

REQUEST FOR QUOTATION (RFQ) (Goods & Services)


UNDP Ukraine, Country Office	DATE: 9 December, 2020
	REFERENCE: 845-2020-UNDP-UKR-RFQ UNDP Ukraine CO Solar PV System

Dear Sir / Madam:

We kindly request you to submit your offer for **UNDP Ukraine Country Office Solar PV System**

Please take note of the following important deadlines:

1. Confirmation of participation in Site Visit: **14 December 2020, 12:00 (midday) Kyiv time**
2. Site Visit: **15 December 2020 – 11:00, Kyiv time**
3. Confirmation of participation in Bidders' Conference: **18 December 2020, COB, Kyiv time**
4. Bidders' Conference: **21 December 2020 – 15:00, Kyiv time**
5. Request for Clarification: **28 December 2020, COB, Kyiv time**
6. Offer Submission: **13 January 2021, 23:59, Kyiv time**

and via  e-mail:

United Nations Development Programme

Communication and clarifications:

procurement.ua@undp.org and copy oimt.green.energy@undp.org

Offer Submission:

tenders.ua@undp.org

Procurement Unit

It shall remain your responsibility to ensure that your offer will reach the address above on or before the deadline. Offers that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation. If you are submitting your offer by email, kindly ensure that they are signed and in the .pdf format, and free from any virus or corrupted files.

Please take note of the following **requirements and conditions** pertaining to the supply of the abovementioned good/services:

Project Title:	UNDP Ukraine CO - Solar PV System	
Delivery Terms [INCOTERMS 2020] (Pls. link this to price schedule, Annex 1 – Section 4)	<input checked="" type="checkbox"/> DAP, Kyiv, Klovskyi Uzviz, 1	
Customs clearance ¹ , if needed, shall be done by:	<input checked="" type="checkbox"/> UNDP	
Exact Address/es of Delivery Location/s (identify all, if multiple)	United Nations Development Programme Ukraine Kyiv, 01021 1 Klovsky Uzviz	
Delivery Schedule	<input checked="" type="checkbox"/> Required	
Mode of Transport	<input type="checkbox"/> AIR	<input checked="" type="checkbox"/> LAND
	<input checked="" type="checkbox"/> SEA	<input type="checkbox"/> OTHER
Currency of Quotation	<input checked="" type="checkbox"/> United States Dollars. Due to fluctuations in the national currency, it is recommended to indicate the price in dollars. In this case of local Ukrainian suppliers, UNDP provides payments in UAH at the official exchange rate of UNDP at the date of payment. Exchange rate information is available at http://treasury.un.org <input type="checkbox"/> Euro <input checked="" type="checkbox"/> Local Currency: UAH	
Value Added Tax on Price Quotation	<input checked="" type="checkbox"/> Must be inclusive of VAT and other applicable indirect taxes	
After-sales services required	Please ref to TORs	
Deadline for Request for Clarification	28 December 2020, till 18:00 (Kyiv time)	
Deadline for the Submission of Quotation	13 January 2021, till 23:59 (Kyiv time)	
All documentations, including catalogues, instructions and operating manuals, shall be in this language	<input checked="" type="checkbox"/> English	
Mandatory requirements for bid submission:	1. Site Visit 2. Bidders' Conference	
Period of Validity of Quotes starting the Submission Date	<input checked="" type="checkbox"/> 120 days	

¹ Must be linked to INCO Terms chosen.

	<p>In exceptional circumstances, UNDP may request the Vendor to extend the validity of the Quotation beyond what has been initially indicated in this RFQ. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Quotation.</p>
Documents to be submitted	<p>THE FOLLOWING DOCUMENTS SHALL BE INCLUDED IN THE BID SUBMISSION:</p> <p>1) TECHNICAL OFFER. Bidders are required to provide the following as part of the technical offer, presenting 12 separate attachments:</p> <ol style="list-style-type: none"> Technical description of offer, including comprehensive description and diagrammatical representation of the technical solution offered. Datasheets and certificates of the required standards of the main components. Bill of Materials (BoM). Bidder's Statement Regarding Deviations/Non-Compliance (as per template provided in Appendix I in the ToR). Letter signed by both parties confirming relationship between the supplier and local service provider. Official documentation stating that the Local Partner is a registered business in the country. A detailed profile of the local service provider including documentary evidence of similar services performed by the company. Topics and content to be covered during training. 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. Details on freight, logistics and installation plan in terms of timelines, delivery time and production time. Proposed work plan and approach criteria in relation to the requirements in the terms of reference (TORs). Risk assessment and Mitigation plan. <p>2) FINANCIAL OFFER.</p> <ol style="list-style-type: none"> Price and Delivery Schedule Form: Fully completed and duly authorized (see Annex 1, Section 4). 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.
Payment Terms	<p>Total Acquisition</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 30% upon complete delivery of goods. <input checked="" type="checkbox"/> 60% upon complete installation and commissioning of the system <input checked="" type="checkbox"/> 10% after 3 months of the total stabilization period.

	Maintenance <input checked="" type="checkbox"/> ⅓ at the end of the 1 st year <input checked="" type="checkbox"/> ⅓ at the end of the 2 nd year <input checked="" type="checkbox"/> ⅓ at the end of the 3 rd year
Evaluation Criteria	<input checked="" type="checkbox"/> Technical responsiveness/Full compliance to requirements and lowest price <input checked="" type="checkbox"/> Full acceptance of the UNDP Contract General Terms and Conditions <input checked="" type="checkbox"/> Full compliance to delivery of documentation in the required format
UNDP will award to:	<input checked="" type="checkbox"/> One and only one supplier
Type of Contract to be Signed	<input checked="" type="checkbox"/> Purchase Order / Contract of Goods/Services
Conditions for Release of Payment - Acquisition	a. 1 st installment: 30% of total acquisition <input checked="" type="checkbox"/> Written Acceptance of Goods based on inspection and full compliance with RFQ requirements b. 2 nd installment: 60% of total acquisition <input checked="" type="checkbox"/> Submission of Deliverables <input checked="" type="checkbox"/> Passing Inspection <input checked="" type="checkbox"/> Complete Installation <input checked="" type="checkbox"/> Passing all Testing <input checked="" type="checkbox"/> Completion of Training on Operation and Maintenance and online monitoring. c. 3 rd installment: 10% of total acquisition <input checked="" type="checkbox"/> 3 months of stabilization period
Conditions for Release of Payment - Maintenance	a. 1 st installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 1 st and 2 nd visit report and checklist b. 2 nd installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 3 rd and 4 th visit report and checklist c. 3 rd installment: ⅓ of total maintenance <input checked="" type="checkbox"/> Deliver of 5 th and 6 th visit report and checklist
Annexes to this RFQ	<input checked="" type="checkbox"/> Terms of Reference (Annex 1) <input checked="" type="checkbox"/> Site Photos and Specifications (Annex 1: Section 2.3) <input checked="" type="checkbox"/> Price and Delivery Schedule Form (Annex 1: Section 4) <input checked="" type="checkbox"/> Minimum Project Deliverables (Annex 1: Section 3.5 and 3.6) <input checked="" type="checkbox"/> Communications Management Plan (Annex 1: Section 5)
Contact Person for Inquiries	Email: procurement.ua@undp.org and copy oint.green.energy@undp.org 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.

(Written inquiries only) ²	
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Goods offered shall be reviewed based on completeness and compliance of the quotation/proposal with the minimum specifications described above and any other annexes providing details of UNDP requirements.

The quotation/proposal that complies with all the specifications, requirements and offers the lowest price, as well as all other evaluation criteria indicated, shall be selected. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price (obtained by multiplying the unit price and quantity) shall be re-computed by UNDP. The unit price shall prevail, and the total price shall be corrected. If the supplier does not accept the final price based on UNDP's re-computation and correction of errors, its quotation will be rejected.

After UNDP has identified the lowest price offer, UNDP reserves the right to award the contract based only on the prices of the goods in the event that the transportation cost (freight and insurance) is found to be higher than UNDP's own estimated cost if sourced from its own freight forwarder and insurance provider.

At any time during the validity of the quotation, no price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the quotation. At the time of award of Contract or Purchase Order, UNDP 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.

Any Purchase Order that will be issued as a result of this RFQ shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a quotation implies that the vendor accepts without question the General Terms and Conditions of UNDP.

UNDP is not bound to accept any quotation, nor award a contract/Purchase Order, nor 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.

Please be advised that UNDP's vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a purchase order or contract in a competitive procurement process. In the event that you believe you have not been fairly treated; you can find detailed information about vendor protest procedures in the following link: <http://www.undp.org/content/undp/en/home/operations/procurement/protestandsanctions/>

UNDP encourages every prospective Vendor 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.

UNDP implements a zero tolerance on fraud and other proscribed practices and is committed to identifying and addressing all such acts and practices against UNDP, as well as third parties involved

² This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

in UNDP activities. UNDP expects its suppliers to adhere to the UN Supplier Code of Conduct found in this link : http://www.un.org/depts/ptd/pdf/conduct_english.pdf

Thank you and we look forward to receiving your quotation.

Sincerely yours,

Manal Fouani

Ms. Manal Fouani, Deputy Resident Representative,
UNDP in Ukraine

ad

United Nations Development Programme
Office of Information Management & Technology
Country Office ICT Advisory Services



Empowered lives.
Resilient nations.

UNDP Ukraine Country Office



Annex 1 - Terms of Reference:

Smart Solar PV System for UNDP Ukraine CO, contributing to Create Smart UNDP Facilities Powered by Renewable Energy

Solar PV
Capacity (kWp)



7

Renewable
Fraction (%)



7.1%

CO₂ Emissions
Reductions
(tons/year)



4.0



Terms of Reference –Solar PV System



Terms of Reference: Solar PV System

UNDP Ukraine CO

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Terms of Reference –Solar PV System

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Acronyms

AI - Artificial Intelligence
COB - Close of Business
GHG - Green House Gas
HQ - Head Quarters
ICT - Information and Communications Technology
IoT - Internet of Things
O&M - Operation and Maintenance
OIMT - Office of Information Management and Technology
PCMM - Power Consumption Measuring and Monitoring
SDGs - Sustainable Development Goals
TOR - Terms of Reference
UAT - User Acceptance Test
UNDG - United Nations Development Group
UNDP – United Nations Development Programme



Terms of Reference: Solar PV System

UNDP Ukraine CO

Scope of the Document

The Terms of Reference (TOR) sets the requirements to facilitate smart and clean energy solutions to secure country office activities in **UNDP Ukraine** by supplying, installing, commissioning (including complete civil works), and after-sales services for the Solar PV System at **UNDP Ukraine 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 Ukraine CO**, in cooperation with the UNDP Office of Information Management and Technology (OIMT) Green Energy Team, has taken initial steps towards implementing a solar installation in their premises. This endeavor will be comprised of 7 kWp solar PV system.

The load has been estimated from electricity bills, local energy resources and data provided by the UNDP Ukraine 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 7.1% of the electricity consumption.

Switching to renewable energy implies strong environmental incentives. Going solar will save approximately 4 tonnes of CO₂ emissions yearly, effectively reducing Ukraine CO's carbon footprint and burden on the environment. 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 Ukraine CO will enhance business continuity and work environment, as well as reducing climate impact. All while promoting sustainable development in the region.

1.1 Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate,



environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achieve each Goal and target by 2030.³

As a leading agency in the fight against climate change, UNDP is committed to “walk 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 Country Offices (CO) 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 CO – out of a total 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 5 years and achieving climate neutrality for global operations starting effective 2014⁴.

1.2 Smart UN Facilities

The concept of Smart UN Facilities revolves around using data insights and interconnected technologies to transform UN Country Offices and related facilities into “smart” premises; in effect, local capacity to carry out the UN’s goals is augmented.

This is rooted in two aspects, which are manifested in multiple technology systems provided by OIMT:

1. Fourth Industrial Revolution – the advent of connected technologies including robotics, the Internet of Things (IoT), autonomous vehicles.

³ About the Sustainable Development Goals

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

⁴ UNDP - Greening the Blue Initiative (<http://www.greeningtheblue.org/what-the-un-is-doing/unitednationsdevelopment-programme-undp>)



2. Smart cities – utilization of sensors for data collection, insights, analysis, and subsequent enhancement of services.

In view of the benefits, it leads to make the first step in transitioning into a low-carbon and digital organization through smart integration of various equipment. As it is depicted below, Figure 2 shows the main technologies that set and establish the Smart UN Facilities including:

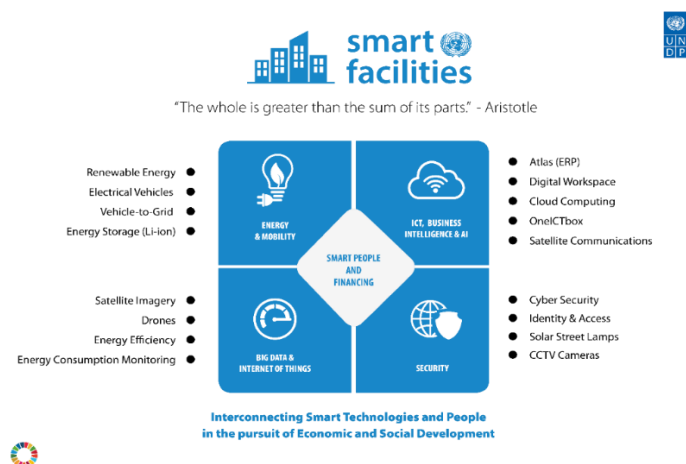


Figure 2 - Smart UN Facilities Framework

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

1.3 Seven Step Green Energy Process



Figure 3 - Seven Step Green Energy Solution

Use of the United Nations Development Group (UNDG) recommended 7-Step process will be adopted for the project. The approach is a holistic end-to-end process with preliminary assessment of project practicability and the post-installation operation & maintenance.

This is depicted in Figure 3 and elaborated in the subsequent text.

Step 1: -Energy Audit & Assessment using IoT

- a) When possible, the CO installs IoT devices, such as the Power Consumption Measuring and Monitoring Device (PCMM).



- b) OIMT might monitor the quality of the grid and the genset. The solution proposed for the Solar PV System should be compatible with the monitoring system.
- c) The office is required to complete the Preliminary Site Survey form which will provide information on the physical structure and more details on electrical installations.
- d) If the previous options are not applicable, a technical mission from a qualified engineer can be used to complete this step, as well as load estimation based on the information provided by the CO.

Step 2: Business Case

- a) This step serves to provide essential information and data for decision-making. With the information gathered during Step 1, OIMT compiles a load profile of the energy consumption. This enables an analysis that results in the draft of a business case, presenting a potential green energy solution for the CO.

Step 3: Procurement & Site Preparation

- a) Compilation and publication of solicitation documents will be carried out in accordance to UNDP rules as applied by PSU in such projects
- b) Evaluation of bids/proposals will be carried out jointly between OIMT, CO, and if needed, a government representative/ CO focal point

Step 4: Site-survey – vendor

- a) Within the scope of Step 4, a kick-off meeting takes place between OIMT, CO and the awarded vendor, as an opportunity to put all stakeholders in direct contact to agree on the details of the installation.
- b) The awarded vendor carries out an on- site survey to exhaustively take into consideration all aspects that can adversely affect the implementation of the project, and information for the final costing of the project including required materials/equipment and time frames.
- c) The vendor acts as implementer, working closely with focal point at the CO, when necessary, and OIMT exercising technical oversight and project management. Submission of the final **Site Survey Report** marks the end of this step.
- d) In the course of the project, OIMT Green Energy team will provide a document with **guidelines** for this survey and the correspondent report, with the information it should contain as a bare minimum.

Step 5: Design

- a) The selected vendor drafts the final system design, taking into consideration findings from the site survey in the previous step.
- b) As part of technical oversight, OIMT must endorse the final design before actual installation starts. Submission of the **final design** certified by the manufacturer 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 OIMT makes the necessary assessments as part of the technical oversight
- c) Six-month stabilization period, to allow 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 documentation of the system.



- e) This step involves carrying out User Acceptance Testing (UAT) in which all parties play a role. This test is to be developed in collaboration with OIMT.
- f) A ***signed checklist*** confirming full compliance with all requirements marks the end of the step, giving way to O&M.

Step 7: Operation & Maintenance

- a) Regular ***bi-annual maintenance*** by the supplier and regular monitoring from UNDP.

Communication and Publicity

Parallel to the 7-step process of green energy solution, OIMT Communications Team and the Communications Country Office 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. OIMT requires **high quality** for the system as it will also serve as a show case at a national and international scale. The following document provides requirements and guidelines for the project, but innovative solution proposal is highly encouraged to improve the system.

2.2 Project High Level Requirements

This project seeks to enhance energy supply for the UNDP premises with renewable energy. The current energy supply for the compound is based on a reliable grid, an existing Hybrid Solar System and a diesel back-up generator of 110 kVA.

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

1. Supply of a **7 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.
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 effectively perform first level operation and maintenance of the system.

The setup will be based on **Solar PV + Grid**. The Solar PV System is required to serve as the priority source of energy with the grid.

UN House Building has an already existing hybrid solar system and it is not required to be integrated with the new system in the scope of this project.

The Solar PV system is expected to provide around 7.1% of the total electricity demand of the site. A set of energy efficiency measures (out of the scope of this RfQ), are suggested (sealing openings, increasing temperature set on ACs and providing motion sensors for ACs), which means the CO can potentially reduce its current consumption in the near future and the renewable fraction will therefore be higher.

It is essential that the Solar PV system operates in a robust as well as **intelligent** and **automated manner** with regards to 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 Ukraine has many variations, seasons with deep winters and warm summers (See section Weather on Site).



2.3 Description of Site

UNDP Ukraine Premises is located at: 1 Klovsky Uzviz, Kyiv 01021, at the following GPS Coordinates: 50.443273, 30.536626.

The premises consist of 3 different buildings, UN House Building, Operations Building and Outbuilding. The drone pictures of the premises can be seen below in **Figure 4** and **Figure 5**.

Figure 4 – Aerial view of the UNDP Premises



Figure 5 – Aerial view of the Proposed Area for PV panels: Operations Building



2.3.1 Weather on Site

In Ukraine, the climate is continental and winters are very cold. The temperatures range between 26 to -5°C with record values of 27°C and -30.9°C. Precipitation is low. As the winters are often dark in Ukraine, the system should be able to operate with a sunshine average of 1.5 hours on December and January. Hours of sunshine per day increases up to 9 hours in the summertime. The daylength is ranging between 8-16 hours the whole year.



2.4 Potential Location of PV Panels

The Ukraine UN premises consist of 3 buildings. UN House building has a previously existing solar system on its roof and the available area of the roof is not enough for the new installation. The Outbuilding was not considered suitable for the installation as well, since it failed in the shading analysis. The solar panels are suggested to be located on the roof of the Operations building. The suggested layout on the roof of the building can be seen at **Figure 6** and **Figure 7**.

Figure 6 - Proposed Area for PV panels - Operations Building - South View



Figure 7 – UNDP Ukraine CO after the completion of the project with the previous PV installation on UN House





2.5 Estimated Load Consumption

Using the monthly consumption data from the annual electricity bills, a yearly load profile was generated.

Day-to-day variability and seasonal variability have been included in order to provide the most realistically possible estimation of the load. The final load profile used for the simulations is shown in **Figure 8** and **Table 1**.

Figure 8 – UNDP Ukraine CO Load Profile

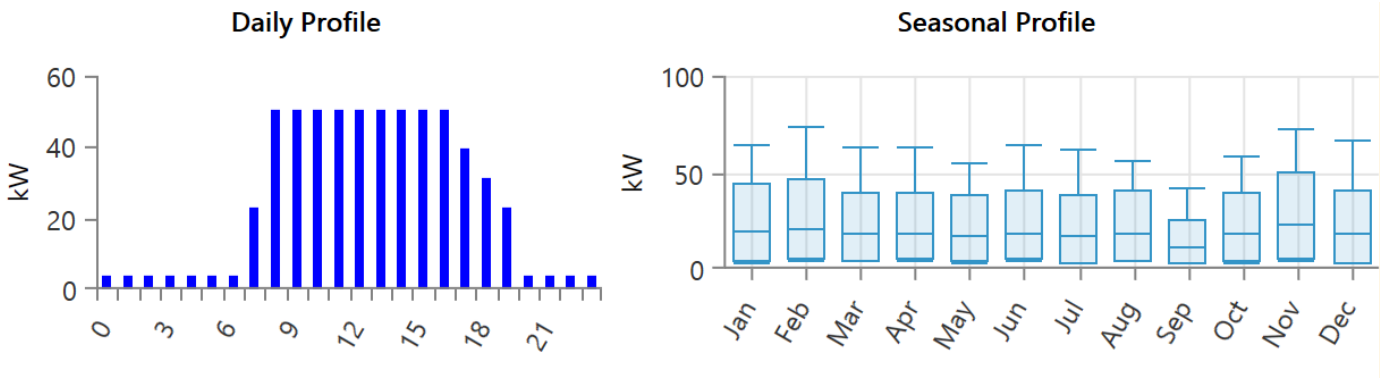


Table 1- Load Profile Metrics

Metric	Baseline
Average (kWh/day)	441.32
Average (kW/hour)	18.39
Peak (kW)	73.67



3. Statement of Work

3.1 Local Partner

The vendor must show proof of a formal agreement with a local representative with relevant experience for the purposes of this project. This agreement is designed for support in deployment of the Solar PV System with regards to the site visit, installation, commissioning, training and after-sales services and maintenance processes. This aligns with the UNDP's mission of developing local capacity. Please note that exclusivity agreement with the local partner is not a requirement.

In case the bidding vendor is located in the country where the project is realized (Ukraine) and intending to carry out all the required on site activities by themselves, there is no need to hire a subcontractor, and no need to provide the following documentation.

Please include the following in the offer document:

1. Letter signed by both parties, confirming 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.
4. Topics and content to be covered during training.
5. 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.

Both the vendor and the local partner need to agree to the maintenance terms discussed in **section 3.5.1.6**, 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 mentioned points.

Note that the **vendor is responsible** for the fines mentioned in **section 3.5.1.6** and not the local partner.

3.2 Site Visit

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

Site Assessment Visit is scheduled on the **15 December 2020 – 11:00 Kyiv time**. The Assessment can be conducted either by the vendor's own staff, by the local partner or by a third representative. Conducting a site visit is **compulsory** for the offer to be valid.

The UNDP focal contact in Ukraine is Sergey Misan. Please note that it is necessary to arrange the site visit in advance. As such, please inform your local partner accordingly.

Please confirm your intention to undertake Site Assessment Visit(s) (without cost to UNDP) **by 14 December 2020, 12:00 (midday) Kyiv time** by sending an email to: procurement.ua@undp.org; oint.green.energy@undp.org and sergey.misan@undp.org



Kindly **provide in the email the following information** for UNDP CO and UNDP OIMT to make the necessary arrangements for assessment.

Confirmation of site visit in the specified day and 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:	1 Klovisky Uzviz, Kyiv (50.443273, 30.536626)

3.3 Bidders Conference

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

The bidders conference is scheduled on the **21 December 2020 – 15:00, Kyiv time**.

Please confirm your participation **by 18 December 2020 COB (Kyiv Time)** by sending an email to: procurement.ua@undp.org and oimt.green.energy@undp.org

3.4 Technical Requirements

Compliance with or deviations from the specification shall be clearly stated by the vendor in the below sections (3.4.1 - 3.4.8) and submitted as part of the offer (*Please refer to Appendix I*). The vendor shall apply good engineering practice and follow the applicable standards in the design of the Solar PV system. 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 following logic/priorities shown in Figure 91, also further specified in section 3.4.6.1.



Figure 9 - System's operation logic



3.4.1 PV Modules

Table 2 – PV Modules Technical Requirements

3.4.1.1	PV Capacity	Total PV capacity of 7 kWp
3.4.1.2	Module Specifications	<p>Solar PV Panels shall follow these technical and performance specifications:</p> <ul style="list-style-type: none"> i. Mono- or polycrystalline silicon ii. PV Panels with enough number of cells and energy efficiency ensuring the system offered has the capacity requested iii. Tolerance better than -0/+5% iv. Maximum weigh per module 25 kg v. Frameless modules are not allowed vi. Double insulation module with cables and connectors vii. Junction box with accessible bypass diodes viii. Anti-reflective glass cover ix. Modules must be PID (potential induced degradation) proof, or have passed the IEC 62804 standard test
3.4.1.3	Standards	<ul style="list-style-type: none"> i. Compliant with IEC 61215 (edition 2) or equivalent ii. Shall be qualified and be classified by class according to IEC 61730 or equivalent.
3.4.1.4	Module Efficiency	Minimum shall be 17%.
3.4.1.5	Limited Power Warranty	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.
3.4.1.6	Tilt	Shall be optimized for local condition and used technology.
3.4.1.7	Labelling	<p>The bidder shall provide the following information at the project completion:</p> <ul style="list-style-type: none"> i. Manufacturer, brand; model and serial number ii. Rated power; Efficiency iii. Color temperature iv. Clear indication of the connecting inlets and outlets v. Warranty and Safety warning



3.4.2 PV Modules mounting

Table 3 – PV modules mounting technical requirements

3.4.2.1	Features	<p>In this regard, vendors are requested to provide complete appropriate solution including supply of materials; civil works etc. as part of the UNDP Ukraine 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.</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>
3.4.2.2	Standards	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.

3.4.3 Power electronics

Table 4 – Power electronics technical requirements

3.4.3.1	Features	The system must include a smart inverter to control the solar PV output and its connection to the grid. Additionally, the power electronic devices should include protection and power quality devices.
3.4.3.2	Inverter Specifications	<p>Solar PV inverters and MPPT are acceptable.</p> <p>Their design should be based on the requirements specified below:</p>
		<p><u>Solar inverters with:</u></p> <ul style="list-style-type: none"> i. Inclusive of at least 1 maximum power point tracker (MPPT) compatible with the PV modules' layout and maximizing the PV production. ii. Inverter EU efficiency: min 95% (on-grid).
3.4.3.3	General Specifications	<ul style="list-style-type: none"> i. Operating Temperature: 0-50°C ii. 3-phase output 220V, 50 Hz.



3.4.3.4	Standards	<p>Regarding quality assurance, power electronics must follow these certifications, or equivalent ones (if equivalent, specify in the Appendix table, Section 6). Proof of compliance should be presented along with the technical offer, as previously specified.</p> <ul style="list-style-type: none"> i. Design: IEC 62093 or equivalent ii. Safety for converters: either EN 60335-1, EN62109-1 and EN62109-2, or equivalent, according to the equipment iii. CE-conformity LVD 2014/35/EC and EMC 2014/30/EU iv. EMC: EN61000-2; EN61000-3 or equivalent v. EMC: EN 61000-3-3 (Voltage fluctuations limitations) or equivalent vi. EMC: EN55014-1 (Emissions limits); EN 55014-2 (Immunity requirements)
3.4.3.5	Safety	<ul style="list-style-type: none"> i. Provide protection against overload and reverse polarity ii. IP protection class 54 or better. This requirement can be reduced if the inverter will be placed in a technical room/container.
3.4.3.6	Warranties	The expected operating lifetime of the inverter should be more than 10 years and the warranty period of 5 years.

3.4.4 Technical Room

Table 5 - Technical room requirements

3.4.4.1	Specifications	<p>Technical room is available in the building to host inverters, lighting protection, temperature control, current/voltage fluctuation protection and any other elements that make-up Balance of System (BOS). However, the compatibility of the technical room conditions should be confirmed during the site visit.</p>
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3.4.4.2	Features	<p>The following features shall be provided for the technical room if not already in place:</p> <ul style="list-style-type: none"> i. Smoke detection and alarm ii. Fire extinguisher iii. Climate control and protective device iv. Operating Temperature: Continental v. Internal temperature shall be regulated for optimal performance of equipment vi. If applicable, concrete base: provide specifications and/or requirements for the cement/concrete base for placement of container. Related civil works to be undertaken by the local office vii. 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, <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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3.4.5 Online monitoring system

Table 6 – Monitoring requirements

3.4.5.1	Monitoring and Management overview	<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 or solar PV).</p> <ul style="list-style-type: none"> i. Overview List of installed equipment (solar PV modules, inverter) ii. Generation Overview indicating the production of each device in the system (Solar PV) and Fault Diagnostic iii. Earning/Saving in terms of energy (kWh), money (\$), and emissions (kgCO_{2eq}) from the solar system.
3.4.5.2	List of hourly basis parameters	<p>A local and remote monitoring system shall be provided to be able to track operation of the system with real-time & 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"> i. Total Electricity Consumption (from the loads) ii. Total Electricity PV Production iii. Alarms and configuration records iv. Grid status and energy production



3.4.5.3	Standards	It is an advantage for the monitoring system to follow the guidelines specified by IEC 61724 -1.
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3.4.6 Smart power management

Table 7 - Smart power management requirements

3.4.6.1	System's operation logic	The energy solution shall include Smart Power Management that allows the working system to supply electricity according to the following logic/priorities: 1 st : Solar PV 2 nd : Electricity grid
3.4.6.2	Details	The Smart Power Management should be able to provide: i. Connection with local building electrical distribution panel. ii. Integration all power sources and load to work as one system. iii. Dynamic intelligent management for overall PV system (energy supply solution). iv. Setup and activation of Internet-based (online) monitoring of Solar PV system for Performance/Availability/Status/etc. v. Integration of Solar PV + Grid to operate in an integrated, intelligent and automated manner with regards to energy supply for the Country Office.
3.4.6.3	Changeover switch	A changeover switch shall be included to be able to bypass PV.
3.4.6.4	Power requirements	The system should not vary the power factor of the load

3.4.7 Wiring and safety

Table 8 - Wiring and safety requirements

3.4.7.1	Details	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. ii. Overcurrent protection for the strings and inverter shall be included. iii. Overvoltage surge and lightning protection on the AC and the DC side is required iv. Protection against electric shock on the AC and DC side is also required
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3.4.7.2	Grounding	<ul style="list-style-type: none"> i. All components of the system must be properly grounded. ii. All work must be carried in conformance to international and local codes and electricity standards. iii. The devices must be installed in accordance with the grounding device manufacturer's specified instructions.
3.4.7.3	Firefighter's switch	Solar arrays shall be equipped with a remotely controlled DC disconnect switch.

3.4.8 Warranty of the system

Table 9 - Warranty requirements

3.4.8.1	Details	<p>Warranty certification/documentation for the Solar Energy System Main Components including summary overview of warranty arrangements (technical and logistical) shall be included in the system documentation.</p> <p>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> <p>The warranty for the complete system should 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.</p>
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3.5 Tasks and Responsibilities

The overall tasks and responsibilities of the provider are indicated below in Table 10.

Table 10 – Mandatory tasks and Responsibilities

3.5.1.1	Risk Assessment, Avoidance and Mitigation Plan	<p>A mandatory risk assessment must be conducted and presented along with the technical offer, including as minimum features:</p> <ul style="list-style-type: none"> i. All potential risks that the project might incur, in each step of the project. ii. The probability of incurrence and severity of the identified risks (e.g.: risk matrix). iii. The risk tolerance for the identified risks. iv. Proactive and reactive responses for risks surpassing the defined threshold of severity and/or probability. v. 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). <p>This risk assessment must include the 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>
3.5.1.2	Shipment of material	<p>Shipment if to be provided for all the components of the system, following all procedures and documentation specified in this document.</p> <p>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).</p> <p>A pre-shipping inspection should be planned in case UNDP chooses to inspect the equipment and products before shipment.</p>
3.5.1.3	Installation of the Solution	<ul style="list-style-type: none"> i. <u>Civil Works and Site Preparation</u>: implementation and/or technical guidance shall be provided by the vendor. ii. Earth and lightning protection. iii. All necessary components of the system must be properly grounded iv. Anti-theft protection of the whole system. v. Solar PV Energy System mounting and installation. vi. The <u>engagement and involvement of local or regional partner</u> in order to enhance solar PV system deployment and after-sales services. <p>The installation should follow the guidelines of IEC 63049.</p>



3.5.1.4	Commissioning, UAT and Training	<p>Training</p> <ul style="list-style-type: none"> i. Solar PV Energy System training must be provided to UNDP country office representative(s) by vendor. ii. The content of the training must also include topics such as: <ul style="list-style-type: none"> a. Smart use of appliances to avoid misuse of equipment b. Energy efficiency c. Awareness on energy consumption and cost of electricity iii. Solar PV Energy System Essentials (Basics) Maintenance and Troubleshooting Guide must be provided to Country Office <p>User Acceptance Testing</p> <ul style="list-style-type: none"> i. The UAT shall be developed in collaboration with OIMT UNDP ii. User Inspection will be performed during commissioning by OIMT and the CO Focal point <p>Commissioning</p> <ul style="list-style-type: none"> i. Complete the UNDP Commissioning check list. ii. As-built diagrams must be provided. iii. If there have been any changes to the technical documentation, the updated documents should also be provided. iv. A representative from the supplier's own staff/ team during commissioning of the system must be provided.
3.5.1.5	Stabilization of the System	<ul style="list-style-type: none"> 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. ii. The maintenance agreement will start after the stabilization period of six months.
3.5.1.6	Maintenance of the system	<ul style="list-style-type: none"> i. Mandatory after-sales services including: <ul style="list-style-type: none"> a. <u>Maintenance (preventive and corrective)</u> b. <u>Technical support (onsite and/or remote)</u> c. <u>Continuous online monitoring system</u> ii. The engagement and involvement of local or regional partner is mandatory for the Solar PV Energy System installation, commissioning and after-sales services. iii. Vendor technical support and/or helpdesk contact information and procedures of local including escalation procedures. iv. Solar PV Energy System implementation and after-sales technical support is required, inclusive of appropriate escalation measures. v. Solar PV Energy System maintenance is required, inclusive of appropriate escalation measures. <ul style="list-style-type: none"> a. It shall include periodic cleaning of the panels in order to guarantee maximum efficiency, b. It shall include technical support (on-site and/or remote), including continuous and online performance monitoring system.



		Maintenance should be performed following the guidelines of IEC 62446-2.
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3.6 Timelines

3.6.1 Tasks and deliverables

The overall deliverables and their respective deadline after Purchase Order (PO) signature are indicated below in Table 11. 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 11 - Tasks and responsibilities timeline

No	Tasks and Deliverables	Deadline
3.6.1.1	Signature of the contract	PO
3.6.1.2	Site Survey Report	PO + 3 weeks
	Overview site details for a through survey.	
3.6.1.3	Final Technical Design	PO + 3-4 weeks
	Single line diagram	
3.6.1.4	Pre-assembled technical solution tested and ready to be shipped	PO + 3 months
3.6.1.5	Transportation and delivery	PO + 5 months
3.6.1.6	Installation of the Solution	PO + 6 months
	Solar PV Energy System mounting and installation.	
3.6.1.7	Commissioning, UAT, Training	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).	
3.6.1.8	Stabilization of the system	UAT + 6 months
	The maintenance agreement will start after the stabilization period of six months.	
3.6.1.9	Maintenance of the system	UAT + 42 months
	After-sales services including maintenance (preventative and corrective). Technical support (onsite and/or remote) including continues online monitoring.	



3.6.2 Documentation

After award of contract and formalization of purchase order (PO), the supplier shall deliver all the documents listed in Table 12 by e-mail to UNDP OIMT (oimt.green.energy@undp.org) and copy procurement.ua@undp.org. An overview of the general timeline including all documentation can be found below this section, in Figure 10.

Table 12 – Documents after award of contract

No	Document	Description	Deadline for delivery
3.6.2.1	Project Plan Report	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
3.6.2.2	Site survey Report	<ul style="list-style-type: none"> i. Overview of the sites' details ii. Solar PV Module installation location details (assessment, measurements; photos, etc.). iii. Consideration and assessment for suitable Solar PV Modules mounting system (so it does not compromise the integrity of the roof). iv. Electric distribution panel and wiring overview details (measurements; photos etc.). v. Assessment and documentation of any shading objects, including photos. vi. 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). vii. Assessment and confirmation of the grid quality. viii. Specific civil work requirements. 	PO + 3 weeks



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

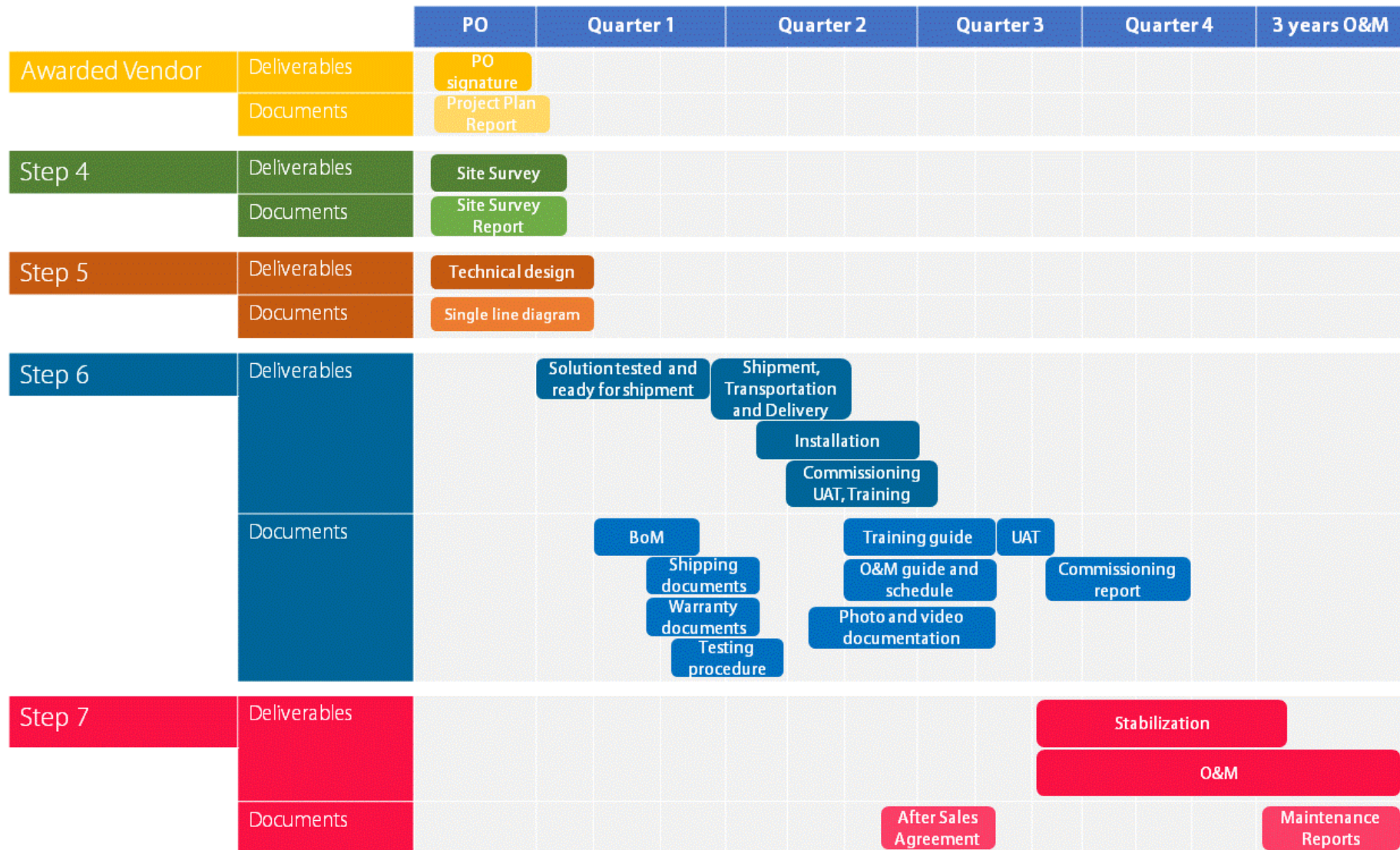


3.6.2.7	Testing procedure	List of tests that will be carried out and respective pass/fail criteria	Latest 4 weeks before testing
3.6.2.8	Installation and commissioning report	i. Solar PV Energy System Commissioning Report. ii. Installation and commissioning activities, as-built drawings	Max. 4 weeks after testing
3.6.2.9	User acceptance testing report and proof of performance to UNDP	Results of the individual tests and system performance test as outlined in the testing procedure; sign off by vendor, UNDP OIMT and system user; any deviations and pending tasks need to be recorded.	1 week after testing
3.6.2.10	Training manual/guide	i. On-Site Solar PV Energy System Training Guide. ii. Provide manuals iii. Include training videos	With training
3.6.2.11	O&M Manual and troubleshooting guide	i. Solar PV Energy System Maintenance and Troubleshooting Essentials Guide for Country Office (day-to-day operations). ii. Description of correct operation and maintenance of the system. Troubleshooting in case of errors. iii. Preventive and corrective maintenance logs.	With training
3.6.2.12	O&M schedule	Schedule of preventive maintenance activities	With training
3.6.2.13	After sales service agreement	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
3.6.2.14	Maintenance reports	Solar PV Energy System Regular Maintenance Technical Report(s).	1 week after maintenance visit
3.6.2.15	Photo and video documentation	Documentation of system installation, commissioning and testing, such as: i. Civil works during installation ii. Training of local staff iii. Overview of installed system iv. Solar panels location	During installation, training, commissioning and testing



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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 A – Acquisition Cost of PV System

Table 13 – Price Schedule A

Item	Description	Quantity	Unit Price (USD)	Total Price (USD)
1.	Solar Panels for 7 kWp			
2.	Inverters and Smart Power Management Unit/Assembly			
3.	Technical room (if needed)			
4.	Ancillaries, Cables, Mounting systems			
5.	Lightning and Surge Protection			
6.	Design, Sizing and Documentation			
7.	Site Preparation and Civil Works			
8.	Mounting Structure			
9.	Installation, Initial PV System Training, UAT and Commissioning			
10.	Integration with existing local office electric distribution and wiring.			
11.	Freight cost to Kiev Ukraine			
12.	Total DPU price Kiev, Ukraine – (Acquisition Cost)			
13.	Maintenance Cost Bi annual maintenance by the local partner (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.			
14.	TOTAL FINAL COST			



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	CO, GET	CO	Vendors	CO
2	Site Visit Registration	Submission of list of attendees (including IDs).	As scheduled	e-mail	List of bidders	Vendors	Vendors	CO	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	GET
4	Bidders Conference Registration	Submission of list of attendees	As scheduled	e-mail	List of bidders	Vendors	Vendors	GET	CO
5	Bidders Conference	Online conference	As scheduled	e-mail, videoconference	Compiled clarification list	CO Proc, GET	CO Proc	Vendors	CO
6	Clarifications	Responses & questions	As needed before deadline	e-mail	List of questions and answers	CO Proc, GET	CO Proc	CO	Vendors
7	Receipt of bids	Update on progress	Weekly	Meeting	Status update	CO Proc	CO Proc	GET	CO
8	Evaluation	Technical & financial	After submission	e-mail	Final assessment results	CO Proc, GET	GET		CO
9	Winner Announcement	Outcome notification	After evaluation	e-mail	Informational message, PO	CO Proc	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, CO Proc
11	Kickoff Meeting	Meeting of stakeholders	Once before project start	videoconference	Minutes of the meeting	GET	GET	Vendor, CO	CO Proc, CO
12	Site survey	Coordination of vendor visit	After project offer	e-mail	Site Survey Report	Vendor	Vendor	CO, GET	CO Proc
13	Final System Design	Confirmation of detail	As needed	e-mail, phone	Design, letter from manufacturers	Vendor	Vendor	GET	CO,
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	CO Proc
17	Onsite Assessment	Assessment of all aspects of project	End of each installation	e-mail, In person		GET, Vendor	GET	Vendor	CO, CO Proc
18	Invoice Payment	Receipting and disbursement	As per agreed plan	e-mail, phone	Invoice, payment confirmation	GET	GET	Vendor	CO Proc, CO
20	Commissioning	Schedule for training, UAT, etc.	End of each installation	e-mail	Signed UAT, checklist, etc.	Vendor, GET	Vendor	CO	CO Proc
21	System Inauguration					CO, GET	CO	-	-

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	Communication Activity	Description	Frequency	Format/Channel	Deliverable	Responsible	Accountable	Consulted	Informed
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 #
UNDP Ukraine Country Office (CO)	End user	sergey.misan@undp.org	+380 63 332 83 85
OIMT GET (GET)	Project Manager	oimt.green.energy@undp.org	+45 45 33 61 14
UNDP Ukraine Procurement unit	Contract Manager	Procurement.ua@undp.org	N/A
<<Vendor name>> (Vendor)	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 intents 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 implement, 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.

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6. Appendix I: Compliance Response Form		Understood	Understood with reservations	Comments	
6.1 Introduction					
1	Introduction	<input type="checkbox"/>	<input type="checkbox"/>		
1.1	Sustainable Development Goals	<input type="checkbox"/>	<input type="checkbox"/>		
1.2	Smart UN Facilities	<input type="checkbox"/>	<input type="checkbox"/>		
1.3	7-Step Green Energy Process	<input type="checkbox"/>	<input type="checkbox"/>		
6.2 Project Description					
2	Project Description	<input type="checkbox"/>	<input type="checkbox"/>		
2.1	Project Objectives	<input type="checkbox"/>	<input type="checkbox"/>		
2.2	Project High Level Requirements	<input type="checkbox"/>	<input type="checkbox"/>		
2.3	Description of Site	<input type="checkbox"/>	<input type="checkbox"/>		
2.3.1	Weather on Site	<input type="checkbox"/>	<input type="checkbox"/>		
2.4	Potential Location of PV Panels	<input type="checkbox"/>	<input type="checkbox"/>		
2.5	Estimated Load Consumption	<input type="checkbox"/>	<input type="checkbox"/>		
3.1	Local Partner	<input type="checkbox"/>	<input type="checkbox"/>		
3.2	Site Visit	<input type="checkbox"/>	<input type="checkbox"/>		
3.3	Bidders Conference	<input type="checkbox"/>	<input type="checkbox"/>		
6.3 Technical Requirements		Compliant	Deviations	Comments	Reference
3.4.1 PV Modules					
3.4.1.1	PV Capacity	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.2	Module Specifications	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.3	Standards	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.4	Module Efficiency	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.5	Limited Power Warranty	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.6	Tilt	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.1.7	Labelling	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.2 PV Modules mounting					
3.4.2.1	Features	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.2.2	Standards	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3 Power electronics		Compliant	Deviations	Comments	Reference
3.4.3.1	Features	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3.2	Inverter Specifications	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3.3	General Specifications	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3.4	Standards	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3.5	Safety	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.3.6	Warranties	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.4 Technical Room					

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3.4.4.1	Specifications	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.4.2	Features	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.5 Online monitoring system					
3.4.5.1	Monitoring and Management Overview	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.5.2	List of hourly basis parameters	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.5.3	Standards	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.6 Smart power management					
3.4.6.1	System's operation logic	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.6.2	Details	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.6.3	Changeover Switch	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.6.4	Reactive power requirements	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.7 Wiring and safety					
3.4.7.1	Details	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.7.2	Grounding	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.7.3	Firefighter's switch	<input type="checkbox"/>	<input type="checkbox"/>		
3.4.8 Warranty of the system					
3.4.8.1	Details	<input type="checkbox"/>	<input type="checkbox"/>		
3.5 Tasks and Responsibilities		Compliant	Deviations	Comments	Reference
3.5.1.1	Risk Assessment, Avoidance and Mitigation Plan	<input type="checkbox"/>	<input type="checkbox"/>		
3.5.1.2	Shipment of material	<input type="checkbox"/>	<input type="checkbox"/>		
3.5.1.3	Installation of the Solution	<input type="checkbox"/>	<input type="checkbox"/>		
3.5.1.4	Commissioning, UAT and Training	<input type="checkbox"/>	<input type="checkbox"/>		
3.5.1.5	Stabilization of the System	<input type="checkbox"/>	<input type="checkbox"/>		
3.5.1.6	Maintenance of the system	<input type="checkbox"/>	<input type="checkbox"/>		
3.6 Timelines and Deliverables					
3.6.1.1	Signature of the contract	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.2	Site Survey	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.3	Final Technical Design	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.4	Pre-assembled technical solution tested and ready to be shipped	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.5	Transportation	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.6	Installation of the Solution	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.7	Commissioning, UAT, Training	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.8	Stabilization of the system	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.1.9	Maintenance of the system	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2 Documentation					
3.6.2.1	Project Plan Report	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.2	Site survey Report	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.3	Design report including system design drawings	<input type="checkbox"/>	<input type="checkbox"/>		

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3.6.2.4	Bill of materials	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.5	Shipping documents	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.6	Warranty documents	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.7	Testing procedure	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.8	Installation and commissioning report	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.9	User acceptance testing report and proof of performance to UNDP	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.10	Training manual/guide	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.11	O&M Manual and troubleshooting guide	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.12	O&M schedule	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.13	After sales service agreement including maintenance (corrective and preventive) and technical support (on-site and remote)	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.14	Maintenance reports	<input type="checkbox"/>	<input type="checkbox"/>		
3.6.2.15	Photo and video documentation	<input type="checkbox"/>	<input type="checkbox"/>		

Who we are

UNDP OIMT/CIAS

Our Vision

Creating Smart Facilities to build local capacity and inspire a movement.

Our Mission

To support and guide Country Offices in leveraging technology for efficient delivery on the organization's mandate.

The Office of Information Management and Technology is the leader in digital transformation, so UNDP can be agile and effective in its global delivery.

UNDP OIMT is headquartered in New York and UN City Copenhagen Denmark, a smart facility which hosts 9 UN agencies and is built with a high focus on sustainability. Our combined efforts provide standardized practices for UNDP country offices to achieve the Sustainable Development Goals and incite other local and international entities to follow our lead.

To illustrate our work, in the wake of the 2014 West Africa Ebola outbreak, country offices in Guinea, Sierra Leone and Liberia could not rely on the grid to meet their energy requirements and diesel shortages restricted access to a sufficient power supply. In order to address this, UNDP OIMT leveraged its experience in implementing smart facilities to roll out solar solutions in the affected countries.

Following this outbreak, UNDP OIMT has aided the installation of solar panel systems in over 13 countries worldwide.

We look forward to implementing the Smart Facilities concept even further.



United Nations Development Programme

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