



REQUEST FOR PROPOSAL

PV SOLAR SYSTEM INSTALLATION

SOS CHILDREN'S VILLAGES LEBANON – NATIONAL OFFICE AND TRAINING CENTER

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2. About SOS

SOS Children's Villages Lebanon is a non-governmental non-profit social development National Association and a member of the International Federation of SOS Children's Villages (SOS CV) which is an umbrella organization for 136 national SOS CV associations in the world among them are Nine Arab countries. We are part of the world's largest practitioner movement for supporting the right of the children who are deprived of parental care or at risk of losing it by providing them with family-based care and preventing child abandonment through our Family Strengthening Program (FSP). These 2 programs complement each other to take care of vulnerable less fortunate children.

3. Request for proposal

SOS Children's Villages Lebanon aims in this tender file to execute the "PV solar system installation" at the "SOS national office and training center".

4. Required documents

The bidder shall provide the following documents (SOS might request additional documents):

- a. Registration Certificate of the company.
- b. Registration in the ministry of finance.
- c. VAT registration certificate.
- d. Company profile.
- e. All insurances must be provided by the general contractor (during the tendering phase, the contractor will have to submit a signed and stamped letter stating that the contractor will provide the required insurances if awarded).
- f. List of similar executed projects (a minimum of three projects).
- g. Organization Chart reflecting the structure of the team who will be assigned to implement and monitor the required works and services.
- h. Time schedule.
- i. Material data sheets and samples.
- j. Health and safety plan.

5. Special conditions

- a. The bidder **must conduct** a site visit in order to verify the quantities and details (**site visit is mandatory**).

The proposal of a contractor who did not conduct a site visit will be rejected.

The site visit will be held on 27/6/2024 at 10 am (SOS National Office , Sin el fil)

<https://maps.app.goo.gl/W6cKBh3LsrXQfzFc7>

- b. Electricity and water during working hours are to be provided by the contractor including water for waterproofing testing.

- c. The contractor should perform two cleaning cycles for the PV panels. One cycle after 6 months from installation and one cycle after 12 months from installation.
- d. Material technical data sheets should be submitted.
- e. Concrete properties:
 - a. Ready mixed concrete is to be used.
 - b. Concrete compressive strength is to be a minimum of 30 MPA (at 28 days).
 - c. Concrete cylinders are to be taken (by the general contractor) for compressive strength testing.
 - d. No mixing is allowed onsite (except for grout to be used in repair).
- f. Material lifting and handling onsite are to be conducted by the general contractor.
- g. All bids must be submitted in sealed envelope showing the project name, bidder's name, phone number and email to the following address:
Beirut, Sin El Fil, Monseigneur Shebli street, SOS building, 3rd floor.
Note that all pages should be stamped and signed.
- h. Rerouting of electro-mechanical connections, in order to conduct waterproofing works is to be conducted by the general contractor.
- i. All debris and resulting material are to be removed away from site by the general contractor.

6. Time frame

All the works should be completed within a period of 4 weeks.

The awarded contractor has to fully abide by the submitted time schedule.

Any delays exceeding the time schedule will result in extra cost of 150 USD/day to be induced on the contractor and deducted from his payments.

Note that idle time resulting from natural conditions such as rain, snow, etc. (the days in which works cannot be performed) are to be added to the contractors project time.

7. Warranty

One year full warranty for the electrical works including Free maintenance, labor and spare parts additional to the army requested reserves, at least 12 supervisory visits per year, and additional response upon call within 24 hours of working days.

Fifteen years warranty for the steel and concrete works.

Ten years warranty for the roof waterproofing.

Three years warranty for the façade waterproofing works.

During the tendering phase, the contractor will have to submit a signed and stamped letter stating that the contractor will provide the required warranty if awarded.

8. Terms of payment

Terms of Payment shall be as detailed below after receipt of goods, works and/or services, submission of payment documentation, and SOS approval on completed work.

- a. Advance payment equal to 30% of contract amount
- b. 60% of contract amount after completion and handing over of works
- c. Remaining amount to be paid after six month of completion of works

The VAT amount will be paid in LBP at the official rate of 85,500 LBP for each USD

SOS reserves the right to terminate the contract without any extra cost induced on SOS

9. Payment conditions

Re-measured contract, payments are to be based on the actual executed quantities onsite.

10. Site visit

For registering an appointment for a site visit please contact Mr. Maroun Rizkallah at the phone number: +961 1 499 787.

11. Bill of quantities

ITEM	DESCRIPTION ITEM	UNIT	QTY	UNIT PRICE	TOTAL PRICE
	<p><u>Supply and installation of:</u> Solar System PV Plant System of the size 78KWp 3Ph 380V 50 Hz, 80KWh Lithium iron Phosphate LFP HV Battery Bank All system Components, Design and Installation shall comply with Project specifications.</p>				
1	<p>- Solar Panels: Mono-Si Tier 1 Power Modules, with CE Certification, Salt Mist Corrosion Test & Ammonia Corrosion Test.(not less than 575Wp module and 22% efficiency), based on STC mode and comply to the international standards TUV, CE markings Latest edition of: IEC 61215 Ed.2 / IS 14286, IEC 61701/IS 61701 For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, IEC 61730 Part 1 TUV</p>	U	135		



	<p>Acceptable Brands: Trina, Jinko, LG, Longi or equivalent.</p> <p>Note: the contractor has the ability to supply a module of higher rated Power in the condition of achieving at least the total sum of system capacity.</p>				
2	<p><u>- Mounting System specification & roof water insulation as per international standards:</u></p> <p>* Steel structure (Hot dip galvanized steel >120 microns coating or epoxy coating, the structure must resist the applied load due to a minimum wind speed 200 km/h), the minimum elevation of the structure shall be at least 2.5 m at the lowest point</p> <p>Support structures and mounting arrangements should comply with applicable international building codes "Euro Code" or "AISC360-ASCE7" etc ..., regulations and standards.</p> <p>All structures shall be made of corrosion resistant materials e.g., aluminum, galvanized steel, etc. if the structure is metallic, aluminum or hot dipped galvanized steel are well suited to this type of use. The same applies to all bolts, nuts, guy wires and fasteners. PV clamps are to be used in between modules.</p> <p>Provisions shall be made in order not to create electrochemical corrosion between the structures and the building on the one hand, and the structures and photovoltaic modules on the other. The negative conductor should be connected to the earth electrode as this arrangement will reduce electro-chemical degradation of the electrode and other metallic parts.</p> <p>The mounting system accessories (Bolts, nuts, fasteners, panel mounting clamp) must be Stainless steel SS 304</p> <p>* PCC precast concrete pads to avoid roof drilling, designed to withstand wind uplift (up to 200km/h). Exact weight and number to be provided by detailed calculation and approved by an engineer.</p> <p>Note: * Mounting system to be detailed in shop drawings and calculation notes and FI model "Etabs or Robot".</p> <p>* waterproofing treatment should be conducted at the connection of the steel structure with the CMU parapets and with the concrete roof.</p>	U	135		
3	<p>Inverter room:</p> <p>Supply and construction of new inverter room using 20 cm concrete masonry units including concrete lintels where required.</p>	LS	1		



	<p>Supply and pour reinforced concrete soffit slab for the room sloped to drain.</p> <p>Supply and apply sand ready mixed cement base coat plaster including key coat.</p> <p>Supply and apply two layers of bituminous waterproofing membrane, second layer mineralized including upstands, including aluminum flashing treated with PU mastic sealant.</p> <p>Supply and apply internal paint including putty as required.</p> <p>Supply and apply acrylic waterproof coating from the external sides of the room same as existing.</p> <p>Supply and install aluminum louver door, and aluminum pivoting window with fly screen.</p> <p>Supply and install electric sockets (as required), one way gang switch and one LED spot.</p> <p>Supply and install PVC roof drain for the room.</p> <p>Supply and install ceiling automatic fire extinguisher.</p>				
4	<p>-Hybrid Inverters: 3PH 380/220V 50Hz, pure sine wave, multiple MPPT tracking inputs, 800V Battery Charge, IP 65 having all the stated protections, Parallel installation support, lithium batteries BMS communication support compatible with all system components(PLCs, , Datalogger...)controllable from 3rd device controller(Read, Write, mode)</p> <p>Accepted brands: Deye, Sofar, ATESS, Sungrow or equivalent. Standards:</p> <p>IEC 61727, G99, G98, VDE 0126-1-1, RD 1699, C10-11, IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2</p> <p>CEI 0-21, VDE-AR-N 4105, NRS 097, IEC 62116,</p> <p>Note:</p> <p>* The price includes the supply and installation of all needed accessories, cables, lugs, connectors, programming, fuses, breakers, communication tools and cables, WiFi Kits and all necessary equipment for proper functioning as per manufacturer recommendations.</p>				
4.1	Rated 50Kw 3Ph 380V 50Hz Hybrid inverter.	U	2		
	<p>Lithium-iron phosphate (LiFePO4) 80 KWh 800V minimum requirements</p> <ul style="list-style-type: none"> - 6000 cycles at 90% DoD -10 years design lifetime -800V - 0.5C Charging/Discharging current recommended - 1C Max Charging/Discharging current -Battery Management System (BMS) 	U	1		



	<p>-operating temperature 0-50°C, -Protection against deep discharge/Overcharge, -Charge balancing between cells -UL1973 /UL1642 /UL9540A/VDE2510-50 /IEC63056/IEC62619 /IEC62040/IEC62477-1 /ICE61000-6-2/UN38.3 The Price includes all needed accessories and components as per system Design(Controller/isolator Module ,Original Racking System to hold the batteries, Cabling system, communication cables DC Panel Containing DC Breakers From each inverter, DC busbar of current rating of inverters, DC single core cables, fuses, screws, junctions, conduits, accessories as international standards IEC/NEC and compliance with manufacturer instructions) accepted Brands : Deye, Pylontech or equivalent.</p>				
5	PANELBOARDS:				
5.1	<p>- External DC String Junction Box (Combiner Box) IP65 UV resistant enclosure including ((2x) 2P DC Fuses, (1x) Appropriate 2P DC Breakers) in series, (1x) 2P DC Type 1+2 Surge arrestors with its fuses in parallel, for each string Installation shall be comply to NEC /IEC standards and manufacturer recommendations (Quantities may differ due to configuration the contractor is responsible of all needed combiner boxes based on the system configuration at its own cost.) Suntree Phoenix or equivalent ALL COMPONENTS TO BE 1200VDC RATED.</p>	Qty	2		
5.2	<p>-DC Panel (Batteries) IP54 Isc 36 KA Containing the following with 20% space area: - /1/x DC circuit breaker 1000V Trip15KA 2P 125A - Busbar Cu of the same 1000VDC DC 200A - Panel mounted screens and meters lamps showing the following(Current, Power, Voltage, Frequency, Energy) All needed accessories and components as per system Design(CTs, Breakers, single core cable, fuses, screws, junctions, relays, timers, conduits, accessories as international standards compliance and manufacturer instructions) accepted Brands : Eaton, Schneider or equivalent.</p>	U	2		
5.3	<p>-AC Panel Main Electrical Room IP54 Isc 36 KA Containing the following with 20% space area: - /2/x AC circuit breaker Trip15KA 4P 100A - /4/x AC circuit breaker Trip15KA 4P 50A - /2/Type (1+2) 100KA 4 poles Surge arrester with its rated fuses/breaker.</p>	U	1		



	<ul style="list-style-type: none"> - Busbar Cu of the same AC 100A - /2/ x Automatic Transfer Switch AC-3 4P 150A - Panel mounted screens and meters lamps showing the following(Current, Power, Voltage, Frequency, Energy) All needed accessories and components as per system Design(CTs, Breakers, single core cable, fuses, screws, junctions, relays, timers, conduits, accessories as international standards compliance and manufacturer instructions) accepted Brands : Eaton, Schneider or equivalent. 				
6	<ul style="list-style-type: none"> - Separate Earthing & Bonding Systems for each structure and equipments the system includes: - Concrete Earthing Handhole(30x30x15), -Tester Copper Bar > 30x6mm² csa 285mm Length with isolators, - Listed grounded Copper Electrods >1.5m 3/4" (the number of electrodes shall meets the requirements of resistivity under 50hms), in sandy and rocky locations, the contractor shall install (90x90)cm² of (25x3)mm² earthing grid. -1*70mm² stranded bare copper cable(as per site requirements) -1*70mm² stranded copper cable NYA G/Y(from earthing bar to equipments or equivalent copper tape (25x3)mm² s), and all required accessories. As per NEC /IEC standards and attached specifications. - The earthing wire section for each equipment must be equal or higher to the neutral wire feeder wire. - equipotential bonding of the panels structure, inverters and batteries as per manufacturer recommendations not less than 50mm² c.s.a 	U	2		
7	<p>Covered cable trays: Supply and install of perforated steel Covered cable trays as needed hot dip galvanized after fabrication including all necessary accessories and fittings and all other incidentals required to provide a complete installation as specified to the satisfaction of the Engineer IEC standard or equivalent ISO 1461, 10cm with 1.5mm thickness.</p>	M	35		
8	<p>Cables: Supply and install conduits and fittings, draw wires and the like (except where conduit work is required to be measured separately), Cable connectors and cable joints (where permitted) including joint boxes, sealing boxes, shrouds and the like and materials and heat for making the joints, Allowance in cable length for cables entering fittings and accessories, equipment or control gear, Necessary components and accessories for fixing</p>	LS			



	<p>cables on walls, ceilings and on cable trays/ladders. Mounting fittings, hangers and supports, Cable termination, end boxes, end plates, heat shrinkable kits, and the like</p> <p>NOTE: THE TYPE, LENGTH AND SECTION OF THE CABLES TO BE DETERMINED BASED ON THE PROJECT REQUIREMENTS MAINTAINING MAXIMUM A TOTAL OF 3% VOLTAGE DROP FROM SOURCE TO END FEEDER IN ACCORDANCE WITH THE ADMINISTRATION ENGINEERING TEAM.</p>				
8.1	<p>- DC PHOTOVOLTAIC CABLE with listed MC4 Connectors dedicated for solar systems use. Halogen-free, thermoset polyolefin Rated 1500VDC/1000VAC. max 1800 VDC Flexible, Uni-polar, Double insulated (class II), Fireproof, Halogen-free, Cables equipped with plug-in connectors</p> <p>The voltage drop between the panels and the inverter at the DC Side should not exceed 2%, with calculation note to be provided (minimum of 2x 6mm² to be provided).</p>	M	700		
8.2	NYA G/Y Cable (1*16)mm ² IEC standards Type tested.	M	100		
8.3	EX DC Cable 1500VDC (1*25)mm ² IEC standards Type tested.	M	20		
8.4	NYA AC Electrical copper Cable (3x32 mm ² + 16 mm ²) preference: Cable Du Liban.	M	50		
8.5	NYA AC Electrical copper Cable (3x70 mm ² + 25 mm ²) preference: Cable Du Liban.	M	60		
9	<p>* Trench of depth of 50 cm The bottom of the trench must be free of loose or projecting stones and debris, and backfill shall be sand or screened earth free of stones and sharp objects for the first six inches above the conductor, with 10cm asphalt cover) + 4" pvc pipe.</p>	M	30		
10	<p>1 Years Full Warranty including Free maintenance, labor and spare parts additional to the army requested reserves, at least 12 supervisory visits per year, and additional response upon call within 24 hours of working days.</p>	U	1		
11	<p>Testing And Commissioning.</p>	U	1		
12	<p>Supply and installation of: VFD for lift to reduce consumption European brand Price includes all accessories and cabling and panel board.</p>	U	2		
13	<p>Supply and installation of: -clamp meter (AC/DC). -battery tester machine suitable for batteries between 3 and 250 Ah.</p>	Set	1		



	<i>-panels tester machine not less than 600 watt European brand or class A Chinese brand.</i>				
14	<i>Supply of water pressure washer karcher brand K3 type.</i>	U	1		
	<i>All installation works & any resulting damage should be of contractor responsibility.</i>				
	TOTAL (USD)				
	VAT AMOUNT (USD)				
	TOTAL INCLUDING VAT (USD)				

Company name:

Date:

Address:

Signature:

Name of authorized personnel: