**Transformational Energy Use for Sierra Leone – Phase 1 (TEUSL 1)**

**Project Number: 14.2275.7-339.00**

**Co-financed by EU, in partnership with EnDev – Energising Development**

**NATIONAL TENDER**

**FOR PROCUREMENT OF SOLAR POWERED MILLING MACHINES FOR SMALL AND MEDIUM ENTERPRISES**

**AVSI/SRL/TEUSL/04-2024**

**December 2024**

**PROCUREMENT REFERENCE**

Under the framework of the project “Transformational Energy Use for Sierra Leone – Phase 1 (TEUSL 1)” funded by the EU and the German Federal Ministry for Economic Cooperation and Development (BMZ), implemented in partnership with EnDev - Energising Development (GIZ), AVSI Foundation has launched a national call for tender for the purchasing and installation of **solar photovoltaic systems to supply milling machines** for small and medium enterprises selected as beneficiaries of project interventions.

The procurement will be inserted in a **demand-side subsidy scheme** implemented by AVSI as part of the TEUSL 1 project, whose terms and conditions will be agreed upon with the selected supplier at the time of contracting.

**Locations**: Kenema and Kono districts, Sierra Leone

**Estimated quantity**: **Minimum of 20 – maximum of 40 systems**, depending on price offer. Suppliers are invited to submit their price quotations for **20 systems**. However, the final number of systems will be determined in the contracting phase.

**Technical specifications**:

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| **OVERALL DESCRIPTION** |
| 20 systems will be installed to power 20 mills. Each system will exclusively power one mill. The required PV system is designed to supply electricity on a 6-hour-per-day basis for a mill's daily operation.There are 2 different acceptable options for the power size of the mill required:1. 800 W
2. 2.2 kW

The tender can present 1 or 2 proposals:-1 proposal: for only 1 option of the two options presented, or -2 proposals: each one for each of the two options. The following technical specifications have been developed for both options. Where no specific option is mentioned, it means that the specifications must be satisfied by the both options. |
| **PV FIELD** |
| Rated power | **For Option 1:** Minimum 960 Wp **For Option2:** Minimum 2,6 kWp |
| PV modules | Cristallin Silicon technology (poly or mono)Peak Power > 330 Wp per module @ STCAluminium frameGlass-Glass or Glass tedlarJunction box including by pass diodesPre cabled with specific DC-PV connectorsNorms IEC 61-215 and 61-730-1-2Warranty: + 10 years  |
| Bearing structure | Rooftop bearing structure. AVSI reserves the right to switch from rooftop installations to ground-mounted installations, depending on the condition of the roofs of the beneficiaries' houses. This aspect will be defined after the awarding.Antitheft deviceNorth facing/ slope 15° |
| Cabling | Serie/parallel cabling of the PV modules according to the operating MPPT voltage range of (i) the MPPT charge controller of the system, (ii) the inverter.  |
| **BATTERY RANK**  |
| Nominal capacity | Overall storage capacity (C) of the battery elements connected in series/parallel: **For Option1:** C minimum 4,8 kWh @ 30°C**For Option2:** C minimum 13,2 kWh @ 30°C |
| Cell technology | LiFePO4 |
| Specifications | Voltage: 45 – 55 V Operating conditions: Temperature 20 – 45 °C / Humidity 10 – 90%Protection: overcurrent / overheatingCharge cycling: Minimum 3000 cycles @ 90% DOD IP 65 or higher (not installed in a dedicated technical room)BMS includedThe batteries must be stored and installed in a protective structure that prevents easy access to the terminals and avoids placing the batteries on the ground, thereby protecting them from dust exposure. Manufacturer compliance certification is required for the batteryWarranty: + 2 years  |
| **BATTERY CHARGING CONTROLLER** |
| Note | The MPPT controller can be:* A specific MPPT charge controller from the same manufacturer of the inverter (examples: Victron, Deye, Studer, Morning Star, etc.) with communication between charger and inverter.
* A build-in all-in-one system including the MPPT DC/DC controller and the DC/AC inverter.

The second option is preferable |
| Specifications | MPPT technologyVoltage range: 100 – 250V or higherCharging algorithm compatible with the Li-Ion battery proposedManufacturer compliance certification is required for the charger.IP 65 or higher (not installed in a dedicated technical room)Warranty: + 2 years  |
| **INVERTER** |
| General | DC/AC inverter compatible with the Li-Ion battery proposed (for discharge regulating process)Manufacturer compliance certification is required for the inverter.Inverter can be:* A specific DC/AC inverter, same manufacturer of the MPPT controller (examples: Victron, Studer, Morning Star) with communication between charger and inverter
* A built All-in all in one system including the MPPT DC/DC controller and the DC/AC inverter.

The second option is preferable. |
| Specifications | **For Option1:** Rated Power 1 kW**For Option2:** Rated Power 2,5 kWInput voltage: compatible with the proposed batteryDischarge regulation: compliant with BMSIP 65 (not installed in a dedicated technical room)Efficiency > 92% at 50% of nominal powerWarranty: + 2 years  |
| **MILL** |
| General | **Proposals with a mill power rating exceeding 2.2 kW will not be considered**.Proposals with mill having a power rating different from 800 W or 2.2 kW may be accepted, **provided that the power does not exceed 2.2 kW** and that the proposed photovoltaic system sizing is submitted in an editable version with the calculations and formulas clearly explained and visible.Mills with a high startup power are not accepted. |
| Mill requirements | - Type: Hammer mill - Performance: from minimum 40 to 200+ kg/h- Suitable at least for cassava, rice and maize- Size: about 110x75x125cm (L-W-H) - Weight: maximum 90 kg - Supplied with its own bucket, basket, or bag to contain the flour produced- Supplied with the necessary cables and equipment for coupling with the photovoltaic system |
| **GENERAL REQUIREMENTS ON WIRING AND SAFETY DEVICES** |
| Wiring | For all DC cables: unipolar – flexible (HO7type or equivalent)PV cables: specific PV cables unipolar with double insulationAC cables: multipolar 3GX / HO7 or R2V |
| Earthing | Each metallic part of the overall system must be grounded with a dedicated earth poleNeutral grounded at the inverter outputEarthing cabling: 1x6mm2  |
| Safety protection devices | DC circuit:* PV 🡪 MPPT charger: isolator switch on both polarity
* Battery 🡪 MPPT controller and/or inverter: isolator switch on (+) polarity
* Battery 🡪 MPPT controller and/or inverter: fuse or breaker on (+) polarity

AC circuit (inverter output):* Main AC switch (no breaker required)
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**TECHNICAL AND FINANCIAL OFFER DETAILS**

* 1. **Technical proposal**

The proposal shall include:

* Description of the proposed equipment inclusive of pictures
* Datasheet of the equipment proposed
* A clear SLD of the proposed system
* Quality certificates and compliance of the manufacturer
* Warranty
* After-sales service (12 months)
* Training of beneficiaries on O&M of the system installed
* Detailed chronogram

**1.2 Financial proposal and currency**

The proposal shall include the **price offer in Leones (Le)** comprehensive of all costs (e.g., for importation, distribution, installation, after-sales, etc.) and taxes (GST and WHT). Payment will be done in Leones, according to the deliverables, procedures and modalities agreed during the contracting phase.

**1.3 Mandatory documents for submission**

The following documents must be sent for both hard and soft copies delivery method:

1. Technical proposal, including:
	1. Description of the proposed equipment inclusive of pictures
	2. Datasheets of the equipment proposed
	3. Quality certifications and manufacturer compliance for the proposed equipment
	4. Clear SLD of the proposed system
	5. Warranty
	6. After-sales service (12 months)
	7. Training of beneficiaries on O&M of the system installed
	8. Detailed chronogram
2. Financial proposal, including:
	1. Price offer in Leones (Le)comprehensive of all costs (e.g., for importation, distribution, installation, etc.) and taxes (GST and WHT)
3. Documentation on company's past experiences including but not limited to:
	1. Experience with Demand-Side Subsidies (DSS), grants, and/or similar projects for access to energy and productive use of energy
	2. Previous experience with AVSI and/or other NGOs, UN Agencies
	3. A minimum of 3 references must be provided
4. NRA tax clearance certificate (most recent)
5. Business registration certificate
6. Annex A Eligibility Declaration filled and signed
7. Annex B (code of ethic) signed
8. Annex C (child safeguarding policy) filled and signed

Document related to the tender can be downloaded from the website <https://careers.sl/> under the related tender page. Or requested by email to laura.lombardo@avsi.org

Hand Delivery:

Bids should be submitted in sealed envelope to:

AVSI Foundation Sierra Leone

5G off King Harman Road, Brookfield, Freetown, Sierra Leone

Or

Former SLDC Compound, Tayama Highway Reservation, Bo City, Sierra Leone

Clearly mark on the envelope: Call for tender – AVSI/SRL/TEUSL/04-2024

E-mail Delivery:

Bids should be submitted to the following e mail addresses:

laura.lombardo@avsi.org

Cc: freetown@avsi.org, osman.sesay@avsi.org

Clearly mark on the subject of the email: Call for tender – AVSI/SRL/TEUSL/04-2024

**Deadline to submit bids: 12 January 2025, 5.00 pm Sierra Leone time (WAT)**

**1.4 Validity of the Offer**

Minimum 30 days (to be specified in the offer).

**1.5 Evaluation Criteria**

Selection of the eligible supplier will be based on the following criteria:

* Quality and completeness of the proposal, according to technical specifications
* Price
* Previous experience with Demand-Side Subsidies (DSS), grants, and/or similar projects for access to energy and productive use of energy
* Previous experience with AVSI and/or other NGOs, UN agencies