Request For Quotation (RFQ) for implementation (Weavers identification, co-funding mobilization, supply, installation, and maintenance for five years) of approximately 28 numbers of Hybrid Solar Charging Unit for Power Loom in the state of Madhya Pradesh, Chhattisgarh and Maharashtra.

Tender No. TERI/MAT/2023-24/015
RFQ Date: 08/12/2023
Last Date for Submission of Bids: 31/12/2023

The Energy and Resources Institute (TERI)
6-C, Darbari Seth Block
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Request For Quotation (RFQ) Notice

The Energy & Resources Institute (TERI)

6C, Darbari Seth Block,

India Habitat Centre, Lodhi Road, New Delhi – 110003

TERI invites bids from experience Bidders through RFQ for the implementation (Weavers identification, co-funding mobilization, supply, installation, and maintenance for five years) of approximately 28 numbers of Hybrid Solar Charging Unit (HSCU) for Power Loom (Refer- Scope of Work), in the state of Madhya Pradesh, Chhattisgarh and Maharashtra, as per the details given in RFQ document.

Table 1: Particulars of Items

Sl. No.	Item	RFQ Date.	Quantity Required (Approx.)	Bid Submission Date	Extended Bid Submission Date
1	Hybrid Solar Charging Unit (HSCU) for Power Loom in the state of Madhya Pradesh, Chhattisgarh and Maharashtra, India	**08.12.2023**	28nos.	25.12.2023	31.12.2023

The RFQ document is available on TERI's website. Interested Bidders may view/download the Bid document, seek clarification, and submit their Bid on or before the date and time mentioned in the Table

TERI reserves the right to reject any or all RFQ without assigning any reason thereof. The decision of TERI will be final and binding **on all matters with respect to this RFQ**.

(Head-Materials)

TERI

ELIGIBILITY CONDITIONS

Eligibility Conditions for Bidders

1. Minimum Eligibility Conditions:

i. The bidder should be an organization registered/ incorporated under Companies Act. 1956 or Companies Act. 2013, and further amendment(s) /Firm/ Corporation/ NGO in India.

ii. The Bidder should have minimum – three (3) years of experience in executing contract of Solar Photovoltaic Power Plants in the minimum one state of Madhya Pradesh Pradesh, Chhattisgarh and Maharashtra. Purchase order and completion Certificate of last three (3) years should be enclosed.

iii. The Bidder should have executed solar Project for Power loom / MSME cluster in the past five years, anywhere in the country.

iv. The Bidder should have valid GST and PAN registration certificate. A copy of which should be enclosed.

v. The Bidder should have executed solar Project in the past five years, anywhere in the country, in which mobilization of co-funding from the community has been an integral part of the implementation and commissioning of the project. As a proof of such cofounding mobilization, certificate issued by CA / Project Sponsor, should be enclosed.

vi. Overall Average Annual Turnover of the Company/Firm/ Corporation / NGO in the last three financial years (FY- 2020–21, 2021–22 and 2022-23) should be at least Rs. 2 Crores (Rupees two Crores). This must be the individual Company / Firm / Corporation / NGO's turnover and not that of any group. A summarized sheet of average turnover certified by a registered CA should be compulsorily enclosed along with corresponding balance sheets.

vii. Bidders should not be under a declaration of ineligibility for corrupt and fraudulent practice. In this regard an undertaking (self-certification) has to be provided that the Bidder (s) has not been blacklisted/ debarred by any Central / State government/ TERI or any other institution.

viii. Bidder must meet the Technical Specifications as stipulated in the Tender, and the Bidder(s) must be able to provide the after-sales warranty and support services.

Note: Subsequent to award of contract, no deviation is acceptable in performance. In case any Bidder is found unsatisfactory during the execution process, the award will be cancelled. In such an event, TERI reserves the right to terminate the contract, impose strict action against the bidder(s), which inter-alia extends to other provisions of tender.

Supply, Installation and Commissioning of 28 units of Hybrid Solar Charging Unit (HSCU) for power Loom cluster in the state of Madhya Pradesh, Chhattisgarh and Maharashtra
(Scope of Work for Vendors)

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(i) Supply, Installation, commissioning, and testing of 28 numbers of Hybrid solar based charging unit (**Solar module of 3 kWp, Solar PCU with MPPT 5 kW- 3 phase, Lithium battery 7.2 kWh, cable MCB, earthing kit, lighting arrester, including I&C per system**) at sites located at power loom cluster in the state of Madhya Pradesh, Chhattisgarh and Maharashtra;

(ii) Identification of beneficiaries from power loom cluster weaver community, in association with TERI and its local partner organizations, if any ;

(iii) Submission of undertakings and other government issued identification documents (Aadhar card) with respect to weaver beneficiaries, to TERI, along with the invoice ;

(iv) Mobilization of co-funding amount of 40% of the discovered cost, has to be collected as cofunding amount from each weaver beneficiary through NEFT / demand draft drawn in favor of The Energy and Resources Institute (TERI), and it's onwards transmission to TERI.

(v) Timely submission of invoice along with the required documents for timely release of payment;

(vi) Sensitization of weaver community towards the project;

(vii) Conduction of Technical Training, in association with TERI;

(viii) Exhibition of flex banners and other publicity materials at each site, describing the project, as per TERI guidelines;

(ix) Establishment of local unit for fault reporting mechanism and timely rectification;

(x) Provision of 5 years comprehensive on-site warranty for solar system (solar module, PCU with MPPT, Lithium battery, cables, earthling, lighting arrestors etc.).

(xi) Display of Do's and Don'ts at each charging site;

(xii) Facilitation of site visit of any authorized official of TERI / project sponsor ;

(xiii) Sharing of report regarding the performance, connectivity etc. of the system, on monthly basis.

Place / Date: **(Signature and seal of the Firm)**

Bill of Materials

Technical specification for HSCU

ITEMS	Description & Specification	
Solar photo voltaic (SPV) array	Rated Capacity	3 kWp
	Type of module	Mono or poly C-Si modules
	Rating of each module	Each of capacity not less than 300 Wp under STC
	NOTE	• The PV modules must conform to the latest edition of any of the following IEC/ equivalent BIS standards for PV module design qualification and type approval: Crystalline Silicon Terrestrial PV modules IEC 61215/ IS14286 Thin Film Terrestrial PV modules IEC 61646 Concentrator PV Modules & Assemblies IEC 62108 • In addition, the modules must conform to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing and for safety qualification. • PV modules to be used in a highly corrosive atmosphere (coastal areas, etc.), therefore must qualify Salt Mist Corrosion Testing as per IEC 61701. • The PV modules must be tested and approved by one of the IEC authorized test centers. Test certificates can be from any of the NABL/ BIS Accredited Testing/ Calibration Laboratories. • The power output of the solar PV module must be reported under Standard Test Conditions (STC) at loading voltage of 16.4/32.8V. I-V curve of the sample module should be submitted to the TERI at the time of sample submission • The open circuit voltage of the solar PV module under STC should be at least 21.0/42.0 Volts • The terminal box on the module should have provision for opening for replacing the cable if required • The module Junction box should be weather resistant and designed for long life outdoor operation in harsh environment. • All the modules should contain the following clear and indelible marking laminated inside the glass as per IS/IEC 61730-1, i. Name, monogram or symbol of manufacturer; ii. Model number iii. Unique serial number iv. Nominal wattage ± 2% v. Year and country of origin. • Warranty: PV modules 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. • Details of Certified BOM as per above mentioned standards to be provided

		• IEC CB test report / UL Test report to be submitted for applicable IEC standard
Module mounting structure & RCC array foundation base		• The mounting structure shall be of galvanized metallic frame of M.S. Flat/Angle with corrosion free. • In case of pole-mounted ground based structure, average height of solar panel above the ground level should be 8 feet with concrete grouting.
		• The tilt angle should be in line with site requirements/latitude of the site. • All SS nuts & bolts shall be with anti-theft provisions. • The structure shall be designed to allow easy replacement of any module and shall be in line with site requirements; • The array should be mounted in such a way that cleaning of each panel can be easily done by the concerned person. • The legs assemble of the module mounting structures will be fixed and grouted properly. • Supplier shall follow IEC 61730-1:2016 standard practice for installation of power plants
Array & Main Junction Box	Type	ABS/ Thermoplastics/Equivalent
		The size of current collecting terminal having 300V grade insulation for 3 kWp SPV power plant
	NOTE	• Protection: IP 65 (for outdoor)/IP 21(for indoor) • Copper bus bars/terminal blocks housed in the junction box should have suitable termination threads. It should also have earth terminal for earthing.
Power Conditioning Unit (with Charge Controller and Inverter)	Type:	Charge Controlling Unit (5 kWp MPPT) suitable to charge a 7.2 kWh Lithium battery bank from a 3 kWp SPV array to be extend up to 5 kWp and grid electricity as per requirement.
	NOTE	• Protections: short circuit, reverse flow, reverses polarity, over current, over voltage.
	Type and quantity	Certification from IEC/BIS for efficiency, safety and environment
	Efficiency	Charge controller minimum 85% efficiency and Inverter minimum 90% efficiency (at full load 0.8PF)
	NOTE	• Battery charging voltage 56 VDC, • Inverter output frequency: **Three Phase** 415 V 50 Hz +/- 0.5%. Pure Sine wave inverter rating 5 KW • Overload capacity: 125% for 1 minute and 200% for 10

		seconds • Operating Ambient Temperature: 0 to 55 °C • Protections: Short circuit, overload, surge current, over temperature, over/under voltage, over/under frequency, lightning, reactive power imbalance, reverse polarity • Terser time: 10 mS Typical • Enclosure: Free standing, steel enclosure, IP 20 • Preference will be given to transformer less inverter • Inverter to be run 4 number power loom (Induction motor 0.5 HP, 415V, 50 Hz each loom)
	Protections	• Both AC and DC lines will have suitable MCB/MCCB and user to allow safe start up and shut down of the system. • input & output isolation (automatic & manual)
	Standards	Power Conditioners/ Inverters should conform to IEC IEC /EN 62109, IEC /EN 61000-6-4, IEC/EN 61000-6-2, IEC/EN 61000-3-2, IEC/EN 61000-3-3 / IEC60068-2(1,2,14,30) for IEC 62305 - Protection Against Lightning
Battery bank	Battery rating:	7.2 kWh
	Type:	Lithium Battery
	NOTE	• Maximum allowable DOD - 90% • Self-discharge: Less than 3% at 27 ^{0}C per month • Cycle life: Minimum 4000 charge-discharge cycle between fully charged state • Connection: In series by means of tinned copper bus of appropriate size. • Lithium Battery conform to IEC 62619 / EN 300386 /UL 1642
	No. of outputs:	One/ Two feeder with MCBs
	NOTE	• Load limiter: As per site. • MCB & fuses: Suitable rating for feeders • MCB/MCCB: Suitable rating for connection & disconnection. • Safety: Audio buzzer and LED indication will be provided in case of overload on any feeder.
	•	
Cables &	Sizes of cables between array interconnections, array to junction boxes, junction boxes to inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire power plant to the	

Accessories	minimum. Cables should be of ISI standard with proper marking on the cable body. Cables must conform to the latest edition of following standards 1. For DC side cable : 2 Pfg 1169/08.2007 OR EN 50618 2. For AC side cable : IS 694 / 1100V The cables and accessories shall conform to the relevant national/ international Electrical Safety Standards. The following sizes of cables are recommended.	
	Module Interconnecting cables 1C x 2.5 sq mm	
	PV array to Junction box : 1C x 4 sq. mm PVC insulated, sheathed, Terminals. Unarmored, copper	
	Junction box to PCU 1C x 10 sq. mm PVC insulated, sheathed, Junction box unarmored, copper, black cable	
	Inverter to ACDB: 4C x 10 sq. mm PVC insulated, sheathed, Terminals. Unarmored, copper,	
	Working voltage: Up to 1100 V; Test voltage -1000V/1.1kV	
	Temperature resistant: -15 ^{0}C to +70 ^{0}C; UV resistant for outdoor installation	
Earthing systems		• The array structure of the PV yard will be grounded properly using adequate number of earthing kits. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the power plant. • Earthing for all major equipment's and the power plant with 600 mm x 600 mm x 6 mm copper plate electrode. The Junction boxes should be equipped with input and output fuses to protect the PV module from short circuits. Array and Main JB's should have appropriate surge protection devices to protect the circuits from surges created due to lightning. Separate earthing system is required for inverter as well. • Providing & fixing of earth bus with 25 mm x 6 mm tinned copper strip on wall having clearance of 6 mm from wall including providing drilled holes on bus bar complete with GI bolts, nuts, washers, spacing insulators etc. as required. • Connecting, providing & fixing 25 mm x 6 mm tinned copper strip from earth electrode to earth bus bar complete as required. • Complete earthling System for array made with GI pipe, 4.5 m long 40 mm diameter including accessories, and providing masonry enclosure with cast iron cover plate having locking arrangement, watering pipe using charcoal or coke and salt as required. Necessary provision shall be made for bolted isolating joints of each earthling

		pit for periodic checking of earth resistance. • Supplying, fitting & fixing of earth bus in the Control Room & Battery Room with 25 mm x 5 mm tinned copper strip on suitable size porcelain base at a regular interval firmly fixed on wall surface including interconnection with Plate Earthling System for earthling of all Metallic Bodies.
Installation		As per site requirement : The system should be properly installed at site. The SPV module mounting structure along with pole should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it must withstand the maximum wind speed /storm. The structure / pole should be grouted with CC mixture of 1:2:4 of dia 300 mm having depth of (1000 mm) for pole and 200 mm above ground level with 200 mm dia. Adequate space should be provided behind the PV module/array for allowing un-obstructed air flow for passive cooling. Cables of appropriate size should be used to keep electrical losses to a bare minimum. All wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the SPV systems, is to be provided by the manufacturer as per standards.
Product Warranty	PP items	Solar PV for 25years, lithium battery for 5 years, PCU for 5 years, and other components/items 5 years.
On-site service warranty		It shall include on-site servicing & replacement guarantee for parts and components (such as battery, electronics, charge controller and PV modules) for 5 years from the date of installation. • All preventive maintenance and repair activities associated with the power plant. • The on-site warranty would cover services provided including the quality of workmanship under warranty. • Providing the maintenance service under the project to keep the station in good working conditions which shall also include the periodical, corrective, and remedial maintenance service. • Periodical preventive maintenance services need to be provided at regular intervals. At least one preventive maintenance visit needs to be undertaken every six months and half-yearly report to be submitted. • The complaints should be attended to within a maximum timeframe of 7 calendar days. • Providing all normal tools and testing equipment's needed for

		maintenance of the station at its own cost. • During the ensuing period, the repair works will have to be carried out at the location of the station except in exceptional circumstances where the equipment or any component may be required to be taken out for repair, for which specific written permission should be obtained from TERI. In such cases, standby arrangements are required to be made by vendor so that the system remains in functional state. All products have valid product warranty and hence on site repair and maintenance service needs to be provided after getting replenishment of spares from respective product manufacturer. • The payment towards the on-site warranty charges would be made on half yearly basis at the end of every six months on reimbursement basis. • If the Contractor / Bidder fail to attend the complaint within 7 calendar days, a penalty of 5% may be deducted from the gross amount of half yearly bill. An additional 10% penalty may be deducted for every week the complaint remains unattended / unrectified beyond the first week. • If the work of the Contractor / Bidder is found unsatisfactory or if the vendor dishonours the contract, TERI shall be entitled to terminate the contract and TERI's decision will be final and binding on the contract. In that case, the payment of last invoice amount will not be made. • Contractor / Bidder shall submit the bill along with the verification report of the local authority.
Training		• One training need to be provided; preferably one at the time of installation & commissioning. • Training materials to be provided to the trainees need to be approved by TERI.
Safety Precautions		• Tamper-proof seals to be provided for all equipment. • International safety regulations need to be followed and the same need to be shared with TERI.

The BoS items/components of the HSCU deployed must confirm to the latest edition of IEC/equivalent BIS standards.

WARRANTIES AND MAINTENANCE

- The PV modules will be warranted for a minimum period of 25 years from the date of supply. (Output wattage should not be less than 90% at the end of 10 years and 80% at the end of 25 years).
- The mechanical structures, electrical components including battery and overall workmanship of the Hybrid Solar Charging Unit must be warranted for a minimum of five years from the date of commissioning and handing over of the system.
- The Comprehensive Maintenance (within warranty period) shall be executed by the firm themselves or through the authorized dealer/ service center of the firm in the concerned district. It is mandatory for the Contractor/ Bidder to open an authorized service center in the concerned district before the supply/installation of the system.
- Necessary maintenance spares for five years trouble free operation shall also be supplied with the system.
- The Contractor/ Bidder shall be responsible to replace free of cost (including transportation and insurance expenses) to the purchaser whole or any part of supply which under normal and proper use become dysfunctional within one month of issue of any such complaint by the purchaser.
- The service personnel of the Successful Bidder will make routine quarterly maintenance visits.
- The maintenance shall include thorough testing and replacement of any damaged parts Apart from this any complaint registered/ service calls received / faults notified in the report should be attended to and the system should be repaired/ restored/ replaced within seven days.
- A separate Service and Maintenance manual shall be maintained with each system as per the format provided by TERI. The deputed personnel shall be in a position to check and test all the components regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any component shall be brought to the notice of TERI for appropriate action.
- Normal and preventive maintenance of the Hybrid Solar Charging Unit such as cleaning of module surface, topping up of batteries, tightening of all electrical connections, cleaning and greasing of battery terminals, also the duties of the deputed personnel during half-yearly maintenance visits.
- During operation and maintenance period of the Hybrid Solar Charging Unit, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, whatsoever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.
- Contractor/Bidder shall submit verified quarterly maintenance report regularly to TERI within 15 days of period ending six months. Failing which payment for such period will not be released or recommended.

AGREEMENT

TERI / Contract / 2023-24 / NO. _____

This AGREEMENT is made and entered into on __ day of _____ 2023 (hereinafter called the 'Effective Date').

BY and BETWEEN

The Energy and Resources Institute, a society registered under the Indian Societies Act XXI of 1860 with its registered address at Darbari Seth Block, Habitat Place, Lodhi Road, New Delhi – 110 003, India (hereinafter referred to as "TERI" which expression shall include their successors and permitted assigns) of the **first part**;

And

……..……regist ered under ……..……, with its registered address at …… …… ……, India (hereinafter referred to as "**Supplier**" which expression shall include their successors and permitted assigns) of the **other part**;

Agreement reference no is purchase order no which is _____ dated _____ amounting to Rs _____ (Rs _____ Only)

TERI and the Supplier shall hereinafter collectively be called "**the Parties**" and individually referred to as "**the Party**"

WHEREAS

TERI is undertaking the task of "Energy Access for Livelihood Promotion" under CSR initiative partnership with corporate/ PSUs, through the use of advanced hybrid solar technologies. TERI seeks Suppliers to undertake the work of establishing hybrid solar charging unit (HSCU) for power loom at various locations of Madhya Pradesh, Chhattisgarh and Maharashtra in India under the Project in line with the detailed scope of work and terms and conditions, mentioned hereinafter in this document, hereinafter called the Work which expression shall include all agreed modifications thereof.

Now, therefore, this Agreement witnessed as follows:

1. **Specification, Terms and conditions:** No Deviation from Specification, Terms & Conditions of RFQ allowed for the supply, installation, commissioning and maintenance of the hybrid solar charging unit (HSCU) for power loom being installed at the site.
2. The Agreement shall be on turn-key basis. The work shall be completed within the stipulated time from the date of placement of work order. However 'TERI' may in case of urgency ask the Supplier to complete the work earlier, with the mutual consent of the Parties. In case the Supplier fails to execute the said work within stipulated time, 'TERI' will be at liberty to get the work executed from the open market without calling any further tender/e-tender and without any notice to the Supplier , at the risk and cost of the Supplier . Any additional cost incurred by 'TERI' shall be recovered from the Supplier. If the cost of executing the work as aforesaid shall exceed the balance due to the Supplier , and the Supplier fails to make good the additional cost, 'TERI' may recover it from the Supplier's pending claims against any work in 'TERI' or in any lawful manner.
3. The Supplier, (i.e., the successful bidder), may be allowed to operate in the State of Madhya Pradesh, Chhattisgarh and Maharashtra through authorized dealer for execution of the orders placed on authorized dealer. It will be the sole responsibility of the Supplier, to execute orders placed as per time schedule, and to ensure quality parameters, specifications and other requirements provided in the RFQ document and as per agreement.
4. In the interest of the work, agreement executed between the Supplier and TERI, may be extended to a mutually agreed period, if the need arises so. It shall be the sole responsibility of the supplier to get verified the quality and quantity of the supplied material at the site of delivery.
5. **Warranty period:** The material supplied shall be under on-site warranty for a period of minimum 60 months for hybrid solar charging unit (HSCU) for power loom from the date of installation at site. Warranty certificate(s) shall be submitted along with the material.
6. **Price reduction for delayed delivery:** In the event of delay affecting the delivery within agreed period, unless concurrence for the delay has been given by TERI on request of the Supplier, a reduction in the price shall be levied @ 1% of the total order value per week or part thereof subject to a maximum of 10% of the total order value inclusive of all taxes and levies.
7. **Quality Assurance:** The Supplier shall establish, document and maintain an effective quality assurance program. Within 7 days from the date of purchase order, a detailed quality assurance programme shall be submitted by the supplier to TERI for approval. The Quality Assurance Program should be comprehensive and must include all aspects from manufacturing to commissioning / trial run of systems. Approved quality assurance programme will form the basis of all future inspections/ audits undertaken by TERI after the supply of materials and within the warranty coverage.
8. **Inspection:** Inspection will be done by TERI representative at the beneficiary's premises. TERI shall have free access to the Supplier's works during the supply, installation and commissioning of systems. All testing arrangements shall be the responsibility of the supplier. TERI reserves the right to inspect the material during supply / installation / commissioning as per specifications and test protocols. Internal inspection report and inspection certificate must accompany the supply. All arrangements for Pre Dispatch Inspection (PDI) will be done by the supplier.

9. TERI reserves the right to cancel any order placed on basis of this tender in case of strike, accident or any other unforeseen contingencies causing stoppage of work at TERI or to modify the order without liability for any compensation and or claim of any description.
10. In case order placed by TERI based on the quotation/bid/tender submitted by the bidder/supplier is not executed by the supplier/bidder, TERI may buy the ordered goods from elsewhere and recover the additional amount that TERI may have to spend in procuring the stores plus 10% to cover the overhead & incidental expenses.
11. **Replacement of rejected material:** Any material supplied against order placed on the basis of this tender and found to be defective at any time during the project life on inspection or differing from approved samples or make or specifications will be replaced by the Supplier free of cost or full refund made for the amount paid by TERI including freight and insurance and other incidental charges at our discretion.
12. **Liquidated damages:** If the Supplier fails to perform the services within the time periods specified in the Agreement , the 'TERI' shall without prejudice to its other remedies under the Agreement deduct from the contract price as liquidated damage, a sum equivalent to 1.0% of the price of the unperformed services for each week (For the purposes of calculation of delay, part of week shall be treated as week) of delay until actual performance up to a maximum deduction of 10% of the delayed services. Once the maximum is reached, 'TERI' may consider termination of the Agreement. In the case of violation of Agreement, TERI may confiscate pending payments/ dues of the Supplier assigning specific reasons and shall also have the power to debar/ blacklist the Supplier in similar circumstances. TERI may also invoke performance/security bank guarantee.
13. **Road permit and entry taxes:** To be facilitated and arranged by supplier.
14. The Supplier shall have to comply with all the rules, regulations, laws and by-laws for the time being in force and the instructions if any, of the beneficiaries, in whose premises the work has to be done. 'TERI' shall have no liability in this regard.
15. **Insurance:** Transit Insurance, storage insurance and erection insurance of the materials and equipment's for setting up the hybrid solar charging unit (HSCU) for power loom shall be arranged by the Supplier for the total supply [Risk should be covered till the handing over of Units to beneficiary]. In case of any damage/ loss/ pilferage/ non-delivery during transit, the Supplier shall lodge and settle the claim with the insurance agency. The Supplier shall also arrange replacement of the damaged/ lost/ pilfered items expeditiously pending settlement with insurance agency, if any, so as not to hamper the erection and commissioning work of the hybrid solar charging unit (HSCU) for power loom. The resultant loss if any due to failure of Supplier to comply with the above shall be to the account of Supplier.
16. **Labour Engagement:** The Supplier shall be responsible to provide all wages and allied benefits to the labour engaged for execution of the project work. The supplier shall remain liable to the authorities concerned for compliance of the existing rules and regulations of the government for this purpose including regulations against employing child labour etc. and shall also remain liable for any contravention thereof.
17. **Safety Codes and Regulation:** The Supplier shall adhere to safe installation and commissioning practices and guard against hazardous and unsafe conditions and shall comply with safety rules of

the Government of India. In addition, the Supplier shall adhere to and be bound by the applicable safety codes, rules and regulation for the work to be carried out. A separate log to be maintained by Supplier.

18. **Adjudication:** The High court at New Delhi and Courts subordinate thereto, shall alone have jurisdictions to the exclusion of all other courts.
19. The Supplier shall not, without the consent in writing of 'TERI', transfer, assign or sublet the work under the contract or any substantial part thereof to any other party.
20. 'TERI' shall have at all reasonable time access to the works being carried out by the Supplier under the Agreement. All the work shall be carried out by the Supplier to the satisfaction of 'TERI'.
21. If any question, dispute or difference what so ever shall arises between 'TERI' and the Supplier, in the connection with the agreement except as to matters, the decisions for which have been specifically provided, either party may forthwith give to the other notice in writing of existence of such question, dispute or difference and the same shall be referred to the sole arbitration of the Director-General, TERI or a person nominated by him. This reference shall be governed by the Indian Arbitration and Conciliation Act 1996, and the rules made there under. The award in such arbitration shall be final and binding on both the parties. Work under the agreement shall be continuing during the arbitration proceedings unless the 'TERI' or the arbitrator directs otherwise.
22. TERI' may at any time by notice in writing to the Supplier either stop the work all together or reduce or cut it down. If the work is stopped all together, the Supplier will only be paid for work done and expenses distinctly incurred by him as on preparation or the execution of the work up to the date on which such notice is received by him. Such expenses shall be assessed by 'TERI', whose decision shall be final and bidding on the Supplier. If the work is cut down, the Supplier will not be paid any compensation what so ever for the loss or profit which he might have made if he had been allowed to complete all the work included in the Agreement.
23. **Risk, Accident and Damages:** The Supplier shall take due precaution to avoid damages to any pipelines, Railway lines, roads, canals, cables, culverts, bridges, drains, sewer, telegraph and telephone lines, water mains, dykes, poles, pillars, fences, wires, supports and embankments and other underground or over ground works, structural or constructions whatsoever and shall at his own cost and initiative forthwith restore and repair any damage thereto the satisfaction of TERI and / or the person or authority concerned relative to the line, pipe or other works, construction of installation as the case may be.
24. **Observation of Environmental Regulations and Protection:** The Supplier shall ensure that its servants and agents and sub-contractors and their servants and agents shall duly comply with all environmental laws, rules and regulations and the conditions of any permit, permission, consent and or no-objection granted in this behalf by any authority with respect to or concerning the work and shall independently so organize and conduct their operations as not to cause any hazard or pollution to health, life, property or environment including (but not limited to) discharge of any noxious substance or effluent into the atmosphere or into the earth or into any drain, canal, stream, river, pond, lake or other water body.

25. **Compliance with regulations:** The Supplier shall comply with all applicable laws or ordinances; codes approved technical standards, rules and regulations and shall procure all necessary Government permits & licenses etc. at its own cost. All compliances (State Govt. /Central Govt./GST/Local - VAT/WCT/ESI/PF/Labour law etc.) is to be met by the Supplier and the same is to be produced by the Supplier at the time of payment.
26. **Demurrage and Wharfage:** All demurrage, Wharfage and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the Supplier.
27. **Indemnity:** Supplier shall indemnify and at all times keep TERI indemnified and harmless against any direct loss to it or any claims by any third person, for any personal injury to anybody or loss to property, movable or immovable, caused by or attributable to any act or omission of the supplier or any of his officer, employee, agent or professional etc. while performing or purporting to perform this Agreement.
28. The Supplier shall provide one copy system pass book containing instruction manual/routine maintenance manual and maintenance record of the systems with each unit supplied or installed, this shall be in both English and Hindi language. The draft of passbook shall be approved by TERI.

    The following minimum details must be provided with manual:

    a. About the complete photovoltaic system including PV modules, battery loom and electronics
    b. Dos and Don'ts
    c. Clear instructions on regular maintenance and troubleshooting of the system
    d. Name and address of the contact person in case of non-functioning of the system.

29. Installation and service:

    The following inspection procedures and tests are required:

    i) 'TERI' or its representative shall have the right to inspect and/or to test the goods to confirm their conformity to the contract. The special conditions of Agreement and/or the Technical specifications shall specify what inspections and test the 'TERI' required.
    ii) 'TERI', its duly authorized representative shall have at all reasonable times access to the Supplier's premises or works and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the works.
    iii) The Supplier shall give the 'TERI', 15 day's written notice of any material being ready for testing. It shall be mandatory that such notice should reach 'TERI' within 30 days of placement of work order. Such tests shall be on the Supplier's accounts/ expenses except for the expenses of the inspector. 'TERI' reserves the full rights, to waive off inspection of material.
    iv) The Supplier is required to get the entire lot of the ordered material inspected at one time, before the supply of the materials.
    v) All arrangements for the inspection of materials will be done by Supplier.
    vi) The inspection by 'TERI' and issue of dispatch instruction there of shall in no way limit the liabilities and responsibilities of the Supplier in respect of the agreed quality assurance programme forming a part of the contract

vii) The complaints within warranty period should be attended to within a maximum timeframe of 7 calendar days.

30. Termination: TERI by written notice, may terminate this Order for default, in whole or in part, if the Supplier: (a) fails to make a delivery in accordance with the Order's schedule, (b) fails to comply with any of the terms of this Order, (c) fails to make progress so as to endanger performance of this Order, (d) fails to provide adequate assurances of future performance, (e) ceases to conduct its operations, or (f) has any proceeding or lawsuit under bankruptcy, liquidation, or insolvency law brought against it.

31. Warranty: The supplier shall warrant as per standards for quality that anything to be furnished shall be new, free from all defects and faults in material, workmanship and manufacture, shall be of the highest grade and consistent with established and generally accepted standards for material of the type ordered, shall be in full conformity with the specifications, drawing or samples, if any and shall if operable, operate properly.

- **Performance of Equipment:** In addition to the warranty as already provided, the Supplier shall guarantee satisfactory performance of the system and shall be responsible for the period or up to the date specified after the equipment has been accepted by the 'TERI' to the extent for any defects that may develop such defects and shall be removed at its own cost when called upon to do so by the 'TERI'.
- The Warranty period shall be 25 Years for the PV modules, 5 years for balance solar system from the date of commissioning and handing over of the system. The Supplier shall rectify defects developed in the system within Warranty period promptly. In case the defects are not rectified within a week (7 working days) of the receipt of the complaint by the Supplier, 'TERI' shall have full liberty to restore the system in working condition. The expenditure so incurred by 'TERI' shall be deducted from the Supplier pending claims, security/performance guarantee deposit or in other law full manner.
- Since the maintenance of the system may also be taken up by the Supplier after expiry of five (5) years of warranty period if the beneficiary so desires, the Supplier shall take up annual maintenance of the installed system.
- The Supplier shall maintain the system under annual maintenance contract with the end user.

34. Delivery

Delivery of materials: All the materials as specified in the purchase order should be delivered at the sites of installation within Six (6) weeks. Transit insurance and storage insurance till the handing over of all materials will be within the scope of work. The Supplier should provide the manufacturer's warranty on all components supplied.

Delivery time for installation and commissioning: Installation should be completed within Ten (10) weeks from the date of purchase order. The systems will be deemed commissioned only after successful trial run of the system for three (3) days from the date of installations. Warehousing and storage of all components will be in the scope of work till the commissioning of all systems as per the purchase order.

Collection of co-funding amount: Once the weaver beneficiary / installation site list, as agreed between TERI and the Supplier is finalized, the co-funding amount (40% of the discovered cost), communicated to the Supplier, needs to be collected from them individually and the same shall be deposited with TERI in an organized manner along with the list of beneficiaries . The maximum time schedule for this activity should be eight (8) weeks from the date of purchase order

35. On-site Warranty:

The Supplier is responsible for complete on-site warranty of the installed solar systems for 5 (five) years from the date of installation including all preventive and corrective maintenance services. It is mandatory for the Supplier to open authorized service centers at identified clusters in state of Madhya Pradesh, Chhattisgarh and Maharashtra before it starts such work. The scope of work for on-site warranty services will further include the following:

a) All preventive maintenance and repair activities associated with hybrid solar charging unit (HSCU) for power loom.
b) Supplier will create provision for receiving and recording all complaints, attending the complaints, stocking essential spares, provisioning trained service personnel, recording monthly logs of all activities, etc.
c) The complaints should be attended to within a maximum timeframe of Seven (7) calendar days. Monthly log of the complaints received and rectified must be maintained and submitted to TERI on quarterly basis.
d) Supplier shall provide to its service station all normal tools and testing equipment needed for maintenance of the Units at its own cost.
e) During the first 5-year period, the repair works will have to be carried out at the artisan premise/ production centres except in exceptional circumstances where the equipment or any component may be required to be taken out for repair, for which specific written permission should be obtained from TERI. In such cases, standby arrangements are required to be made by the Supplier so that the hybrid solar charging unit (HSCU) for power loom remains in functional state. All products have valid product warranty and hence on-site repair and maintenance service needs to be provided after getting replenishment of spares from respective product manufacturer.

If the Supplier fails to attend the complaint within Seven (7) calendar days, a reasonable penalty of five percentages (5%) may be deducted from the pending amount due during that half yearly period.

If the work of the Supplier is found unsatisfactory or if the Supplier dishonors the contract or fails to perform the contract, TERI shall be entitled to terminate the Agreement and TERI's decision will be final and binding on the Supplier. In that case, the payment of last invoice amount will not be done in addition to the above penalty charges and other remedial measures as deemed fit by TERI.

The Supplier shall submit the bill along with the verification report counter-signed by TERI representative.

36. Payments:

The payments shall be made as per the following terms and conditions:

a. **60% payment against** delivery of material, as per purchase order, on site and subject to submission of documents a) Invoice of complete material supplied along with proof of delivery at site (sign and stamp of person who has received and verified the materials, counter-signed by authorized representative of TERI) b) Delivery challan(s) & E- way bill

b. **30% payment against:**

(i) Only after deposit and realization of 100% co-funding amount mobilized from the weaver beneficiary / production centre-in-charge to TERI;
(ii) Installation and commissioning of hybrid solar charging unit (HSCU) for power loom at each designated premise with documentary evidence.
(iii) Submission of proof of establishing of service center
(iv) The warranty certificates for complete system

c. **10% payment** after 1 (one) year from the date of installation, given timely and satisfactory warranty coverage during the elapsed period and on submission of document

All the payment shall be released from TERI head office, New Delhi on submission of requisite documents / cofounding.

37. Documents:

Following documents need to be submitted to TERI for processing of payments:

A. 1st Payment (60% payment against delivery.):

a) Invoice of complete material supplied along with proof of delivery at site (sign and stamp of person who has received and verified the materials)
b) Delivery challan(s) & E way bill

B. 2nd Payment (30%):

a) Complete list of installation location verified by TERI representative
b) Deposit & realization confirmation of the co-funding amount in full (100%) , with respect to each artisan beneficiary
c) The warranty certificates for complete system (as per Purchase Order)
d) Complete system warranty certificate from the supplier

e) All reports should be stamped and signed by the authorized representative of the contractor / bidder
f) Invoice of installation and commissioning as per purchase order.
g) Proof for the establishment of service center for the sites (photo, registration docs).
h) Commissioning and handover certificate (as prescribed), counter- signed by TERI.
i) Minimum two (2) photographs (dated) for each premise in soft copy of the system. Photos should be clear and of minimum postcard size. Photo should cover all the components supplied at site.

C. 3rd Payment (10%):

One-year functionality report duly signed by the Supplier, representatives from beneficiary, in the prescribed format only.

D. Comprehensive Annual Maintenance Contract half-yearly payment:

a) Detailed complaint log of all the complaints received during the period (half yearly).
b) Rectification log of all complaints attended and remedial measures taken (half yearly).
c) Verification report signed by user and TERI representative.
d) If the documents are not submitted within the specified stipulated time period, (at half yearly frequency) the contract will deem to be completed and the Supplier will not have any claim for the payment.
e) Complete records for complaint and rectification log should be maintained and available during any visit.

38. Force majeure

- Notwithstanding the provisions of clauses contained in this deed; the Supplier shall not be liable for forfeiture of its performance security, liquidated damages, termination for default, if he is unable to fulfill his obligation under this deed due to event of force majeure circumstances.
- For purpose of this clause, 'Force majeure' means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of Government either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes
- However, if a force majeure situation arises, the Supplier shall immediately notify 'TERI' in writing. The decision of the competent authority of TERI in above conditions shall be final.

39. Any work which is not covered under this Agreement but is essentially required for the completion of job (To the satisfaction of TERI) shall be carried out by the Supplier as extra item or which payment shall be made separately at the rates decided by TERI.

40. Warranty and maintenance:

a) The PV modules will be warranted for a minimum period of 25 years from the date of supply.
(Output wattage should not be less than 90% at the end of 10 years and 80% at the end of 25 years).

b) The mechanical structures, electrical components including battery and overall workmanship of the hybrid solar charging unit (HSCU) for power loom must be warranted for a minimum of 5 (five) years from the date of commissioning and handing over of the system.

c) The Comprehensive Maintenance (within warranty period) shall be executed by the firm themselves or through the authorized dealer/ service center of the firm in the concerned district. It is mandatory for the Supplier to open an authorized service center in the concerned district before the supply/installation of the system.

d) Necessary maintenance spares for 5 (five) years trouble free operation shall also be supplied with the system.

e) The Supplier shall be responsible to replace free of cost (including transportation and insurance expenses) to the artisan beneficiaries whole or any part of supply which under normal and proper use become dysfunctional within one month of issue of any such complaint by the purchaser.

f) The service personnel of the Supplier will make routine quarterly maintenance visits.

g) The maintenance shall include thorough testing and replacement of any damaged parts. Apart from this any complaint registered/ service calls received / faults notified in the report should be attended to and the system should be repaired/ restored/ replaced within 7 (seven) days.

h) A separate Service and Maintenance manual shall be maintained with each system as per the format provided by TERI. The deputed personnel shall be in a position to check and test all the components regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any component shall be brought to the notice of TERI for appropriate action.

i) Normal and preventive maintenance of the hybrid solar charging unit (HSCU) for power loom, such as cleaning of module surface, topping up of batteries, tightening of all electrical connections, cleaning of battery terminals, also the duties of the deputed personnel during half-yearly maintenance visits.

j) During operation and maintenance period of the hybrid solar charging unit (HSCU) for power loom, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, whatsoever, the Supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.

k) The Supplier shall submit verified quarterly maintenance report regularly to TERI within 15 days of period ending six months. Failing which payment for such period will not be released or recommended.

41. Scope of AMC work

i) The Supplier shall perform standard annual maintenance and augment the system as needed to meet performance guarantee in all aspects.

ii) Supplier shall perform standard annual maintenance of hybrid solar charging unit (HSCU) for power loom that would include wear, tear, overhauling, insurance, and replacement of defective cells, PCUs, spares, consumables and other loom parts installed.

iii) Monitoring of hybrid solar charging unit (HSCU) for power loom performance and supply of all technical, production/operation data and information and making it available as and when required.

iv) Responsible to carry out routine and preventive maintenance and replacement of component/equipment of hybrid solar charging unit (HSCU) for power loom in case of failure and the Supplier shall provide all labor, material, consumables etc. for routine and preventive maintenance at regular intervals. This will also include scheduled software maintenance, HVAC cleaning, battery container cleaning, low voltage side circuit breaker maintenance, fire suppression system maintenance etc.

v) Carryout maintenance activities as a result of sudden failure/breakdown of any particular component or equipment. The Supplier shall be responsible to carry out breakdown maintenance of each and every component of hybrid solar charging unit (HSCU) for power loom.

vi) Visit to onsite on call basis to provide maintenance services within 12 hours of raising the complaint.

vii) Emergency trouble shooting calls - within 12 hours including spare arrangements.

viii) On site repairing/component replacement - within 7 (seven) days, however, system has to be in service utilizing the spares within 12 hours of the breakdown

ix) The Supplier shall maintain stock of mandatory spares required for warranty and AMC period for any emergency troubleshooting. In any case system should be in running condition within 12 hours of break-down.

x) The Supplier shall keep one technically skilled person employed dedicatedly to sites as mentioned in the tender.

xi) Sub-Contracting: No sub-contracting of work in full or in part is allowed unless approved by TERI in writing."

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Technical Bid for Hybrid Solar Charging Unit (HSCU) for power loom

A. General Particular

1.	Name and Address of Bidder / Firm			
2.	Type of Bidder			
3	GSTN			
4	PAN			
5	Last 3 Years annual turnover	**Year 1** (2022-23)-	**Year 2** (2021-22)-	**Year 3** (2020-21)-
6	Experience of supply, Installation and commissioning of Solar PV system for Power Loom / MSME Cluster			
7	Minimum two years of experience in executing contract of Solar Photovoltaic Power Plants Power Loom / MSME Cluster.			
8	Experience of mobilization of co-funding from the community			
9	Service center presence in Madhya Pradesh, Chhattisgarh, Maharashtra			

B. Hybrid Solar Charging Unit (HSCU) for Power Loom

SL	Description	Particular	Details
1	Solar Module	Make	
		Capacity in wattage of individual panel	
		Quantity in Numbers	
		Total wattage	
		In Compliance with technical specification provided by TERI	
		BIS / IEC standard	
2	MPPT and Inverter	MPPT Make	
		MPPT capacity	
		Input Voltage	
		Output Voltage	
		Protection	
		Inverter make	
		Inverter capacity	
		Input and Output voltage	
		In Compliance with technical specification provided by TERI	
3	Lithium Battery	Type of Lithium Battery	
		Make	
		Capacity	
		In Compliance with technical specification provided by TERI	
4	Lighting	Make and model	

SL	Description	Particular	Details
	Arrester		
5	Earthling	Make and model	
		Numbers of Earthling	
6	Cable	Make	
		In Compliance with technical specification provided by TERI	

Authorized Signatory:

Name:

Designation:

With official seal

FINANCIAL BID

Name of the Company / Firm / NGO:

Implementation (weaver beneficiary identification, supply, installation and maintenance, mobilization of co-funding and comprehensive onsite warranty for 5 years) of approximately 28 numbers of Hybrid Solar Charging Unit (HSCU) for power loom in the state of Madhya Pradesh, Chhattisgarh and Maharashtra.

Table: 1 Descriptions of **Hybrid Solar Charging Unit (HSCU)** for financial bid

Sl. No.	Item	HSN Code	Price per unit in INR	Remark
1	Hybrid Solar Charging Unit (HSCU) as per technical specification at proposed sites with comprehensive warranty for 5 (five) years with CMC			
2	Installation and commissioning			
3	GST for Sl 1 @ 12 %			
4	GST for Sl 2 @ 18%			
7	Total GST			
	Net Amount (Rs.)			

NOTES:

1. Certified that rates quoted above are as per the requirement, specification, Terms & condition mentioned in the quotation / tender document.

2. The rates are inclusive of all taxes & duties, storage, transportation up to site, insurance, etc. and any other job required to properly execute the work.

(Signature of Bidder with seal)