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ANNEX II

Terms of Reference:

Individual Consultancy for “Grid Connected Photovoltaic System on Land”

within the scope of

Göksu Taşeli Watershed Development Project

1. Background and Objective

The Government of the Republic of Turkey has obtained a loan from the International Fund for Agricultural Development (IFAD), for the Financing of the Göksu Taşeli Watershed Development Project (GTWDP). Implemented in 11 districts and 212 villages of the Konya and Karaman provinces, the project targets 30 000 rural households, and aims to reduce rural poverty by supporting economic diversification through agricultural value chain development and sustainable natural resource management. The General Directorate of Agrarian Reform (GDAR) and the Survey & Projects Department (SPD) have overall responsibilities of the management of the project, through SPD as Central Project Management Unit (CPMU) based in Ankara, and two Provincial Project Management Units (PPMU) based in Konya and Karaman respectively.

Within the scope of GTWDP, an irrigation system currently in operation in the Süleymaniye neighborhood of Akören district will be consolidated with solar energy installation to reduce costs and increase climate change adaptation. Necessary permissions for the Solar Power Plant (SPP) to be established for this purpose were obtained by the Süleymaniye Irrigation Cooperative, and the drawings and projects have been prepared. The contract for supply and turnkey installation of an On-Site On-Grid Photo-Voltaic Solar Power Plant with an installed power of 100 kWe, according to the Regulation on Unlicensed Electricity Production in Electricity Market has been signed with the Contractor and the construction works are planned to be completed by the end of 2020. (The details of the related RFQ can be obtained from https://procurement-notices.undp.org/view_notice.cfm?notice_id=68010).

In addition to the field (civil) engineer employed within the scope of the project, electrical engineering knowledge is also needed to control the construction works, and in order to obtain MEDAŞ approvals and complete provisional acceptance following completion of works. Since SPP systems include various electrical-electronic equipment such as solar panels, cabling, inverters, panels, transformers, these systems require specific expertise. In order to ensure that the works are carried out in accordance with the requirements and legislation during the construction and acceptance phases, a technical consultant will be employed who is an expert in SPP.

2. Scope of Work

The objective of this assignment is to receive technical support in order to ensure that the supply and turnkey installation of an On-Site On-Grid Photo-Voltaic Solar Power Plant with an installed power of 100 kW are carried out in accordance with the requirements and legislation during the construction and acceptance phases. The Individual Consultant (IC) will work closely with the PPMU in Konya.

3. Duties And Responsibilities Of The Individual Consultant

Within the scope of the Assignment; the IC is expected to provide consultancy services for the below listed activities:

- A. Conducting field visits during the construction work, detecting and reporting problems, if any: It will be performed for 5 non-consecutive days. It will start from the operation of the bearing piles until the completion of the grid connection. During the construction phase, the consultant will visit the Süleymaniye neighborhood of Akören district and check that the following works are done in accordance with the requirements:
 - Fixing the anchor piles to the ground (with the civil engineer),
 - Installation of the load-bearing construction on piles (with the civil engineer),
 - Installation of panels to the construction,
 - Drawing of DC cables, isolation and insertion of jacks,
 - Connection of DC cables and inverters,
 - Placement and installation of inverters,
 - Making AC wiring,
 - Connection of AC cables to transformer,
 - Transformer meter connection,
 - Transformer panel connection,
 - Evaluation of the condition of the panel pump line.
- B. Assisting the PPMU and UNDP staff through consultancy during the inspection / acceptance phase at the end of the construction work; It will take 5 days. After the construction contractor reports that they have completed the work, the consultant will participate in the control activities in the field together with the PPMU at the inspection acceptance stage. During these activities the following will be carried out:
 - Control of pile, carrier system, panel connections,
 - Control that the orientation of the panels is made at the appropriate angle,
 - Control of DC and AC wiring,
 - Checking whether the panels have the required strength and quality,
 - Checking that the panels are completely new in the same brand and model,
 - Control of defects such as cracks and fractures in panels,
 - Power of inverters, layout of their connections with panels,
 - Control of inverter, transformer, panel, pump line,

- Checking that the specifications and warranty documents of the panel, inverter, cable, transformer, fuse, panel and all other electronic equipment are complete and appropriate,
 - Starting and testing the system,
 - Participating in the temporary admissions of MEDAŞ, TEDAŞ and UNDP.
- C. Reporting: will take 2 days. The consultant will prepare a report on the controls s/he made during the construction phase and the issues identified during the inspection and acceptance, including the following situations. When requested by the PPMU, s/he is expected to explain the issues/findings stated in her/his report also on the field. The draft report will be submitted to the PPMU on the 2nd day electronically. After revising the parts where the PPMU wants to be completed and detailed, the report will be delivered in 3 copies in printed and signed form, and also in electronic format.
- Compliance of all equipment specifications and warranty documents should be written separately for each equipment in the report,
 - Determination that important equipment such as panel, carrier system, transformer, inverter, meter is properly commissioned,
 - Compliance of the entire system with the specification, if different from the specification, whether it will meet the required qualifications,
 - Determination that the entire system has been built in accordance with the conditions required by MEDAŞ,
 - Detection and reporting that the system can operate bi-directionally online.

4. Expected Results And Deliverables

The Consultant shall develop and submit for PPMU and UNDP's approval, below listed deliverables which shall be the basis of the payments to the Consultant:

No.	Ref.	Activity	Deliverable	Estimated days*
1	Section 3 - A.	Conduct field visit to the construction site in the Süleymaniye neighborhood of Akören district during implementation phase; Identify the discrepancies and prepare relevant report	Visit to Construction Site and Report on identified discrepancies	5 days (non-consecutive)
		Perform interim inspections to ensure that the Works are conducted in accordance with the requirements		
2	Section 3 - B	Assist PPMU and UNDP staff during the inspection / acceptance phase at the end of the construction works; Participate in the control activities in the field together with the PPMU at the inspection acceptance stage,	Support in inspection and acceptance phase	5 days (non-consecutive)
3		Prepare a final report prepared on the controls performed by her/himself during the construction phase and the issues identified during the inspection and acceptance.	Final Report	2 days

*The payments shall be realized upon submission of each Deliverable listed above by the Consultant and approval by PPMU and UNDP, on the basis of actual number of days invested by the Consultant for the respective Deliverable. Estimated days are indicative; while the Consultant may invest less or more than the estimated number of days stated above for each deliverable, the total days to be invested for performance of the whole assignment cannot exceed 12 days.

5. Duration and Place of Work

The assignment shall start within November 2020 and be completed by February 2021. The consultant is expected to invest maximum 12 working days within a 4-month contract duration. Working days will not be consecutive and service will be provided as needed.

The assignment shall take place in Konya, Turkey.

The accommodation costs for a maximum of 12 days shall be borne by the Consultant and hence must be integrated to the Consultant's price proposal.

The Consultant is expected to carry out field trips to Süleymaniye neighborhood of Akören district in Konya. The consultant shall include the cost of these travels in his/her price proposal since all travel costs shall be borne by the Consultant.

At the end of the work, the consultant will report to UNDP and the Ministry of Agriculture and Forestry on the activities that realized during the term of duty.

6. Minimum Qualification Requirements

The following table demonstrates the required qualifications of the IC to be selected for this Assignment. The expected qualifications of this expert are as follows:

	Minimum qualifications
General Qualifications	<ul style="list-style-type: none"> • B.Sc. in electrical engineering, electronic engineering or any related field, • Proficiency in Turkish is required.
Professional Experience	<ul style="list-style-type: none"> • At least 5 (five) years of practical professional work on the establishment of SPP systems, • Proven experience in the control, commissioning and operation of SPP systems will be an asset, • Proven experience in examining the specifications of basic equipment such as the panel of SPP systems, inverters, and transformers will be an asset.
Specific Experience	<ul style="list-style-type: none"> • Proven experience in the operation of irrigation systems with SPP, • Tracking record of taking relevant courses from universities, public institutions or authorized private organizations will be an asset, • Tracking record of obtaining courses, trainings, etc. on agricultural irrigation will be an asset.

7. Payments

The Consultant will be hired under an Individual Contract and be paid on the basis of the submission of deliverables detailed in this Terms of Reference upon acceptance and approval of the outputs by PPMU and UNDP. Without submission and approval of the deliverables, the Consultant shall not be entitled to receive any payment even if he/she invests time in the assignment. The Consultant will be paid in TRY in case s/he is a Turkish national, otherwise in USD upon submission of the outputs as detailed above. The rate of exchange shall be the official rate applied by the United Nations on the day UNDP instructs its bank to effect the payment(s).

The amount paid to the expert shall be gross and inclusive of all associated costs such as social security, pension and income tax etc.

Payments will be made within 30 days upon acceptance and approval of the corresponding deliverable by UNDP on the basis of actual number of days invested in that respective deliverable and the pertaining Certification of Payment document signed by the Consultant and approved by PPMU and UNDP. The total amount of payment to be effected to the Consultant within the scope of this contract cannot exceed equivalent of **12 working/days**.

Tax Obligations: The IC is solely responsible for all taxation or other assessments on any income derived from UNDP. UNDP will not make any withholding from payments for the purposes of income tax. UNDP is exempt from any liabilities regarding taxation and will not reimburse any such taxation to the IC.