

REQUEST FOR INFORMATION (RFI)

RFI Reference: NG30-24-0385	Date: 11 June 2024
Title of the RFI	Purchase of Solar Water Heater for Humanitarian Hub
UNSPSC code(s)	26110000 - Batteries and generators and kinetic power transmission 26111601 - Diesel generators 26111607 - Solar generators 26111600 - Power generators
Closing date for receipt of the RFI	<p>17 June 2024 at 12:00hrs WAT</p> <p>If any doubt exists as to the time zone, refer to http://www.timeanddate.com/worldclock/.</p>
Address RFI response by e-mail to the attention of:	Supply Chain Officer
E-mail address for Submission of Responses:	<p>Responses must be submitted as follows:</p> <p><input type="checkbox"/> E-tendering</p> <p><input checked="" type="checkbox"/> Email</p> <p><input type="checkbox"/> Courier / Hand delivery</p> <p><input type="checkbox"/> Other iommaiduguribids@iom.int</p> <p>Bid submission address: Click or tap here to enter text.</p> <ul style="list-style-type: none"> ▪ File Format: PDF or Word format signed and stamped ▪ File names must be maximum 60 characters long and must not contain any letter or special character other than from Latin alphabet/keyboard. ▪ All files must be free of viruses and not corrupted. ▪ Max. File Size per transmission: 30MB in total ▪ Mandatory subject of email: RFI NG30-24-0385 Purchase of Solar Water Heater for Humanitarian Hub ▪ Multiple emails must be clearly identified by indicating in the subject line “email no. X of Y”, and the final “email no. Y of Y”. ▪ It is recommended that the entire Quotation be consolidated into as few attachments as possible. <p>The proposer should receive an email acknowledging email receipt.</p>
OBJECTIVES OF RFI	
<p>Currently, hot water in the 8 IOM hub sites in Borno State is produced by electric water heaters using power supplied by diesel generators. This is an inefficient and expensive use of generator power. Solar water heaters are more functional and lower cost in the remote off-grid areas of Borno State where the hubs are located.</p> <p>Solar water heaters will primarily be used to supply hot water for bathing purposes, with some use in laundry and kitchen applications. In each site, solar water heater systems will replace existing electric heaters in bathing areas.</p> <p>IOM intends to procure efficient and intelligently managed air conditioners with monitoring systems to replace old less functional generators.</p> <p>We are interested in learning about the range of air conditioners you offer to include capacities and performance.</p>	

DESCRIPTION OF REQUIREMENTS

We intend to procure Solar water heater units which we intend to deploy to remote locations .(Bama, Banki, Monguno, Dikwa, Gwoza, Damasak, Maiduguri, Ngala)

SPECIFIC INFORMATION IOM IS EXPECTING TO RECEIVE

Kindly provide us with detailed specifications for the Solar water heater units you have available with the information below.

Two general types of systems will be used as summarized in Table 2.

- i. **Red Roof.** This assembled system will utilize 40m² collectors connected to six insulated hot water tanks. A pumped water circulation system will circulate water between collectors and tanks. This system will be integrated into an existing hot water circulation system to serve the various guest rooms on the site.
- ii. **7 Hub Sites.** Fourteen (14) “standard” units with collectors and adjacent tanks will service bathing areas of sites. Two units will be installed at each hub location, one in the men’s bathroom / shower area and another at the women’s bathroom shower area. Similar units can be used for all sites.

Table 2 summarizes the main design features of each system. Details about the design requirements are specified in Sections 2.3.2 to 2.3.8 below.

Table 1: Summary Details of Solar Water Heater Systems to be Supplier

	Location	Number of Systems	Minimum Solar Collector Area (m2)	Water Storage Container Volume	Summary Notes
1	Red Roof	1	40 m2	12000 litres	<ul style="list-style-type: none"> • Recommended 6 x 2m³ storage tank (or equivalent). • Storage units to contain appropriate-sized electrical resistance heaters as back up (9 kW each recommended) • Pumped circulation between collectors and storage tank • All pipes, connections and valves to be supplied for the system
2	Banki	2	2 x 3.4m2	2 x 200 litres	
3	Bama	2	2 x 3.4m2	2 x 200 litre	
4	Monguno	2	2 x 3.4m2	2 x 200 litres	
5	Dikwa	2	2 x 3.4m2	2 x 200 litres	
6	Gwoza	2	2 x 3.4m2	2 x 200 litres	
7	Damasak	2	2 x 3.4m2	2 x 200 litres	

8	Ngala	2	2 x 3.4m ²	2 x 200 litres	
---	-------	---	-----------------------	----------------	--

Solar Water Heater Assembly

Solar Collector

Water supply at the sites is from bore holes or shallow wells which is pumped and stored in header tanks, providing sufficient water pressure in the systems. Because the water is likely to contain a high mineral content, either a) indirect-type closed loop or b) evacuated tube direct heating solar water heater collectors will be used.

The Solar Water Heater to be considered by the offeror should have an minimum output water temperature of 60°C. The collector assembly should conform to the concerned standards as specified under the heading of Applicable Standards.

The offeror is required to provide either

- Evacuated Tube-Direct Heating Type Collectors, or
- Flat Plate Type Collector with heat transfer fluid (i.e. glycol). A closed loop separates the collector flow water from the process water, heat being transferred through the tank jacket, thus heating the water indirectly.

Direct-type solar water heater units are not allowed.

Collectors are to be installed on the roof of the building units or on the ground if there is an acceptable location¹.

The offeror will supply spare heat transfer fluid and will ensure that extra fluid is available for at least one year from date of purchase.

Hot Water Storage Unit.

The size of the hot water storage units will be

- Six 2000 liter units for the Red Roof system (or an alternative configuration that totals 12000 litres)
- Fourteen 200 liter units for the 7 hub sites.

In the case of the hub sites, the storage can either be separate from or incorporated into the main assembly of the collector. These details should be clearly mentioned in the product documentation. The storage assembly should conform to the concerned standards as specified under the heading of Applicable Standards.

A heating element with thermostat shall be included inside each water storage unit (1.5 kW recommended for hub sites, 9kW for each Red Roof tank)

Storage units shall be designed for long life operation in extreme conditions. The unit shall be a heavy duty tank which includes an outside casing and an internal steel storage tank preferably with a sacrificial anode for corrosion protection.

Transport System

The offeror is required to provide all the necessary equipment for the water transport system. These should include low thermal conductivity high specification flexible stainless steel circulation piping with insulation jackets.

All piping, fittings, non-return valves, pressure release valves, thermostats and toolkits for O&M purposes shall be included. All system components should conform to the concerned standards as specified under the heading of Applicable Standards.

Support structure.

¹ Solar irradiance will not be impeded between 10 and 4 PM from any direction.

This shall be made of galvanized steel with footings fixable for ground or roof inclines. It will be movable so that roof maintenance can be conducted. The structure shall have an expected life of 20 years,

System Safety

The offeror is required to provide ample evidence, in the form of compliance certificates and/or test results, to ascertain the System Safety. The main constituents under this heading are;

- Stagnation Protection
- Rust Protection
- Over Temperature Protection
- Pressure resistance
- Reverse Flow Protection
- Safety Valves
- Safety Line and Expansion Lines
- Blow-off Lines
- Water Contamination resistance

The above mentioned system safety aspects should not be deemed to be suffice for overall acceptance of the product offered. The offeror is required to conduct and/or present compliance certificates and test results for all factors outlined in the concerned standards identified in the proposal and/or product specification document.

Applicable Standards and Certifications

Unless otherwise specified, the offered product and its components are required to conform to the following list of applicable standards and certifications.

Srl.	Standard	Description
1	EN 12975-1:2006	Thermal Solar Systems and Components – Solar Collectors – Part1: General Requirements
2	EN 12975-2:2006	Thermal Solar Systems and Components – Solar Collectors – Part2: Test Methods
3	ISO 9806: 2013	Test methods for Solar Collectors
4	ISO 9459-2:1995	Solar heating – Domestic water heating systems – Part2: Outdoor test methods for system performance characterization and yearly performance prediction of solar-only systems
5	ISO 9459-4: 2013	Solar heating – Domestic water heating systems – Part 4: System performance characterization by means of component tests and computer simulation
6	ISO 9459-5:2007	Solar heating – Domestic water heating systems – Part5: System Performance characterization by means of whole system test and computer simulation
7	ICC-SRCC-OG-100	Minimum Standards for Solar Thermal Collectors
8	ICC-SRCC-OG-300	Minimum Standards for Solar Water Heating Systems

Additionally, please do well to share technical documents, data sheets, brochures, or other resources that provide further insight into your products (generator).

Please note, your proposal should contain full information about your company and previous experience with other clients you had successfully supplied similar types of solar water heating systems to clients in off-grid locations.

- a) Partnerships or established joint ventures with air conditioning suppliers**
- b) Details of the company's key staff and their technical qualifications.**
- c) Demonstrated experience supplying, installing and maintaining solar water heaters in Nigeria and the region**
- d) Experience providing after-sale support to clients in previous projects.**
- e) Evidence that spare parts will be availability.**

For clarifications or further information, kindly reach out to us through the email address below. Looking forward to receiving the requested specifications.

Focal Person: IOM Maiduguri Tender

E-mail address: iommaiduguritenders@iom.int

NOTE