated Livelihood Initiatives (CInI) – Call for Vendors**

**Supply, Installation, Commissioning and Maintenance of Solar  
Energy Solutions**

**CInI – Procurement Committee**

C/O #03, 5<sup>th</sup> Sector, 14<sup>th</sup> Main, HSR Layout, Bangalore - 560 102

CInI hereby invites bids for the Supply, Installation, Commissioning and Maintenance of Solar Energy Solutions – for East Khasi Hills District in Meghalaya state for the year 2022-23  
The Tender Estimated value is Approximately ₹ 2 Crores (Rupees Two Crore only)

The Link for the tender is:

which can be downloaded from 19-08-2022 from the above link. Bids, as per the terms and conditions should be submitted to the undersigned, at the above-mentioned address by 4PM on or before 01-09-2022

**Executive Director – CInI**



# **Collectives for Integrated Livelihood Initiatives (CInI)**

## **TENDER NOTIFICATION**

FOR

THE SUPPLY, INSTALLATION, COMMISSIONING & COMPREHENSIVE MAINTENANCE  
FOR 5 YEARS OF OFF-GRID SOLAR ENERGY SOLUTIONS IN EAST KHASI HILLS  
DISTRICT FOR MEGHALAYA STATE

## **TENDER DOCUMENT**

Address for Communication

Sustain Plus

C/O Social Alpha, #03, 5th Sector,

14th Main, HSR Layout, Bangalore - 560 102

Ph: 7825942009

Email: [procurement@sustainplus.org](mailto:procurement@sustainplus.org)

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## 1. NOTICE INVITING TENDER

CInI hereby invites bids for the Supply, Installation, Commissioning and Maintenance of Solar Energy Solutions in East Khasi Hills District of Meghalaya during the year 2022-23

The Tender Estimated value is Approximately ₹ 2 Crores (Rupees Two Crore only)

Bids, as per the terms and conditions should be submitted to the undersigned, at the above-mentioned address by 4PM on or before 01-09-2022. The disclaimer enclosed herein (section 1.1) is part and parcel of this tender.

1	Tender invitation date	19-08-2022
2	Tender Ref No.	01/2022-2023
3	Last date & time for the bid submission	01-09-2022, 4.00 PM
4	Opening date of first cover (technical bid) & second cover (financial bid)	02-09-2022, 4.00 PM
5	Venue of acceptance and opening of tenders.	Sustain Plus, Bangalore

Interested and eligible bidders may furnish the Technical & Commercial Bids for supply of solar systems to the below mentioned address:

Procurement Committee – (Tender No: 01/2022-2023)

Sustain Plus

C/O Social Alpha, #03, 5th Sector,

14th Main, HSR Layout, Bangalore - 560 102

Any further information or clarification may obtain either in person or through phone during office hours from the office of the CInI Ph: 7825942009 or through the email:

procurement@sustainplus.org

**Sd/-**

Executive Director

CInI

## **1.1. DISCLAIMER**

Tender No: 01/2022-2023

**This tender by CInI is for selection of vendors for the work of supply, installation, commissioning and comprehensive maintenance of Solar Photovoltaic (SPV) off-grid systems for 5 years in East Khasi Hills District of Meghalaya State.**

### **NOTE:**

CInI has the right to award the work under this tender to single or multiple vendors and in multiple tranches based on the lowest quote ascertained through this tender.

The implementation of Solar Solutions at the said health centres is subject to receiving the approval for installation from the local health authorities.

Though adequate care has been taken while preparing the Notice Inviting Tender (NIT) document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within seven (7) days from the date of notification of Request for solution (RfS)/ Issue of the RfS documents, it shall be considered that the RfS document is complete in all respects and has been received by the Bidder.

CInI reserves the right to cancel/ withdraw this invitation for bids without assigning any reason and shall bear no liability whatsoever consequent upon such a decision

CInI reserves the right to modify, amend or supplement this document.

While this RfS has been prepared in good faith, neither CInI nor their employees or advisors make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this RfS, even if any loss or damage is caused by any act or omission on their part.

## 2. INSTRUCTION TO BIDDERS

### 2.1. Schedule of Supply, installation and commissioning

Bidder must confirm the schedule of supply, installation and commissioning which is indicated below and same has to be confirmed through duly enclosing Annexure 6

Sl No.	Scheduled activity	Within days (no. of days)	Accepted Schedule by days
1.	Supply starts after WO/PO	30 days from the date of WO/PO	
2.	Supply ends	45 days from the date of WO/PO	
3	Installations begins	40 days from the date of WO/PO	
4.	Commissioning of all the system	90 days from the date of WO/PO	

Note: Equipment supply can start individually and earlier than scheduled deadline. Grouting the array mount, earthing pit, and Lightning arrester work can start as early as possible. So that installation and commissioning time schedule is reduced and closure of the tender is on time. The Bidder shall complete the supply schedule as per Annexure 6 enclosed in this Bidding Documents.

## **2.2. Eligibility of bidders:**

- a. The organization should be in operation for the last 3 years in the field of supply, installation and maintenance of Solar Energy Solutions.
- b. A company registration certificate or any other proof of incorporation to be submitted to establish the legal status.
- c. The company should be able to provide excellent service. It is expected that complaints will be attended to within 72 hours of lodging.
- d. The company should have its own local office, service centre and technicians in the district. Companies having multiple own offices and service centres in the district will be preferred. Evidence of proof should be provided.
- e. The solar panels used by the company should be of a supplier in India and should have manufacturing company name and the technical specifications.
- f. The solar panels should be from the Tier-1 grade.
- g. The company should submit audited financial and IT return for the last 3 years.
- h. The vendor should have valid GST registration.
- i. The company should submit PAN card for the Organization and Bank details.
- j. A Self-Declaration Certificate to declare that the organization is not blacklisted should be submitted.
- k. The company should submit documents to establish that the organization has implemented projects of cumulative worth Rs.4 Crores or more in the last three years. In case of organizations not meeting this requirement of cumulative worth of Rs 4 Crores, CInI may decide to give a portion of the order to such entities subject to the fact that all other criteria are met. The decision of CInI in this regard will be final and binding on such a bidder.
- l. The quote should include AMC for 5 years with a minimum of 2 scheduled physical services every year.

## **2.3. Cost of bidding:**

The bidder shall bear all costs associated with the preparation and submission of Bid to the Executive Director, CInI hereinafter 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.

#### **2.4. Technical proposal shall contain:**

- a. Particulars of the Firm as per Annexure – 4
- b. Checklist of Documents to be submitted in First Envelope as per Annexure - 5
- c. The bidder has to submit an acceptance letter of warranty for 5 years for the total performance of the Solar Energy Systems.
- d. The bidder should have a service centre facility in Meghalaya.
- e. The bidder has to sign all the pages of the documents in annexures as a token of acceptance of all terms and conditions.

#### **2.5. Financial bid shall contain:**

The rate quoted for supply of Solar Energy Solutions in different geographies. The rate quoted should include all taxes levied by the State & Central Govt. Packing, forwarding charges including loading & unloading, installation & commissioning and annual maintenance contract for 5 years(the applicable GST rate & amount shall be mentioned separately) .

#### **2.6. Price schedule:**

The Bidder shall complete the price schedule as per Annexure 7 - PRICE SCHEDULE furnished in the Bidding Documents, indicating the total cost towards supply, installation, commissioning and maintenance of solar energy solutions as per the technical specifications mentioned in the Annexure – 1 and 2. The CInI will not pay any extra charges over and above rate quoted by the Bidder.

#### **2.7. Fixed price:**

Prices quoted by the Bidder are firm, final and binding and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected. The quotation will remain valid for a period of 12 months from the date of opening the second envelope (financial bid).

#### **2.8. Period of Validity of Bids:**

Bids shall remain valid for a period of 12 month from the date of opening of Second Envelope (Financial Bid). A Bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.



## **2.9. Format and Signing of Bid:**

The Bidder shall give a set of duly signed hard copies of all the documents in the sealed cover. The Bids could be submitted by hand or post/courier to the below mentioned address of procurement committee (Tender No: 01/2022-2023), Sustain Plus C/O Social Alpha, #03, 5th Sector, 14th Main, HSR Layout, Bangalore - 560 102

## **2.10. Deadline for Submission of Bids:**

Bids must be received by the Purchaser not later than the time and date specified in **Notice inviting tender**. The Purchaser may, at his/her discretion, extend this deadline for submission of bid 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.

## **2.11. Tender Opening and Evaluation:**

The Technical & Financial bids will be opened on the same day itself or later separately. The financial bids (Second Cover), of only technically qualified bidders will be opened. The Bidders Names, Bid Modifications or Withdrawals, bid prices, Discounts and the presence or absence of the requisite details as the Purchaser, at its discretion, may be considered appropriate will be recorded by the Procurement Committee of CInI. No Bid shall be rejected at bid opening, except for late bids, which will be rejected.

## **2.12. Clarification of Bids:**

During evaluation of Bids, CInI may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing only.

## **2.13. Preliminary Examination:**

CInI 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.

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between words and figures, the lowest of the two shall prevail and the bid shall stand corrected to that effect. CInI 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.

#### **2.14. Acceptance or rejection of bids:**

Executive Director, CInI 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.

Any Bid with incomplete information is liable for rejection.

### **3. TERMS OF SUPPLY**

#### **3.1. Scope of this tender:**

The objective of the tender is to supply, installation, commissioning and comprehensive maintenance of Solar Photovoltaic (SPV) off-grid systems for 5 years.

#### **3.2. Contract Agreement:**

The successful bidder will have to undertake a contract agreement with respect to the supply of products as detailed in this tender that is covered under these terms of supply, both technical, commercial specifications and governing spirit of this tender.

#### **3.3. Technical specifications and bill of materials of the complete system – Annexure 1**

#### **3.4. Technical specifications of components of the system – Annexure 2**

#### **3.5. Payment Terms:**

- a. For the supply, installation, commissioning and comprehensive maintenance of Solar Photovoltaic (SPV) off-grid systems payment will be released in 4 instalments.
- b. The 1st instalment of 30% will be paid along with the work order
- c. The 2<sup>nd</sup> instalment of 20% will be paid further to the supply of material for 50% of the health centres or their local godown with evidence of delivery note for health centres and duly signed by the Health Centre authority /CInI representative
- d. The 3<sup>rd</sup> instalment of 20% will be released after the delivery of 100% of the health centres or their local godown with evidence of delivery note for health centres and duly signed by the Health Centre authority /CInI representative

- e. The 4<sup>th</sup> and final instalment of 30% will be paid on receipt of bank guarantee, completion certificate and hand over letter from the health Centre authority and certification of satisfactory working condition of the solar system by Heath Centre authority/CInI representative.
- f. The Contractor shall furnish a bank guarantee valid for 5 years for a value of 5% of the total project value or equal to the value of AMC (whichever is higher) before the release of 4<sup>th</sup> instalment towards the service and maintenance of installed systems (Bank guarantee format will be provided).
- g. Any taxes and charges such as TDS that will have to be deducted from the WO amount as per the rules in force at the time of release of payment will be done by the CInI and the Contractor will be paid only the net amount.
- h. The Contractor should submit the progress report to the Executive Director CInI who will approve the invoice for payments based on the project performance and stages of completion.
- i. The Contractor has to provide installation certificate for each location mentioning the date of commissioning make & serial no. of each material (Solar panels, PCU, Battery etc.), and Photographs of system installed before disbursal of 4<sup>th</sup> instalment.

### **3.6. Insurance:**

- a. Insurance shall be arranged by the Contractor till the products/components are delivered in full to the end point and installation is completed.
- b. Material safety after delivery: Arrangement of transport, warehouse for stocking and safekeeping of the material till the handover is within the contractor's scope of work and CInI will not be responsible for any missing item or damage that is incurred before the system is handed over to the Heath Centre authority.
- c. Accidental damage for supplied items or to delivery staff or installation staff is the responsibility of the contractor and the contractor will ensure insurance coverage and damage to service staff in case of any accidents during the course of this engagement with the CInI.

### **3.7. Inspection, Checking, Testing:**

The products covered by the Work order shall be subject to inspection within a reasonable time after arrival at the place of delivery and the contractor must facilitate this process by fixing time informing CInI in advance and making contractor representative available at the location. Besides,

the CInI is also entitled to do a preliminary inspection at the manufacturing site of the Contractor by giving prior notice.

The Contractor shall provide free access to the CInI during normal working hours at Contractor's or its sub-Contractor's works and place at their disposal, internal test reports, material/component test certificates, approved drawings. Even if inspections and tests are fully carried out, Contractor shall not be absolved to any degree from their responsibilities to ensure that products supplied, comply strictly with requirements of the Work order and technical specification at the time of delivery, inspection on arrival at site, installation and commissioning and warranty/guarantee period.

In any case, the products supplied must be strictly in accordance with the Work order and the technical specification specified by the tender failing which the CInI shall have the right to reject goods and hold the Contractor liable for non-performance of contract.

### **3.8. Packing:**

Contractor is fully responsible for adequately packing products/components mandated in the tender and ensuring appropriate packing suitable for inland carriage and ensuring complete safety of goods from any kind of damage during transport and subsequent storage at the Heath Centre authority.

### **3.9. Assembly, Pre-installation survey, Installation, after sales service and training:**

- a. The Contractor shall be fully responsible for the assembly of the product at the destination site and completeness of the Project as per the Work order.
- b. The successful bidder/contractor must carry out a pre installation survey at his cost so that the contractor will have a clear idea on logistics to reach materials, estimating the ease of material movements, pre installation preparations etc.
- c. The contractor must ensure proper insulators, appropriate height and necessary grout for lightning arresters up to grounding. Any deviation has to be brought to the notice of the CInI and written/ email acceptance must be availed before adopting the deviation.
- d. The Contractor shall be fully responsible for getting the materials for grouting/preparation for foundation wherever required, curing of the grouting before installing. Contractor cannot hand over this part of the work to an unskilled labourer or person in charge at the health centre.

- e. Contractor should provide training on basic maintenance of the solar system to the designated Health centre staff.
- f. Danger Boards should be provided as and where necessary as per IE Act. At array, battery bank, distribution box, Inverter/PCU etc.
- g. The Contractor shall provide necessary "After Sales Service" at site for a period of 5 years. Contractor must keep a log book at each site /to be maintained at each system location and the contractor representative must record the service done/complaint recorded /resolution done /instructions if any.
- h. Any Complaints on the system has to be resolved within 5 to 10 working days of lodging complaint.
- i. Complaints will be lodged using SMS/WhatsApp message/email or a phone call and the contractor must provide the appropriate active contacts like phone number/email ID/WhatsApp number for lodging complaints.
- j. Active contact numbers will be displayed at the site prominently for registering any complaints on the performance of the product.
- k. The Contractor has to submit a plan of servicing to the CInI before the release of final payment. The contractor will arrange a minimum of two (2) visits per year to the site for maintenance for a period of five (5) years and submit a report to the CInI on the servicing with a functioning status of each site every six months.

### **3.10. Delivery terms:**

- a. Successful bidder will be provided a detailed written communication on site address, system to be installed and a brief site profile for installation and necessary contacts
- b. The delivery of the said products will be to the Heath Centre authority as per the list provided by the CInI in writing. No variation shall be permitted, except with prior authorization in writing from the CInI.
- c. Delivery Schedule and terms will be as per the WO/PO. In case of a delay solely attributed to the contractor in meeting the said deliverables, the Contractor shall be liable to pay a late fee of 5% of the contracted value for the delayed delivery beyond the period mentioned in PO/WO.

### **3.11. Risk Purchase on Default:**

In case of default on the part of the Contractor to supply all the products or part thereof covered by the contract as per the standard/specifications within the contractual delivery period stipulated in the contract, the CInI shall have the right to purchase such products or other of similar description at the risk and cost of the Contractor. Contractor shall be liable to pay the cost of such purchase products and also the penalty under clause 3.10 above for resultant delay.

### **3.12. Delay due to force majeure:**

If any time during the continuance of the Agreement the performance in whole or part by either party on any obligation under the contract shall be prevented or delayed by reason of any war, hostility, explosions, epidemics, quarantine restrictions, or other acts of God, then provided, notice of the happening of any such event is given by either party to the other within fifteen (15) days from the date of occurrence thereof, neither party shall be reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance and delay in performance and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist. Force Majeure conditions shall not affect the payment obligations of the CInI which shall be made as per clause 3.5 above.

### **3.13. Rejection, Removal of Rejected Goods and Replacement:**

In case the testing and inspection at any stage by inspectors reveal that the product, material and workmanship do not comply with the agreed specifications and requirements, the same shall be removed by the Contractor at his/its own expenses and risk within 15 to 20 working days of information of rejection by the CInI. The CInI shall be at liberty to dispose of such rejected goods in such manner as they may think appropriate, in the event the Contractor fails to remove the rejected goods within the period as aforesaid. All expenses incurred by the CInI for such disposal shall be to the account of the Contractor. The freight paid by the CInI, if any, on the inward journey of the rejected material shall be deducted from the Contractor by the CInI from the final payment. The Contractor will have to proceed with the replacement of that product or part of the product without claiming any extra payment if so, required by the CInI, within 2 weeks of notification.

### **3.14. Warranty**

The Contractor shall warrant that every material/product to be supplied shall be in accordance with the specifications in this tender. The items should be consistent with the established, recognized or stipulated standards for material of the type usually used for the purpose and in full conformity with the specifications and drawings or samples, if any, outlined by the CInI in the tender documents and agreed upon by the Contractor by the virtue of acceptance of the WO/PO by the contractor. Products offered must withstand normal operating conditions. The warranty shall continue notwithstanding inspection, payment, acceptance of tendered product and shall expire except in respect of complaints notified to Contractor prior to such date within 60 months from the date of commissioning.

### **3.15. Performance Guarantee:**

The Contractor shall guarantee that all material and products shall be repaired or replaced, as the case may be, at his own expense in case the same have been found to be defective in respect of material, workmanship for smooth and rated operation within a period of 60 months from the date of commissioning. Acceptance by the CInI of any product and materials or their replacement will not relieve the Contractor of his/its responsibility concerning the above guarantee.

In case of any legal case against the CInI by any ultimate user of the product with respect to the performance of the system (during the warranty period), the Contractor should provide, and support the CInI with required and relevant technical testing and reports supporting the performance of the product and to defend that the non-performance of the product is not because of any manufacturing defect.

The warranty replacements will have to be made within 15 to 20 working days from the date of receipt of the Complaint at the site.

### **3.16. Indemnity:**

The Contractor shall at all times indemnify the CInI against all claims which may be made in respect of stores for infringement of any right protected by patent, registration of design or trademark. Provided always that in the event of any claim in respect of alleged breach of patent, registered designs or trademark being made against the CInI, the CInI shall notify the Contractor of the same and the Contractor shall at his own expense either settle any such dispute or conduct any litigation that may arise there from.

### 3.17. Governing Law and Arbitration:

The Parties agree that this Agreement shall be governed and construed in accordance with the laws of India. The Parties hereto agree that they shall use all reasonable efforts to resolve between themselves any disputes, controversy or claim arising out of or relating to this Agreement. If the Parties fail to resolve the matter within the 30 days of occurrence of any dispute, such dispute, controversy or claim shall be settled by binding arbitration under the Indian Arbitration and Conciliation Act, 1996. There shall be one arbitrator mutually appointed by the Parties. The place of arbitration shall be Jamshedpur and the arbitration proceedings shall be in English. The courts at Jamshedpur alone shall have the jurisdiction to entertain and, or try any dispute arising out of or in connection with or in relation to the terms of this Agreement.

## ANNEXURE 1: TECHNICAL SPECIFICATIONS OF SOLUTIONS

### Health Sub Center:

#### Bill of Materials:

Sl. No	Products	Capacity	Qty
1	Solar Module - 3 in series	330 Wp, 24 V	6 Nos
2	Solar Battery - 4 in series	150 Ah, 12 V, C-10 (Battery terminal caps used, must be big enough to cover the entire terminal area and the nut bolt assembly. Spring washers to be used at each battery terminal).	8 Nos
3	Module Mounting Structure (MMS*)	330 Wp, 1M	6 Nos
4	Solar Inverter – 230 Vac, 50 Hz	3 kW, 48 Vdc	1 No
5	Load Bypass Switch / Changeover Switch	32 A, 230 Vac	1 No



6	Cables red+black (M-M)	4 Sq.mm (UV Protected Cable)	24m
7	Cables red+black (B-B)	16 Sq.mm. (Tin-coated copper lugs with insulation to be used at each battery terminals).	12m
8	Cables red+black (M-B)	10 Sq.mm	30 m
9	Cables red + black (INV-L) for Staff Quarters	1.5 Sq.mm	40 m
10	Earthing Cable (AJB, GIPB & Inverter)	10 Sq.mm (Tin-coated copper lugs with insulation to be used at the cable-earth electrode interface).	30 m
11	Earthing Strip for Lightning Arrestor	GI Strip of (25 x 3) mm to be used. Each Joints Should consist of two hexagonal nut and bolts assembly.	10 m
12	Earthing Kit	Chemical earthing powder, solid copper electrode, tin-coated copper lugs with insulation, clamps with nut-bolts assembly. protective concrete construction to earthing pit (L x B x H - 1.5 x 1.5 x 1.5 feet) with metallic lid should be made around the electrode.	4 Nos (1 No for Lightning Arrestor)
13	Lightning Protection System	Lightning arrestor kit: (Copper based - Air terminal rod, Lightning arrestor and base plate).	1 Set

		Air terminal rod should be of 1.5 m long, ceramic insulation to be provided at the Lightning arrester base plate. Elevation pipe (anodized aluminum) to be of 3 m height.	
14	Grid Input Protection Box with two pole SPD and MCB	32 A, 230 Vac	1 No
15	Battery rack with acid absorbent + Insulation mat and Battery terminal rubber caps.	150 Ah X 8 Nos (2 racks of 4 batteries)	1 No
16	Inverter Elevation leg	Inverter elevation rack with an insulation mat (or) 3-inch leg bush (Fireproof)	1 No (or) 4 Nos.
17	Solar Array Junction Box with two pole MCB & SPD	2 IN, 1 OUT	1 No
18	Double pole MCB (Load side) with conduit box	20 A, 230 Vac	1 No
19	Cables red + black (including PVC pipes or Conduits, Clamps)	2C x 1.5 Sq.mm	30 m
20	Switch Sockets with gang box	16 Amps	1 No
21	Switch Sockets with gang box	6 Amps	4 Nos
22	I/P and O/P wiring of Grid Connection	2C x 4 Sq.mm	As per Req
23	Consumables		1 Set

For heavy loads like Autoclave, Sterilizer, Geyser, Air conditioner, Air coolers etc, separate wiring has to be done accordingly.

\*MMS need to be customized if the roof is tin sheet / needs to be ground mounting.

**Bill of Materials for Luminaries:**

Sl. No.	Products	Capacity	Qty
1	LED Tube Light	20 W, 230 V	2 Nos
2	LED Tube Light	10 W, 230 V	1 No
3	LED Bulb	9 W, 230 V	6 Nos
4	LED Bulb	5 W, 230 V	1 No
5	Ceiling Fan	32 W, 230 V	4 Nos
6	Outdoor Light – Automatic Control Switch for Dusk to Dawn Operation	20 W	1 No
6.1	Outdoor Street Light Arm – Rust free (GI Material)		1 No
6.2	Cables red + black for Ceiling Fans and Street Light (including PVC pipes or Conduits, Clamps)	2C x 1.5 Sq.mm	34 m

**ANNEXURE 2- TECHNICAL SPECIFICATIONS OF COMPONENTS**

The proposed project shall be commissioned as per the technical specifications given below. Any shortcomings or deviations may lead to the cancelation of the Letter of Award, and in such a case the Competent Authority's decision will be final and binding on the bidder.

**1. SOLAR PV MODULE:**

- a. The PV modules used must qualify to the latest edition of the IEC PV module qualification test.
- b. The total solar PV array capacity should not be less than the allocated capacity and should comprise of solar crystalline modules of minimum Wp mentioned in the bill of materials. Module capacity less than minimum mentioned Wp in the BoM / Purchase Order shall not be accepted.

- c. PV modules must be tested and approved by one of the IEC authorized test centers. The module frame shall be made of corrosion-resistant materials, preferably anodized aluminum.

## **2. MODULE WARRANTY:**

Module Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (5) years from the date of sale to the original customer ("Customer")

- a. Defects and/or failures due to manufacturing.
- b. Defects and/or failures due to quality of materials
- c. non-conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the supplier's sole cost

## **3. Performance Warranty**

The degradation of power generated by the module shall not exceed 20% of the minimum rated power over the 25-year period and not more than 10% after the first ten years period.

## **4. Preferred Make**

MNRE Approved/Empaneled

## **5. MODULE MOUNTING STRUCTURE (MMS):**

- a. Hot dip galvanized M.S/ anodized aluminum of size not less than 50 mm x 50 mm x 6 mm size (for legs) and other square tubes of 2 mm thick (Rafter and Purlin) shall be used for mounting the modules/ panels/arrays. Each structure should have an angle of inclination as per the site conditions to take maximum irradiation.
- b. For a Ground/Flat roof R.C.C installation, the MMS should be a 4-legged structure (2 front legs, 2 back leg) and many such leg pair to exist along the length of the MMS, which depends upon the number of panels needed to be mounted along and over it. An appropriate number of rafters should be introduced to strengthen the purlins over which the panels will be mounted. Each leg of M.M.S shall have a base plate at its bottom. The base plate at each leg should be of the size 150\*150\*6 mm. The base plate should have four stiffeners. Each stiffener will be placed perpendicular to the side of base plate. The base plate should house four wedge

anchors at each corner. The steel wedge anchors used should be 2-3 inches long (Depending upon the RCC roof thickness).

- c. The M.M.S should be designed such, it safely not only withstands the total panel weight but also withstand the high wind loads acting over it.
- d. The PV panels should be clamped to M.M.S only at the allowable points along the panel frame, which is specified by the panel manufacturer. Each panel should be clamped to the purlins using 4 clamps (2 clamps on each opposite sides of the panel). The clamps used should be of minimum 35\*3 mm size and that of anodized aluminum. The distance between the end clamp and the end of the rail (purlin end) should be minimum 25 mm long.

**Cyclone prone zones, high altitude-high wind zones (Particularly for flat RCC roof):**

Additional measures should be taken to install PV panels at such high-risk zones. Installations at such sites should have a low-elevation panel set-up made, along with “landscape” orientation of PV panels (This would require a custom-made MMS viz triangular MMS frame/short legged MMS, preferably made with G.I). The PV panels should be mounted over the MMS using “clamping” method only. Anodized clamps of 45\*4 mm size should be used here.

The structure shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Installation of solar structures should not damage the roof in any way. If any concrete or foundation is required, it should be precast type.

Fixed tilt systems, South facing with 24-26 degree inclined towards north should be followed despite whatever roofing type is. This range is indicative and will depend on the actual location.

The structure also should be able to withstand wind speed of 200 - 250 km/h.

Bidder must follow any of the three types of roof mounting options and the solution is dependent on the type of roof at the location. a) Flat roof, b) standing seam c) Shingle roof. In all cases, considerations must be made for the roof’s age, structural integrity, access to equipment, and necessary setbacks for fire and life safety requirements.

The MMS should be mounted to the RCC roof using wedge anchor fasteners and a concrete block of L x W x H = 1.5 x 1.5 x 1 feet respectively at each leg of the MMS. The sides of the cube and roof interface should be given a simple 1-inch fillet construction. At the top side of the cubes, an upward taper should be formed from cube sides towards M.M.S leg.

#### **6. DC COMBINER BOX/ARRAY JUNCTION BOX:**

The junction boxes are to be provided in the PV array for termination of connecting cables. The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.

Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification. The AJB should be placed in a shaded place, preferably at the legs of MMS.

#### **7. BATTERY:**

The battery type proposed: Lead acid battery.

- a. All the batteries capacities mentioned are at a C/10 rate of discharge and the same should also be followed by the bidder. The preferred voltage of each battery is of 12 V due to better space utilization. However, bidders quoting for battery banks with 2V cells or other capacities should add a justification note as annexure to why the particular voltage was opted for. The technical committee will consider this and take a decision on the suitability of such an option. The decision of the technical committee/technical member of the buyer on this matter will be final and binding on the bidder.
- b. Battery should conform to the latest BIS/ International standards. A copy of the relevant test certificate for the battery should be furnished.
- c. The battery should be warranted for a minimum of 5 years.
- d. The battery should be installed inside the premises of consumers on a battery rack of acid resistant material to bear the required battery load. The battery rack should be of fireproof material (GI rack is preferable). The non-reactive acid proof mat should be provided around the floor space of the battery bank.
- e. Tin-coated copper lugs (Ring type) with insulation to be used at cable ends to connect each battery terminals.

- f. Spring washers to be incorporated in the nut-bolt assembly at each battery terminal.
- g. Battery terminal caps used, should be big enough to cover the entire terminal area and the nut bolt assembly.
- h. Petroleum based Vaseline coating should be applied at each battery terminal.
- i. All cables connecting batteries should be provided “conduit pipe” protection and tied to the outer sides of battery body using cable ties.

#### **7.1. Preferred Make :MNRE Approved/Empaneled**

#### **8. PCU/SOLAR INVERTER:**

The power conditioning unit should be provided to convert DC power produced by SPV modules, into AC power. The power conditioning unit/inverter should be Off-Grid type.

#### Typical technical features of the inverter shall be as follows:

Power conditioning unit with inbuilt charge controller of capacity & ratings as specified in the below for various capacities of Solar Power Plants should convert DC power into AC power. Preference will be given to power conditioning units conforming to standards IEC 61683.

The PCU/ inverters should be tested from the MNRE approved test centers / NABL /BIS accredited testing- calibration laboratories. In the case of imported power conditioning units, these should be approved by international test houses.

In case of inverters with low ground clearance (smaller capacity inverters), a minimum of 3-inch elevation for the same should be incorporated. The elevating means should be a fireproof material (Leg bushes are preferable).

#### **8.1. The PCU will have the following features:**

- a. MOSFET (till 1.4 kVA) / IGBT (any capacity more than 5 kVA) based MPPT charging
- b. Inverter efficiency should be more than 85%
- c. Output voltage 230V, +/-3% f modified/ pure sine wave for single phase.
- d. Output frequency: 50 Hz, +/- 0.5 Hz
- e. Capacity of PCU/ Inverter is specified at 0.8 lagging power factor

- f. THD: less than 3% Efficiency: >85% at full load
- g. Ambient Temp 50 degree Celsius (max.)
- h. Operating humidity 95% maximum

## **8.2. Protections:**

- a. Over voltage (automatic shutdown)
- b. Under voltage (automatic shutdown)
- c. Overload - Short circuit (circuit breaker & electronics protection against sustained fault)
- d. Over Temperature
- e. Battery, PV reverse polarity

## **8.3. Indicators**

- a. Array on
- b. MPPT charger on
- c. Battery connected, charging
- d. Inverter ON
- e. Load on solar/ battery
- f. Grid charger on
- g. Load on Grid
- h. Grid on
- i. Fault

## **8.4. Display Parameters**

- a. Charging current
- b. Charging voltage
- c. Voltage of PV panels
- d. Output voltage
- e. Grid voltage
- f. Inverter loading (kW) & Energy Generation (kWh)
- g. Output frequency
- h. Fault / fault code



**8.5. Cooling:** cooling mechanism required - Air Cooled

**8.6. Preferred Make:** MNRE Approved/ Empaneled

## **9. PROTECTIONS**

The system should be provided with all necessary protections like earthing, lightning protection.

### **9.1. LIGHTNING PROTECTION**

The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against lightning by deploying the required number of lightning arresters.

### **9.2. EARTHING**

Earthing is a way of transmitting any instant electricity discharge directly to the ground through low resistance path (using electrical cables wires with no joints or metal strips with lesser joints). This instant electricity discharge is mostly in the form of lightning. The goal is to protect the appliances for voltage surges, but much more, the users from electrocution due to leakage/fault current in the system.

- a. Earthing type - Chemical Earthing
- b. Earth pit should be 1 foot by diameter and 4 ft by depth.
- c. Earthing should be provided for these components: Lighting arrester, A.J.B, Grid input protection box and Inverter.
- d. Minimum of 3 m distance between each pit must be maintained and 1.5 m from building CInI and sumps.
- e. Should not combine AC earthing & DC Earthing.
- f. Earthing pits should be closed with metallic enclosure.

## **10. CABLES**

Cable size as mentioned in the bill of materials to be used in the Project shall have the following characteristics:

- a. Temp. Range:  $-10^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ .
- b. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- c. Flexible

Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be selected to keep the voltage drop (power loss) of the entire Project to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.

The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e., twenty-five (25) operational years.

Tin-coated copper cable lugs and that of appropriate sizes should be used at each end of the cable while connecting to an electrical device viz battery-cable-battery (16 Sq.mm), cable-earth electrodes (10 Sq.mm).

Conduit pipe protection to be given to cables connecting 1. Battery to battery, 2. Battery to inverter, 3. All cables entering the inverter.

DC cables from the PV array and earthing cables should be given outdoor PVC (CPVC/UPVC) pipe protection.

Cable-tie to be used wherever needed (To tie cables to MMS frames/to tie cables to outer side of battery).

Outdoor "L" bend pipes to be used wherever the cables pass through sharp edges/roof edges.

**Load wiring:**

Load wiring to be redone in case of damaged (or) faulty wiring detected. In case of load wiring not available in the health center, then a new load wiring must be done for the energy efficient devices which are being installed in the center. In case of new load wiring is done, then proper casing & capping should be provided for the same.

**10.1. Preferred Make:** Polycab, Finolex, Havells, RR Kabels.

### **11. TOOLS & TACKLES AND SPARES:**

After completion of installation & commissioning of the power plant, necessary tools & tackles shall be maintained by the successful bidder for maintenance purposes at the local service center.

### **12. SAFETY MEASURES:**

The bidder shall take entire responsibility for electrical safety of the installation(s) and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc

### **13. LUMINARIES AND ACCESSORIES**

Preferred Make:

LED Bulbs /Tubes: Havells, Phillips, Syska, Eveready, Wipro,

Fan (Ceiling & Pedestal): Usha, Havells, Atomberg, Orient, Super Fan, Arizon.

Exhaust Fan: Orient, Panasonic, Havells, Bajaj.

### **14. OPERATION AND MAINTENANCE MANUAL**

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar System. The following minimum details must be provided in the Manual:

- a. Basic principles of Photovoltaics.
- b. A small write-up (with a block diagram) on Solar System - its components, PV module, battery, electronics and luminaire and expected performance.
- c. Significance of indicators.
- d. Type, Model number, voltage & capacity of the battery, used in the system.
- e. Clear instructions about mounting of PV module(s).
- f. Clear instructions on regular maintenance and troubleshooting of the Solar System.
- g. DO's and DONT's. A plaque with customer care number and DO's and DON'T's should be put up at the PCU/ SOLAR INVERTER.
- h. Name and address of the contact person for repair and maintenance.

### **ANNEXURE 3: LIST OF HEALTH CENTRES**

Indicative list of Health Centres is attached. However, the sites are subject to change further to the site survey. CInI will have the complete right on the selection of Health Centres.

<b>Sl.No.</b>	<b>Name of Sub-Center</b>	<b>District</b>
1	Liewlong SC	East Khasi Hills
2	Mawpynthih SC	East Khasi Hills
3	Umlympung SC	East Khasi Hills
4	Umthlong SC	East Khasi Hills
5	Lyngkien SC	East Khasi Hills
6	Mawtawar SC	East Khasi Hills
7	Lawmei SC	East Khasi Hills
8	Kynroh SC	East Khasi Hills
9	Umrynjah SC	East Khasi Hills
10	Mawlynrei SC	East Khasi Hills
11	Nongmensong SC	East Khasi Hills
12	Lawsotun SC	East Khasi Hills
13	Sohryngkham SC	East Khasi Hills
14	Mawlyngad SC	East Khasi Hills
15	Umphyrnai SC	East Khasi Hills
16	Kut SC	East Khasi Hills
17	Tynring SC	East Khasi Hills
18	Mawpdang SC	East Khasi Hills
19	Nonghali SC	East Khasi Hills
20	Nongkrem SC	East Khasi Hills
21	Laitkor SC	East Khasi Hills
22	Upper Cherra Sc	East Khasi Hills
23	Majai Sc	East Khasi Hills
24	Tyrna Sc	East Khasi Hills

25	Mustoh Sc	East Khasi Hills
26	Laityra Sc	East Khasi Hills
27	Wahlong Sc	East Khasi Hills
28	Sohlap Sc	East Khasi Hills
29	Wahkaliar Sc	East Khasi Hills
30	RumNong Sc	East Khasi Hills
31	Mawphu Sc	East Khasi Hills
32	Pyrnai	East Khasi Hills
33	Lyngkardem	East Khasi Hills
34	Pynter	East Khasi Hills
35	Nongtyngur	East Khasi Hills
36	Nongthymmai	East Khasi Hills
37	Umniuh	East Khasi Hills
38	Thangsning HWC	East Khasi Hills
39	Thynroit HWC	East Khasi Hills
40	Mawpyrshong HWC	East Khasi Hills
41	MawlyngNot SC	East Khasi Hills
42	Pingwait SC	East Khasi Hills
43	Kharang SC	East Khasi Hills
44	Mawlat SC	East Khasi Hills
45	Syntung SC	East Khasi Hills
46	Nohron SC	East Khasi Hills
47	Mawngap SC	East Khasi Hills
48	Tyrsad SC	East Khasi Hills
49	Rangskkhen SC	East Khasi Hills
50	Ladawreng SC	East Khasi Hills
51	Lempluh SC	East Khasi Hills
52	Krang SC	East Khasi Hills
53	Mawbeh SC	East Khasi Hills
54	Mawlyndiar SC	East Khasi Hills
55	Nongkynrih SC	East Khasi Hills
56	Wahkhen SC	East Khasi Hills

57	Tyngnger SC	East Khasi Hills
58	Sawsyemper SC	East Khasi Hills
59	Phlangwanbroi SC	East Khasi Hills
60	Syntein SC	East Khasi Hills
61	Lawbah SC	East Khasi Hills
62	Nongtraï SC	East Khasi Hills
63	Thieddieng SC	East Khasi Hills
64	Sonatola SC	East Khasi Hills

## ANNEXURE 4 - DETAILS OF THE ORGANISATION

(Enclose separate sheets as necessary and in this checklist indicate yes or no)

1	Name and address of the Bidder (With pin code)	
2	Year of starting the organization & registration number (photocopy of registration certificate or any other relevant document to be enclosed)	
3	Name and Contact number of the Proprietor or Point of Contact	
4	Status of Supplier- Proprietorship / Partnership/ Pvt Ltd / Limited/others	
5	GSTIN and PAN No. of Income Tax Dept. (Copies of certificates to be enclosed)	
6	Photocopy of the last filed Income Tax (IT) returns for last 3 years	
7	Copy of GST returns for the last 2 years	
8	Audit reports for the last 3 years (Certified copy of Chartered Account' report in P&L account to be enclosed)	
9	Documents to prove cumulative business of Rs 4 Cr in the last 3 years	
10	Experience of Supplier/supplier relating to supply of solar energy-based solutions (supporting certificates to be enclosed)	
11	Particulars of Physical Infrastructure and total strength of staff available in the organization relating to Supplier/supply/testing etc.,	
12	Bidders Bank address	
13	Evidences of existence (GST Registration) of local office in State of Meghalaya Preferably in Shillong or closer to the project district	

Signature of the bidder and address with seal

Date:

## ANNEXURE 5 – CONFIRMATION ON ENCLOSURES

Sl.No.	Description	Whether the Document is enclosed or not	Page No. From and to
1	Details of Organization as per Table –I	YES/NO	
2	Copies showing the legal status, places of registration and principal place of business of the firm	YES/NO	
3	Copies of audited financial statements for the last 3 financial years	YES/NO	
4	Copies of GST registration and GST returns filled in the last 2 financial years	YES/NO	
5	Copies of income tax registration and income tax returns filled in the last 3 financial years	YES/NO	
6	Acceptance to give 5 years guarantee for trouble free operation and maintenance.	YES/NO	
7	Evidences of existence (GST Registration) of local office in State of Meghalaya Preferably in Shillong or closer to the project districts	YES/NO	
8	Letter of declaration to confirm that the bidder has not been black listed by any entity or institution	YES/NO	
9	Bidders bank details	YES/NO	
10	Signed, sealed copies of Annexure 1, 2, 3, 4,5,6 and 7	YES/NO	

I abide by all the above terms & conditions.

SIGNATURE OF THE BIDDER and with office seal

PLACE:

DATE:



## ANNEXURE 6- SCHEDULE OF TENDER

Regarding Supply, installation and commissioning

Sl.No	Scheduled activity	Within days (no. of days)	Accepted Schedule by date
1.	Supply starts after WO/PO		
2.	Supply ends		
3	Installations begins		
4.	Commissioning of all the system		

I abide by all the commitments accepted & conditions.

SIGNATURE OF THE BIDDER and with office seal

PLACE:

DATE:

## ANNEXURE 7 - PRICE SCHEDULE

### PARTICULARS TO BE SUBMITTED IN THE FINANCIAL BID (SECOND COVER).

#### PRICE SCHEDULE FOR THE SUPPLY, INSTALLATION, COMMISSIONING & COMPREHENSIVE MAINTENANCE FOR 5 YEARS OF OFF-GRID SOLAR ENERGY SOLUTIONS FOR EAST KHASI HILLS DISTRICT OF MEGHALAYA STATE.

##### Rates quoted by the bidder:

- The rates should be mentioned item wise clearly both in words and figures Item-wise details of rates quoted.
- Rates should be inclusive of GST, GST rate and amount should be quote clearly.
- Rates should be inclusive of AMC from Year 2 to 5 but separately mentioned.
- Rates should include an average transportation cost for supply of solution category in the region of operation of the bidder.

**Table 1: Cost of Solar BoM (detailed BOM with taxable value, GST rate, GST amount and Total as separate annexure)**

SI No	Quote for Option	No. Of systems	Price in INR (per health centre)	AMC cost for years 2 to 5 (in INR, per health centre)
1	Sub-centres	64		
	<b>TOTAL</b>			

**In words:**

**Table 2: Cost of Luminaries or accessories(detailed BOM with taxable value, GST rate, GST amount and Total as separate annexure)**

SI No	Quote for Option	Cost in INR (all-inclusive and as per conditions mentioned above, per health centre)
1	Luminaries for Sub-centres	
	TOTAL	

**In words:**

**Table 3: (Detailed BOM with taxable value, GST rate, GST amount and Total as separate annexure)**

SI No	Products	Capacity	Qty	Price/ Unit	GST Rate	Total
1						
2						
3						
4						
	<b>TOTAL</b>					

**In words:**

**CONDITIONS:**

If our tender is accepted, we hereby undertake to abide as per the stipulated Terms and Conditions to supplier and supply, installation and maintenance of solar energy-based solutions.

We agree to abide by this tender and if the work is awarded 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 determine the price based on the lowest offer that CInI may receive.

We accept that all disputes between parties will be adjudicated by a competent court in Jamshedpur, India.

I, \_\_\_\_\_ (Name of signatory) on behalf of the bidder \_\_\_\_\_ (Name of the bidder), hereby certify that I have noted the technical specifications of solutions mentioned in Annexure 1, and the technical specifications for components mentioned in Annexure 2 and the prices quoted above are as per the details specified and in compliance with Annexure 1 and 2.

Dated this..... day of.....2022

Signature (Name and Address of the Tender with seal) (In the capacity of..... Duly authorized to sign the Tender for and on behalf of \_\_\_\_\_)