



## REQUEST FOR QUOTATION

Request for Quotation reference: <b>RFQ/054/22</b> - Supply and installation of solar panels in the country office of UNDP Uzbekistan.	Date: 15 September 2022
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### SECTION 1: REQUEST FOR QUOTATION (RFQ)

UNDP kindly requests your quotation for the provision of goods, works and/or services as detailed in Annex 1 of this RFQ.

This Request for Quotation comprises the following documents:

Section 1: This request letter

Section 2: RFQ Instructions and Data

Annex 1: Schedule of Requirements and Terms of Reference

Annex 2: Quotation Submission Form

Annex 3: Technical and Financial Offer

When preparing your quotation, please be guided by the RFQ Instructions and Data. Please note that quotations must be submitted using Annex 2: Quotation Submission Form and Annex 3 Technical and Financial Offer, by the method and by the date and time indicated in Section 2. It is your responsibility to ensure that your quotation is submitted on or before the deadline. Quotations received after the submission deadline, for whatever reason, will not be considered for evaluation.

Thank you and we look forward to receiving your quotations.

Issued by: UNDP Uzbekistan

## SECTION 2: RFQ INSTRUCTIONS AND DATA

<b>Introduction</b>	<p>Bidders shall adhere to all the requirements of this RFQ, including any amendments made in writing by UNDP. This RFQ is conducted in accordance with the <a href="#">UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement</a></p> <p>Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by UNDP. UNDP is under no obligation to award a contract to any Bidder as a result of this RFQ.</p> <p>UNDP reserves the right to cancel the procurement process at any stage without any liability of any kind for UNDP, upon notice to the bidders or publication of cancellation notice on UNDP website.</p>
<b>Deadline for the Submission of Quotation</b>	<p>18:00 Tashkent time (GMT+5), 20 October, 2022 If any doubt exists as to the time zone in which the quotation should be submitted, refer to <a href="http://www.timeanddate.com/worldclock/">http://www.timeanddate.com/worldclock/</a>.</p> <ol style="list-style-type: none"> <li>1. Confirmation of participation in Main Site Visit and Bidders Conference: <b>Friday, 30 September 2022</b></li> <li>2. Mandatory Main Site Visit: <b>Tuesday, 4 October 2022 - at 10 am local time</b></li> <li>3. Mandatory Bidders' Conference: <b>Tuesday, 11 October 2022 - at 11 am local time</b></li> <li>4. Request for Clarification: <b>Friday, 14 October 2022</b></li> <li>5. Offer Submission: <b>Thursday, 20 October 2022</b></li> </ol> <p><b>Confirmation of participation in Main Site Visit and Bidders Conference to be sent to <a href="mailto:pu.uz@undp.org">pu.uz@undp.org</a>. Upon receipt of the request further instructions and details will be shared with interested bidders.</b></p>
<b>Method of Submission</b>	<p>Quotations must be submitted as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> E-tendering</li> <li><input checked="" type="checkbox"/> Dedicated Email Address</li> <li><input checked="" type="checkbox"/> Courier / Hand delivery</li> <li><input type="checkbox"/> Other <a href="#">Click or tap here to enter text.</a></li> </ul> <p>Bid submission address: <a href="mailto:bids.uz@undp.org">bids.uz@undp.org</a></p> <ul style="list-style-type: none"> <li>▪ File Format: PDF</li> <li>▪ File names must be maximum 60 characters long and must not contain any letter or special character other than from Latin alphabet/keyboard.</li> <li>▪ All files must be free of viruses and not corrupted.</li> <li>▪ Max. File Size per transmission: 30 Mb</li> <li>▪ Mandatory subject of email: <b>RFQ/054/22 - Supply and installation of solar panels in the country office of UNDP Uzbekistan</b></li> <li>▪ 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."</li> <li>▪ It is recommended that the entire Quotation be consolidated into as few attachments as possible.</li> <li>▪ The bidder should receive an email acknowledging email receipt.</li> </ul> <p>You can deliver your proposal physically in a sealed envelope or by postal courier to the address below:</p> <p><b>United Nations Development Program (UNDP)</b>  <b>Taras Shevchenko str., 4, Tashkent,</b>  <b>Republic of Uzbekistan, 100029,</b></p>

<b>Cost of preparation of quotation</b>	UNDP shall not be responsible for any costs associated with a Supplier's preparation and submission of a quotation, regardless of the outcome or the manner of conducting the selection process.
<b>Supplier Code of Conduct, Fraud, Corruption,</b>	All prospective suppliers must read the United Nations Supplier Code of Conduct and acknowledge that it provides the minimum standards expected of suppliers to the UN. The Code of Conduct, which includes <b>principles on labour, human rights, environment and ethical conduct</b> may be found at: <a href="https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct">https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct</a> Moreover, UNDP strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of UNDP vendors and requires all bidders/vendors to observe the highest standard of ethics during the procurement process and contract implementation. UNDP's Anti-Fraud Policy can be found at <a href="http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_andinvestigation.html#anti">http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_andinvestigation.html#anti</a>
<b>Gifts and Hospitality</b>	Bidders/vendors shall not offer gifts or hospitality of any kind to UNDP staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches, dinners or similar. In pursuance of this policy, UNDP: (a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question; (b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNDP contract.
<b>Conflict of Interest</b>	<p>UNDP requires every prospective Supplier to avoid and prevent conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, specifications, cost estimates, and other information used in this RFQ. Bidders shall strictly avoid conflicts with other assignments or their own interests, and act without consideration for future work. Bidders found to have a conflict of interest shall be disqualified.</p> <p>Bidders must disclose in their Bid their knowledge of the following: a) If the owners, part-owners, officers, directors, controlling shareholders, of the bidding entity or key personnel who are family members of UNDP staff involved in the procurement functions and/or the Government of the country or any Implementing Partner receiving goods and/or services under this RFQ.</p> <p>The eligibility of Bidders that are wholly or partly owned by the Government shall be subject to UNDP's further evaluation and review of various factors such as being registered, operated and managed as an independent business entity, the extent of Government ownership/share, receipt of subsidies, mandate and access to information in relation to this RFQ, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.</p>
<b>General Conditions of Contract</b>	Any Purchase Order or contract that will be issued as a result of this RFQ shall be subject to the <a href="#">General Terms and Conditions</a> of Contract. Applicable Terms and Conditions and other provisions are available at <a href="#">UNDP/How-we-buy</a>
<b>Special Conditions of Contract</b>	<input checked="" type="checkbox"/> Cancellation of PO/Contract if the delivery/completion is delayed by more than 30 days
<b>Eligibility</b>	<p>A vendor who will be engaged by UNDP may not be suspended, debarred, or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization. Vendors are therefore required to disclose to UNDP whether they are subject to any sanction or temporary suspension imposed by these organizations. Failure to do so may result in termination of any contract or PO subsequently issued to the vendor by UNDP.</p> <p>It is the Bidder's responsibility to ensure that its employees, joint venture members, sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by UNDP.</p> <p>Bidders must have the legal capacity to enter a binding contract with UNDP and to deliver in the country, or through an authorized representative.</p>

<b>Currency of Quotation</b>	<p>Quotations shall be quoted in</p> <p><input checked="" type="checkbox"/> Foreign companies : in USD/EUR.</p> <p><input checked="" type="checkbox"/> Local companies registered in Republic of Uzbekistan: in Uzbek soums (UZS).</p>
<b>Joint Venture, Consortium or Association</b>	<p>If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by a duly notarized Agreement among the legal entities, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture, Consortium or Association.</p> <p>Refer to Clauses 19 – 24 under <a href="#">Solicitation policy</a> for details on the applicable provisions on Joint Ventures, Consortium or Association.</p>
<b>Only one Bid</b>	<p>The Bidder (including the Lead Entity on behalf of the individual members of any Joint Venture, Consortium or Association) shall submit only one Bid, either in its own name or, if a joint venture, Consortium or Association, as the lead entity of such Joint Venture, Consortium or Association. Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <p>a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or</p> <p>b) they have the same legal representative for purposes of this RFQ; or</p> <p>c) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on the Bid of, another Bidder regarding this RFQ process;</p> <p>d) they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or</p> <p>e) some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this RFQ process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.</p>
<b>Duties and taxes</b>	<p>Article II, Section 7, of the Convention on the Privileges and Immunities provides, inter alia, that the United Nations, including UNDP as a subsidiary organ of the General Assembly of the United Nations, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. All quotations shall be submitted net of any direct taxes and any other taxes and duties, unless otherwise specified below:</p> <p>All prices must:</p> <p>All prices must:</p> <p><input checked="" type="checkbox"/> be indicated separately from VAT for companies registered in Uzbekistan as VAT payers</p> <p><input checked="" type="checkbox"/> be exclusive of VAT for foreign companies not registered in Uzbekistan</p>
<b>Liquidated damages</b>	<p>Will be imposed under the following conditions:</p> <p>Penalty will be applied as percentage of contract price per day of delay: 0.1%.</p> <p>Maximum number of days accepted for overdue: 30 calendar days</p> <p>Next course of action: UNDP reserves rights to self-terminate the Contract.</p>
<b>Language of quotation</b>	<p><input checked="" type="checkbox"/> English; or</p> <p><input checked="" type="checkbox"/> Russian</p> <p>Including documentation, including catalogues, manuals and operating instructions.</p> <p>Documents submitted not in English and/or Russian must be translated into English or Russian</p>
<b>Documents to be submitted</b>	<p>Bidders shall include the following documents in their quotation:</p> <ul style="list-style-type: none"> <li>• Annex 2: Quotation Submission Form duly completed and signed</li> <li>• Annex 3: Technical and Financial Offer duly completed and signed in accordance with the Schedule of Requirements in Annex 1. <ul style="list-style-type: none"> <li>a. Company Profile.</li> <li>b. Registration certificate;</li> <li>c. List and value of projects performed for the last 2 years plus client's contact details who may be contacted for further information on those contracts;</li> </ul> </li> </ul>

	<p>d. List and value of ongoing Projects with UNDP and other national/multi-national organization with contact details of clients and current completion ratio of each ongoing project;</p> <p>e. Statement of satisfactory Performance (Certificates) from the top clients in terms of Contract value in similar field;</p> <p>f. Completed and signed Cvs for the proposed key personnel</p> <p>In addition, bidders are required to provide the following as part of the technical offer, presenting 9 separate attachments:</p> <p>g. Technical description of offer, including comprehensive description and diagrammatical representation of the technical solution offered.</p> <p>h. Datasheets and certificates of the required standards of the main components.</p> <p>i. Bill of Materials (BoM).</p> <p>j. Bidder's Statement Regarding Deviations/Non-Compliance (as per template provided in Appendix I in the ToR).</p> <p>k. Plan for bi-annual maintenance by the local partner, lasting for 3 years. Include the comprehensive details for procedures to be carried out during periodic inspection.</p> <p>l. Details on freight, logistics and installation plan in terms of timelines, delivery time and production time.</p> <p>m. Proposed work plan and approach criteria in relation to the requirements in the terms of reference (TORs).</p> <p>n. Risk assessment and Mitigation plan.</p> <p>In case the bidder is not a company registered and based in Uzbekistan, and a local partner is required as per section 3.1 of the TOR, the following documents shall be included:</p> <p>o. Letter signed by both parties confirming relationship between the supplier and local service provider.</p> <p>p. Official documentation stating that the Local Partner is a registered business in the country.</p> <p>q. A detailed profile of the local service provider including documentary evidence of similar services performed by the company.</p> <p>Bidders are required to provide the following as part of the financial offer: Price and Delivery Schedule Form: Fully completed and duly authorized (see Annex 3). Please note all costs should be specified as indicated in the Price and Delivery Schedule Form. Therefore, the price of an item must not be included into another item.</p>
<b>Quotation validity period</b>	Quotations shall remain valid for 90 days from the deadline for the Submission of Quotation.
<b>Price variation</b>	No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted at any time during the validity of the quotation after the quotation has been received.
<b>Partial Quotes</b>	<input checked="" type="checkbox"/> Not permitted
<b>Alternative Quotes</b>	<input checked="" type="checkbox"/> Not permitted
<b>Payment Terms</b>	<p>Total Acquisition</p> <p><input checked="" type="checkbox"/> 30% upon complete delivery of goods.</p> <p><input checked="" type="checkbox"/> 60% upon complete installation and commissioning of the system</p> <p><input checked="" type="checkbox"/> 10% after first 3 months of the total 6 months of stabilization period.</p> <p>Maintenance</p> <p><input checked="" type="checkbox"/> ⅓ at the end of the 1st year</p> <p><input checked="" type="checkbox"/> ⅓ at the end of the 2nd year</p> <p><input checked="" type="checkbox"/> ⅓ at the end of the 3rd year</p> <p>Currency of the quotation:</p> <p>- For local suppliers in Uzbek soums (registered in Uzbekistan)</p> <p>- For foreign suppliers in USD or in EURO (registered outside Uzbekistan)</p>
<b>Conditions for Release of</b>	<p><b>Acquisition:</b></p> <p>1st instalment: 30% of total acquisition</p>

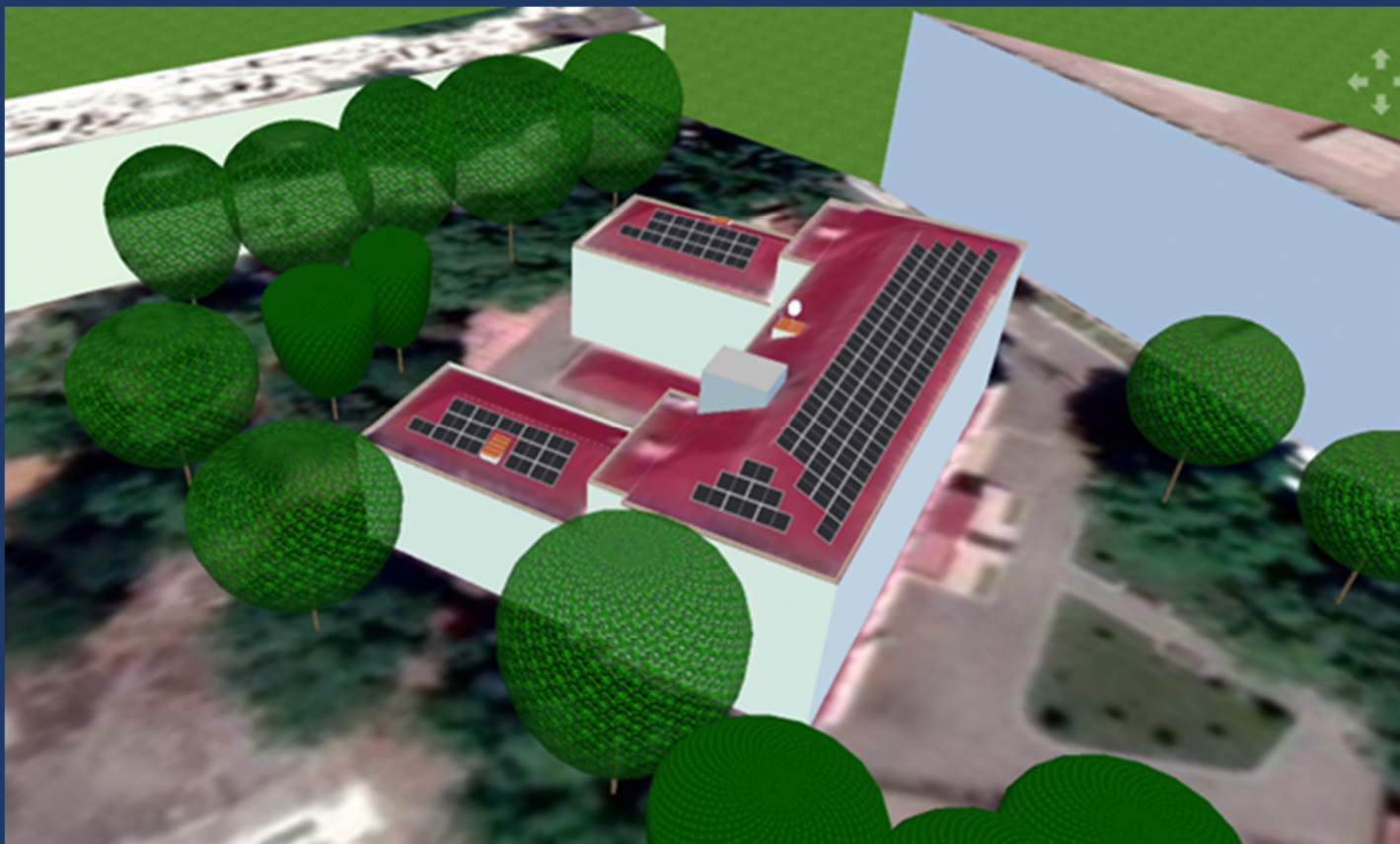
<b>Payment – Acquisition &amp; Maintenance</b>	<p><input checked="" type="checkbox"/> Written Acceptance of Goods, based on full compliance with RFQ requirements;</p> <p>2nd instalment: 60% of total acquisition Upon commissioning of the system as per Annex 1, section 3.7.1.7</p> <p><input checked="" type="checkbox"/> Submission of Deliverables</p> <p><input checked="" type="checkbox"/> Passing Inspection</p> <p><input checked="" type="checkbox"/> Complete Installation</p> <p><input checked="" type="checkbox"/> Passing all Testing (including UAT)</p> <p><input checked="" type="checkbox"/> Completion of Training on Operation and Maintenance and online monitoring.</p> <p>3rd instalment: 10% of total acquisition <input checked="" type="checkbox"/> after first 3 months of the total stabilization period</p> <p><b>Maintenance:</b></p> <p>a. 1st installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 1st and 2nd visit report and checklist</p> <p>b. 2nd installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 3rd and 4th visit report and checklist</p> <p>c. 3rd installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 5th and 6th visit report and checklist</p>
<b>Contact Person for correspondence, notifications and clarifications</b>	<p>E-mail address: pu.uz@undp.org</p> <p><b>Attention: Quotations shall not be submitted to this address but to the address for quotation submission above. Otherwise, offer shall be disqualified.</b></p> <p><b>Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.</b></p>
<b>Clarifications</b>	Requests for clarification from bidders will not be accepted after October 14,2022. Responses to request for clarification will be communicated in response letter by e-mail
<b>Evaluation method</b>	The Contract or Purchase Order will be awarded to the lowest priced offer having full technical and commercial compliance to the requirements
<b>Evaluation criteria</b>	<p><input checked="" type="checkbox"/> Full compliance with all requirements as specified in Annex 1</p> <p><input checked="" type="checkbox"/> Full acceptance of the General Conditions of Contract</p> <p><input checked="" type="checkbox"/> Earliest Delivery /shortest lead time</p>
<b>Right not to accept any quotation</b>	UNDP is not bound to accept any quotation, nor award a contract or Purchase Order
<b>Right to vary requirement at time of award</b>	At the time of award of Contract or Purchase Order, <a href="#">Click or tap here to enter text.</a> reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty-five per cent (25% ) of the total offer, without any change in the unit price or other terms and conditions.
<b>Type of Contract to be awarded</b>	Purchase Order/Supply contract
<b>Expected date for contract award.</b>	01 December 2022
<b>Publication of Contract Award</b>	UNDP will publish the contract awards valued at USD 100,000 and more on the websites of the CO and the corporate UNDP Web site.
<b>Policies and procedures</b>	This RFQ is conducted in accordance with <a href="#">UNDP Programme and Operations Policies and Procedures</a>
<b>UNGM registration</b>	Any Contract resulting from this RFQ exercise will be subject to the supplier being registered at the appropriate level on the United Nations Global Marketplace (UNGM) website at <a href="http://www.ungm.org">www.ungm.org</a> .

	The Bidder may still submit a quotation even if not registered with the UNGM, however, if the Bidder is selected for Contract award, the Bidder must register on the UNGM prior to contract signature.
<b>Additional requirements for tenders for civil works</b>	<input checked="" type="checkbox"/> All work must be carried out in accordance with the requirements for health, safety and environmental protection of the Republic of Uzbekistan <input checked="" type="checkbox"/> All work must be carried out in accordance with the building codes and regulations of the Republic of Uzbekistan <input checked="" type="checkbox"/> The use of the following materials is prohibited, prohibited materials are not limited to the list below: <ul style="list-style-type: none"> <li>- Asbestos or materials containing asbestos</li> <li>- Polychlorinated Biphenyls (PCBs)</li> <li>- Mercury and mercury compounds</li> <li>- Cadmium and cadmium compositions</li> <li>- Lead compositions</li> <li>- Stainless steel materials with radioactive contamination</li> </ul> <input checked="" type="checkbox"/> The contractor is responsible for the disposal of all waste in accordance with the legislation of the Republic of Uzbekistan
<b>Additional Requirements for Environmental Protection</b>	<input checked="" type="checkbox"/> Suppliers must offer products with the lowest greenhouse and carbon footprint

UNDP\_CO Procurement Unit (PU)



## UNDP Uzbekistan Country Office



### Annex 1 - Terms of Reference and Schedule of Requirements:

Smart Solar PV System for UNDP Uzbekistan Country Office, contributing to Create Smart UN Facilities Powered by Renewable Energy

Solar PV  
Capacity (kWp)



45

Renewable  
Fraction (%)



73

CO<sub>2</sub> Reductions  
(tons/year)



26



## About

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*Prepared 14/06/2021  
Last Update: 30/08/2022 by*

ITM Green Energy Team.

**ISO 9001** *Approved for Release by*  
Gerald Demeules  
*Global ICT Advisor*

◀ **Front Cover:** Solar PV Potential Model at UNDP Uzbekistan Office



# Terms of Reference: Solar Grid-tied System

UNDP Uzbekistan Country Office

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## Acronyms

<b>COB</b>	- Close of Business
<b>ICT</b>	- Information and Communications Technology
<b>IoT</b>	- Internet of Things
<b>O&amp;M</b>	- Operation and Maintenance
<b>ITM</b>	- Information and Technology Management
<b>PCMM</b>	- Power Consumption Measuring and Monitoring
<b>PU</b>	- Procurement Unit
<b>SDGs</b>	- Sustainable Development Goals
<b>TOR</b>	- Terms of Reference
<b>UAT</b>	- User Acceptance Test
<b>UNDG</b>	- United Nations Development Group
<b>UNDP</b>	- United Nations Development Programme



# Terms of Reference: Solar PV System

## Uzbekistan UNDP Country Office

### Scope of the Document

The Terms of Reference (TOR) sets the requirements to facilitate smart and clean energy solutions to secure country office (CO) activities in **UNDP Uzbekistan** by supplying, installing, commissioning (including complete civil works), and after-sales services for the solar photovoltaic (PV) system at the **UNDP Uzbekistan CO**. An overall high-quality system is expected, as the system will be a showcase for other compounds.

### Structure of the Document

The ToR include the following components:

- 1.Introduction
- 2.Project Description
- 3.Statement of Work
- 4.Price and Delivery Schedule Forms
- 5.Project Management and Communication Plan

All the requirements included in this ToR are numbered and boxed.

## 1. Introduction

The **UNDP Uzbekistan CO**, in cooperation with the UNDP Information & Technology Management (ITM) Green Energy Team, has taken initial steps toward implementing a solar installation on their premises. This endeavor will comprise of **45 kWp solar PV grid-tied system**.

The load has been estimated from PCMM sensors, local energy resources, and data provided by the UNDP Uzbekistan CO colleagues in the site survey assessment. Based on the projection of the load consumption for the new building, the new solar PV system will be able to cover approximately 73% of the electricity consumption.

Switching to renewable energy implies strong environmental incentives. Going solar will save approximately 26.25 tons of CO<sub>2</sub> emissions yearly, effectively reducing Uzbekistan CO's carbon footprint and environmental burden. This will institute the United Nations Sustainable Development Goals while being an opportunity to promote green energy solutions and inspire local economies to adopt similar solutions.

A solar installation in Uzbekistan CO will enhance business continuity and work environment, as well as reduce climate impact. All while promoting sustainable development in the region.



## 1.1 Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the blueprint for achieving a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect, and to leave no one behind, we must achieve each Goal and target by 2030.<sup>1</sup> As a leading agency in the fight against climate change, UNDP is committed to “walking the talk” by demonstrating that we run our operations in a resources-efficient, sustainable, and accountable way.



Figure 1 - The Global Goals for Sustainable Development

Substantial progress has been achieved in making UNDP “greener,” more resilient operations both at Head Quarters and in many COs and Regional Centers. Around the world, our offices are working to minimize the environmental impact associated with operations, from green building renovations and sustainable procurement practices to staff training and bicycling programs. By now, over 20 UNDP COs - out of 167 - have installed or are installing photovoltaic systems to reduce Green House Gas (GHG) emissions and enhance office energy security. Recently UNDP adopted a ‘Climate Neutrality and Sustainability Plan for Global UNDP Operations’ committing UNDP to reduce GHG emissions by 10% over five years and achieving climate neutrality for global operations starting effective 2014<sup>2</sup>.

<sup>1</sup> About the Sustainable Development Goals

(<https://www.un.org/sustainabledevelopment/sustainabledevelopment-goals/>)

<sup>2</sup> UNDP - Greening the Blue Initiative (<http://www.greeningtheblue.org/what-the-un-is-doing/unitednationsdevelopment-programme-undp>)



## 1.2 Smart UN Facilities

The concept of Smart UN Facilities revolves around using data insights and interconnected technologies to transform UN COs and related facilities into “smart” premises; in effect, local capacity to carry out the UN’s goals is augmented. This concept is rooted in two aspects, which are manifested in multiple technology systems provided by ITM:

1. Fourth Industrial Revolution - the advent of connected technologies, including robotics, the Internet of Things (IoT), and autonomous vehicles.
2. Smart cities - utilization of sensors for data collection, insights, analysis, and subsequent enhancement of services.

Given the benefits, it makes the first step in transitioning into a low-carbon and digital organization through the smart integration of various equipment. As it is depicted below, [Figure 2](#) shows the main technologies that set and establish Smart UN Facilities, including:

- Smart Energy & Mobility
- Smart Connectivity - ICT, Business Intelligence & AI
- Smart Data & Internet of Things
- Smart Security

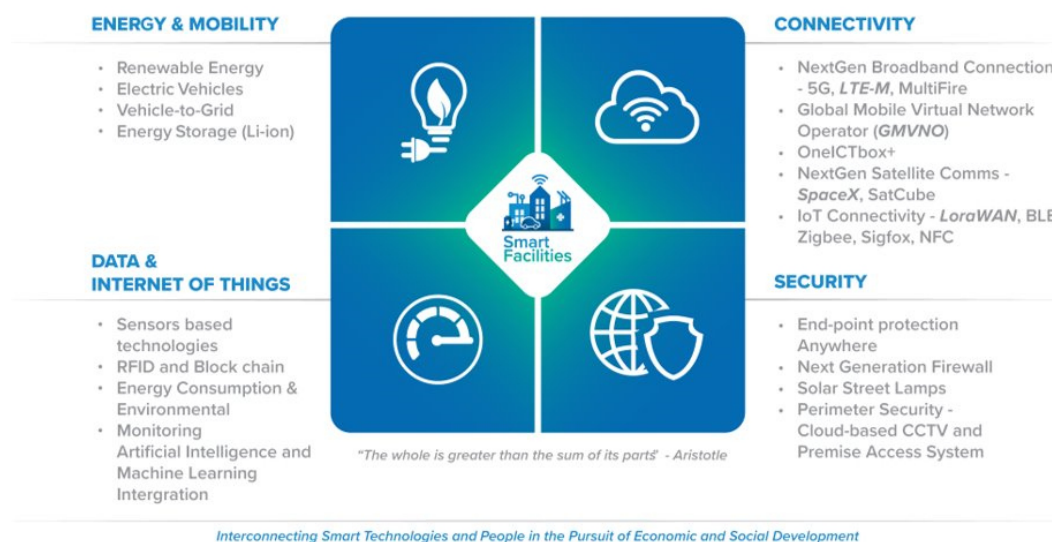


Figure 2 - Smart UN Facilities Framework

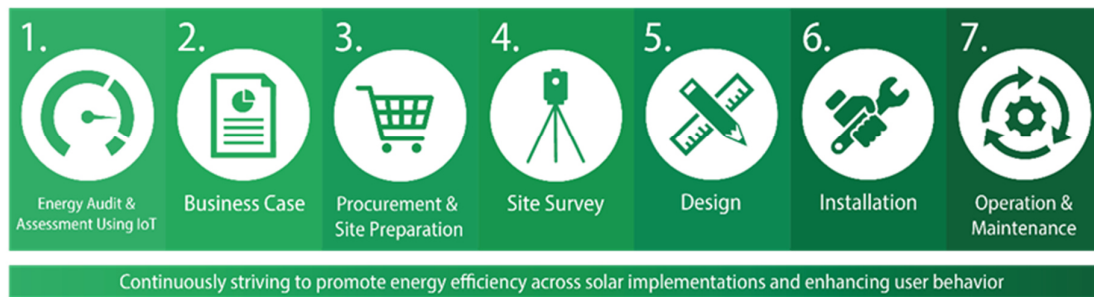
## 1.3 Seven Step Green Energy Process

Use of the United Nations Development Group's recommended 7-Step process is being adopted for this project. The approach is a holistic end-to-end process with a preliminary assessment of project practicability and the post-installation operation & maintenance. This solution is depicted in [Figure 3](#) below and elaborated in the subsequent text.





## 7 STEP GREEN ENERGY SOLUTION



Recognized best practice by UNDG for Solar implementation

Figure 3 - Seven Step Green Energy Solution

### Step 1: Energy Audit & Assessment using IoT

- The CO installs Internet of Things (IoT) devices to measure their load consumption, if applicable.
- ITM monitors the quality of the grid and generator(s). The proposed solution for the solar PV system should be compatible with this monitoring system.
- The CO is required to complete a **Preliminary Site Survey** form, which will provide detailed information on the physical structure and the electrical installations.
- The CO can choose to have a technical assessment mission to carry out the Preliminary Site Survey of the premises.

### Step 2: Business Case

- This step serves to provide essential information and data for decision-making. With the information gathered during Assessment using IoT and CO schematics, ITM compiles a load profile of the energy consumption for the respective CO. This enables an analysis resulting in the drafting of a business case that presents potential green energy solutions for the CO.

### Step 3: Procurement & Site Preparation

- Compilation and publication of solicitation documents will be carried out in accordance with UNDP rules as applied by CO procurement unit in such projects.
- Before the bids are placed, all interested vendors perform a **Site Visit** to collect all the detailed data required for them to formulate their offer.
- Evaluation of bids/proposals will be carried out jointly between ITM, CO, CO procurement unit, and if desired a government representative/focal point.

### Step 4: Site-survey - vendor

- The vendor carries out a **Site Survey** to exhaustively consider all aspects that can adversely affect the implementation of the project and information for the final project's design, including required materials/equipment and time frames.
- The vendor acts as the implementer, working closely with the focal point at the CO, where necessary, and ITM exercises technical oversight and project management. Submission of the final **Site Survey Report** marks the end of this step.



## Step 5: Design

- a. The selected vendor drafts the final system design, considering findings from the site survey in the previous step.
- b. As part of technical oversight, ITM must endorse the final design before the actual installation starts. Submission of the final design and implementation schedule marks the end of this step.

## Step 6: Installation

- a. The vendor carries out all the necessary installations, in the process giving regular progress updates to all stakeholders.
- b. Critical milestones are defined, at which point, ITM makes the necessary assessments as part of the technical oversight.
- c. Six-month stabilization period allows the end-user to get acquainted with the system and basic troubleshooting.
- d. Among other critical requirements, the step entails end-to-end testing, physical inspection of the installation, user training, and complete system documentation.
- e. This step involves carrying out User Acceptance, in which all parties play a role. A signed checklist confirming full compliance with all requirements marks the end of the step, giving way to Operation & Maintenance (O&M).

## Step 7: Operation & Maintenance

- a. Regular bi-annual maintenance (the first 3 years of maintenance is included in the quote presented in the business case) and regular monitoring from UNDP.

## Communication and Publicity

Parallel to the Seven Step Green Energy Solution process of green energy solution, ITM Communications Team and the Communications CO Team carry out the promotions of the successful project within the country and globally through the UN network. This process involves highlighting the benefits of the installed system and spread word about the human impact. Furthermore, this aims at motivating similar installations in other parts of the country.



## 2. Project Description

### 2.1 Project Objectives

The main goal of the smart solar PV system is to provide **affordable green energy** solutions for the UN smart facility as well as **smart integrated services** like security and adaptability. ITM requires **high quality** for the system as it will also serve as a showcase on a national and international scale. The following document provides requirements and guidelines for the project, but an innovative solution proposal is highly encouraged to improve the system.

### 2.2 Project High Level Requirements

This project seeks to enhance the energy supply for the UNDP premises with renewable energy. The current energy supply for the compound is based on the national grid and a 108.8 kW diesel generator serving as a backup during outages which occur on average once every month. However, the generator integration and maintenance are out of the scope of this RFQ.

The requirement is for the vendor to provide a comprehensive offer for a **Solar PV Turnkey Solution** based on the following configuration.

1. Supply a **45 kWp Solar PV Turnkey Solution**.
2. Installation, User Acceptance Test (UAT), and Commissioning of the final system.
3. Integration of the final solution into the facility and the national grid.
4. Provision of bi-annual maintenance and after-sales by the local partner (for 3 years).
5. Training of the users on the system must also be provided to guarantee they will be able to perform the system's first-level operation and maintenance effectively.
6. Apply on behalf of UNDP Uzbekistan to all necessary documentation required for net metering schemes in Uzbekistan.

The system setup will be based on Solar PV + Grid and Generators as a backup. The Solar PV System is required to serve as the primary energy source with the grid. In case of insufficient electricity production by the PV system, the load will be supplied by the national grid. In case of excess electricity production, the system is expected to feed energy back into the national grid in compliance with the existing regulation in Uzbekistan. During outages, the system will use diesel generator to meet the energy requirements and solar PV is not expected to be operational. Integration with the generator is not in the scope of this RFQ but the supplier will be responsible of taking appropriate measures to ensure that under no circumstance energy is fed back to the existing gensets.

The solar PV system is expected to provide around 73% of the total electricity demand of the site. A set of energy efficiency measures (out of the scope of this RFQ) have also been suggested (sealing openings, increasing temperature set on ACs, and providing motion sensors for ACs), which means the CO can potentially reduce its current consumption, therefore, increasing the system's renewable fraction.



The Solar PV + Grid system must operate in a robust, intelligent, and automated manner regarding energy supply for the CO. The proposal of the systems shall include an intelligent energy supply and management, prioritizing PV and if more energy is required supply with grid and in the case of outages switch to already installed generator on site.

The weather in Uzbekistan has many variations, and due to its location, the area is prone to earthquakes and geological activities (See section [Weather on Site](#)). Hence, the system installed must be designed and installed to withstand these harsh climatic conditions.

Please note that civil works can be one of the most sensitive parts of the project. It involves safety and dominant physical visibility directly impacting **UNDP's reputation**. The mounting structure becomes the signature and a showcase of the UN compound, as civil work will significantly alter the looks of UN facilities. The solar panel installation will become part of the UN compound signature. As per the UNDP Smart Facility vision, all results of civil work will become a showcase to inspire a movement locally and hopefully regionally.

### 2.3 Site Description

The Uzbekistan UNDP CO premises are located at: **4 Taras Shevchenko Street, Tashkent 100029**, in the following GPS Coordinates: 41.30647598, 69.27407290. The compound's roof dimensions can be seen below in [Figure 4](#) and [Figure 5](#).

A storage area is available on the CO's premises to place the goods during the installation. However, space may be limited, and the vendors must assess any security issues linked to the equipment's storage on-site.

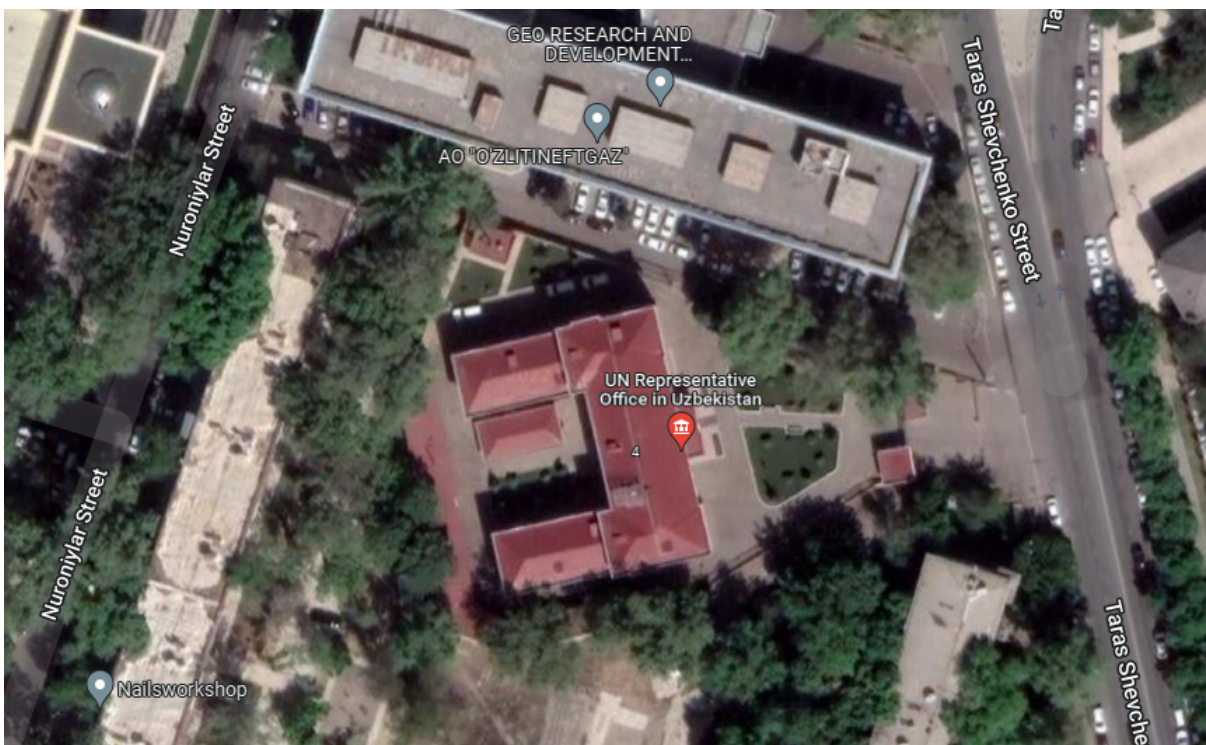


Figure 4 - Aerial view of the UNDP Premises



Figure 5 - UNDP Uzbekistan Building Roof Dimension

## 2.4 Weather on Site

In Tashkent, the climate is humid continental, experiences dry, hot, and long summers from May till September and often snowy winters in the remaining months. The temperatures range between -2 to 36°C with record values of -8°C and 40°C. Precipitations are the heaviest from October till May, with up to 70mm in a month. Dust can also be a significant inconvenience as the wind speed is regularly above 12 km/h. As the winter is often cloudy, snowing is expected. The day length is around 12 hours the whole year.

## 2.5 Potential Location of PV Panels and technical room

The solar panels are suggested to be located on the UNDP CO's roof. The suggested layout for the PV modules is shown in [Figure 6](#), however the actual layout for the desired capacity should be provided by the vendor.



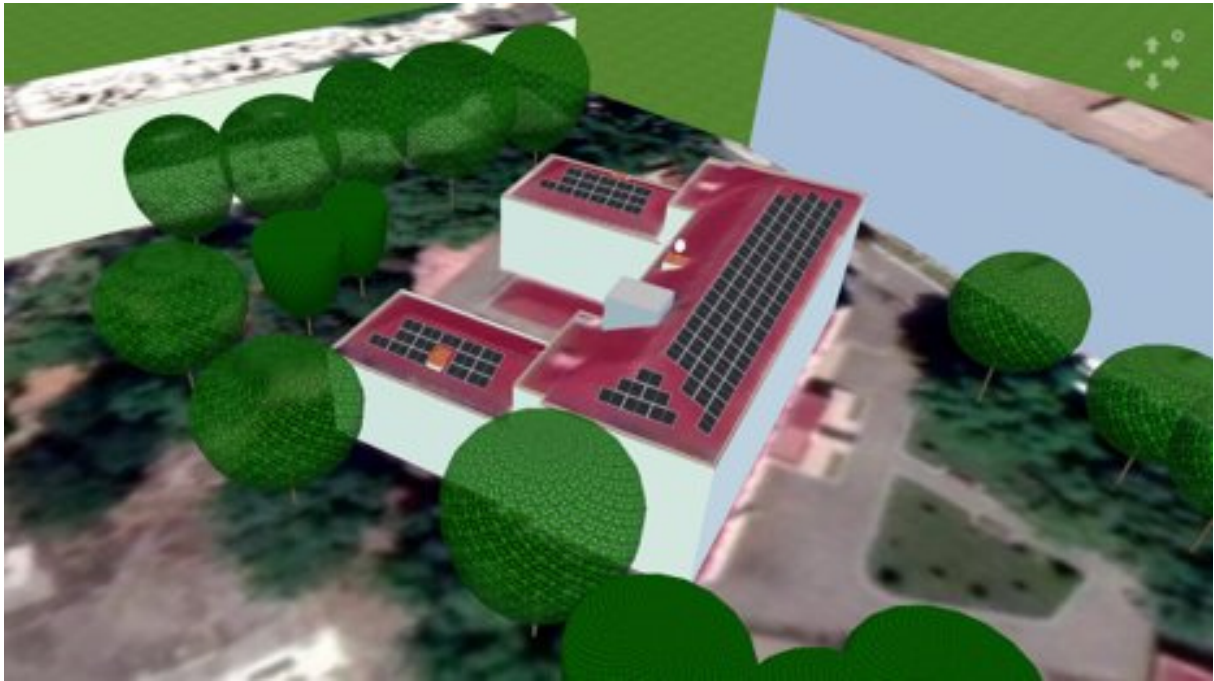


Figure 6 - Proposed Area for PV panels on the Uzbekistan UNDP Building

## 2.6 Estimated Load Consumption

PCMM sensors were installed to measure the consumption of the mainline and the individual load of different blocks in the compound. Using the information from local energy resources, electricity bills and site survey data, a yearly load profile was generated. Seasonal variability has been included to provide the most realistically possible load estimation. The final load profile used for the simulations is shown in [Figure 7](#) and [Table 1](#).

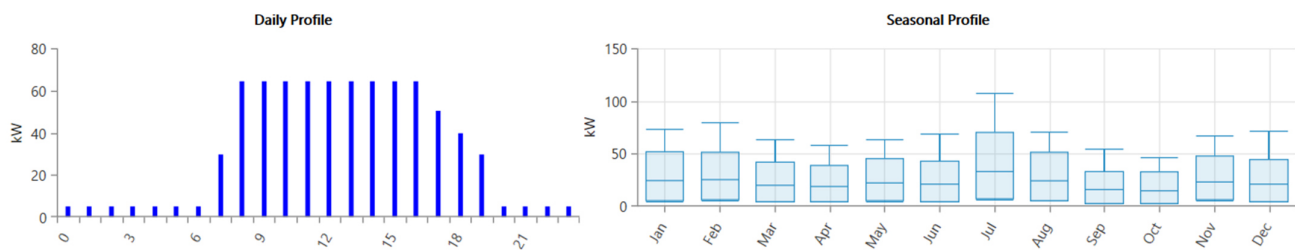


Figure 7 - UNDP Uzbekistan CO Load Profile

Table 1 - Load Profile Metrics

Metric	Baseline
Average (kWh/day)	541.96
Average (kW)	22.58
Peak (kW)	107.63



## 2.7 Connectivity

The UNDP compound has a stable internet connection available.

## 2.8 Generator

The compound has a 108.8 kW diesel generator serving as a back-up power supply during outages. The generator is manufactured by GESAN (model DPS 140), more detailed information is shown below. In case of outages, the generator starts working 3 seconds after the power turns off and switches off 5 minutes after electricity from the grid is restored. The integration of the generators with the solar system is not within the scope of this project however, the vendor will be responsible to take appropriate measures to ensure that under no circumstance energy is fed back into the gensets.



Figure 8 - Generator details

## 2.9 Grid Quality

The grid in Tashkent is quite reliable, with 7-to-10-minute-long outages occurring once a month on average.





### 3. Statement of Work

#### 3.1 Local Partner

In case the vendor is not located within a reasonable distance to allow for a response time within the maximum time specified in

Table 4, it must show proof of a formal agreement with a local representative with relevant experience to perform such requirements. **This agreement is designed for support in the deployment of the Solar System with regards to the site visit, installation, and after-sales services and maintenance processes<sup>3</sup>.** This aligns with UNDP's mission of developing local capacity. In case the vendor is based within a reasonable distance from UNDP Uzbekistan CO and can ensure to meet the required response times, a local partner is not necessary. Please note that an exclusivity agreement with the local partner is not a requirement.

**In case the vendor wishes to partner with a local representative, please include the following in the offer document:**

1. Letter signed by both parties, confirming the relationship between vendor and local partner.
2. Profile of the local partner, including documentary evidence of relevant experience and services.
3. Official documentation stating that the Local Partner is a registered business in the country.

Both the vendor and the local partner (if applicable) need to agree to the maintenance terms discussed in **section 3.6.1.6, and must be aware of the high-quality expectations for the solution, as the system will serve as a showcase at both national and international levels.** This needs to be proved through a signed document stating the points mentioned.

Note that the **vendor is responsible** for the requirements mentioned in **section 3.6.1.6** and not the local partner. As the local partner may be required to go on-site during the O&M phase for corrective maintenance and troubleshooting, it should be based in a strategic location within proximity to the CO. In case of a critical incident, the local partner (or the vendor itself, if no local partner is needed) shall acknowledge the issue and perform the required activities depending on the identified incident priority.

#### 3.2 After-sales services and response time

The vendor (represented by the local partner, if any) must be able to comply with the minimum requirements for after-sales services and maintenance processes. The logistics should allow for a response time within the maximum time specified in

Table 4. In case of a critical incident, the vendor/local partner shall acknowledge the issue and perform the required activities depending on the identified incident priority. The target resolution and response time for each Incident or Service Request depends on its Priority. Priority is determined by the Urgency and the Impact of the Incident or Service Request.

The response shall always include:

1. Acknowledge receipt of incident reporting.

<sup>3</sup> Please refer to Section 3.6 for vendor's tasks and responsibilities.



2. Assess and evaluate Urgency as detailed in [Table 2](#).
3. Assess and evaluate Impact as detailed in [Table 3](#).
4. Commence implementing resolution actions with the timelines and modalities indicated below for each resulting priority.

Resolution shall always include:

1. Clear identification of incident.
2. Clear identification of incident causes.
3. Submission of resolution plan with clear activities and timelines.
4. Submission of request for procurement of any component's replacement.
5. Initiation of resolution plan activities.

The below tables and definitions describe the service agreed on targets and expected response time. The Priority defined in

[Table 4](#) results in a combination of Urgency and Impact. As depicted in [Table 2](#), Urgency is defined as a measure of how long it will be until the incident has a significant impact on the business.

*Table 2 - Urgency level definition*

Urgency	Description
<b>Critical</b>	Event underway, it cannot be stopped or changed.
<b>High</b>	Event underway, time to resolution to be kept to a minimum.
<b>Medium</b>	Event scheduled or to occur, but enough time remains to respond without impacting the event.
<b>Low</b>	Event can be postponed or is far enough away in time to allow response without loss of productivity.

Impact, detailed in [Table 3](#), is defined as a measure of the effect of an incident and how the service levels will be affected.

*Table 3 - Impact Level Definition*

Impact	Scope	Business	Operations
<b>Extensive Widespread</b>	80% to 100% Generation is lost. Incapacity to correctly feed the load from direct generation.	The event has extensive financial implications, the longer the issue takes to be resolved.	Interferes with core business functions, loss or potential loss of electricity supply.
<b>Significant Large</b>	Affects a significant part of the solar PV system.	Some financial impact and few business units are impacted.	Interferes with few core businesses functions and potential loss of mission critical data.
<b>Moderate Limited</b>	Affects a minor part of the solar PV system.	No financial impact but potential loss later if unresolved.	Interferes with non-core business functions and no loss on mission critical data.
<b>Minor Localized</b>	Less than 10% or no power.	No financial impact and no potential loss or economic implications.	Interferes with non-major business activities and no loss on mission critical data.

Once Urgency and Impact are evaluated, the Priority is determined with the corresponding Response and Resolution Time.



Table 4 - Priority definition and target response time

Impact	Urgency	Resulting Priority	Response Time Target and mandatory action <sup>1</sup>	Resolution Time Target
1-Extensive Widespread	1-Critical	<b>Critical</b>	2 hours - On site presence is required	48 hours
2-Significant Large	1-Critical	<b>Critical</b>	2 hours - On site presence is required	48 hours
1-Extensive Widespread	2-High	<b>Critical</b>	2 hours - On site presence is required	48 hours
3-Moderate Limited	1-Critical	<b>High</b>	12 hours - On site presence is required	72 hours
4-Minor Localized	1-Critical	<b>High</b>	12 hours - On site presence is required	72 hours
2-Significant Large	2-High	<b>High</b>	12 hours - On site presence is required	72 hours
1-Extensive Widespread	3-Medium	<b>High</b>	12 hours - On site presence is required	72 hours
3-Moderate Limited	2-High	<b>High</b>	12 hours - On site presence is required	72 hours
4-Minor Localized	2-High	<b>Medium</b>	24 hours - On site presence is required	6 days
2-Significant Large	3-Medium	<b>Medium</b>	24 hours - On site presence is required	6 days
3-Moderate Limited	3-Medium	<b>Medium</b>	24 hours - On site presence is required	6 days
4-Minor Localized	3-Medium	<b>Medium</b>	24 hours - On site presence is required	6 days
1-Extensive Widespread	4-Low	<b>Low</b>	48 hours	10 days
2-Significant Large	4-Low	<b>Low</b>	48 hours	10 days
3-Moderate Limited	4-Low	<b>Low</b>	48 hours	10 days
4-Minor Localized	4-Low	<b>Low</b>	48 hours	10 days

<sup>1</sup> Response time specified taking into consideration regular working hours schedule

### 3.3 Site Visit

Necessary site information, including photos, has been provided. However, for the preparation and submission of your offer, you shall engage your local partner or defined representative to conduct a Site Visit (without cost to UNDP). The data collected on the site assessment visit and the data included in this document shall be considered for the offer preparation and submission.

The Site Visit is scheduled for **Tuesday, 4 October 2022 - at 10 am local time**. The Site Visit can be conducted either by the vendor's staff, the local partner, or a third representative. Conducting a site visit is **compulsory** for the offer to be valid.

The UNDP focal contact in Uzbekistan is Inoyat Khamraev. Please note that it is necessary to arrange the site visit in advance. As such, the vendors must inform its local partner accordingly.

**Please confirm** your intention to undertake Site Visit(s) (without cost to UNDP) **by 2022 COB (Copenhagen Time)** by sending an email to: [inoyat.khamraev@undp.org](mailto:inoyat.khamraev@undp.org) and [itm.green.energy@undp.org](mailto:itm.green.energy@undp.org). Kindly **provide in the email the following information** for UNDP CO and UNDP PSU (procurement unit at the CO) to make the necessary arrangements for assessment.

Confirmation of site visit on 04/10/2022 at 10:00 am local time	
Name of company/local partner undertaking site visit	
Name of visitor, ID, and contact details	



Please refer to the address stated in this RFQ:	United Nations Development Programme Country: Uzbekistan City: Tashkent Address: 4 Taras Shevchenko Street, Tashkent 100029 - Uzbekistan GPS Coordinates: 41.30647598, 69.27407290
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### 3.4 Bidders Conference

The **bidders' conference** aims to provide an open exchange between UNDP ITM and vendors, communicate the RFQ process to vendors, answer questions about the RFQ and ultimately ensure that prospective vendors have a clear understanding of the requirements. The conference will be conducted with interested vendors over a video conference, and the vendors' participation is mandatory for bidding.

The bidders' conference is scheduled on the **Tuesday, 11 October 2022 - at 11 am local time.**

Please confirm your participation by **2022 COB (Copenhagen Time)** by sending an email to: [inoyat.khamraev@undp.org](mailto:inoyat.khamraev@undp.org) and [itm.green.energy@undp.org](mailto:itm.green.energy@undp.org)

### 3.5 Technical Requirements

Compliance with or deviations from the specification shall be clearly stated by the vendor in the below sections (0 - 3.5.8) and submitted as part of the offer (*Please refer to Appendix I*). The vendor shall apply good engineering practices and follow the applicable standards in the solar PV system's design. In addition, the vendor shall include technical and performance specifications of the equipment that will be used in the project. The system's electricity supply is expected to operate according to the follow logic/priorities shown in Figure 9, also further specified in section 3.5.6.1.



Figure 9 - System's operation logic

### PV Modules

Table 5 - PV Modules Technical Requirements

<b>3.5.1.1</b>	<b>PV Capacity</b>	Total PV capacity of <b>45 kWp</b>
<b>3.5.1.2</b>	<b>Module Specifications</b>	Solar PV Panels shall follow these technical and performance specifications: i. Mono- or polycrystalline silicon; CIGS thin film modules are also acceptable.



		<ul style="list-style-type: none"> <li>ii. PV Panels with enough number of cells and energy efficiency ensuring the system offered has the capacity requested</li> <li>iii. Tolerance better than -0/+5%</li> <li>iv. Maximum weigh per module 28 kg (&gt;28kg modules may be accepted as long as the total weigh of the structure does not compromise the integrity of the roof)</li> <li>v. Frameless modules are not allowed</li> <li>vi. Double insulation module with cables and connectors</li> <li>vii. Junction box with accessible bypass diodes</li> <li>viii. Anti-reflective glass cover</li> <li>ix. Modules must be PID (potential induced degradation) proof, or have passed the IEC 62804 standard test</li> </ul>
<b>3.5.1.3</b>	<b>Standards</b>	<ul style="list-style-type: none"> <li>i. Compliant with IEC 61215 (edition 2) or equivalent</li> <li>ii. Shall be qualified and be classified by class according to IEC 61730 or equivalent</li> </ul>
<b>3.5.1.4</b>	<b>Module Efficiency</b>	Minimum shall be 18%.
<b>3.5.1.5</b>	<b>Limited Power Warranty</b>	The modules shall be subject to a 10-year limited product warranty or longer. The performance warranty shall ensure that the modules will produce at least 90% of their nominal power after 10 years and 80% of the nominal power after 20 years.
<b>3.5.1.6</b>	<b>Tilt</b>	Shall be optimized for local condition and used technology.
<b>3.5.1.7</b>	<b>Labelling</b>	<p>The bidder shall provide the following information at the project completion:</p> <ul style="list-style-type: none"> <li>i. Manufacturer, brand; model and serial number</li> <li>ii. Rated power; Efficiency</li> <li>iii. Color temperature</li> <li>iv. Clear indication of the connecting inlets and outlets</li> <li>v. Warranty and Safety warning</li> </ul>



### 3.5.2 PV Modules mounting

Table 6 - PV modules mounting technical requirements

3.5.2.1	<b>Features</b>	<p>In this regard, vendors are requested to provide complete appropriate solution including supply of materials, civil works etc. as part of the UNDP Uzbekistan Solar PV Project.</p> <p>On the top of buildings with a pitched roof the modules can be directly mounted on the roof. Otherwise, the tilt angle and azimuth of the modules are to be optimized to the production in relation to the needs and the local conditions.</p> <p>Shadowing of the PV modules from trees, buildings or any other obstacles should be minimized over the whole day and there shall be no shadows in a period of <math>\pm 4</math>h w.r.t. solar noon.</p> <p>Bidders are requested to provide the solar field layout drawings of their solution coupled to a calculation of the required area (size) for Solar PV Modules in the offered system, as well as provide energy production forecast based on the orientation, tilt, and shadowing effects for Solar PV Modules.</p> <p>Any changes to the preliminary design of the mounting structure may be provided after the detailed site survey and the final design shall be approved by UNDP.</p>
3.5.2.2	<b>Mounting Structure</b>	<p>As the proposed solution consists of a rooftop mounting structure, the following shall apply:</p> <ol style="list-style-type: none"> <li>The mounting structure shall not compromise the integrity of the roof, and any damages that may occur because of the installation shall be responsibility of the vendor.</li> <li>Roof mounted structures shall be designed and customized to withstand local weather and climate, structural loads such as solar panels, wind loads, seismic loads (dependent on location), etc.</li> <li>The roof mounted structure shall be installed following local and/or international regulations, and it shall not include ballasts and other components that may add unnecessary load on the roof. The proposed solution shall minimize the weight on the structure. In case ballasts are the only feasible solution, detailed reasoning behind shall be provided, along with mitigation measures to ensure roof integrity.</li> <li>The structural design, when applicable, shall be designed and signed by a licensed engineer. The detailed drawings shall be provided, indicating total dimensions of the structure.</li> <li>The mounting structure and overall solution shall be aesthetically pleasing, use local materials (if possible) that adhere to quality standards and materials that have low embodied energy.</li> <li>Easy access to solar panels on top of the roof is required for regular cleaning and maintenance of the solar panels.</li> <li>The mounting structure design and installation shall adhere to local standards and / or the International Building Code (IBC).</li> </ol>



		viii. The BoM considered for the structure shall be included in the technical drawings.
<b>3.5.2.3</b>	<b>Lifespan</b>	Mounting structure should last at least the lifespan of project (25+ years).
<b>3.5.2.4</b>	<b>Standards</b>	The design of the PV mounting structure/array should follow the guidelines specified in JIS C 8955:2011, AS/NZS 1170.2:2011 or equivalent. UNDP reserves the right to crosscheck the features. The design and installation should respect and meet the recommendations specified by the solar panels' installation guideline.

### 3.5.3 Power electronics

Table 7 - Power electronics technical requirements

<b>3.5.3.1</b>	<b>Features</b>	The system must include a smart inverter to control the solar PV output. Additionally, the power electronic should include protection and power quality devices that counter problems like power back flow to the generator due to solar production. The electronics must allow for grid feed in and comply with the national regulation for grid-tied systems in Uzbekistan.
<b>3.5.3.2</b>	<b>Inverter Specifications</b>	Integrated solar PV inverters and MPPT are acceptable. Their design should be based on the requirements specified below:
<b>3.5.3.3</b>		<u>Solar inverters with:</u> <ol style="list-style-type: none"> <li>Inclusive of at least 2 maximum power point tracker (MPPT) compatible with the PV modules' layout and total voltage rating, maximizing the PV production.</li> <li>The inverter shall be compatible with the PV module's layout, accounting for possible local temperature variations.</li> <li>Inverter EU efficiency: min 95% (on-grid). <ol style="list-style-type: none"> <li>Compatible with national regulation.</li> <li>Capable of feeding excess energy back to the grid.</li> </ol> </li> </ol>
<b>3.5.3.4</b>	<b>General Specifications</b>	<ol style="list-style-type: none"> <li>Operating Temperature: 0-50°C</li> <li>3-phase output 380 V, 50 Hz.</li> <li>It is preferable to have 3 independent inverters to make the 3-phase output. However, other suitable configurations are also acceptable.</li> </ol>
<b>3.5.3.5</b>	<b>Standards</b>	<p>Regarding quality assurance, power electronics must follow these certifications, or equivalent ones (if equivalent, specify in the Appendix table, Compliance Checklist). Proof of compliance should be presented along with the technical offer, as previously specified.</p> <ol style="list-style-type: none"> <li>Design: <b>IEC 62093</b> or equivalent</li> <li>CE-conformity <b>LVD 2014/35/EC</b>, including at least the following harmonized standards:</li> </ol>





		<ul style="list-style-type: none"> <li>a. Safety for converters: <b>EN 62109-1 and EN 62109-2</b> jointly, or EN 60335-1 (in case of small power electronics), or equivalent</li> <li>iii. CE-conformity <b>EMC 2014/30/EU</b>, including at least the following harmonized standards: <ul style="list-style-type: none"> <li>a. <b>EN-IEC 61000-3-3</b> or <b>EN-IEC 61000-3-11</b></li> <li>b. <b>EN-IEC 61000-3-2</b> or <b>IEC 61000-3-12</b></li> </ul> </li> <li>iv. EMC conformity Emissions limits: Either <b>EN 61000-6-3, 61000-6-4</b>, or <b>EN 55014-1</b> (according to size of equipment and application)</li> <li>v. EMC conformity Immunity limits: Either <b>EN 61000-6-1, 61000-6-2</b> or <b>EN 55014-2</b> (according to size of equipment and application)</li> <li>vi. <b>IEC 62116</b> - Test procedure of islanding prevention measures or equivalent</li> </ul> <p>(If any equivalent standard, specify in the Appendix table, Section <a href="#">3.5.3</a>)</p>
<b>3.5.3.6</b>	<b>Safety</b>	<ul style="list-style-type: none"> <li>i. Provide protection against overload and reverse polarity</li> <li>ii. IP protection class 54 or better</li> </ul>
<b>3.5.3.7</b>	<b>Warranties</b>	The expected operating lifetime of the inverter shall be of at least 10 years and the warranty period of 5 years.

### 3.5.4 Technical Room

Table 8 - Technical room requirements

<b>3.5.4.1</b>	<b>Specifications</b>	<p>A technical room hosting inverters, charge controller and a temperature control, current/voltage fluctuation protection and any other elements that make-up Balance of System (BOS).</p> <p>This solution is to include optimal and controlled environment to enhance the lifespan and functionality of the offered PV components inclusive of appropriate safety features, cooling system, etc.</p> <p>System design should <u>consider and incorporate energy requirements</u> for the room's internal environment control system and ensure that its specific energy requirements do not reduce the requested PV solution capacity.</p> <p>Equipment should be protected with the corresponding IP rating according to where they are installed.</p> <p>It shall remain the bidders' responsibility to guarantee that any civil works or interventions on an existing structure for the power electronics installation (such as drilling in existing wall for inverter fixation, or cabling connections) will not compromise the integrity of the structure. Any damage to the existing structure that may occur as a result of this installation shall be responsibility of the vendor.</p>
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<b>3.5.4.2</b>	<b>Features</b>	<p>The technical room shall include these features:</p> <ul style="list-style-type: none"> <li>i. Smoke detection and alarm</li> <li>ii. Fire extinguisher</li> <li>iii. Climate control and protective device</li> <li>iv. Conditions: Humid Asian continental Operating Temperature: Humid continental (-10°C/+45°C)</li> <li>v. Internal temperature shall be regulated for optimal performance of equipment</li> <li>vi. Ensure that the product conforms to appropriate and applicable European, American, Japanese, or Australian standards with regards to: Safety for Electrical Appliance, Electrical Standards, Building Standards, Container Internal Environment, General Ventilation and Cooling Standards for such facility,</li> </ul> <p><u>Offer to clearly reflect cost of this element (technical room) including overall system cost improvement and/or increment related to this option.</u></p>
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### 3.5.5 Online monitoring system

Table 9 - Monitoring requirements

<b>3.5.5.1</b>	<b>Monitoring and Management overview</b>	<p>Internet connectivity will be available at the site.</p> <p>The online monitoring system shall be user-friendly dashboard that shows real-time power consumption, indicating which sources are used to provide the required power (grid, and solar PV).</p> <p>The information in the portal shall be presented in English.</p> <ul style="list-style-type: none"> <li>i. Overview List of installed equipment (solar PV modules, inverter, etc.)</li> <li>ii. Generation Overview indicating the production of each device in the system (Solar PV, etc.) and Fault Diagnostic</li> <li>iii. Consumption overview (direct consumption, feedback to grid)</li> <li>iv. Earning/Saving in terms of energy (kWh), money (\$), and emissions (kgCO<sub>2eq</sub>) from the solar system.</li> </ul>
<b>3.5.5.2</b>	<b>List of hourly basis parameters</b>	<p>A local and remote monitoring system shall be provided to be able to track operation of the system with real-time &amp; historical data with at least 3 years data storage capacity. It must include, at least, the following parameters on an hourly basis:</p> <ul style="list-style-type: none"> <li>i. Total Electricity Consumption (from the loads)</li> <li>ii. Total Electricity PV Production</li> <li>iii. Total feedback to the grid</li> <li>iv. Alarms and configuration records</li> <li>v. Grid status and energy production</li> </ul>
<b>3.5.5.3</b>	<b>Standards</b>	<p>It is an advantage for the monitoring system to follow the guidelines specified by IEC 61724 -1.</p>



### 3.5.6 Smart power management

Table 10 - Smart power management requirements

<b>3.5.6.1</b>	<b>System's operation logic</b>	<p>The PV energy solution shall include Smart Power Management that allows the working system to supply electricity according to the following logic/priorities:</p> <p>1<sup>st</sup>: Solar PV 2<sup>nd</sup>: Electricity grid</p> <p>If excess electricity is available, it must be fed back to the grid.</p>
<b>3.5.6.2</b>	<b>Details</b>	<p>The Smart Power Management should be able to provide:</p> <ul style="list-style-type: none"> <li>i. Connection with local building electrical distribution panel.</li> <li>ii. Integration all power sources and load to work as one system, as long as all components are functional.</li> <li>iii. Intelligent monitoring and control of all power sources.</li> <li>iv. Dynamic intelligent management for overall PV system (energy supply solution).</li> <li>v. Setup and activation of Internet-based (online) monitoring of Solar PV system for Performance/Availability/Status/etc.</li> <li>vi. Integration of Solar PV + Grid to operate in an integrated, intelligent, and automated manner with regards to energy supply for the UNDP Uzbekistan Country Office.</li> <li>vii. Allow for grid feedback in compliance with local regulations.</li> <li>viii. Ensure that the CO is able to benefit from solar PV support schemes for grid exports according to local regulations (e.g., by installing a bi-directional energy meter).</li> <li>ix. The generators must be protected from reverse current.</li> </ul>
<b>3.5.6.3</b>	<b>Changeover switch</b>	A changeover switch shall be included to be able to bypass PV.
<b>3.5.6.4</b>	<b>Power requirements</b>	The system should not vary the power factor of the load. It shall not vary the reactive power intake form the grid

### 3.5.7 Wiring and safety

Table 11 - Wiring and safety requirements

<b>3.5.7.1</b>	<b>Details</b>	<ul style="list-style-type: none"> <li>i. Cables needs to be sized according to the required local applicable standards, or otherwise to EU applied standards. Appropriate sizing of cable lengths and dimensions shall respect a maximum of 2% voltage loss at nominal load.</li> </ul>
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		<ul style="list-style-type: none"> <li>ii. Cables installed outdoors must be able to handle high UV radiation, high temperatures, and must be weather resistant. Alternatively, they can be installed in cable trays that ensure they are protected from the elements.</li> <li>iii. Overcurrent protection for the strings, PV generator, and inverter shall be included.</li> <li>iv. Overvoltage surge and lightning protection on the AC and the DC side is required</li> <li>v. Protection against electric shock on the AC and DC side is also required</li> <li>vi. Diesel generator shall be protected from back feeding.</li> </ul>
<b>3.5.7.2</b>	<b>Grounding</b>	<ul style="list-style-type: none"> <li>i. All components of the system must be properly grounded.</li> <li>ii. All work must be carried in conformance to international and local codes and electricity standards.</li> <li>iii. The devices must be installed in accordance with the grounding device manufacturer's specified instructions.</li> </ul>
<b>3.5.7.3</b>	<b>Firefighter's switch</b>	Solar arrays shall be equipped with a remotely controlled DC disconnect switch

### 3.5.8 Warranty of the system

Table 12 - Warranty requirements

<b>3.5.8.1</b>	<b>Details</b>	<p>Warranty certification/documentation for the PV Energy System Main Components including summary overview of warranty arrangements (technical and logistical) shall be included in the system documentation. An overview of available warranty extension options for main components shall be provided.</p> <p>Any cost associated with warranty replacements during the warranty period will be borne by the supplier.</p> <p>Any cost associated with the maintenance and technical support for the energy system during maintenance subscription will be borne by the supplier.</p>
<b>3.5.8.2</b>	<b>Length</b>	The warranty for the complete system shall be at least 18 months from date of commissioning. This means that, for 18 months after the commissioning, the vendor is responsible for resolving any functionality issues with the complete system, without any financial liability on UNDP.



### 3.6 Tasks and Responsibilities

The overall tasks and responsibilities of the provider are indicated below in [Table 13](#).

*Table 13 - Mandatory tasks and Responsibilities*

<b>3.6.1.1</b>	<b>Risk Assessment, Avoidance and Mitigation Plan</b>	<p>A mandatory risk assessment must be conducted and presented along with the technical offer, including as minimum features:</p> <ol style="list-style-type: none"> <li>All potential risks that the project might incur, in each step of the project.</li> <li>The probability of incurrence and severity of the identified risks (e.g.: risk matrix).</li> <li>The risk tolerance for the identified risks.</li> <li>Proactive and reactive responses for risks surpassing the defined threshold of severity and/or probability.</li> <li>A mitigation plan for the risks identified as most severe or likely to happen (e.g., in case the final timeline is not respected due to external factors).</li> </ol> <p>This risk assessment must include all major phases of the project, i.e., procurement, shipment and transportation of goods, installation of the system, training of the end-users and monitoring of the active system.</p>
<b>3.6.1.2</b>	<b>Shipment of material</b>	<p>Shipment if to be provided for all the components of the system, following all procedures and documentation specified in this document. It is recommended to perform check and verification of the good functioning of the System Solution, and all the equipment involved before shipping the container (ideally 2 weeks before shipment). A pre-shipping inspection should be planned in case UNDP chooses to inspect the equipment and products before shipment.</p>
<b>3.6.1.3</b>	<b>Installation of the Solution</b>	<ol style="list-style-type: none"> <li><u>Civil Works and Site Preparation</u>: implementation and/or technical guidance shall be provided by the vendor.</li> <li>The safety of all components remains part of vendor's responsibility during civil works and installation phase, up until commissioning and official hand-over of the system.</li> <li>Earth and lightning protection.</li> <li>All necessary components of the system must be properly grounded</li> <li>Anti-theft protection of the whole system.</li> <li>Solar PV Energy System mounting and installation.</li> <li>The <u>engagement and involvement of local or regional partner</u> in order to enhance solar PV system deployment and after-sales services (if applicable)</li> <li>Connection to the national grid and readiness to participate to the grid feedback scheme.</li> </ol> <p>The installation should follow the guidelines of IEC 63049.</p>
<b>3.6.1.4</b>	<b>Commissioning, UAT and Training</b>	<ol style="list-style-type: none"> <li>Solar PV Energy System training must be provided to UNDP Uzbekistan country office representative(s) by vendor.</li> </ol>



		<ul style="list-style-type: none"> <li>ii. The content of the training must also include topics such as: <ul style="list-style-type: none"> <li>a. Smart use of appliances to avoid misuse of equipment</li> <li>b. Energy efficiency</li> <li>c. Awareness on energy consumption and cost of electricity</li> </ul> </li> <li>iii. Solar PV Energy System Essentials (Basics) Maintenance and Troubleshooting Guide must be provided to Country Office in English to ensure level 1 troubleshooting can be carried on by the focal point on-site.</li> </ul> <p><b>User Acceptance Testing</b></p> <ul style="list-style-type: none"> <li>i. The UAT shall be developed in collaboration with ITM UNDP, following a template and guidelines that will be provided by ITM UNDP further in the process.</li> <li>ii. User Inspection will be performed during commissioning by ITM and the CO Focal point.</li> </ul> <p><b>Commissioning</b></p> <ul style="list-style-type: none"> <li>i. Complete the UNDP Commissioning check list.</li> <li>ii. As-built diagrams must be provided.</li> <li>iii. If there have been any changes to the technical documentation, the updated documents should also be provided.</li> <li>iv. A representative from the supplier's own staff/team must be present on-site during commissioning of the system.</li> </ul>
<b>3.6.1.5</b>	<b>Stabilization of the System</b>	<ul style="list-style-type: none"> <li>i. The awarded vendor must remain at the disposal of the beneficiary for at least six months (stabilization period) after handover/commissioning to assist in answering any technical or other related questions.</li> <li>ii. The maintenance agreement starts after stabilization period of 6 months</li> </ul>
<b>3.6.1.6</b>	<b>Maintenance of the system</b>	<ul style="list-style-type: none"> <li>i. Mandatory after-sales services including: <ul style="list-style-type: none"> <li>a. Maintenance (preventive and corrective)</li> <li>b. Technical support (onsite and/or remote)</li> <li>c. Continuous availability of the online monitoring system</li> </ul> </li> <li>ii. The engagement and involvement of local or regional partner is mandatory for the Solar PV Energy System installation, commissioning, and after-sales services.</li> <li>iii. Vendor technical support and/or helpdesk contact information and procedures of local including escalation procedures.</li> <li>iv. Solar PV Energy System implementation and after-sales technical support is required, inclusive of appropriate escalation measures.</li> <li>v. Solar PV Energy System maintenance is required, inclusive of appropriate escalation measures.</li> <li>vi. Preventive maintenance shall include: <ul style="list-style-type: none"> <li>a. Periodic cleaning of the panels in order to guarantee maximum efficiency (minimum twice a year).</li> <li>b. Technical room visual inspection and cleaning.</li> </ul> </li> </ul>



		<ul style="list-style-type: none"> <li>c. General system checks and verifications (assessment of the structure status; assessment of the technical room status; cable connections check and securing...).</li> <li>d. Preventive maintenance shall be done in compliance to UNDP's template checklist.</li> <li>vii. Corrective Maintenance shall include: <ul style="list-style-type: none"> <li>a. System troubleshooting in case of loss of production.</li> <li>b. Parameters adjustment and small changes in operational logic.</li> </ul> </li> </ul> <p>Maintenance should be performed following the guidelines of IEC 62446-2.</p>
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### 3.6.2 Tasks and deliverables

The overall deliverables and their respective deadline after Purchase Order (PO) signature are indicated below in [Table 14](#). The tasks are to be performed within the proposed timeline. An overview of the general timeline including all deliverables can be found below this section, in [Figure 10](#).

*Table 14 - Tasks and responsibilities timeline*

No	Tasks and Deliverables	Deadline
<b>3.6.2.1</b>	<b>Signature of the contract</b>	PO
<b>3.6.2.2</b>	<b>Site Survey Report</b>	PO + 3 weeks
	Overview site details for a through survey.	
<b>3.6.2.3</b>	<b>Final Technical Design</b>	PO + 3-4 weeks
	Single line diagram with endorsement letter from manufacturer	
<b>3.6.2.4</b>	<b>Pre-assembled technical solution tested and ready to be shipped</b>	PO + 3 months
<b>3.6.2.5</b>	<b>Transportation and delivery</b>	PO + 5 months
<b>3.6.2.6</b>	<b>Installation of the Solution</b>	PO + 6 months
	Solar PV Energy System mounting and installation.	
<b>3.6.2.7</b>	<b>Commissioning, UAT, Training and Net Metering documentation</b>	PO + 6 months and 1 week
	Complete UNDP Commissioning check list. User Acceptance Testing (UAT). Solar PV Energy System training to UNDP country office representative(s).	
<b>3.6.2.8</b>	<b>Stabilization of the system</b>	UAT + 6 months
	The maintenance agreement will start after the stabilization period of six months.	
<b>3.6.2.9</b>	<b>Maintenance of the system</b>	UAT + 42 months
	After-sales services including maintenance (preventive and corrective). Technical support (onsite and/or remote) including continues online monitoring.	

### 3.6.3 Documentation

After award of contract and formalization of purchase order (PO), the supplier shall deliver all the documents listed in [Table 15](#) by e-mail to UNDP ITM ([itm.green.energy@undp.org](mailto:itm.green.energy@undp.org)) and copy UNDP\_CO's procurement





unit. An overview of the general timeline including all documentation can be found below this section, in Figure 10.

Table 15 - Documents after award of contract

No	Document	Description	Deadline for delivery
3.6.3.1	<b>Project Plan Report</b>	Complete report specifying all the steps that will be carried out to perform the project (from Site Survey to After sales services) with the corresponding timeline and who will be responsible of each step (vendor, local partner or both).	PO + 1 week
3.6.3.2	<b>Site survey Report</b>	<ul style="list-style-type: none"> <li>i. Overview of the sites' details</li> <li>ii. Solar PV Module installation location details (assessment, measurements; photos, etc.).</li> <li>iii. Consideration and assessment for suitable Solar PV Modules mounting system (so it does not compromise the integrity of the roof).</li> <li>iv. Technical room information and final proposal, including any necessary civil works to existing structure (ensuring that any necessary interventions such as drilling in existing wall for inverter fixation, or cabling connections will not compromise the integrity of the structure)</li> <li>v. Electric distribution panel and wiring overview details (measurements; photos etc.).</li> <li>vi. Assessment and documentation of any shading objects, including photos.</li> <li>vii. Gather current energy consumption profile provided by the client (local grid and/or diesel generator, estimate overview of daily use patterns, appliances and load profile).</li> <li>viii. Assessment and confirmation of the grid quality and feedback to the grid feasibility.</li> <li>ix. Assessment and confirmation of connectivity availability.</li> <li>x. Specific civil work requirements</li> </ul>	PO + 3 weeks



3.6.3.3	<b>Design report including system design drawings</b>	<ul style="list-style-type: none"> <li>i. Site specific Solar PV Solution inclusive of appropriate sizing and optimization of related components e.g., Solar PV Modules; inverter(s) inclusive of surge load capacity.</li> <li>ii. Appropriate sizing of cable lengths and dimensions for maximum 2% voltage loss at nominal load.</li> <li>iii. Energy system components and wiring diagram for proposed solution. (Diagrammatical representation of the technical solution).</li> <li>iv. Offer including Bill of Material (BoM) and technical datasheets for the main components.</li> <li>v. Project delivery plan (including complete summary overview of entire project).</li> <li>vi. Endorsement letter certifying/proving the design from the (inverter and monitoring solution) manufacturer.</li> <li>vii. ISO9001 and ISO14001 certificates for manufacturers of main components ( charge controllers, inverters and panels), if necessary.</li> <li>viii. Confirmation of the suitability of the solution (considering a detailed assessment of the loads).</li> <li>ix. Draft of checklists/procedures that supplier will follow for UAT and commissioning.</li> </ul> <p><b>Note: The design must be approved by ITM before proceeding, shipment must not be initiated before design has been approved.</b></p>	PO + 3-4 weeks
3.6.3.4	<b>Bill of materials</b>	Complete list of materials grouped in assemblies	2 weeks before shipment of materials
3.6.3.5	<b>Shipping documents</b>	<ul style="list-style-type: none"> <li>i. Invoice</li> <li>ii. Packing list</li> <li>iii. Bill of lading</li> <li>iv. Insurance</li> </ul>	ASAP after dispatch, minimum 3 weeks before arrival at destination port
3.6.3.6	<b>Warranty documents</b>	<p>Warranty certification/documentation for the Solar PV Energy System Main Components, including summary overview of warranty arrangements (technical and logistical).</p> <ul style="list-style-type: none"> <li>i. Overview of available warranty extension options for main components.</li> </ul>	<p>If not already sent with original offer:</p> <p>After dispatch, minimum 3</p>



		<ul style="list-style-type: none"> <li>ii. Cost associated with warranty replacements during the warranty period will be borne by the supplier.</li> <li>iii. Cost associated with the maintenance and technical support for the installed system during maintenance subscription will be borne by the supplier.</li> </ul>	weeks before arrival at destination port
<b>3.6.3.7</b>	<b>Testing procedure</b>	List of tests that will be carried out and respective pass/fail criteria	Latest 4 weeks before testing
<b>3.6.3.8</b>	<b>Installation and commissioning report</b>	<ul style="list-style-type: none"> <li>i. Solar PV Energy System Commissioning Report.</li> <li>ii. Installation and commissioning activities, as-built drawings</li> <li>iii. Enrolment in the net metering scheme and relative documentation</li> </ul>	Max. 4 weeks after testing
<b>3.6.3.9</b>	<b>User acceptance testing report and proof of performance to UNDP</b>	Results of the individual tests and system performance test as outlined in the testing procedure; sign off by vendor, UNDP ITM and system user; any deviations and pending tasks need to be recorded.	1 week after testing
<b>3.6.3.10</b>	<b>Training manual/guide</b>	<ul style="list-style-type: none"> <li>i. On-Site Solar PV Energy System Training Guide.</li> <li>ii. Provide manuals</li> <li>iii. Include training videos</li> </ul>	With training
<b>3.6.3.11</b>	<b>O&amp;M Manual and troubleshooting guide</b>	<ul style="list-style-type: none"> <li>i. Solar PV Energy System Maintenance and Troubleshooting Essentials Guide for UNDP Uzbekistan Country Office (day-to-day operations).</li> <li>ii. Description of correct operation and maintenance of the system. Troubleshooting in case of errors.</li> <li>iii. Preventive and corrective maintenance logs.</li> </ul>	With training
<b>3.6.3.12</b>	<b>O&amp;M schedule</b>	Schedule of preventive maintenance activities	With training
<b>3.6.3.13</b>	<b>After sales service agreement</b>	Agreement between UNDP, vendor, and system user, defining the scope of the included maintenance (corrective and preventive) and technical support (on-site and remote).	With commissioning
<b>3.6.3.14</b>	<b>Maintenance reports</b>	Solar PV Energy System Regular Maintenance Technical Report(s).	1 week after maintenance visit
<b>3.6.3.15</b>	<b>Photo and video documentation</b>	<p>Documentation of system installation, commissioning, and testing, such as:</p> <ul style="list-style-type: none"> <li>i. Civil works during installation</li> <li>ii. Training of local staff</li> <li>iii. Overview of installed system</li> <li>iv. Solar panels location</li> </ul>	During installation, training, commissioning, and testing

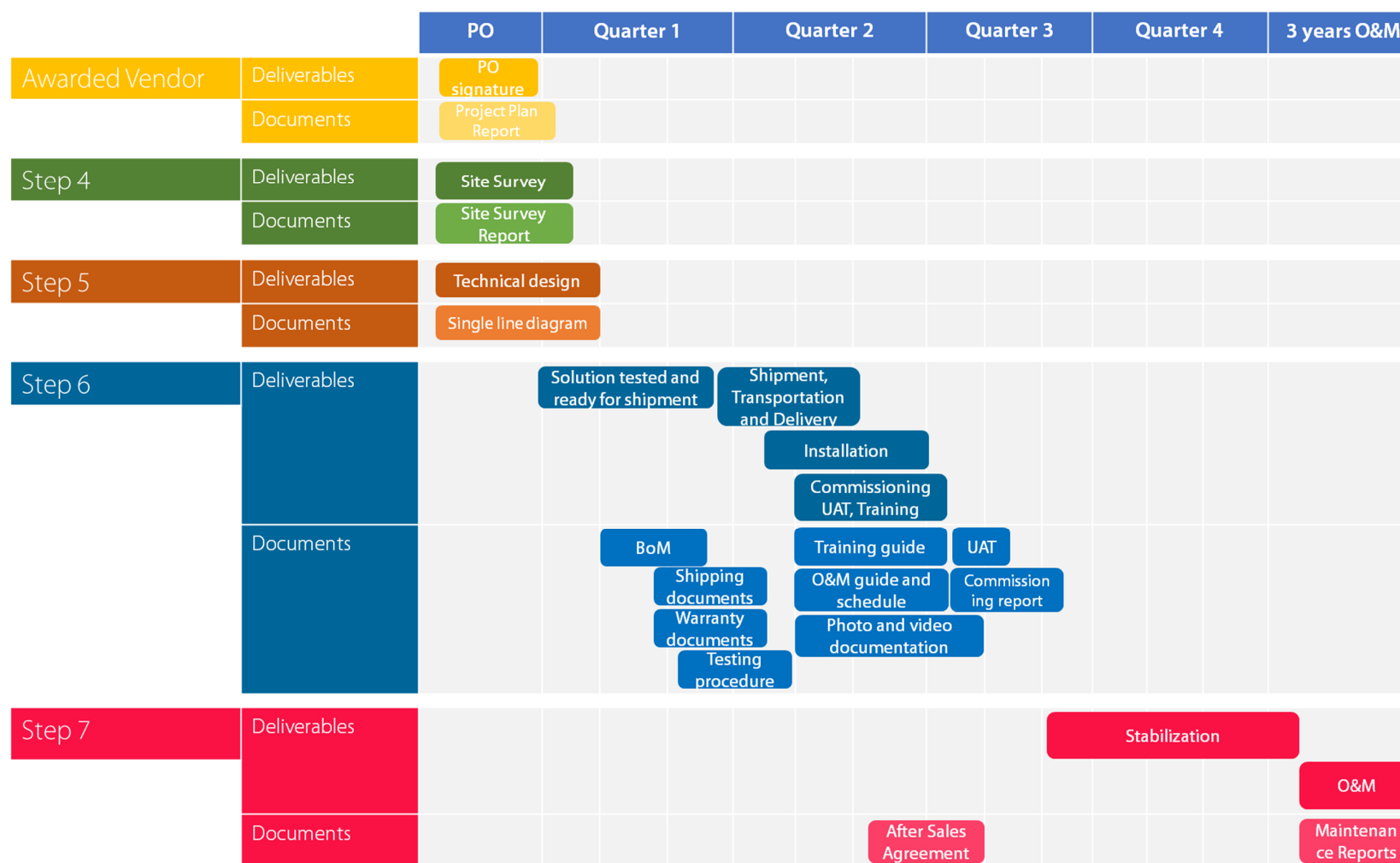


Figure 10 - Documents and Deliverables Timeline



## 4. Price and Delivery Schedule Forms

**Financial Proposal** - please provide the following requirements for single standard solutions. Kindly note that is expected from the bidders to make an offer for all the items

### 4.1 Price Schedule - Acquisition Cost of PV System

Table 16 - Price Schedule

Category	Item	Description	Quantity	Unit Price (indicate currency)	Total Price (indicate currency)
<b>1 Solar Panels</b>	<b>1.1</b>	Solar Panels for 45 <u>kWp</u>			
	<b>1.2</b>	Design, Sizing and Documentation			
	<b>1.3</b>	Site Preparation and Civil Works			
	<b>1.4</b>	Mounting Structure			
	<b>1.5</b>	Installation, Initial PV System Training, UAT and Commissioning			
	<b>1.6</b>	Integration with existing local office electric distribution and wiring.			
	<b>1.7</b>	Freight DPU cost to Tashkent, Uzbekistan			
<b>2 Power Electronics</b>	<b>2.1</b>	Inverters and Smart Power Management Unit/Assembly			
	<b>2.3</b>	Technical room			
	<b>2.4</b>	Lightning and Surge Protection			
	<b>2.5</b>	Ancillaries and cables			
<b>TOTAL FINAL ACQUISITION COST (sum of above items)</b>					
<b>3 Maintenance and Extra items</b>	<b>3.1</b>	<b>Maintenance Cost</b> Biannual maintenance by the local partner (annual cost, lasting for 3 years): after-sales services including maintenance (preventative and corrective) and technical support (on-site and/or remote) including continues online system and performance monitoring.	<b>3 years</b>		
<b>4.1</b>	<b>VAT 15% (for local companies registered as VAT payer)</b>				
<b>4.2</b>	<b>TOTAL FINAL DPU COST including VAT 15%</b>				

<sup>1</sup> All bids shall include quotations for all extra features, and UNDP ITM Green Energy Team, together with the UNDP Uzbekistan CO will make the final decision on whether to include or exclude them of the final service procured.



## 5. Communications Management Plan

This section sets the communication framework for the life of the solar PV installation process. The overall desirable outcome is to keep all parties well informed in a timely fashion to avoid disruption and possible misaligned expectations.

	Communication Activity	Description	Frequency	Format/Channel	Deliverable	Responsible	Accountable	Consulted	Informed
1	Publishing RFQ	Final ToR & RFQ	As needed	e-mail	Final RFQ	PSU, GET	PSU	Vendors	CO
2	Site Visit Registration	Submission of list of attendees (including IDs).	As scheduled	e-mail	List of bidders	Vendors	Vendors	CO	PSU, GET
3	Site Visit	Initial visit by bidders	As scheduled	e-mail	List of bidders and list of questions and answers	CO, GET	CO	Vendors	PSU
4	Bidders Conference Registration	Submission of list of attendees	As scheduled	e-mail	List of bidders	Vendors	Vendors	PSU, GET	CO
5	Bidders Conference	Online conference	As scheduled	e-mail, videoconference	Compiled clarification list	PSU, GET	PSU	Vendors	CO
6	Clarifications	Responses & questions	As needed before deadline	e-mail	List of questions and answers	PSU, GET	PSU	CO	Vendors
7	Receipt of bids	Update on progress	Weekly	Meeting	Status update	PSU	PSU	GET	CO
8	Evaluation	Technical & financial	After submission	e-mail	Final assessment results	PSU, GET	GET		CO
9	Winner Announcement	Outcome notification	After evaluation	e-mail	Informational message, PO	PSU	GET	Vendors	CO
10	Installation Plan	GET shares installation plan template to all stakeholders	As needed	SharePoint	Installation Plan	Vendor, CO	Vendor, CO	GET	GET, PSU
11	Kickoff Meeting	Meeting of stakeholders	Once before project start	videoconference	Minutes of the meeting	GET	GET	Vendor, CO	PSU, CO
12	Site survey	Coordination of vendor visit	After project offer	e-mail	Site Survey Report	Vendor	Vendor	CO, GET	PSU
13	Final System Design	Confirmation of detail	As needed	e-mail, phone	Design, letter from manufacturers	Vendor	Vendor	GET	CO, PSU
14	Shipping	Shipment of goods	As per provided timeline	e-mail	Invoice, Packing list, Bill of lading, Insurance	Vendor	Vendor	CO, GET	CO, GET
15	Customs clearance	Clearance of good at the CO	As needed	In person, e-mail	Clearance confirmation	CO	CO	Vendor	GET
16	Installation	General	As needed	e-mail, phone	General questions and change requests	Vendor, GET	Vendor	CO	PSU
17	Onsite Assessment	Assessment of all aspects of project	End of each installation	e-mail, In person		GET, Vendor	GET	Vendor	CO, PSU
18	Invoice Payment	Receipting and disbursement	As per agreed plan	e-mail, phone	Invoice, payment confirmation	GET	GET	Vendor	PSU, CO
20	Commissioning	Schedule for training, UAT, etc.	End of each installation	e-mail	Signed UAT, checklist, etc.	Vendor, GET	Vendor	CO	PSU
21	System Inauguration					CO, GET	CO	-	-
22	System Maintenance	Bi-annual and general support	As needed	e-mail, phone	Maintenance report	GET, Vendor	Vendor	CO	-



**Installation phase:** - Please note that during the installation phase, it is requested that all stakeholders are included in all email exchanges. The GET provides assistance in the general project management, nevertheless direct communication between the Vendor and the CO is advised. In case of delayed response time or in case of arisen problems, GET will step in to enhance communication flow.

### 5.1 Project Team Contact Details

Name	Designation	E-mail	Phone #
<b>Uzbekistan UNDP Country Office (CO)</b>	End user	<a href="mailto:inoyat.khamraev@undp.org">inoyat.khamraev@undp.org</a>	+998 93 377 01 58
<b>ITM GET (GET)</b>	Project Manager	<a href="mailto:itm.green.energy@undp.org">itm.green.energy@undp.org</a>	+45 45 33 61 14
<b>CO procurement unit</b>	Contract Manager	<a href="mailto:azizbek.bustonov@undp.org">azizbek.bustonov@undp.org</a> (provisional)	+45 45 33 60 57
<b>&lt;&lt;Vendor name&gt;&gt; (Vendor)</b>	Solution provider	Vendor's email TBA	TBA

### 5.2 Communications Conduct:

**Meetings:** - Ad-hoc project meetings will be convened whenever there is need for in-depth discussions that cannot be achieved through e-mail or telephone communication. A record of the meeting proceedings will be kept, particularly action points and agreed decisions.

**Email:** - E-mail communication is considered an official record in UNDP, and this applies for solar PV installation projects as well. Most issues and information with clear cut intent will be communicated through e-mail to the relevant parties. To keep all informed and for audit trail purposes, all parties should be copied as suitable, and the same thread used as much as possible. All circumstances that may impact on delivery timelines should be proactively communicated by the concerned party to allow for timely resolution.

**Informal Communications:** - For successful and timely project implementation, informal communication is a necessary ingredient especially in solar PV projects. Given the nature of the projects, interaction between the parties, informal communication will form a sizable chunk of overall communication in this project. However, caution needs to be exercised to avoid negative consequences at a later stage. All communication that commits either part/stakeholder should be formally documented and communicated accordingly.





## ANNEX 2: QUOTATION SUBMISSION FORM

Bidders are requested to complete this form, including the Company Profile and Bidder's Declaration, sign it and return it as part of their quotation along with Annex 3: Technical and Financial Offer. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	RFQ/054/22	Date: Click or tap to enter a date.

### Company Profile

Item Description	Detail
Legal name of bidder or Lead entity for JVs	Click or tap here to enter text.
Legal Address, City, Country	Click or tap here to enter text.
Website	Click or tap here to enter text.
Year of Registration	Click or tap here to enter text.
Legal structure	Choose an item.
Are you a UNGM registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No      If yes, insert UNGM Vendor Number
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? (If yes, provide a Copy of the valid Certificate):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does your organization demonstrate significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies or membership of trade institutions promoting such issues (If yes, provide a Copy)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is your company a member of the UN Global Compact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



Bank Information	Bank Name: Click or tap here to enter text. Bank Address: Click or tap here to enter text. IBAN: Click or tap here to enter text. SWIFT/BIC: Click or tap here to enter text. Account Currency: Click or tap here to enter text. Bank Account Number: Click or tap here to enter text.			
<b>Previous relevant experience: 3 contracts</b>				
Name of previous contracts	Client & Reference Contact Details including e-mail	Contract Value	Period of activity	Types of activities undertaken

**Bidder's Declaration**

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	<b>Requirements and Terms and Conditions:</b> I/We have read and fully understand the RFQ, including the RFQ Information and Data, Schedule of Requirements, the General Conditions of Contract, and any Special Conditions of Contract. I/we confirm that the Bidder agrees to be bound by them.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm that the Bidder has the necessary capacity, capability, and necessary licenses to fully meet or exceed the Requirements and will be available to deliver throughout the relevant Contract period.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Ethics:</b> In submitting this Quote I/we warrant that the bidder: has not entered into any improper, illegal, collusive or anti-competitive arrangements with any Competitor; has not directly or indirectly approached any representative of the Buyer (other than the Point of Contact) to lobby or solicit information in relation to the RFQ ;has not attempted to influence, or provide any form of personal inducement, reward or benefit to any representative of the Buyer.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm to undertake not to engage in proscribed practices, , or any other unethical practice, with the UN or any other party, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the UN and we have read the United Nations Supplier Code of Conduct : <a href="https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct">https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct</a> and acknowledge that it provides the minimum standards expected of suppliers to the UN.
<input type="checkbox"/>	<input type="checkbox"/>	<b>Conflict of interest:</b> I/We warrant that the bidder has no actual, potential, or perceived Conflict of Interest in submitting this Quote or entering a Contract to deliver the Requirements. Where a Conflict of Interest arises during the RFQ process the bidder will report it immediately to the Procuring Organisation's Point of Contact.
<input type="checkbox"/>	<input type="checkbox"/>	<b>Prohibitions, Sanctions:</b> I/We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium members or subcontractors or suppliers for any part of the contract is not under procurement prohibition by the United Nations, including but not limited to prohibitions derived from the Compendium of United Nations Security Council Sanctions Lists and have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization.
<input type="checkbox"/>	<input type="checkbox"/>	<b>Bankruptcy:</b> I/We have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against them that could impair their operations in the foreseeable future.
<input type="checkbox"/>	<input type="checkbox"/>	<b>Offer Validity Period:</b> I/We confirm that this Quote, including the price, remains open for acceptance for the Offer Validity.
<input type="checkbox"/>	<input type="checkbox"/>	I/We understand and recognize that you are not bound to accept any Quotation you receive, and we certify that the goods offered in our Quotation are new and unused.



Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	By signing this declaration, the signatory below represents, warrants and agrees that he/she has been authorised by the Organization/s to make this declaration on its/their behalf.

Signature: \_\_\_\_\_

Name: Click or tap here to enter text.

Title: Click or tap here to enter text.

Date: Click or tap to enter a date.

**ANNEX 3: TECHNICAL AND FINANCIAL OFFER - SERVICES**

Bidders are requested to complete this form, sign it and return it as part of their quotation along with Annex 2 Quotation Submission Form. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	RFQ/054/22	Date: Click or tap to enter a date.

**Technical Offer**

Provide the following:

- a brief description of your qualification, capacity and expertise that is relevant to the Terms of Reference.
- a brief methodology, approach and implementation plan;
- team composition and CVs of key personnel

**Financial Offer**

Provide a lump sum for the provision of the services stated in the Terms of Reference your technical offer. The lump sum should include all costs of preparing and delivering the Services. All daily rates shall be based on an eight-hour working day.

For local companies: Price for all lines must be indicated without VAT. VAT payers must indicated it separately in line 4.1.

**Currency of Quotation:** Click or tap here to enter text.

Category	Item	Description	Quantity	Unit Price (indicate currency)	Total Price (indicate currency)
<b>1 Solar Panels</b>	1.1	Solar Panels for 45 kWp			
	1.2	Design, Sizing and Documentation			
	1.3	Site Preparation and Civil Works			
	1.4	Mounting Structure			
	1.5	Installation, Initial PV System Training, UAT and Commissioning			
	1.6	Integration with existing local office electric distribution and wiring.			
	1.7	Freight DPU cost to Tashkent, Uzbekistan			
<b>2 Power Electronics</b>	2.1	Inverters and Smart Power Management Unit/Assembly			
	2.3	Technical room			
	2.4	Lightning and Surge Protection			
	2.5	Ancillaries and cables			
<b>TOTAL FINAL ACQUISITION COST (sum of above items)</b>					
<b>3 Maintenance</b>	3.1	<b>Maintenance Cost</b> Biannual maintenance by the local partner (annual cost, lasting for 3 years): after-sales	<b>3 years</b>		



<b>and Extra items</b>		services including maintenance (preventative and corrective) and technical support (on-site and/or remote) including continues online system and performance monitoring.			
<b>4.1</b>		<b>VAT 15% (for local companies registered as VAT payer)</b>			
<b>4.2</b>		<b>TOTAL FINAL DPU COST including VAT 15%</b>			

#### Breakdown of Fees

Personnel / other elements	UOM	Qty	Unit Price	Total Price
Personnel				
e.g. Project Manager/Team Leader	day			
Other expenses				
International flights				
Subsistence allowance				
Local Transportation				
Communication				
Other Costs: (please specify)				
<b>Total</b>				

#### Compliance with Requirements

	You Responses		
	Yes, we will comply	No, we cannot comply	If you cannot comply, pls. indicate counter - offer
Delivery Lead Time	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Validity of Quotation	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Payment terms	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Other requirements [pls. specify]	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.

I, the undersigned, certify that I am duly authorized to sign this quotation and bind the company below in event that the quotation is accepted.	
Exact name and address of company	Authorized Signature:
Company Name Click or tap here to enter text.	Date: Click or tap here to enter text.
Address: Click or tap here to enter text.	Name: Click or tap here to enter text.



Click or tap here to enter text. Phone No.:Click or tap here to enter text. Email Address:Click or tap here to enter text.	Functional Title of Authorised Signatory:Click or tap here to enter text. Email Address: Click or tap here to enter text.
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