

**UNHCR**United Nations High Commissioner for Refugees  
Haut Commissariat des Nations Unies pour les réfugiésDATE: 14<sup>TH</sup> OCTOBER 2020

REQUEST FOR PROPOSAL: RFP/HCR/ROK/2020/010

**INSTALLATION AND COMMISSIONING OF A COMPLETE SOLARIZED  
WATER SUPPLY FACILITIES IN EAST DARFUR, SOUTH DARFUR, WHITE NILE, SOUTH KORDOFAN  
AND WEST KORDOFAN STATES REFUGEE CAMPS.****CLOSING DATE AND TIME: 8<sup>TH</sup> NOVEMBER 2020-23:59 HRS SUDAN STANDARD TIME.**

The Office of the United Nations High Commissioner for Refugees was established on December 14, 1950 by the United Nations General Assembly. The agency is mandated to lead and co-ordinate international action to protect refugees and resolve refugee problems worldwide. Its primary purpose is to safeguard the rights and well-being of refugees. It also has a mandate to help stateless people.

In more than five decades, the agency has helped tens of millions of people restart their lives. Today, a staff of some 7,685 people in more than 125 countries continues to help about 34 million persons. To help and protect some of the world's most vulnerable people in so many places and types of environment, UNHCR must purchase goods and services worldwide. For further information on UNHCR, its mandate and operations please see <http://www.unhcr.org>.

**1. REQUIREMENTS**

The Office of the United Nations High Commissioner for Refugees (UNHCR), Sudan Operations, invites qualified firms to make a firm offer for the Installation and Commissioning of a complete Solarized Water Supply Facilities in five different locations (5 Lots/5 States) as highlighted below:

Lots	State	Location	Indicative Projects	Comments
1	White Nile	Alagaya, Al Kashafa, Um Sangour, Redais 1 and 2	5	Surface water system-Solarization of clean water sump to pump water from underground water storage tank to elevated tanks (clear water pumps, dosing pumps, mixer)
2	East Darfur	El Nimir camp & El Fardous	2	Underground water-Existing diesel motorized boreholes
3	South Darfur	El Radom & Dimso	2	Underground water-Existing diesel motorized boreholes
4	South Kordofan	Al Mahlaj (Abu Jubaiha locality)	1	Underground water-Existing diesel motorized boreholes. New submersible pump required together with new set of solar system
5	West Kordofan	Al Kalail, (Gebayish locality) and Bagarah (Babnosa locality)	2	Underground water-Existing diesel motorized boreholes

**N/B-Bidders May apply for One or more Lots in different Location as stated depending on the capacity of their company. UNHCR Shall evaluate each of the Five (05) Lots and may award contract based on your proposal for each location (Lot).**

The Term of Reference (TOR) are detailed in **Annex A** of this document.

## 2. BIDDING INFORMATION

### 2.1 RFP DOCUMENTS

The following annexes form integral part of this Request for Proposal.

Annex A: Terms of Reference (TOR).

Annex B: Details of the Existing Water Facilities

Annex C: Technical Evaluation Criteria (Subjected to All the Five (05))

Annex D: Financial Offer Form

Annex E: Bid Data Sheet

Annex F: Vendor Registration Form

Annex G: UNHCR General Conditions of Contracts for the Provision of Goods and Services – 2018)

Annex H: UNHCR General Conditions of Contracts for Civil works (October 2000)

Annex I: Supplier's Code of conduct

Annex J: How to Join Microsoft Teams without an Account

#### **IMPORTANT:**

It is strongly recommended that this Request for Proposal and its annexes be read thoroughly. Failure to send the above requested information may result in disqualification from the evaluation process.

### 2.2 ACKNOWLEDGEMENT

We would appreciate you informing us of the receipt of this RFP by return e-mail to [SUDKH-SU@unhcr.org](mailto:SUDKH-SU@unhcr.org), CC: [mohamouid@unhcr.org](mailto:mohamouid@unhcr.org) as to:

- Your confirmation of receipt of this invitation to bid
- Whether or not you will be submitting a bid

#### **IMPORTANT:**

Failure to send the above requested information may result in disqualification of your offer from further evaluation.

### 2.3 PRE-BID CONFERENCE AND REQUESTS FOR CLARIFICATION

We would also like to inform you that UNHCR Representation Office Khartoum will organise a Pre-Bid conference Meeting via Microsoft Teams on the 27 October 2020 at 10:00 Hrs to discuss details of the Terms of Reference for the tender. All bidders are encouraged to participate in order to ask questions and raise concerns to UNHCR.

Bidders should therefore submit their details including phone number and email address for the purpose of inviting them to the meeting via Microsoft Teams on or before 25<sup>th</sup> October 2020 for us to prepare the platform for the virtual meeting.

Bidders are required to submit any request for clarification or any question in respect of this RFP by e-mail to [SUDKH-SU@unhcr.org](mailto:SUDKH-SU@unhcr.org) with CC: [MAHMOUID@unhcr.org](mailto:MAHMOUID@unhcr.org). **The deadline for receipt of questions is on 25<sup>th</sup> October 2020 23:59 HRS Sudan Standard Time.** Bidders are requested to keep all questions concise.

#### **IMPORTANT:**

Please note that Bid Submissions are not to be sent to the e-mail address above. Failure to comply with this provision may result in Disqualification.

All the emails sent requesting clarification MUST have the following subject otherwise UNHCR reserves the right NOT TO REPLY.

**EMAIL SUBJECT: RFP/HCR/ROK/2020/010 – QUERY**

### 2.4 YOUR OFFER

Your offer shall be prepared in English.

Please submit your offer using the Annexes provided. Offers not conforming to the requested formats may not be taken into consideration.

**IMPORTANT:**

Inclusion of copies of your offer with any correspondence sent directly to the attention of the responsible buyer or any other UNHCR staff other than the submission's e-mail address will result in disqualification of the offer. Please send your bid directly to the address provided in the "Submission of Bid" section 2.6) of this RFP.

Your offer shall comprise the following sets of documents:

- Technical offer
- Financial offer

#### **2.4.1 Content of the TECHNICAL OFFER**

**IMPORTANT:**

No pricing information should be included in the Technical offer. Failure to comply may risk disqualification. The technical offer should contain all information required.

The Terms of Reference **for the proposed installation and commissioning of a complete solarized water supply facilities in East Darfur, South Darfur, White Nile, South Kordofan and West Kordofan states refugee camps** can be found in **Annex A**. Your technical offer should be concisely presented and structured in the following order to include, but not necessarily limited to the following information:

- Certificate of Registration of the Company;
- List of key personnel and their qualifications
- List of Equipment owned by the firm to be mobilized for the execution of works described in Annex A.
- The company's organizational structure or organizational chart;
- Timeframe for the completion of the project including the main project milestones;
- Work Schedules; Gantt Charts.
- Past experience and performance records with other UN Agencies, NGOs or any other major clients and other credentials;
- Experience on similar works
- List of references for similar projects performed by contractor;
- Project assumption's and constraints based on your understanding of the project;
- The methodology/approach to be used in addressing the issues outlined in the TOR.
- Audited reports for last three years
- Any information that will facilitate our evaluation of your company's substantive reliability, financial and managerial capacity to provide the requested requirements to UNHCR as specified in Annex A.
- **UNHCR General Conditions of Contracts for Civil works (October 2000):** Your technical offer should contain your acknowledgement of the UNHCR General Conditions of contracts for civil works by signing **Annex H**.
- **Vendor Registration Form:** If your company **is not** already registered with UNHCR, you should complete, sign and submit with your technical proposal the Vendor Registration Form (**Annex F**).
- **Award and bank guarantee:**  
The Firm that submitted the successful Proposal will be notified by letter of the award prior to the expiration of the validity period. The letter, referred to as the "Letter of Award" will state the sum of the fees to be paid to the Firm for the services rendered and will indicate the terms under which the Contract must be finalized. The Contract must be signed within 14 days of the issue of the Letter of Acceptance. The successful bidder will be required to furnish UNHCR with a 10% Bank Guarantee of the contract's sum from a reputable bank within 7 days of the return of the Letter of Acceptance and Must be valid for the entire period of the contract works.

#### **2.4.2 Content of the FINANCIAL OFFER**

Your separate **Financial Offer** must contain an overall offer in United States Dollars or Sudanese Pound (SDG).

The financial offer must cover all the services to be provided (price “all inclusive”). If no financial offer is received, the bid shall be automatically disqualified.

The Financial Offer is to be submitted **as per the Terms of Reference (Annex A)**. Bids that have a different price structure may not be accepted.

UNHCR is exempted from all direct taxes and customs duties. With this regard, **price must be given without VAT.**

**IMPORTANT: UNHCR can only facilitate payments through the local banks and not banks outside Sudan and therefore the current market conditions must be factored in before submitting your quote. We encourage companies with LOCAL presence in Sudan to Apply.**

You are requested to hold your offer valid for a minimum of **90 days** from the deadline of submission. UNHCR will make its best effort to select a company within this period. UNHCR’s standard payment terms are within 30 days after satisfactory implementation and receipt of documents in order.

The cost of preparing a bid and of negotiating a contract, including any related travel, is not reimbursable nor can it be included as a direct cost of the assignment.

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## 2.5 BID EVALUATION

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### 2.5.1 Supplier Registration:

The qualified company (s) will be added to the Vendor Database after investigation of suitability based on the submitted Vendor Registration Form and supporting documents. The investigation involves consideration of several factors such as:

Financial standing;  
Core business;  
Track record;  
Contract capacity.

### 2.5.2 Technical and Financial evaluation:

For the award of this project, UNHCR has established evaluation criteria which governs the selection of offers received. Evaluation is made on a technical and financial basis. The percentage assigned to each component is determined in advance as follows:

The **Technical offer** will be evaluated using inter alia the following criteria and percentage distribution of **60%** from the total score of 100 Points.

*The Minimum Score to be considered technically compliant is 36% out of max 60% (100 Points). Proposals that score below the Minimum threshold of 36% will not be considered for further financial evaluation.*

### 2.5.3 The Financial offer will use the following percentage distribution: 40% from the total score.

The maximum number of points will be allotted to the lowest price offer that is opened and compared among those invited firms. All other price offers will receive points in inverse proportion to the lowest price; e.g.,  $[\text{total Price Component}] \times [\text{US\$ lowest}] \setminus [\text{US\$ other}] = \text{points for other supplier's Price Component}$ .

For evaluation purposes only, the offers submitted in currency other than US Dollars will be converted into US Dollars using the United Nations rate of exchange in effect on the date the submissions are due.

**UN Global Compact and other factors:** UNHCR supports the UN Global Compact Initiative put forward on 31 January 1999 by UN Secretary-General Kofi Annan that would bring companies together with UN agencies, labor and civil society to support ten principles in the areas of the human rights, labour, environment and anti-corruption. We encourage our suppliers to sign up with the UN Global Compact Initiative

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## 2.6 SUBMISSION OF BID

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The offers must bear your official letter head, clearly identifying your company. The bid can also be sent to the street address of UNHCR offices via Post or Courier or Email at the addresses mentioned below:  
Bids must be submitted in the Following manner:

**By E-Mail:**

Bids should be submitted by e-mail and all attachments should be in PDF format. (Copies of the PDF format documents may, as an addition, be included in Excel or other formats etc.).

The Technical and Financial offers shall be clearly separated.

The Technical offer should be sent by E-mail ONLY to: [SUDKHTO@unhcr.org](mailto:SUDKHTO@unhcr.org)

The Financial offer should be sent by E-mail ONLY to: [SUDKHFO@unhcr.org](mailto:SUDKHFO@unhcr.org)

It is your responsibility to verify that all e-mails/documents have been received properly before the deadline. Please be aware of the fact that the e-mail policy employed by UNHCR limits the size of attachments to a maximum of [8] Mb so it may be necessary to send more than one e-mail for the whole submission.

Please indicate in e-mail subject field:

Bid [Number]

Name of your firm with the title of the attachment

Number of e-mails that are sent (example: 1/3, 2/3, 3/4).

For example: RFP/2020/010 Company ABC (email 1 of 3)

**SUBMISSION OF OFFERS BY COURIER / POST OR HAND DELIVERY:**

**Attention:**

TO: THE SECRETARY LOCAL COMMITTEE ON CONTRACTS UNHCR REPRESENTATION OFFICE KHARTOUM-SUDAN.

REQUEST FOR PROPOSAL NO: RFP/HCR/ROK/2020/010 - INSTALLATION AND COMMISSIONING OF A COMPLETE SOLARIZED WATER SUPPLY FACILITIES IN EAST DARFUR, SOUTH DARFUR, WHITE NILE, SOUTH KORDOFAN AND WEST KORDOFAN STATES REFUGEE CAMPS.

UNHCR REPRESENTATION OFFICE FOR SUDAN-KHARTOUM, ALONG AHMED KHEIR ROAD KHARTOUM

**IMPORTANT TO NOTE: The submission of based on two envelop system separating the technical and financial offer;**

The outer envelope should be containing two inner envelopes as described below: Both inner envelopes shall indicate your firm's name and address. The first inner envelope shall be marked "Technical Component" and contain the full technical component of your offer. The second inner envelope shall be marked "Price Component" and include your signed and stamped financial offer.

**IMPORTANT:** The technical offer and financial offer are to be sent in separate documents. Failure to do so may result in disqualification. All bids must be clearly marked: **NOT TO BE OPENED BY REGISTRY**

**Deadline: Sunday 8<sup>th</sup> November 2020 23:59 HRS Sudan Standard Time.**

**IMPORTANT:**

Any bid received after this date or sent to another UNHCR address may be rejected. UNHCR may, at its discretion, extend the deadline for the submission of bids, by notifying all prospective bidders simultaneously.

UNHCR will not be responsible for locating or securing any information that is not identified in the bid. Accordingly, to ensure that sufficient information is available, the bidder shall furnish, as part of the bid, any descriptive material such as extracts, descriptions, and other necessary information it deems would enhance the comprehension of its offer.

**IMPORTANT:**

The Financial offer will only be opened for evaluation if the supplier's technical part of the offer has passed the test and has been accepted by UNHCR as meeting the technical specifications.

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**2.7 BID ACCEPTANCE**

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UNHCR reserves the right to accept the whole or part of your bid, or to allow split or partial awards.

UNHCR may at its discretion increase or decrease the proposed content when awarding the contract and would not expect a significant variation of the rate submitted. Any such increase or decrease in the contract duration would be negotiated with the successful bidder as part of the finalization of the Purchase Orders for Goods.

UNHCR may, at its discretion, extend the deadline for the submission of bids, by notifying all prospective suppliers in writing. The extension of the deadline may accompany a modification of the solicitation documents prepared by UNHCR at its own initiative or in response to a clarification requested by a prospective supplier.

Please note that UNHCR is not bound to select any of the firms submitting bids and does not bind itself in any way to select the firm offering the lowest price. Furthermore, the contract will be awarded to the bid considered most responsive to the needs, as well as conforming to UNHCR's general principles, including economy and efficiency and best value for money.

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**2.8 CURRENCY AND PAYMENT TERMS FOR PURCHASE ORDERS**

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Any Purchase Order (PO) issued as a result of this RFP will be made in the currency of the winning offer(s). Payment will be made in accordance to the General Conditions for the Purchase of Goods and in the currency in which the PO is issued. Payments shall only be initiated after confirmation of successful completion by UNHCR business owner.

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**2.9 UNHCR GENERAL CONDITIONS OF CONTRACTS FOR THE PROVISION OF GOODS AND SERVICES - 2018**

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Please note that the General Conditions of Contracts for the provision of Goods and Services -2018 (**Annex G**) and UNHCR General Conditions of Contracts for Civil works (October 2000) (**Annex H**) will be strictly adhered to for the purpose of any future contract. The Bidder must confirm the acceptance of these terms and conditions in writing.

  
Alexander B. Woart  
Supply Officer  
UNHCR Representation Office in Sudan

14/10/2020



## ANNEX A: TERMS OF REFERENCE (TOR) FOR SOLARISATION OF WATER SUPPLY FACILITIES

### Introduction:

In line with UNHCR's strategy of providing environmentally friendly technologies, which are low cost and sustainable, UNHCR intends to solarize existing water supply facilities, which are underground borehole motorized systems as well as surface water supply facilities, powered by diesel generators in East and South Darfur, White Nile, South and West Kordofan refugees, IDPs hosting locations as well as surrounding host communities to provide uninterrupted water supply to refugees and other persons of concern. This will also be a practical solution to erratic fuel supply on the local market. Proposed system will be (Solar + Generator) to meet demand by ensuring optimum water quantities/output even during prolonged dense cloud cover, especially during the rainy season. Where needed, solarization can also be for new water supply facilities.

### Objectives

Provide a low cost, environmentally friendly and sustainable water supply in the targeted refugee, IDPs and host community communities in order to:

- Meet the daily water needs of the refugees/IDPs and host communities at minimum costs
- Improve reliability of power provision to water supply schemes by minimizing dependency on diesel fuel. Maximize the reduction of diesel fuel demand and improved reliability of power generation of water supply installations
- Design and install systems with adequate controls and protection to be able to withstand weather anomalies in the Sudan context
- Develop an operation and maintenance program (including prescribed onsite hands-on training to partners and community representatives)

### Scope of Work

This work entails delivery, installation and commissioning of a complete, suitable Solar PV power structure in the given locations in Sudan.

The scope of works shall include;

- Supply, transportation and fixing of the complete solar systems at selected water facilities in White Nile, East Darfur, South Darfur, South and West Kordofan states.
- Erection of the solar panel support structure, positioning of the solar modules on the structure, securing with bolts and nuts with vandal proofing such as tack welding (see Annex 1)
- Installation of the control unit, change-over switch, cable connections between pump, controller and the solar modules
- Construction of a suitable base of reinforced concrete to support the solar panel support structure
- Installation of all the protective and control equipment including solar controller, change-over switch, cable connections between pump, controller, solar modules and generator, grounding, earthing and lightning protection
- Build the technical capacity of technicians to be able to trouble shoot and repair basic solar failures
- The controller and all controls shall be housed in a lockable powder coated steel enclosure complete with rodent proof cable access to the enclosure and provision for enough air circulation
- In order to maximize the solar-powered system's energy production, the panels should be strategically positioned with no significant shading in their vicinity in order to achieve full sun exposure
- When multiple panels are required, they must be wired in series, parallel, or a combination of series-parallel to meet both the voltage and amperage requirements of the pump
- The system should be of high quality and designed for use in remote locations. The bidder should outline the key design elements that make the solution suitable for the environment it will be installed in.
- Bidders are encouraged to propose more efficient and economical options - considering possibilities of future upgrading as well

### Proposed locations (Lots)

State	Location	Indicative Projects	Comments
White Nile	Alagaya, Al Kashafa, Um Sangour, Redais 1 and 2	5	Surface water system-Solarization of clean water sump to pump water from underground water storage tank to elevated tanks (clear water pumps, dosing pumps, mixer)
East Darfur	El Nimir camp & El Fardous	2	Underground water-Existing diesel motorised boreholes
South Darfur	El Radom & Dimso	2	Underground water-Existing diesel motorised boreholes
South Kordofan	Al Mahlaj (Abu Jubaiha locality)	1	Underground water-Existing diesel motorized boreholes. New submersible pump required together with new set of solar system
West Kordofan	Al Kalail, (Gebayish locality) and Bagarah (Babnosa locality)	2	Underground water-Existing diesel motorized boreholes
<b>Total</b>		<b>12</b>	

### System Design

- The system must be designed using computer-based tools that can closely model the irradiation, temperature, cloud cover, and energy generated from the solar array, and field-proven pump performance.
- System design will be done in close collaboration with UNHCR field sub office in the selected state
- Bidders must use solar radiation (insolation) data from the databases such as NASA Surface meteorology and Solar Energy (SSE) group.
- The system should be designed taking into account the water requirements for the month with lowest solar irradiation.
- Solar module degradation from cell temperature rising above 25°C must be factored into the sizing result. Coefficients and expected hourly losses must be indicated in the sizing report to allow comparison.
- Other expected electrical losses should be stated, and include dirt, cables and conversion, reflectance, and any allowance for module degradation.
- Design should show monthly production in line with the requirements below.
- The system must deliver the specified cubic meters per day based on the month with least solar irradiation.
- All components of the solar system shall be robust, professionally assembled according to manufacturer recommendations, firmly and securely fixed to the ground, and designed to allow easy access using locally available tools.
- All components and accessories shall be made from corrosion resistant material and made good to be rust-free by galvanizing and or painting of all surfaces that are exposed to the ambient conditions. All materials shall be resistant to effects of excessive moisture, water, and ambient temperature and ultraviolet damage. Resistance to corrosion shall be according to DIN 8985 standards. Dissimilar metals that are connected together should have plastic or rubber sheets between them to prevent accelerated corrosion in harsh environments.
- All equipment, parts and accessories shall be well designed and fastened to prevent theft. Fasteners should be difficult to unscrew from the assembly and solar module bolts should be tack welded in place.
- Bidders must outline the key design elements that ensure the solution is suitable for the proposed environment.

### Pumping Testing and Verification of Water System Parameters

- Once contract is awarded, the contractor shall verify provided information with relevant field offices and key stakeholders for final system design



- The contractor shall conduct a 72-hour borehole yield test. The test be undertaken at flow rates as specified in the design report and shall involve careful monitoring of physical parameters and turbidity during the pumping and recovery phase. Full records must be maintained and made available to UNHCR and partners for the purpose of confirming system design. All required labour, materials, and equipment shall be at the contractors' cost

### Technical Equipment Specifications

The bidder is at liberty to offer any equivalent article or material, which meets the technical specifications for the contract works, however UNHCR and its partners retains the right to refuse a particular model of equipment or propose an alternative, which meets the technical specifications. In such a case, the bidder will be required to propose another model, and no claims for variations of the Contract Price will be allowed.

### Site works

The work to be performed under these specifications includes furnishing all labour, materials, tools and equipment necessary to install the array support structure.

The contractor shall clear, from all areas planned for the work, materials, debris, trees etc, prior to the commencing of work.

The ground shall be excavated to the length, width and exact depth required for the construction of the array support structure. If the surface of a subgrade is found to be unstable or sandy the contractor shall excavate and remove such unsuitable material to the width and depth required.

Concrete work shall consist of mixing, conveying and placing of concrete on the required hole dimensions. (Formula 1:3:5). All materials used in the work shall be the best of their kind cement, aggregates and clean water.

### Module Quality and Installation.

Only certified Polycrystalline and Mono-crystalline silicon modules are acceptable. PV modules must be approved to IEC/EN 61215 and 61730 or UL 1703 certified and listed. All modules must be of a robust design. In case the solar panels are to be mounted elevated on poles, a design of this would be provided by the bidders.

- All modules must be of a robust design and bidders should provide evidence of successful prior off grid use
- Modules shall be guaranteed for 25 years with 10% derating for the first 10 years, and 20% derating within 20 years. The efficiency of solar-PV cells shall be minimum 16% and solar modules total efficiency of minimum 14%
- The PV Modules shall be clearly labelled and permanently marked with a data plate containing the following information: manufacturer's name and physical address, type/model number, the watt-peak power rating at STC, open circuit voltage and short circuit current, voltage and current at maximum power point, tolerance and temperature coefficient, country of manufacture, certification, e.g: UL listing, IEC 61215,ISO certification, with fool-proof +ve/-ve connectors

### Submersible Pump

- The borehole pump shall be of submersible multistage centrifugal type closely coupled to an AC motor constructed from AISI 304 Stainless steel or higher. All metal material used for pump construction shall be corrosion resistant, permanently lubricated and maintenance free.
- The motor end shall be constructed with the following features: 3-phase 415V AC motor (50Hz speed controlled, +5hz selectable speed), corrosion-resistant, all stainless steel exterior construction, stainless steel shaft, ceramic bearings, NEMA mounting dimensions, hermetically-sealed windings, water lubrication, pressure equalizing diaphragm, able to withstand min water temperature 40°C.
- The pump end of the water pump shall be constructed with the following features: centrifugal multistage direct-coupled pump end, non-return valve, stainless steel (AISI 304 or higher), water lubricated rubber bearings, able to withstand maximum sand content 50g/m<sup>3</sup>, able to withstand min water temperature 40°C.
- For solar systems, a water pump equipped with a variable frequency/speed induction motor is highly recommended.

- The pump motor must have an efficiency of at least 80% and not be limited to less than 20 start / stop cycles in one hour so as to maximise water output in early morning late afternoon and on cloudy days
- The pump must meet EN 809 and EN 60034-1 or internationally recognised equivalent standards
- The pump set must be of modular design to allow for replacement of individual parts (pump end, pump motor and electronics) if failure occurs.
- Pumps shall be supplied with the following protection features: Dry running protection (for boreholes pump), Thermal overload protection, over and under voltage protection
- The pump set should be able to fit into the existing borehole casing, meeting all manufacturer requirements including clearance and motor cooling velocity
- As further protection to enable extended motor life, pumps should be fitted with a cooling sleeve as standard

#### **Control box**

The pump control box should preferably be mounted inside a building (such as the backup generator shed), otherwise under the array so it is protected from external elements. The box body should be made of 1 mm sheet, well ventilated, with one door with lock and a robust support. All single wires from each module strip should be connected to the junction box without any joint outside but should pass through cable gland at the box side (not from the top).

The pump control box should restrict access to cable and equipment connections, both for safety of operators, and to ensure it is difficult to bypass the pump protection features.

#### **Protection**

The system must have dry run protection to protect the system in event of low water levels. Other protection systems should at least include Surge Protection Units (SPUs) and over/ under voltage protection.

**Control Equipment-** A power inverter shall be used to convert DC power from solar PV modules to AC power that can be used to power an AC motor-based water pump. The inverter shall act as a pump drive or controller manufactured and supplied to work with the specified pump type, and universally works well with induction motors; suitable for solar water pumping applications. The inverter shall be designed to provide convenient information about voltages, switch and sensor status, and overload conditions; and provide maximum power [maximum power point tracking (MPPT) and current boosting] under varying conditions. It should provide direct solar connection as standard and have the ability to add on an optional power back up if required in the future. The control equipment must meet EN 61800-1, EN 61800-3, EN 60204-1 or internationally recognized equivalent standards

#### **Electrical architecture**

For electric equipment, bidders shall define the best scheme considering their experience in such conditions (high hygrometry, high temperature, dusty area

##### **a. Cables (AC and DC)**

The following requirements have to be met:

- Cable sections and types have to be detailed and section calculation has to be justified with voltage drop calculation for each frame of the installations.
- Considering that definitive calculations depends on the panel implantation and may be subject to slight changes when first visit on site is realized, only basic calculation will be asked. In any case, voltage drop should not be higher than 1.5% in DC cables, and 1% in the AC cables.
- Solar cables must get a specific UV protection.

##### **b. DC connections**

The following requirements have to be met:

- String box, sheath and manholes should respect European regulations.
- The bidder will mention string box IP class and number of inputs for each string box
- The DC string boxes will comply with electrical protection characteristics as described in paragraph €

### c. Inverters

Inverters would either stand near the panels or inside the shelters. In any case, inverters will have to match the following specifications:

- Inverters will present a euro-efficiency no lower than 95%. Max efficiency will be no lower than 97%. Euro efficiency being a key parameter in solar pumping projects, the euro-efficiency calculation has to be detailed for the proposed inverter.
- Inverters will be able to operate with temperature between 0°C and 55°C.
- Complete technical specification and references will be provided by the bidder. Testing reports in test bench will be particularly valued if provided.
- Input Voltage range of MPP tracking must be detailed, as maximum input and output current and voltage.

### d. Electric cabinet

Electric cabinet should respect European regulations.

### e. Electrical protections

The following requirements have to be met:

- All metallic structures including carcasses and support structures will be connected to an earthing network made of copper cable and bars. Resistance in any part of the earth network will be no higher than 50 ohms. Surge protection should be implemented.
- DC part will be protected thanks to fuses and disconnect switches located in every single string box.
- DC part will be also protected through one general DC disconnect switch upstream the inverter. All switches have to be designed consequently to the max current and voltage of the considered part, preventing from electric arcs (disconnect switch must have at least 3 poles in case tension is higher than 600V in DC part). This DC disconnected is located at the solar field entrance.
- AC part (between inverter and motor) will be protected through one circuit breaker, fuse and differential protection.

In any case, electrical protections will have to fit European standards, previous requirements are not limitative.

#### Other desired features include:

- Data logging of operating parameters including running time, starting/stopping time, max power/voltage of day and total energy generated in the day.
- Facility for data must be recall for reference
- Selectable display of operating including input/output amperage, power and voltage, pump speed and temperature.
- Control equipment must have simple system health indicators that are user visible for trouble shooting purposes: typically of pump status, pump speed, well dry, tank full, low source power information
- Settable minimum and maximum speed to provide continuous water delivery and overload avoidance.
- Integrated MPPT (Maximum Power Point Tracking)
- Maximum Voc 850 VDC, Operating Voltage range Vmpp 500-650 VDC for 3-phase systems
- Output power : 380-400-415 VAC 3-phase, 30-60 Hz
- Maximum efficiency 97 %
- Inverter enclosure: IP 54 or higher (sealed, weatherproof, insect proof, lizards proof)
- Ambient temperature: -10 to +45°C
- Inbuilt fan which efficiently cools the controller

#### Module Support Structure

- The structural steel for the support of the PV module shall be consist of 4" Pipe Class A poles, drilled plates 160\*160\*8mm, 50x50x3mm rafters, 50x50x3mm SHS struts and ties, 40x40x4mm angle iron to support the quantity of panels. All joints to be bolt and nuts with spot welding. The height of the support structure shall be a minimum of 3 metres above ground at the lowest point or based on the maximum height selected at the discretion of the contractor based on provided justification
- Angle iron shall be used only to support the PV modules and not anywhere else. All steel surfaces shall have a red oxide prime coat and two coats of aluminium paint upon erection
- All welding will be continuous and of full penetration on both sides.

- In case the steelwork is prefabricated away from site, a final coat of paint shall be applied upon erection of the structure on site.
- The structure will be joined and fastened using bolts and nut with spot welding for vandal proofing
- A design simulation and drawing for the structure should be included with the submission showing all loading that has been factored in, including wind loading for the specific location
- The solar array should be installed on a fixed pole with a minimum tilt angle of 150C, facing the equator in order to capture maximum irradiation from the sun

#### **Cabling**

- The cabling will be as follows: From the PV generator to the controller and switch gear, from the generator to the switch gear, from the switching gear to the borehole head, sensor cable from the control panel to the borehole head, earthing cable.
- Cable distances should be kept as short as possible to minimize wire size [voltage drop precautions] and installation cost. The appropriate cable size should be selected for use with respect to the distance, voltage and current values involved.
- All the structural components and electrical enclosures shall be bonded together to a common earth connection.
- The ground wire of the pump shall be connected to one of the ground connections in the controller, or to the controller enclosure. Grounding helps to prevent shock hazard if there is a fault in the motor
- An effective discharge path for the surge should be created for earth. One or more 8-foot copper-plated ground rods, preferably in moist earth, should be installed
- A lightning arrestor must be erected such that it will remain the tallest structure on site and grounded with a copper strips of not less than 25mmx4mm
- Proper termination of cables must be used using well crimped cable lugs and cable glands
- All submersible cable shall be 4-core copper strand, 100% watertight with PVC or rubber insulation suitable for temperatures up to 400C. A high quality, waterproof connection between the pump wires and supply cable is very important.
- All underground cables shall be armoured and installed inside a suitably generous PVC conduit to ensure cables can easily be drawn.

#### **Provision of Spare parts**

The bidder will propose depending on the chosen material a spare parts list with at least 4% of the power installed in solar panels. Current consumables are to be included in the spare parts list. The bidder must recommend the items that would be supplied in line with manufacturer's recommendation. Adopt familiar quality technology that is readily available and can be supported from within the country.

#### **Warranty**

- The bidder should detail as part of the technical proposal, the warranty period (not less than one year) and the technical support after installation and completion.
- Ensure after sale support service for the first 18-24 months after project completion

#### **Considerations during implementation**

The Contractor shall take the following precautions to:

- Minimise damage to plants and animals and shall ensure that no polluting substance shall be discharged onto the land or into the air or any water body
- Protect the contract works against the effects of any weather which might adversely affect the quality of the work
- Protect facilities, equipment and materials assigned for the works from damage by others
- Act in a polite and responsible manner to camp residents and all others
- Consider all existing ground conditions and stability in achieving the contract works

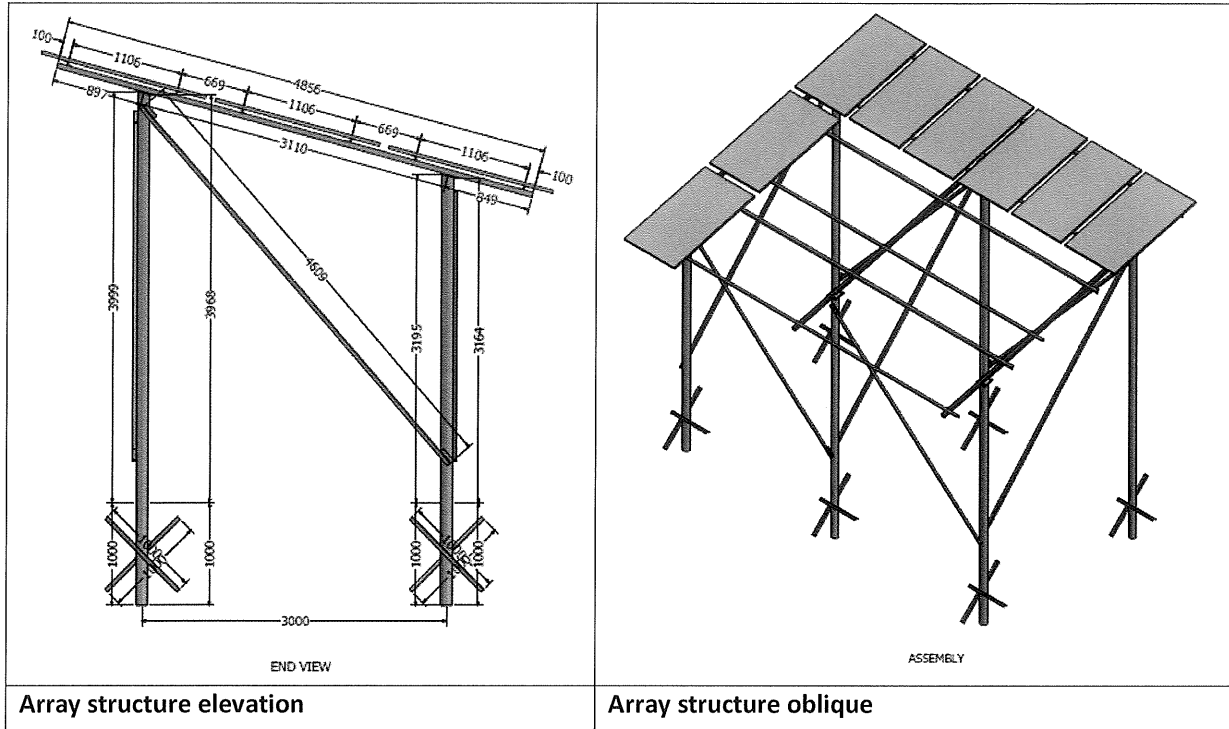
- Avoid damaging any existing facilities and services
- Maintain good hygiene practices and work cleanliness
- Ensure all materials and fittings are handled, stored and installed in a manner that eliminates contamination by animal or human waste, soil or other contaminants

### **Bidder Qualification**

- The bidder should represent a component manufacturer of good international standing and with experience to meet the requirements of this project as stated above. The bidder must provide a letter of authority from the manufacturer/local suppliers stating that this information has been provided with their co-operation and is true and accurate.
- The bidders team member responsible for system design and installation must have a minimum of 10 years' experience of designing, installing and maintaining solar pumping solutions of a similar size, scope and application.
- Borehole Design Parameters specified in this document will be completed before commencement of work by the winning bidder and this will be discussed with UNHCR and other relevant partners.
- The bidder must make available a minimum of 5 reference projects. The reference projects must be of a similar scope, size and implemented within Sudan. References should list the project value, size, location, and contact details for a referee for follow up.
- The bidder must provide evidence of the capability of all members anticipated to be involved with the design, specification, transport, installation, commissioning, and staff training.
- The bidder is expected to have a reputation for good business practise, professionalism and financial stability and should also provide positive references from international organisations within Sudan.
- The bidder must operate a quality management system that is ISO 9001 or equivalent and have recognised third party verification.
- Solar modules, pumps, motors, control equipment must meet the necessary CE / international standards for safety and where applicable functionality.
- The bidder must have qualified and trained staff that is certifiable with the equipment manufacturer. Training must be of a level to successfully implement the proposed project.
- The bidder must have access to spare parts supply with backing from the equipment manufacturer. Spare parts should typically be available within 5 days of payment.
- The bidder must have access to the manufacturers design support team.
- The scope of this tender must not represent more than 10% of the bidder's total annual production to ensure that capacity restrictions do not impact quality.
- The bidder must be able to demonstrate that they have a safety management system in place and have a good history of employee health and safety.
- The bidder and all employees must be familiar with and ensure compliance with UNHCR policy - particularly requirements to ensure the protection of refugees and other Persons of Concern.

Annex 1

Structural specifications



**ANNEX C- TECHNICAL EVALUATION CRITERIA (EACH LOT WILL BE EVALUATED SEPERATELY)**

Criteria	Description	Total Points
Bidder Eligibility, Including Compliance to UNHCR Requirement	Valid Commercial Licenses - Evidence of the registration of the bidder with the local authorities.	20 marks
	Confirmation of the compliance of the local labor laws including health insurance coverage for the proposed workers.	
	Acceptance of UNHCR General Conditions of Contracts for the Provision of Services	
Soundness of the proposal	Offer shall demonstrate an understanding of the general nature of the work to be done. Clearly indicate the design of a hybrid solar + generator water supply system.	30 marks
	Detailed warranty period (not less than one year) and the technical support after installation and completion	
	After sale support service for the first 12 months after project completion clearly specified	
	Onsite hands-on training to partners and community representatives clearly explained	
	Separate costing of the proposed work for below two systems: 1. Existing diesel-powered borehole 2. Existing surface water supply system powered by diesel generator	
	Coordination and appropriate government ministries/authorities	
Bidder Experience and References	Previous experiences in similar nature and volume of work undertaken in the last 5 years (with supporting documents and references)	20 marks
	Experience in humanitarian context (working with NGOs, UN, Government etc.)	
Company profile and proposed skilled professionals	Updated curriculum vitae of professionals who will undertake the work that clearly spells out qualifications and experience	20 marks
	Adequacy of management personnel and logistic arrangements	
	Commitment that the consultants whose CVs are presented will be engaged through out if the consultancy is awarded (UNHCR will not accept replacements)	
Timeline/work schedule	Detailed execution of the proposed work, including time frame	10 marks
Total Points		100

**ANNEX D: FINANCIAL OFFER FORM (TO BE FILLED FOR EACH LOT)**

QUANTITY / ANY OTHER DISCOUNTS (PLEASE SPECIFY):

THE PROPOSED DISCOUNTS WILL BECOME AN INTEGRAL PART OF YOUR BID SUBMISSION

PAYMENT TERMS: ACCEPTANCE OF UN PAYMENT TERMS (I.E. 30 DAYS NET FROM RECEIPT OF DOCUMENTS)

YES  NO

UNHCR price Proposal for the Installation and Commissioning of a complete Solarized Water Supply					
No	Item description	Unit	Qty	Rate	Amount
1	Cost of Mobilization, overheads and Administration	Lumpsum			
2	Supply and Installation of Polycrystalline and Monocrystalline silicon solar modules	Lumpsum			
3	Clean borehole, conduct borehole development & pumping test for 72 hrs. and report	Lumpsum			
4	Fence with support structure, anti-corrosion, bottled type for all modules needed, the structure should with stand high wind (specifics to be determined after technical field assessments)	Lumpsum			
5	Building the capacity of technicians to be able to trouble shoot and repair basic solar failures	Lumpsum			
4	Any Other Relevant item lines (please specify)	Lumpsum			
<b>Total for 1 System</b>					

**IMPORTANT NOTE:**

Please note that the above heads are provided to enable the Financial Evaluation exercise. The Contractors are requested to provide cost breakdown for each head to facilitate the comparison of the financial offer. The Bottom-Line value of the offer will be considered to determine the competitiveness in the process for the technically qualified bidder. For any relevant cost element that is not captured in the tentative financial offer form, suppliers are requested to insert additional lines into their respective offers and must provide breakdown of such additional elements necessary for the implementation of the project.

The award of the contract will be on the basis of "All or Nothing" which entail that incomplete offer will not be considered. The "All or Nothing" basis will however apply to each Lot. For Example: If a supplier is quoting for Lot 1 out of Five Lots, the Lot Quoted for must be complete.

BIDDERS NAME:

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

IN THE CAPACITY OF: \_\_\_\_\_

DULY AUTHORIZED TO \_\_\_\_\_

SIGN BID FOR AND ON BEHALF OF:

Official Stamp of The Company:



**ANNEX E : BID DATA SHEET**

THE FOLLOWING SPECIFIC DATA FOR THE SERVICES TO BE PROCURED SHALL COMPLEMENT, SUPPLEMENT OR AMEND THE PROVISION IN THE INSTRUCTIONS TO BIDDERS. WHENEVER THERE IS A CONFLICT, THE PROVISION HEREIN SHALL PREVAIL.

<b>DEADLINE FOR SUBMISSION OF BIDS</b>	<b>8<sup>th</sup> November 2020 at 2359 Hrs Sudan Local Time.</b>	
<b>SUBMISSION OF BIDS:</b>	<b>BIDS TO BE MARKED:</b>	
	UNHCR SECRETARY TO THE LOCAL COMMITTEE ON CONTRACTS – UNHCR REPRESENTATION OFFICE IN SUDAN- KHARTOUM	BIDS MUST BE SUBMITTED EITHER BY HAND DELIVERY, POST OR COURIER ATTN: SECRETARY TO THE LOCAL COMMITTEE ON CONTRACTS – UNHCR REPRESENTATION OFFICE IN SUDAN-KHARTOUM <b>PROPOSED INSTALLATION AND COMMISSIONING OF A COMPLETE SOLARIZED WATER SUPPLY FACILITIES IN EAST DARFUR, SOUTH DARFUR, WHITE NILE, SOUTH KORDOFAN AND WEST KORDOFAN STATES REFUGEE CAMPS.</b> Clearly Marked: NOT TO BE OPENED BY REGISTRY
<b>LATE SUBMISSION OF OFFERS:</b>	OFFERS SHOULD BE SUBMITTED IN GOOD TIME TO BE RECEIVED BY CLOSING DATE AND TIME.  <b>IMPORTANT NOTE:</b> BIDS RECEIVED AFTER THE DEADLINE FOR SUBMISSION OF BIDS AND BIDS TRANSMITTED IN ANY OTHER MANNER THAN THOSE INDICATED ABOVE WILL NOT BE CONSIDERED.	
<b>BID VALIDITY PERIOD:</b>	90 DAYS	
<b>PRICE VALIDITY PERIOD:</b>	90 DAYS	
<b>Defect Liability:</b>	A MINIMUM OF 6 MONTH DEFECT LIABILITY APPLY	
<b>TERMS OF REFERENCE:</b>	ALTERNATIVES TERMS OF REFERENCE SHALL NOT BE CONSIDERED	
<b>DELIVERY SCHEDULE:</b>	SET UP TIME: IN DAYS: DELIVERY TIME: IN DAYS:	
<b>LANGUAGE OF THE BID:</b>	ENGLISH	
<b>REQUESTS FOR ADDITIONAL INFORMATION:</b>	BIDDERS ARE REQUIRED TO SUBMIT ALL THEIR QUERIES IN RESPECT OF THIS REQUEST FOR PROPOSAL TO BID BY E-MAIL TO: <a href="mailto:SUDKH-SU@unhcr.org">SUDKH-SU@unhcr.org</a> BEFORE 2359_HRS Sudanese Time on 25 <sup>th</sup> October 2020. (CUT-OFF DATE FOR QUERIES). UNCHR MAY, AT ITS DISCRETION, COPY ANY REPLY TO A PARTICULAR QUESTION TO ALL OTHER INVITED / PARTICIPATING BIDDERS.	
<b>BID EVALUATION CRITERIA:</b>	BIDS WILL BE EVALUATED BASED ON THE TECHNICAL EVALUATION CRITERIA prescribed in article " <u>Annex C</u> "	