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INVITATION TO BID

Supply, Installation and Commissioning of 2 x 100 kWp on-grid Field Installed PV Plant

ITB No.: UNDP-TUR-ITB(ORKOY)-2019/01

Project: PIMS 5323: Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Turkey

Country: TURKEY

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SECTION 1. LETTER OF INVITATION

Supply, Installation and Commissioning of 2 x 100 kWp on-grid Field Installed PV Plant under “PIMS 5323: Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Turkey”

The United Nations Development Programme (UNDP) hereby invites you to submit a Bid to this Invitation to Bid (ITB) for the above-referenced subject.

This ITB includes the following documents and the UNDP General Conditions of Contract for Civil Works which is linked in the Bid Data Sheet:

- Section 1: This Letter of Invitation
- Section 2: Instruction to Bidders
- Section 3: Bid Data Sheet (BDS)
- Section 4: Evaluation Criteria
- Section 5.a: Schedule of Requirements and Technical Specifications/Bill of Quantities
- Section 5.b: Other Related Requirements
- Section 6: Returnable Bidding Forms
 - Form A: Bid Submission Form
 - Form B: Bidder Information Form
 - Form C: Joint Venture/Consortium/Association Information Form (Not Applicable for this Tender)
 - Form D: Eligibility and Qualification Form
 - Form E: Format of Technical Bid
 - Form F: Price Schedule Form
 - Form G: Form of Bid Security

If you are interested in submitting a Bid in response to this ITB, please prepare your Bid in accordance with the requirements and procedure as set out in this ITB and submit it by the Deadline for Submission of Bids set out in Bid Data Sheet.

Please acknowledge receipt of this ITB by sending an email to tr.procurement@undp.org, indicating whether you intend to submit a Bid or otherwise. You may also utilize the “Accept Invitation” function in eTendering system, where applicable. This will enable you to receive amendments or updates to the ITB. Should you require further clarifications, kindly communicate with the contact person/s identified in the attached Data Sheet as the focal point for queries on this ITB.

UNDP looks forward to receiving your Bid and thank you in advance for your interest in UNDP procurement opportunities.

Issued by:



Name: Meral Mungan Arda
Title: Portfolio Administrator
Date: May 9, 2019

Approved by:



Name: Sukhrob Khojimatov
Title: Deputy Country Director
Date: May 9, 2019

SECTION 2. INSTRUCTION TO BIDDERS

A. GENERAL PROVISIONS

1. Introduction	<p>1.1 Bidders shall adhere to all the requirements of this ITB, including any amendments made in writing by UNDP. This ITB is conducted in accordance with the UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement which can be accessed at https://popp.undp.org/SitePages/POPPBSUnit.aspx?TermID=254a9f96-b883-476a-8ef8-e81f93a2b38d</p> <p>1.2 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 ITB.</p> <p>1.3 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> <p>1.4 As part of the bid, it is desired that the Bidder registers at the United Nations Global Marketplace (UNGM) website (www.ungm.org). The Bidder may still submit a bid 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.</p>
2. Fraud & Corruption, Gifts and Hospitality	<p>2.1 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 observe the highest standard of ethics during the procurement process and contract implementation. UNDP's Anti-Fraud Policy can be found at http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_andinvestigation.html#anti</p> <p>2.2 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 or dinners.</p> <p>2.3 In pursuance of this policy, UNDP:</p> <p>(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;</p> <p>(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.</p> <p>2.4 All Bidders must adhere to the UN Supplier Code of Conduct, which may be found at http://www.un.org/depts/ptd/pdf/conduct_english.pdf</p>
3. Eligibility	<p>3.1 A vendor should 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</p>

	<p>imposed by these organizations.</p> <p>3.2 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>
4. Conflict of Interests	<p>4.1 Bidders must 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. Without limitation on the generality of the above, Bidders, and any of their affiliates, shall be considered to have a conflict of interest with one or more parties in this solicitation process, if they:</p> <ul style="list-style-type: none"> a) Are or have been associated in the past, with a firm or any of its affiliates which have been engaged by UNDP to provide services for the preparation of the design, specifications, Terms of Reference, cost analysis/estimation, and other documents to be used for the procurement of the goods and services in this selection process; b) Were involved in the preparation and/or design of the programme/project related to the goods and/or services requested under this ITB; or c) Are found to be in conflict for any other reason, as may be established by, or at the discretion of UNDP. <p>4.2 In the event of any uncertainty in the interpretation of a potential conflict of interest, Bidders must disclose to UNDP, and seek UNDP's confirmation on whether or not such conflict exists.</p> <p>4.3 Similarly, the Bidders must disclose in their Bid their knowledge of the following:</p> <ul style="list-style-type: none"> 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 ITB; and b) All other circumstances that could potentially lead to actual or perceived conflict of interest, collusion or unfair competition practices. <p>Failure to disclose such an information may result in the rejection of the Bid or Bids affected by the non-disclosure.</p> <p>4.4 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 ITB, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.</p>
B. PREPARATION OF BIDS	
5. General Considerations	<p>5.1 In preparing the Bid, the Bidder is expected to examine the ITB in detail. Material deficiencies in providing the information requested in the ITB may result in rejection of the Bid.</p>

	5.2	The Bidder will not be permitted to take advantage of any errors or omissions in the ITB. Should such errors or omissions be discovered, the Bidder must notify the UNDP accordingly.
6. Cost of Preparation of Bid	6.1	The Bidder shall bear all costs related to the preparation and/or submission of the Bid, regardless of whether its Bid is selected or not. UNDP shall not be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.
7. Language	7.1	The Bid, as well as any and all related correspondence exchanged by the Bidder and UNDP, shall be written in the language (s) specified in the BDS.
8. Documents Comprising the Bid	8.1	<p>The Bid shall comprise of the following documents and related forms which details are provided in the BDS:</p> <ul style="list-style-type: none"> a) Documents Establishing the Eligibility and Qualifications of the Bidder; b) Technical Bid; c) Price Schedule; d) Bid Security, if required by BDS; e) Any attachments and/or appendices to the Bid.
9. Documents Establishing the Eligibility and Qualifications of the Bidder	9.1	The Bidder shall furnish documentary evidence of its status as an eligible and qualified vendor, using the Forms provided under Section 6 and providing documents required in those forms. In order to award a contract to a Bidder, its qualifications must be documented to UNDP's satisfaction.
10. Technical Bid Format and Content	10.1 10.2 10.3 10.4	<p>The Bidder is required to submit a Technical Bid using the Standard Forms and templates provided in Section 6 of the ITB.</p> <p>Samples of items, when required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the UNDP. If not destroyed by testing, samples will be returned at Bidder's request and expense, unless otherwise specified.</p> <p>When applicable and required as per Section 5, the Bidder shall describe the necessary training programme available for the maintenance and operation of the equipment offered as well as the cost to the UNDP. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS.</p> <p>When applicable and required as per Section 5, the Bidder shall certify the availability of spare parts for a period of at least five (5) years from date of delivery, or as otherwise specified in this ITB.</p>
11. Price Schedule	11.1 11.2	<p>The Price Schedule shall be prepared using the Form provided in Section 6 of the ITB and taking into consideration the requirements in the ITB.</p> <p>Any requirement described in the Technical Bid but not priced in the Price Schedule, shall be assumed to be included in the prices of other activities or items, as well as in the final total price.</p>
12. Bid Security	12.1	A Bid Security, if required by BDS, shall be provided in the amount and form indicated in the BDS. The Bid Security shall be valid for a minimum

	<p>of thirty (30) days after the final date of validity of the Bid.</p> <p>12.2 The Bid Security shall be included along with the Bid. If Bid Security is required by the ITB but is not found in the Bid, the offer shall be rejected.</p> <p>12.3 If the Bid Security amount or its validity period is found to be less than what is required by UNDP, UNDP shall reject the Bid.</p> <p>12.4 In the event an electronic submission is allowed in the BDS, Bidders shall include a copy of the Bid Security in their bid and the original of the Bid Security must be sent via courier or hand delivery as per the instructions in BDS.</p> <p>12.5 The Bid Security may be forfeited by UNDP, and the Bid rejected, in the event of any, or combination, of the following conditions:</p> <ul style="list-style-type: none"> a) If the Bidder withdraws its offer during the period of the Bid Validity specified in the BDS, or; b) In the event the successful Bidder fails: <ul style="list-style-type: none"> i. to sign the Contract after UNDP has issued an award; or ii. to furnish the Performance Security, insurances, or other documents that UNDP may require as a condition precedent to the effectivity of the contract that may be awarded to the Bidder.
13. Currencies	<p>13.1 All prices shall be quoted in the currency or currencies indicated in the BDS. Where Bids are quoted in different currencies, for the purposes of comparison of all Bids:</p> <ul style="list-style-type: none"> a) UNDP will convert the currency quoted in the Bid into the UNDP preferred currency, in accordance with the prevailing UN operational rate of exchange on the last day of submission of Bids; and b) In the event that UNDP selects a Bid for award that is quoted in a currency different from the preferred currency in the BDS, UNDP shall reserve the right to award the contract in the currency of UNDP's preference, using the conversion method specified above.
14. Joint Venture, Consortium or Association	<p>14.1 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.</p> <p>14.2 After the Deadline for Submission of Bid, the lead entity identified to represent the JV, Consortium or Association shall not be altered without the prior written consent of UNDP.</p> <p>14.3 The lead entity and the member entities of the JV, Consortium or Association shall abide by the provisions of Clause 9 herein in respect of submitting only one Bid.</p> <p>14.4 The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entities in the joint</p>

	<p>venture in delivering the requirements of the ITB, both in the Bid and the JV, Consortium or Association Agreement. All entities that comprise the JV, Consortium or Association shall be subject to the eligibility and qualification assessment by UNDP.</p> <p>14.5 A JV, Consortium or Association in presenting its track record and experience should clearly differentiate between:</p> <ul style="list-style-type: none"> a) Those that were undertaken together by the JV, Consortium or Association; and b) Those that were undertaken by the individual entities of the JV, Consortium or Association. <p>14.6 Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials</p> <p>14.7 JV, Consortium or Associations are encouraged for high value, multi-sectoral requirements when the spectrum of expertise and resources required may not be available within one firm.</p>
15. Only One Bid	<p>15.1 The Bidder (including the individual members of any Joint Venture) shall submit only one Bid, either in its own name or as part of a Joint Venture.</p> <p>15.2 Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <ul style="list-style-type: none"> 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 c) they have the same legal representative for purposes of this ITB; or d) 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 ITB process; e) 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 some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this ITB process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.
16. Bid Validity Period	<p>16.1 Bids shall remain valid for the period specified in the BDS, commencing on the Deadline for Submission of Bids. A Bid valid for a shorter period may be rejected by UNDP and rendered non-responsive.</p> <p>16.2 During the Bid validity period, the Bidder shall maintain its original Bid without any change, including the availability of the Key Personnel, the proposed rates and the total price.</p>
17. Extension of Bid Validity Period	<p>17.1 In exceptional circumstances, prior to the expiration of the Bid validity period, UNDP may request Bidders to extend the period of validity of their</p>

	<p>Bids. The request and the responses shall be made in writing, and shall be considered integral to the Bid.</p> <p>17.2 If the Bidder agrees to extend the validity of its Bid, it shall be done without any change to the original Bid.</p> <p>17.3 The Bidder has the right to refuse to extend the validity of its Bid, in which case, the Bid shall not be further evaluated.</p>
18. Clarification of Bid (from the Bidders)	<p>18.1 Bidders may request clarifications on any of the ITB documents no later than the date indicated in the BDS. Any request for clarification must be sent in writing in the manner indicated in the BDS. If inquiries are sent other than specified channel, even if they are sent to a UNDP staff member, UNDP shall have no obligation to respond or confirm that the query was officially received.</p> <p>18.2 UNDP will provide the responses to clarifications through the method specified in the BDS.</p> <p>18.3 UNDP shall endeavour to provide responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of UNDP to extend the submission date of the Bids, unless UNDP deems that such an extension is justified and necessary.</p>
19. Amendment of Bids	<p>19.1 At any time prior to the deadline of Bid submission, UNDP may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of an amendment to the ITB. Amendments will be made available to all prospective bidders.</p> <p>19.2 If the amendment is substantial, UNDP may extend the Deadline for submission of Bid to give the Bidders reasonable time to incorporate the amendment into their Bids.</p>
20. Alternative Bids	<p>20.1 Unless otherwise specified in the BDS, alternative Bids shall not be considered. If submission of alternative Bid is allowed by BDS, a Bidder may submit an alternative Bid, but only if it also submits a Bid conforming to the ITB requirements. Where the conditions for its acceptance are met, or justifications are clearly established, UNDP reserves the right to award a contract based on an alternative Bid.</p> <p>20.2 If multiple/alternative bids are being submitted, they must be clearly marked as “Main Bid” and “Alternative Bid”</p>
21. Pre-Bid Conference	<p>21.1 When appropriate, a pre-bid conference will be conducted at the date, time and location specified in the BDS. All Bidders are encouraged to attend. Non-attendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder’s conference will be disseminated on the procurement website and shared by email or on the e-Tendering platform as specified in the BDS. No verbal statement made during the conference shall modify the terms and conditions of the ITB, unless specifically incorporated in the Minutes of the Bidder’s Conference or issued/posted as an amendment to ITB.</p>

C. SUBMISSION AND OPENING OF BIDS

22. Submission	<p>22.1 The Bidder shall submit a duly signed and complete Bid comprising the documents and forms in accordance with requirements in the BDS. The Price Schedule shall be submitted together with the Technical Bid. Bid can be delivered either personally, by courier, or by electronic method of transmission as specified in the BDS.</p> <p>22.2 The Bid shall be signed by the Bidder or person(s) duly authorized to commit the Bidder. The authorization shall be communicated through a document evidencing such authorization issued by the legal representative of the bidding entity, or a Power of Attorney, accompanying the Bid.</p> <p>22.3 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder fully accepts the UNDP General Contract Terms and Conditions.</p>
Hard copy (manual) submission	<p>22.4 Hard copy (manual) submission by courier or hand delivery allowed or specified in the BDS shall be governed as follows:</p> <p>a) The signed Bid shall be marked “Original”, and its copies marked “Copy” as appropriate. The number of copies is indicated in the BDS. All copies shall be made from the signed original only. If there are discrepancies between the original and the copies, the original shall prevail.</p> <p>(b) The Technical Bid and Price Schedule must be sealed and submitted together in an envelope, which shall:</p> <ol style="list-style-type: none"> Bear the name of the Bidder; Be addressed to UNDP as specified in the BDS; and Bear a warning not to open before the time and date for Bid opening as specified in the BDS. <p>If the envelope with the Bid is not sealed and marked as required, UNDP shall assume no responsibility for the misplacement, loss, or premature opening of the Bid.</p>
Email and eTendering submissions	<p>22.5 Electronic submission through email or eTendering, if allowed as specified in the BDS, shall be governed as follows:</p> <ol style="list-style-type: none"> Electronic files that form part of the Bid must be in accordance with the format and requirements indicated in BDS; Documents which are required to be in original form (e.g. Bid Security, etc.) must be sent via courier or hand delivered as per the instructions in BDS. <p>22.6 Detailed instructions on how to submit, modify or cancel a bid in the eTendering system are provided in the eTendering system Bidder User Guide and Instructional videos available on this link: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/</p>
23. Deadline for Submission of Bids and Late Bids	<p>23.1 Complete Bids must be received by UNDP in the manner, and no later than the date and time, specified in the BDS. UNDP shall only recognise the actual date and time that the bid was received by UNDP</p>

	23.2 UNDP shall not consider any Bid that is received after the deadline for the submission of Bids.
24. Withdrawal, Substitution, and Modification of Bids	<p>24.1 A Bidder may withdraw, substitute or modify its Bid after it has been submitted at any time prior to the deadline for submission.</p> <p>24.2 Manual and Email submissions: A bidder may withdraw, substitute or modify its Bid by sending a written notice to UNDP, duly signed by an authorized representative, and shall include a copy of the authorization (or a Power of Attorney). The corresponding substitution or modification of the Bid, if any, must accompany the respective written notice. All notices must be submitted in the same manner as specified for submission of Bids, by clearly marking them as “WITHDRAWAL” “SUBSTITUTION,” or “MODIFICATION”</p> <p>24.3 eTendering: A Bidder may withdraw, substitute or modify its Bid by Cancelling, Editing, and re-submitting the Bid directly in the system. It is the responsibility of the Bidder to properly follow the system instructions, duly edit and submit a substitution or modification of the Bid as needed. Detailed instructions on how to cancel or modify a Bid directly in the system are provided in the Bidder User Guide and Instructional videos.</p> <p>24.4 Bids requested to be withdrawn shall be returned unopened to the Bidders (only for manual submissions), except if the bid is withdrawn after the bid has been opened.</p>
25. Bid Opening	<p>25.1 UNDP will open the Bid in the presence of an ad-hoc committee formed by UNDP of at least two (2) members.</p> <p>25.2 The Bidders’ names, modifications, withdrawals, the condition of the envelope labels/seals, the number of folders/files and all other such other details as UNDP may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submissions, in which case, the Bid shall be returned unopened to the Bidders.</p> <p>25.3 In the case of e-Tendering submission, bidders will receive an automatic notification once the Bid is opened.</p>
D. EVALUATION OF BIDS	
26. Confidentiality	<p>26.1 Information relating to the examination, evaluation, and comparison of Bids, and the recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process, even after publication of the contract award.</p> <p>26.2 Any effort by a Bidder or anyone on behalf of the Bidder to influence UNDP in the examination, evaluation and comparison of the Bids or contract award decisions may, at UNDP’s decision, result in the rejection of its Bid and may subsequently be subject to the application of prevailing UNDP’s vendor sanctions procedures.</p>
27. Evaluation of Bids	<p>27.1 UNDP will conduct the evaluation solely on the basis of the Bids received.</p> <p>27.2 Evaluation of Bids shall be undertaken in the following steps: a) Preliminary Examination including Eligibility</p>

	<ul style="list-style-type: none"> b) Arithmetical check and ranking of bidders who passed preliminary examination by price. c) Qualification assessment (if pre-qualification was not done) a) Evaluation of Technical Bids b) Evaluation of prices <p>Detailed evaluation will be focussed on the 3 - 5 lowest priced bids. Further higher priced bids shall be added for evaluation if necessary</p>
28. Preliminary Examination	<p>28.1 UNDP shall examine the Bids to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, and whether the Bids are generally in order, among other indicators that may be used at this stage. UNDP reserves the right to reject any Bid at this stage.</p>
29. Evaluation of Eligibility and Qualification	<p>29.1 Eligibility and Qualification of the Bidder will be evaluated against the Minimum Eligibility/Qualification requirements specified in the Section 4 (Evaluation Criteria).</p> <p>29.2 In general terms, vendors that meet the following criteria may be considered qualified:</p> <ul style="list-style-type: none"> a) They are not included in the UN Security Council 1267/1989 Committee's list of terrorists and terrorist financiers, and in UNDP's ineligible vendors' list; b) They have a good financial standing and have access to adequate financial resources to perform the contract and all existing commercial commitments, c) They have the necessary similar experience, technical expertise, production capacity, quality certifications, quality assurance procedures and other resources applicable to the supply of goods and/or services required; d) They are able to comply fully with the UNDP General Terms and Conditions of Contract; e) They do not have a consistent history of court/arbitral award decisions against the Bidder; and f) They have a record of timely and satisfactory performance with their clients.
30. Evaluation of Technical Bid and prices	<p>30.1 The evaluation team shall review and evaluate the Technical Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the BDS and other ITB documents. When necessary, and if stated in the BDS, UNDP may invite technically responsive bidders for a presentation related to their technical Bids. The conditions for the presentation shall be provided in the bid document where required.</p>
31. Due diligence	<p>31.1 UNDP reserves the right to undertake a due diligence exercise, aimed at determining to its satisfaction, the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but need not be limited to, all or any combination of the following:</p> <ul style="list-style-type: none"> a) Verification of accuracy, correctness and authenticity of information provided by the Bidder; b) Validation of extent of compliance to the ITB requirements and

	<p>evaluation criteria based on what has so far been found by the evaluation team;</p> <p>c) Inquiry and reference checking with Government entities with jurisdiction on the Bidder, or with previous clients, or any other entity that may have done business with the Bidder;</p> <p>d) Inquiry and reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary;</p> <p>e) Physical inspection of the Bidder's offices, branches or other places where business transpires, with or without notice to the Bidder;</p> <p>f) Other means that UNDP may deem appropriate, at any stage within the selection process, prior to awarding the contract.</p>
32. Clarification of Bids	<p>32.1 To assist in the examination, evaluation and comparison of Bids, UNDP may, at its discretion, request any Bidder for a clarification of its Bid.</p> <p>32.2 UNDP's request for clarification and the response shall be in writing and no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by UNDP in the evaluation of the Bids, in accordance with the ITB.</p> <p>32.3 Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by UNDP, shall not be considered during the review and evaluation of the Bids.</p>
33. Responsiveness of Bid	<p>33.1 UNDP's determination of a Bid's responsiveness will be based on the contents of the bid itself. A substantially responsive Bid is one that conforms to all the terms, conditions, specifications and other requirements of the ITB without material deviation, reservation, or omission.</p> <p>33.2 If a bid is not substantially responsive, it shall be rejected by UNDP and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.</p>
34. Nonconformities, Repairable Errors and Omissions	<p>34.1 Provided that a Bid is substantially responsive, UNDP may waive any non-conformities or omissions in the Bid that, in the opinion of UNDP, do not constitute a material deviation.</p> <p>34.2 UNDP may request the Bidder to submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p> <p>34.3 For the bids that have passed the preliminary examination, UNDP shall check and correct arithmetical errors as follows:</p> <p>a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of UNDP there is an obvious misplacement of the decimal point in the unit price; in which case, the line item total as quoted shall govern and the unit price shall be corrected;</p>

	<p>b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail.</p> <p>34.4 If the Bidder does not accept the correction of errors made by UNDP, its Bid shall be rejected.</p>
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E. AWARD OF CONTRACT

35. Right to Accept, Reject, Any or All Bids	35.1 UNDP reserves the right to accept or reject any bid, to render any or all of the bids as non-responsive, and to reject all Bids at any time prior to award of contract, without incurring any liability, or obligation to inform the affected Bidder(s) of the grounds for UNDP's action. UNDP shall not be obliged to award the contract to the lowest priced offer.
36. Award Criteria	36.1 Prior to expiration of the period of Bid validity, UNDP shall award the contract to the qualified and eligible Bidder that is found to be responsive to the requirements of the Schedule of Requirements and Technical Specification, and has offered the lowest price.
37. Debriefing	37.1 In the event that a Bidder is unsuccessful, the Bidder may request for a debriefing from UNDP. The purpose of the debriefing is to discuss the strengths and weaknesses of the Bidder's submission, in order to assist the Bidder in improving its future Bids for UNDP procurement opportunities. The content of other Bids and how they compare to the Bidder's submission shall not be discussed.
38. Right to Vary Requirements at the Time of Award	38.1 At the time of award of Contract, UNDP reserves the right to vary the quantity of goods and/or services, 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.
39. Contract Signature	39.1 Within fifteen (15) days from the date of receipt of the Contract, the successful Bidder shall sign and date the Contract and return it to UNDP. Failure to do so may constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security, if any, and on which event, UNDP may award the Contract to the Second highest rated or call for new Bids.
40. Contract Type and General Terms and Conditions	40.1 The types of Contract to be signed and the applicable UNDP Contract General Terms and Conditions, as specified in BDS, can be accessed at http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
41. Performance Security	41.1 A performance security, if required in the BDS, shall be provided in the amount specified in BDS and form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Solicitation_Performance%20Guarantee%20Form.docx&action=default within a maximum of fifteen

	(15) days of the contract signature by both parties. Where a performance security is required, the receipt of the performance security by UNDP shall be a condition for rendering the contract effective.
42. Bank Guarantee for Advanced Payment	<p>42.1 Except when the interests of UNDP so require, it is UNDP's standard practice to not make advance payment(s) (i.e., payments without having received any outputs). If an advance payment is allowed as per the BDS, and exceeds 20% of the total contract price, or USD 30,000, whichever is less, the Bidder shall submit a Bank Guarantee in the full amount of the advance payment in the form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Contract%20Management%20Payment%20and%20Taxes_Advanced%20Payment%20Guarantee%20Form.docx&action=default</p>
43. Liquidated Damages	<p>43.1 If specified in the BDS, UNDP shall apply Liquidated Damages for the damages and/or risks caused to UNDP resulting from the Contractor's delays or breach of its obligations as per Contract.</p>
44. Payment Provisions	<p>44.1 Payment will be made only upon UNDP's acceptance of the goods and/or services performed. The terms of payment shall be within thirty (30) days, after receipt of invoice and certification of acceptance of goods and/or services issued by the proper authority in UNDP with direct supervision of the Contractor. Payment will be effected by bank transfer in the currency of the contract.</p>
45. Vendor Protest	<p>45.1 UNDP's vendor protest procedure provides an opportunity for appeal to those persons or firms not awarded a contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the following link provides further details regarding UNDP vendor protest procedures: http://www.undp.org/content/undp/en/home/procurement/business/protest-and-sanctions.html</p>
46. Other Provisions	<p>46.1 In the event that the Bidder offers a lower price to the host Government (e.g. General Services Administration (GSA) of the federal government of the United States of America) for similar goods and/or services, UNDP shall be entitled to the same lower price. The UNDP General Terms and Conditions shall have precedence.</p> <p>46.2 UNDP is entitled to receive the same pricing offered by the same Contractor in contracts with the United Nations and/or its Agencies. The UNDP General Terms and Conditions shall have precedence.</p> <p>46.3 The United Nations has established restrictions on employment of (former) UN staff who have been involved in the procurement process as per bulletin ST/SGB/2006/15 http://www.un.org/en/ga/search/view_doc.asp?symbol=ST/SGB/2006/15&referer</p>

SECTION 3: BID DATA SHEET

The following data for the goods and/or services to be procured shall complement, supplement, or amend the provisions in the Invitation to Bid In the case of a conflict between the Instructions to Bidders, the Bid Data Sheet, and other annexes or references attached to the Bid Data Sheet, the provisions in the Bid Data Sheet shall prevail.

BDS No.	Ref. to Section.2	Data	Specific Instructions / Requirements
1	7	Language of the Bid	<p>English.</p> <p><i>(The Turkish translation of this ITB will be announced at the web sites stipulated in Item 13 of this Bid Data Sheet within 10 calendar days after the announcement of English version. The Turkish version shall be provided as a reference document to help the Bidders. Original and official solicitation document in English will govern. <u>Documents - such as brochures, etc.- submitted in Turkish will be accepted during the Evaluation, in case of an inconsistency between the Turkish and English versions, English version shall prevail.</u>)</i></p>
2		Submitting Bids for Parts or sub-parts of the Schedule of Requirements (partial bids)	<p>Not Allowed</p> <p>UNDP Turkey CO plans to procure the Goods, Services and Works for “Supply, Installation and Commissioning of 2 x 100 kWp on-grid Field Installed PV Plant.” The subject procurement shall be conducted in the form of 2 LOTs as follows:</p> <p>LOT 1 – Supply, Installation and Commissioning of 100 kWp on-grid Field Installed PV Plant in the forest village to be selected in Afyon (Site Location: Please kindly refer to Attached Technical Drawings approved by Relevant Electricity Distribution Company)</p> <p>LOT 2 – Supply, Installation and Commissioning of 100 kWp on-grid Field Installed PV Plant in the forest village to be selected in Konya (Site Location: Please kindly refer to Attached Technical Drawings approved by Relevant Electricity Distribution Company)</p> <p>Bidders can submit Bids for one Lot or a combination of lots. However, Bidders are not allowed to submit a Bid for a part of any LOT. Those Bidders who submit Bids for more than one LOT should fill out the price schedule form separately for each LOT(s) applied.</p>

3	20	Alternative Bids	Shall not be considered
4	21	Pre-Bid conference	<p>Will be Conducted in Ankara, Afyon and Konya.</p> <p>The bidders may join any one of the pre-bid conferences or all of them. All expenses relating to the Bidders' participation in the Pre-bid Conferences are borne by the Bidders.</p> <p><u>Ankara:</u> Time: 11:00 hrs by Turkey time Date: 17 May 2019 Venue : <u>United Nations Development Programme (UNDP)</u> Yıldız Kule 16th Floor, Yukarı Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara/Turkey</p> <p><u>Konya:</u> Time: 11:00 hrs by Turkey time Date: 21 May 2019 Venue : <u>OGM İşletmesi 8. Bölge Müdürlüğü Toprak Sarnıç Mahallesi Sapanca Sokak Meram/Konya</u></p> <p><u>Afyon:</u> Time: 13:00 hrs by Turkey time Date: 22 May 2019 Venue : <u>OGM İşletmesi Derviş Paşa Mahallesi Bilgi Caddesi No: 32 Merkez/Afyon</u></p> <p>The UNDP focal point for the arrangement is: Meral Mungan Arda, Portfolio Administrator Telephone: 0312 454 1100 E-mail: tr.procurement@undp.org</p> <p>Responses to queries of the pre-bid conference will be disseminated as per Item 13 of Bid Data Sheet.</p> <p>Failure of a Bidder to participate in the Pre-bid Conference shall not lead to any additional payment to the Bidder in case awarded by the Contract.</p>
5	16	Bid Validity Period	<p>90 days after Deadline of Submission of Bids.</p> <p><i>A Bid valid for a shorter period may be rejected by UNDP.</i></p>

6	12	Bid Security	<p>Required in the amount of 2.800 USD for each LOT applied.</p> <p>Acceptable Forms of Bid Security</p> <ul style="list-style-type: none"> ▪ Bank Guarantee (See Form G of Section 6 for Form of Bid Security template) • The Bid Security shall be valid for a minimum of thirty (30) days after the final date of validity of the Bid. • The Bid Security shall be included along with the Bid. If the Bid Security is not found in the Bid, the offer shall be rejected by UNDP. • Bid securities shall be returned to Bidders as soon as the contract is signed with the successful Bidder.
7	42	Advanced Payment upon signing of contract	Not Allowed
8	43	Liquidated Damages	<p>Will be imposed as follows:</p> <p><input type="checkbox"/> In case of the Contractor's failure to prepare the whole PV plant for commissioning within the framework described in Item 25 of Bid Data Sheet, 1% (one percent) of the total contract amount per week of delay shall be paid by the Contractor to UNDP, as liquidated damages. The maximum number of weeks of delays would be 3, after which UNDP may terminate the contract.</p> <p><input type="checkbox"/> The Contractor will also ensure presence of its Engineers (Electrical and Electronics Engineer/Electrical Engineer/Electronics Engineer/ Mechanical Engineer or equivalent having a work experience of at least 2 years in the field of PV installations) on site at all times (for each LOT separately), in line with conditions of the contract. UNDP shall deduct US\$200 per day for any absence of the Contractor's key personnel on the site.</p> <p>In case of the Contractor's failure to perform services as per Technical Specifications in Section 5.a and Section 5.b or non-performance or delay in completing the submission of deliverables listed in payment table in Section 5.b, UNDP shall notify the Contractor in writing within at most one week following the detection of such failure.</p> <p>The contractor shall provide its reasons/justifications for the situation within at most one week following receipt of UNDP's above notification. If the Contractor's reasons/justifications are not deemed acceptable in the context</p>

			<p>of the Contract and in view of the nature of the Services, UNDP shall impose "liquidated damages" as per this article of the ITB.</p> <p>Once a deduction of 10% (ten percent) of the total contract amount has been reached, as a result of the issues listed above, UNDP may consider termination of the contract.</p>
9	41	Performance Security	<p><i>Required in the amount of 10% of the contract amount in the form of Bank Guarantee for each LOT, from the successful bidder before the contract signature.</i></p> <p><i>Final acceptance will be made within 21 days of the expiration of the Defects Liability Period when the "Engineer" issues a Certificate of Final Completion to the Contractor. Then, performance security will only be released upon final acceptance, that is planned 12 months after the provisional acceptance (after then the defects liability period, which is 12 months, is initiated).</i></p>
10	13	Currency of Bid	United States Dollar
11	18	Deadline for submitting requests for clarifications/questions	3 days before the submission deadline.
12	18	Contact Details for submitting clarifications/questions	<p>Focal Person in UNDP: Meral Mungan Arda</p> <p>Address: Yıldız Kule, 16th Floor, Yukarı Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara/Turkey</p> <p>E-mail address: tr.procurement@undp.org</p>
13	18, 19 and 21	Manner of Disseminating Supplemental Information to the ITB and responses/clarifications to queries	<p>Direct communication to prospective Bidders who communicate their intention to submit a Bid by e-mail and Posting on the websites listed below:</p> <ol style="list-style-type: none"> 1- www.undp.org 2- www.ungm.org 3- www.devbusiness.com 4- www.tr.undp.org
14	23	Deadline for Submission	10.06.2019, by 17:30 hrs Turkey time
14	22	Allowable Manner of Submitting Bids	<input checked="" type="checkbox"/> Courier/Hand Delivery
15	22	Bid Submission Address	<u>United Nations Development Programme (UNDP)</u>

			Yıldız Kule 16 th Floor, Yukarı Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara/Turkey <u>REF: UNDP-TUR- ITB(ORKOY)-2019/01</u>
16	22	Electronic submission (email or eTendering) requirements	Not Applicable
17	25	Date, time and venue for the public opening of bid	Will be Conducted Date: 11.06.2019 Time: 10:30 hrs by Turkey time Venue: <u>United Nations Development Programme (UNDP)</u> Yıldız Kule, 16 th Floor, Yukarı Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara/Turkey Responsible Person: Meral Mungan Arda <u>NOTE: Only the bidders who submitted bids can attend the bid opening session.</u>
18	27,35 36	Evaluation Method for the Award of Contract	Evaluation shall be made on LOT basis, i.e. lowest priced technically responsive, eligible and qualified bid to be identified for each LOT as per Schedule of Requirements and Technical Specifications/Technical Requirements shall be required for contract award for the respective LOT.
19		Expected date for commencement of Contract	<i>01 July, 2019</i> <i>The signature and commencement of the contract for each lot is contingent upon the submission of performance security by the successful Bidder.</i>
20		Maximum expected duration of contract:	Duration of contract shall be between the signature date and 1 March 2020, in view of the current duration of the project. In any case, the works in each LOT shall be completed within at most 4 months following contract signature and upon provisional acceptance of the works, 12 months defects liability period will start. After official extension of the project, the contract shall be amended to cover the whole defects liability period. Please kindly refer to Bid Data Sheet Item 25. Please also refer to Item 9 of Bid Data Sheet for details.
21	35	UNDP will award the contract to:	One Bidder for Each Lot.

22	39-40	Type of Contract to be signed	Contract for Civil Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html									
23	40	UNDP Contract Terms and Conditions that will apply	UNDP General Terms and Conditions for Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html (Please see Article 9. of Terms of Contract Section on above link)									
24		Tax Exemption	<i>UN and its subsidiary organs are exempt from all taxes. Therefore, Bidders shall prepare their Financial Proposals, excluding VAT.</i> <i>It is the Bidder's responsibility to learn from relevant authorities (Ministry of Finance) and/or to review/confirm published procedures and to consult with a certified financial consultant as needed, to confirm the scope and procedures of VAT exemption application as per VAT Law and Ministry of Finance's Communiqués.</i> <i>The Contractor to be selected for each LOT cannot be entitled to receive any amount over its Bid price in relation to VAT. Overall contract amount to be paid to the Contractor shall not exceed the offered total price.</i> <i>Companies that were involved in the preparation of the feasibility plan/design/design drawings of this work cannot submit Bids to this Tender. In case such a company submits Bid for this ITB, the technical and financial Bids will be rejected and be returned to the Bidder through Bidder.</i>									
25	44	Payment condition	Payment Table 1. Payment for Power Plant (Turn-key) <table><tr><th>Delivery Term</th><th>Delivery Date</th><th>Payment Percentage (to be calculated over total contract amount for each lot)</th></tr><tr><td>Provisional Acceptance by UNDP upon Installation and Commissioning* of Plant</td><td>6 weeks after the contract signature</td><td>80% of the contract amount</td></tr><tr><td>Successful Completion of the Training as per the</td><td>8 weeks after the contract signature</td><td>10% of the contract amount</td></tr></table>	Delivery Term	Delivery Date	Payment Percentage (to be calculated over total contract amount for each lot)	Provisional Acceptance by UNDP upon Installation and Commissioning* of Plant	6 weeks after the contract signature	80% of the contract amount	Successful Completion of the Training as per the	8 weeks after the contract signature	10% of the contract amount
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			<table><tr><td>requirements of this ITB</td><td></td><td></td></tr><tr><td>Positive Report on Successful Connection of the Solar PV System** to national grid on a provisional basis</td><td>16 weeks after the contract signature (After Commissioning of the Plant is cleared by Relevant Authorities, i.e. Local Electricity Distribution Company)</td><td>10% of the contract amount</td></tr></table> <p><i>*Testing will be done before commissioning. Electricity production and transfer to grid will also be checked at this point.</i></p> <p><i>**Positive Report on Successful Connection of the Solar PV System to national grid covers the commissioning of the PV System and the provisional acceptances of the local electric distribution company and TEDAS.</i></p> <p><i>As per 47.5 of the General Conditions of Contract to Civil Works, the “defects liability period” shall be initiated after the provisional acceptance by Local Electricity Distribution Company when all delivery terms are successfully completed.</i></p> <p>In case of a problem identification during Commissioning, UNDP shall not perform provisional acceptance of the systems. Consequently, the payments linked to provisional acceptance in above tables shall not be made by UNDP to the Contractor(s) until such problem(s) are remedied and the systems are made ready for provisional acceptance by the Contractor with no additional cost to UNDP.</p> <p><i>In case a local vendor established and operating in Turkey gets awarded by the contract for any LOT, the payment shall be effected in TL through conversion of the US\$ amount by the official UN exchange rate, valid on the date of money transfer. Otherwise, the payment shall be effected in US\$.</i></p>	requirements of this ITB			Positive Report on Successful Connection of the Solar PV System** to national grid on a provisional basis	16 weeks after the contract signature (After Commissioning of the Plant is cleared by Relevant Authorities, i.e. Local Electricity Distribution Company)	10% of the contract amount
requirements of this ITB									
Positive Report on Successful Connection of the Solar PV System** to national grid on a provisional basis	16 weeks after the contract signature (After Commissioning of the Plant is cleared by Relevant Authorities, i.e. Local Electricity Distribution Company)	10% of the contract amount							
26	No. of copies of Bid that must be submitted	<p><i>Original: 1 (One)</i> <i>Hard Copies: 1 (One)</i> CD or Electronic Copies: 1 (One) (copy of bid documents)</p> <p>In case of a discrepancy between the electronic and hard copy of a Bid, the hard copy shall govern.</p>							

27		Eligibility	<p>The following parties ARE NOT ELIGIBLE to participate in this tender:</p> <p>1. The companies/persons who have been involved/participated in the feasibility plan/design/design drawings and/or development of Technical Requirements for this ITB,</p> <p>2. JVs/Consortiums/Associations.</p>
28		Site Visit	<p>Prospective bidders may visit sites, at their own cost, at any time before submitting their bids in case they deem site visit useful for the purpose of preparing their bids.</p> <p>UNDP shall not be responsible for the Bidders' inability to perform a site visit in any case and hence the successful bidders shall not be eligible to any payment due to their failure to perform a site visit during contract performance.</p>
29		Other Information	<p>1. Pre-requisites for Contract Signature: <i>The Contract will only be signed when the Contractor provides the performance security.</i></p> <p>2. Exclusivity of Resources: <i>Exclusive set of resources in terms of materials, equipment, machinery, human resources, etc. will be required in case a Contractor is contracted for more than one Lot.</i></p> <p>3. Approved Designs: <i>The TEDAŞ approved designs are open for revisions for "equal/equivalent" items. In such a case, all generated costs and time losses are the sole responsibility of the contractor.</i></p>

SECTION 4: EVALUATION CRITERIA

Preliminary Examination Criteria

Bids will be examined to determine whether they are complete and submitted in accordance with ITB requirements as per below criteria on a Yes/No basis:

- Appropriate signatures
- Power of Attorney
- Minimum Bid documents provided (signed and stamped Technical Requirements/Statement of Works, Price Schedule and Other Documents required in the ITB)
- Bid Validity (120 Days after Deadline of Submission of Bids)
- Bid Security submitted as per ITB requirements with compliant validity period (30 days after the final date of validity of the Bid.)

Minimum Eligibility and Qualification Criteria

Eligibility and Qualification will be evaluated on a Pass/Fail basis.

If the Bid is submitted as a Joint Venture/Consortium/Association, each member should meet the minimum criteria, unless otherwise specified.

Subject	Criteria	Document Submission requirement
ELIGIBILITY		
Legal Status	Be established as a single legal entity and have at least 3 years of experience; i.e. Vendor is a legally registered entity.	Form B: Bidder Information Form
Eligibility	Vendor is not suspended, nor debarred, nor otherwise identified as ineligible by any UN Organization or the World Bank Group or any other International Organization and Turkish Government in accordance with ITB clause 3 (<i>Bid Data Sheet</i>).	Form A: Bid Submission Form
Conflict of Interest	No conflicts of interest in accordance with ITB clause 4 (<i>Evaluation Criteria</i>).	Form A: Bid Submission Form
Bankruptcy	Has not declared bankruptcy, is not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against the vendor that could impair its operations in the foreseeable future.	Form A: Bid Submission Form
Certificates and Licenses	<ul style="list-style-type: none">▪ Duly authorized to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer▪ Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country	Form B: Bidder Information Form

	<ul style="list-style-type: none"> ▪ Patent Registration Certificates, if any of technologies submitted in the Bid is patented by the Bidder ▪ Export/Import Licenses, if applicable 	
QUALIFICATION		
History of Non-Performing Contracts¹	Non-performance of a contract did not occur as a result of contractor default for the last 3 years.	Form D: Eligibility and Qualification Form
Litigation History	No consistent history of court/arbitral award decisions against the Bidder for the last 3 years.	Form D: Eligibility and Qualification Form
Previous Experience	<p>Minimum 2 original letters or their notarized versions, indicating ‘Satisfactory Performance/Provisional or Final Acceptance issued by Electricity Company/Work Completion Letter’ of the Bidder (<i>the Letters shall indicate the initiation and end date for the previous experience, its budget information, installed power, location of the plant explicitly</i>), for the similar previous works on Installation and Commissioning of at least 100 kWp on-grid land installed PV plant performed during the last 5 years (2014, 2015, 2016, 2017 and 2018).</p> <p>Bidder shall submit 2 different “Satisfactory Performance/Provisional or Final Acceptance issued by Electricity Company/Work Completion Letter” letters for each LOT applied.</p>	Form D: Eligibility and Qualification Form
Financial Standing	Average Annual turnover in the last 3 financial years (2016, 2017 and 2018) (illustrated through income statements certified by sworn accountant) is equal or higher than the bid amount (overall bid amount submitted for the Lot or the combination of Lots applied for).	Form D: Eligibility and Qualification Form
	Bidder must demonstrate the current soundness of its financial standing and indicate its prospective long-term profitability.	Form D: Eligibility and Qualification Form
Technical Evaluation	The technical bids shall be evaluated on a pass/fail basis for compliance or non-compliance with the technical specifications/technical requirements identified in the bid document.	Form E: Format of Technical Bid
	Detailed analysis of the price schedule based on requirements listed in Section 5 and quoted for by the bidders in Form F.	Form F: Price Schedule Form

¹ Non-performance, as decided by UNDP, shall include all contracts where (a) non-performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non-performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non-performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

	Bidder's proposed delivery schedule is not later than the required delivery date.	
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SECTION 5A: SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS/TECHNICAL REQUIREMENTS/BILL OF QUANTITIES

Bill of Quantities for the Supply, Installation and Commissioning of Solar Photovoltaic Plant and the required trainings are provided below, for each Lot. The details for the items to be supplied are elaborated in this section.

#	Items to be supplied Description/Specifications for AFYON PV Plant (LOT1)
A.1	Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67.
A.2	Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.
A.3	Assembly Workmanship of Panel and Supporting Structure
A.4	Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)
A.5	Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with residual current monitoring unit" sensitive to all poles.
A.6	Installation Workmanship of Inverters
B.1	Cabling
B.1.1	DC Cabling
B.1.1.1	Solar Cable 6 mm ² (Red)
B.1.1.2	Solar Cable 6 mm ² (Black)
B.1.1.3	Related Connector for DC Cabling
B.1.2	AC cabling
B.1.2.1	AC Cable 5X10 mm ² NYY
B.1.2.2	AC Cable 4X1X95mm ² NYY

B.1.2.3	Power Transmission Line (3 AWG SWALLOW) including its poles in line with TEDAŞ approved drawings
B.1.2.4	MV Cable 3X1X95/16 N2XSY
B.2	Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according to TEDAŞ technical specifications
B.3	PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications and design drawings)
B.4	Main Electrical Panel
B.5.1	Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, cable and cable caps, etc.) according to TEDAŞ technical specifications and approved drawings. DM-2 Type 2 2H/A 4.30m)
B.5.2	Pole Type 160 kVA transformer, including its pole and accessories, according to TEDAŞ technical specifications and approved drawings.
B.6	PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site
B.7	CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card
B.8	Lightening Protection System in accordance with TS EN 62305
B.9	Remote monitoring and data recording system including SCADA and Smart Logger and related cabling
B.10	Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)
C.1	Safety Fence (250m) and Access door (1 set)
C.2	Installation of Safety Fence and Access Door
C.3	Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)
	2-year Comprehensive Machinery Insurance (CMI) after provisional acceptance, in addition to insurance types requested as per General Conditions of Contract for Civil Works

#	Items to be supplied Description/Specifications for KONYA PV Plant (LOT2)
A.1	Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67.

A.2	Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.
A.3	Assembly Workmanship of Panel and Supporting Structure
A.4	Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)
A.5	Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with residual current monitoring unit” sensitive to all poles.
A.6	Installation Workmanship of Inverters
B.1	Cabling
B.1.1	DC Cabling
B.1.1.1	Solar Cable 6 mm ² (Red)
B.1.1.2	Solar Cable 6 mm ² (Black)
B.1.1.3	Related Connector for DC Cabling
B.1.2	AC cabling
B.1.2.1	AC Cable 5X10 mm ² NYY
B.1.2.2	AC Cable 4X1X95mm ² NYY
B.1.2.3	Under Ground Cable (3X1X50/16 XLPE)
B.1.2.4	MV Cable 3X1X50/16 mm ² N2XSY
B.2	Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according to TEDAŞ technical specifications
B.3	PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications and design drawings)
B.4	Main Electrical Panel
B.5	Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, 160 kVA transformer) according to TEDAŞ technical specifications and approved drawings. Type 1B 6.40m)
B.6	PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site
B.7	CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card

B.8	Lightening Protection System in accordance with TS EN 62305
B.9	Remote monitoring and data recording system including SCADA and Smart Logger and related cabling
B.10	Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)
C.1	Safety Fence (300m) and Access door (1 set)
C.2	Installation of Safety Fence and Access Door
C.3	Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)
	2-year Comprehensive Machinery Insurance (CMI) after provisional acceptance, in addition to insurance types requested as per General Conditions of Contract for Civil Works

1. INTRODUCTION

These technical specifications apply to supply, installation and commissioning of 100 kWp on-grid, land installed photovoltaic (PV) plants to be installed in two forest villages to be specified by the Contracting Authority in Afyon, and Konya after conclusion of the Contract with the successful bidder. PVs will be installed in 0.2-0.3 ha area as per the technical specifications.

These technical specifications cover the connection authorization in accordance with the Electricity Market Law and applicable legislation to be issued by the relevant power distribution company (EDAS) for 118.8 kWp DC and 100 kWe AC PV Plant to be installed for an on behalf of the Renewable Energy Cooperatives operating in the above mentioned Forest Villages under the UNDP/GEF Project “Sustainable Energy Financing Mechanism for PV Systems in Forest Villages in Turkey” jointly implemented by the General Directorate of Forestry (GDF) and United Nations Development Programme (UNDP) in line with the Regulation on Unlicensed Electricity Generation in the Electricity Market published in the Official Gazette no. 28783 of 02.10.2013; technical specifications for 160 kVA transformers and cells, data loggers, remote monitoring systems, project area security systems, camera alarm systems (CCTV), field lighting, lightning arrester in line with the applicable regulations and standards as well as conditions for supply, installation, grid synchronization, commissioning, operation, of these equipment, technical support services after installation and other relevant requirements. These technical specifications cover not only installation of PV panels and associated systems but also all additional accessories and equipment required for these systems.

Roles and Responsibilities:

The Contract(s) that will be awarded as a result of this ITB will be made between the successful Bidder (as the Contractor) and UNDP Turkey Office (as the Contracting Authority). Ministry of Forestry and Water Affairs, Directorate General of Forestry is the Implementing Partner of this project.

The pilot Solar PVs will be established in forest villages where there is a Renewable Energy Cooperative (REC). Hence, the ultimate Beneficiary is the RECs that is planned to hold the ownership after the provisional acceptance of the Solar PVs takes place.

Work Flow:

The area where the PV plant is to be installed is officially cleared by relevant local authorities for suitability of proposed installation and rented by the owner of the area to the REC. The REC had applied to the local electricity distribution company and they issued the letter of invitation to grid connection agreement upon approval of the project documentation by that distribution company. The REC also had applied to TEDAŞ and necessary design approvals were completed for the installation of PV Plants. The TEDAŞ approved designs are open for revisions for “equal” items. In such a case, all generated costs and time losses are the sole responsibility of the contractor.

Implementing Partner had notified UNDP about the site clearances and approval by the local electricity distribution company. After the evaluation of bids, the successful bidder shall submit the Performance Security (Item 41 of Bid Data Sheet), the contract(s) are to be awarded by UNDP.

The Contractor will initiate and complete the stated works stipulated in this ITB. After all deliverables listed in Bid Data Sheet Item 25 are completed including the training of persons to be designated by UNDP in cooperation with DG for Forestry and the corresponding REC, provisional acceptance of Solar PVs will be made by UNDP. At this stage, the payment will be made to the Contractor as per Payment Conditions Item 9 of Bid Data Sheet and UNDP will transfer assets and ownership to the Implementing Partner. The Implementing Partner may keep the ownership of the Solar Panels or decide to transfer the assets and ownership to the Renewable Energy Cooperatives (REC).

Contractor is expected to complete stated works within as per Bid Data Sheet Item 25. The performance security will only be released as per Bid Data Sheet Item 9.

1.1. DEFINITIONS

Contracting Authority : United Nations Development Programme (UNDP)

Plant : PV Plants in the Forest Vilages described under 1.1 above

Contractor : The real or legal person who signed the contract and undertook performance of the work hereunder for each LOT.

1.2. SYMBOLS AND ABBREVIATIONS

Symbol Description

m² : square meter

kW_p : Kilowatt peak

kVA : Kilovolt amper

W : Watt

W_p : Watt peak (maximum peak power)

°C : Degrees Celcius

% : Percent

V : Volt

A : Amper

N : Newton

mm ²	: squared millimeter
km	: Kilometer
m	: Meter
cm	: Centimeter
Hz	: Hertz
KWe	: kilo Watt equivalent
Pa	: Pascal
AM	: Amplitude Modulation
kV	: kilo Volt
kA	: kilo Ampere

<u>Abbreviation</u>	<u>Description</u>
CCTV	: Closed Circuit Television
PV	: Photovoltaic
LV	: Low Voltage
MV	: Medium Voltage
HV	: High Voltage
TMS	: Thermal Magnetic Switch
IEEE	: Institute of Electrical and Electronic Engineers
TTGV	: Technology Development Foundation of Turkey
PJIO	: AC Panel for Joining Inverter Outputs
CCB	: Compact Circuit Breaker
MoENR	: Ministry of Energy and Natural Resources
TEDAŞ	: Turkish Electricity Distribution Company
EPDK	: Energy market Regulatory Authority
TMMOB	: Union of Chambers of Turkish Engineers and Architects
DC	: Direct Current
AC	: Alternative Current
TSE	: Turkish Standards Institute

2. APPLICABLE LEGISLATION

The contents of the bid and associated designs will be produced in accordance with the following legislation.

2.1 Electricity Market Law no. 6446,

2.2. Regulation on Unlicensed Electricity Generation in Electricity Market,

2.3 Applicable standards: ISO/CENELEC/IEC and other international standards relating to equipment, connection systems to be used in and performance criteria for the power generation plants,

2.4 Other applicable technical legislation: The latest versions of all applicable regulations and communiqués adopted by the MoENR laying down all requirements and standards for safe and stable operation of electricity generation, transmission and distribution plants including the Consumer Protection Law - No: 6502, Regulation on Indoors Electrical Installations OG no. 25494 of 16.06.2004; Regulation on Grounding of Electrical Installations OG no. 24500 of 21.08.2001; Regulation on High Voltage Electrical Installations OG no. 24246 of 30.11.2000; Regulation on Design of Electrical Installations OG no. 27434 of 16.12.2009 and Communiqué implementing the Regulation on Unlicensed Electricity Generation in Electricity Market OG no. 28783 of 02.10.2013,

2.5 The contents of the bid and design will comply with all regulations as well as with any future amendments thereto and new regulations to be adopted in the future not mentioned herein but applicable to the work hereunder. All additional costs that may arise out of amendments to applicable legislation will be borne by the Contractor.

3. GENERAL REQUIREMENTS

3.1 The Contractor shall install an on-grid PV plant at the specified location and using PV panels meeting the specified requirements, and the DC power generated by the PV panels shall be converted into AC by the inverters and connected to the LV main distribution bar of the Plant without storage. This AC power shall be stepped up to the medium voltage level via the transformer with characteristics specified herein and transmitted to the electric power distribution grid.

3.2 The duration of work is indicated in Item 20 of the Bid Data Sheet.

3.3. The Contractor shall have service qualification certificates for the systems to be installed (sales, service or installation authorization certificates issued by the manufacturers or wholesalers of PV panels and inverters offered).

3.4 The Contractor shall submit a detailed workplan within 10 (ten) days following approval of the work plan by the Contracting Authority after contract signature. The workplan shall include the brands and models as well as data sheets of all equipment and materials to be used within the system, in alignment with its Bid and submit the Contracting Authority's approval. No materials or equipment which are not approved by the Contracting Authority shall be used in the system.

3.5 The Contractor shall install grid connection of the PV plant in accordance with the "Regulation on Unlicensed Electricity Generation in Electricity Market", "Principles and Procedures for Grid Connection" adopted under that Regulation as well as all other applicable regulations, decrees and practical guidelines. The Contractor shall fully comply with the decisions, connection agreements and working procedures of governmental authorities

(TEDAŞ, etc.) in all works and actions. The Contractor shall install and complete the PV plant fully in accordance with the project approved by TEDAS.

3.6 All the criteria to be required by TEDAŞ (e.g. compliance with distribution company's SCADA, autoproducer criteria, protection, control, grounding, etc.) shall be met by the Contractor at the point of connection of the PV plant to the grid. The PV plant to be installed must comply with the system design and installation standards of IEEE for on-grid PV plants.

3.7 The PV panels, inverters, PV panel stands (supporting structures for PV modules), data recording and displaying devices and other systems and equipment to be used in the plant shall be in compliance with at least one of IEC, VDE, EN, DIN standards.

3.8 The power measurement and remote monitoring of each panel group shall be performed individually, and generation records shall be kept.

3.9 The technical documentation listed below shall be submitted to the Contracting Authority within 10 days following approval by the Contracting Authority of detailed workplan describing the periods for planning, manufacturing, delivery, installation and commissioning, and the Contracting Authority may require other documentation during performance of the work. In case the Contracting Authority requires modifications in the designs to be submitted by the Contractor, the Contractor will be obliged to submit the revised documentation to the Contracting Authority within latest 5 (five) days at no additional cost to the Contracting Authority;

Technical catalogues pertaining to the equipment to be used in the system,

- Guarantee/warranty and standard certificates (as per Article 3.14 of Section 5.a.) for the equipment to be used in the system,

Certificates of authorization for sales, service or installation of PV panels and inverters to be used in the system issued by their manufacturers or distributors,

- Detailed scheme and descriptions of remote monitoring, measurement and data storage systems,
- Detailed scheme and descriptions of field security system,
- Detailed design of field lighting system.

3.10 The technical specifications for the PV panels and other equipment should be available on the original prospectuses, flyers and website of the manufacturer for double checking and confirmation. The equipment shall be suitable for uninterrupted operation for 24 hours a day and 365 days a year.

3.11 The Contractor shall perform the grid connection in accordance with the Regulation on Unlicensed Electricity Generation in Electricity Market and the Procedures and Principles for Grid Connection published thereunder.

3.12 The Contractor shall assign the following staff during installation of the PV plant:

Electrical and Electronics Engineer/Electrical Engineer/Electronics Engineer/ Mechanical Engineer or equivalent having a work experience of at least 2 years in the field of PV installations.

3.13 The Contractor shall install a Data Recording and Remote Monitoring System to measure and monitor the input and output parameters of the PV plant as well as the parameters affecting the operation of the PV Plant, record and display these data, and instantly inform the operator of any failures with the PV Plant.

3.14 All items and power cables to be used in the installation shall be in compliance with TSE, IEC standards and ISO 9000. In case of items for which there is no TSE standard, TSEK certificate shall be required. The priority of standards for any issues not mentioned herein shall be as TSE, IEC and ISO.

3.15 A two-year guarantee shall be provided for the goods in PV plant as a whole system including all equipment in the system following acceptance by TEDAŞ, and the plant shall be taken over in operating condition. The Defects Liability Period will be 12 months as per Article 47 of General Conditions of Contract for Civil Works.

3.16 The Contractor shall be directly responsible for achieving of grid connection and achievement of 80% ($\pm 2\%$) of electricity generation, and in case of non-achievement of the required amount of electricity generation, the Contractor shall provide necessary corrections / improvements within a maximum of 30 days, at no cost during the guarantee period.

3.17 PV plants may be transferred to local government or non-government institutions after the completion of work. The Contractor shall provide training for the staff of UNDP or the staff of the parties that the system will be transferred to on operation and maintenance of the PV plant before Provisional Acceptance.

3.18 The Contractor shall deliver the manual required for smooth operation of the PV plant upon completion of the installation work.

3.19 Any and all primary and auxiliary equipment as well as works not mentioned in these technical specifications and annexes thereto but required for the technique of the work and functional operation of the system and to ensure a sound and problem free operation shall be considered for the benefit of the Contracting Authority and performed within the scope of work at no additional cost to the Contracting Authority.

3.20 The project information sign-board, the wired fences for the area to control penetration, warning signs, “danger of death” plates and operating instructions to be provided on the panels, metallic constructions and main components shall be properly prepared and installed by the Contractor.

3.21 The Contractor is responsible for issuing an insurance for all liabilities for damage to life including electricity shocks (for any unauthorized penetration, fires that would be caused by the plant, etc.), lives and occupational health of its staff (including social security) and for the amount of electricity that should be secured in line with General Conditions of Contract for Civil Works Item 21, 22 and 23.

3.22 The Contractor shall be responsible for the tests, inspections and acceptance procedures to be carried out by the Acceptance Committee (provisional acceptance by the Contracting Authority will be done after the

system is installed, operates and approved by the local electricity distribution company) to connect the PV plant to the grid and start energy exchange. Electrical and Electronics Engineer/Electrical Engineer/Electronics Engineer/ Mechanical Engineer or equivalent representing the Contractor and “Engineer” representing the Contracting Authority will attend these procedures pursuant to the Regulation on Acceptance of Electrical Installations. The provisional acceptance of transformers and cells shall be carried out by the Contracting Authority under the responsibility of the Contractor. Any deficiencies and/or wrong practices to be identified at the time of provisional or final acceptance shall be eliminated by the Contractor fully in accordance with the project at no cost to the Contracting Authority, within maximum 30 days.

3.23 The invoice to be prepared by the Contractor will be processed following the preparation of the provisional acceptance which shall be approved by UNDP as per Article 44 of Bid Data Sheet.

3.24 The final acceptance will be done after the end of defects liability period, in other words 12 months after the provisional acceptance, if technical requirements of this ITB are satisfactorily completed by the Contractor.

3.25 All material wastes and residuals shall be regularly cleaned from the site during installation work, and the Contractor shall provide associated staff for this purpose.

3.26 The Contractor is obliged to take necessary measures for the safety of the employees at the site and ensure that all staff have social security and insurance for occupational health, as per local regulations. The Contractor shall be responsible for any accidents that might occur. All descriptive and occupational safety related plates shall be provided at necessary locations in a visible manner. The Contractor shall take all cleaning, fire safety and occupational safety measures at the site during transport, installation, welding and cutting works. The apparatus like scaffolds, ladders and handrails shall be made available where required for safe operation the equipment.

3.27 All components to be used in the system shall be brand new and state-of-the-art models. The design, materials and workmanship shall not be below the quality and standards established by advanced engineering and manufacturing practices.

3.28 The equipment and materials shall be carefully carried, properly stored and protected to avoid damages before and during installation in line with the manufacturer’s recommendations and approval of the Contracting Authority (the Contractor shall be responsible for any and all damages during transport, storage and before and after installation up to Provisional Acceptance by the Contracting Authority). Damaged or defective parts and components shall be replaced by new ones. The Contractor shall be responsible for leaving the site suitable for operating condition upon completion of construction works.

3.29 The Contractor shall be responsible for any and all damages which may occur to the plant and environment during installation and the Contractor is obliged to indemnify any sort of damage which may occur.

3.30 The contractor shall be responsible for providing all utilities including electricity, water, gas, fuel, etc and consumables that may be required during installation of the PV Plant at its own cost.

4. TECHNICAL REQUIREMENTS

4.1. GENERAL TECHNICAL REQUIREMENTS

4.1.1. The system will be composed of PV Panels, Inverter Units, Supporting Structure for Panels, Cables and Cabling (Inside the Pv Panel, Protection, Switching Materials, Relays, Panels and Meters), Connection to Grid, Grounding, Datalogging And Remote Monitoring System, Project Site Safety and Security, PV plant preliminary design drawings are provided as an annex to this ITB.

4.1.2. The technical details shall be in compliance with this section and with BoQ details.

4.1.3. The PV plant shall be designed such that all the PV panels in the system will generate minimum 100 kWp power under the radiation of 1000 W/m², air mass (AM) of 1.5, cell temperature of 25°C at standard testing conditions.

4.1.4. The PV panels shall be installed at the project site to generate maximum power.

4.1.5. The PV panels to be used in the installation shall be at least 270 W each.

4.1.6. The electric power to be generated by the on-grid PV plant shall be fed to the power distribution grid as per the approved technical project (Çağrı Dosyası) by TEDAŞ and local electrical distribution company. The energy exchange between the electricity grid and the PV plant shall be recorded by the double-way power meter to be installed in the system.

4.1.7. The on-grid PV plant shall be integrated into the power grid at a connection point suitable for the PV plant via the special transformer and Medium Voltage Wiring equipment (kiosk, metal claded cells) to be installed by the Contractor. Connection shall be made at the point in line with the comment on connection. The system shall operate on-grid, and both the grid and PV plant shall be on-line at a time.

4.1.8. The existing grid supply is 3-phase, 50 Hz and 380V±%10 (or 400 V±%10) inter-phase.

4.1.9. The PV panels shall be of the same type and model in themselves respectively for the compatibility the period between the date of manufacture of the PV panels and the date of installation of the PV plant shall be not longer than 12 months.

4.1.10. Installed PV panels and inverters shall be certified that they have been installed at any region of the world and they are still operating in a PV installation of at least 1 MW (without being used together).

4.1.11. All equipment to be used in the system shall be brand new and unused and affixed with the brand, model, date of manufacture.

4.1.12. The equipment shall be suitable for continuous operation for 24 hours a day and 365 days a year.

4.2. PV PANELS

4.2.1. The total system capacity of the PV plant shall be minimum 100 kW_e (for a radiation of 1000 W/m²) under standard operating conditions.

4.2.2. All PV panels to be used in the PV plant shall be of the same type and rated power. Panels of different type and power shall not be used in the same system.

4.2.3. The PV panels shall be in the number, power and structure as specified in the Project. The efficiency of the PV panels shall be the same as specified in the Project (at least 95%).

4.2.4. The PV panel shall be equipped with by-pass diodes to avoid power drops as a result of shadowing. The panels shall be protected by cutting the current when power generation is not done.

4.2.5. The system voltage of the panels shall be 1000 V, and the maximum short reverse current protection should be at least 15 A.

4.2.6. The frames of PV panels shall be pressed and punched. The drain holes and assembly holes must be provided on the frame. Bolt-mounted frames on the PV panels are not acceptable. The frame of the PV panels shall be made of corrosion resistant material and it must be stainless (anodized aluminum is preferable). The frame shall be designed so that assembly can be performed without any drilling.

4.2.7. The glass/plastic material covering the PV panels shall not reflect the sunlight. The glass shall be tempered glass in accordance with EN 12150 and transparent by at least 92%. The thickness of the glass shall be at least 3,2 mm. The strength of the glass shall be at least 90 N/mm² when calculated in accordance with EN 12150.

4.2.8. The PV panels shall be under guarantee for 2 years, which means that any failures or malfunctions shall be repaired by the Contractor at no additional cost and under a warranty for at least 10 years where the Contractor shall continue to provide spare parts and technical support/workmanship at a cost. The Contractor shall provide the statement of the panel manufacturer indicating the guarantee/warranty period, which is notary public approved for local manufacturers or consulate approval for international manufacturers.

4.2.9. Apart from all insurances detailed in General Conditions of Contract for Civil Works, the linear energy shall be guaranteed for at least 25 years through Comprehensive Machinery Insurance (CMI). The Contractor is responsible for issuing this insurance throughout the contract duration and for 2 years after handing over the PV Plant. Then, the local government or non-government institution to whom the plant is transferred will be responsible for issuing this insurance. The linear energy guarantee shall ensure at least 90% of the original panel power after 10 years and at least 80% of the original panel power after 25 years.

4.2.10. The instant power output tolerance of the PV panels shall be within the interval of 0/+5 W.

4.2.11. The PV panels and connectors shall be resistant to a wind velocity of 130 km/h.

4.2.12. The protection class of the connection boxes of the PV panels shall be IP 67.

4.2.13. The physical strength of the PV panels shall be guaranteed for at least 2 years. This guarantee shall be certified by both Bidder and manufacturer of the PV panels. The warranty shall be valid for 10 years.

4.2.14. The PV panels should bear the certificate of compliance with IEC 61215, IEC 61730-1 and IEC 61730-2.

4.2.15. The back side of the PV panels shall be suitable for installation at the field and resistant to hard climatic conditions. The rear materials/film shall comply with IEC 61730.

4.2.16. The PV panels shall withstand a wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215).

4.2.17. The direct current output cables of the PV panels and the (+) and (-) poles of the connectors shall be distinguishable.

4.2.18. The cells used in the PV panels shall be of first quality Ethylene Vinyl Acetate (EVA) with both sides laminated.

4.2.19. The PV panels shall operate problem free under the following conditions:

- Temperature range of -40°C / +80 °C,
- Elevation range of 0 - 1300 m,
- Relative humidity range of 0% - 85%.

These shall be guaranteed by the manufacturer in writing through brochures, test reports, etc.

The Contractor shall submit the following information on the PV modules offered to the Contracting Authority (Standard testing conditions: radiation of 1000 W/m², module temperature of 25⁰C and spectrum of AM=1,5).

- The document containing the brand and model of the panel and all technical and physical characteristics of the product,
- Product certificate (test report),
- Guarantee and warranty certificates for the modules offered to be issued by the manufacturer.

4.2.20. Each PV panel shall be affixed with a product plate on which at least the following information is provided. In order to maintain visibility rules of UNDP, the company shall first receive approvals from UNDP with regards to the visibility materials to be placed at the site.

- Manufacturer's name
- PV Cell Type
- Serial No
- Nominal Power Pmax, Voc, Isc
- Date of Manufacture
- Country of Origin

4.2.21. The Contractor shall provide the Contracting Authority with the catalogue of the panels offered, a certificate of authority issued by the main manufacturer or its distributor in Turkey for sales, installation and services and certificate of guarantee/warranty of the panels.

4.3. INVERTER UNITS

4.3.1. The DC power generated by the PV panels shall be converted into AC power by the grid integrated inverters and directly connected to the Plant transformer.

4.3.2. The Contractor is responsible for placing the inverters at the installation site in accordance with the project that is approved by TEDAŞ and local electricity distribution company.

4.3.3. Inverters that are used in the system shall be compatible with each other all over the PV plant.

4.3.4. The number and rated power of the inverters shall be as described in the Project.

4.3.5. The maximum input voltage should be at least 1000 VDC.

4.3.6. The maximum efficiency should be at least 98% according to applicable European standards. Higher efficiency is preferable.

4.3.7. Inverters should be equipped with communications port RS485.

4.3.8. THD (Total Harmonic Distortion) should be less than 3%.

4.3.9. The protection class of the inverters shall be at least IP65 (water resistant).

4.3.10. The operating temperature range of the inverters shall be between -25 and +60°C.

4.3.11. The grid frequency range should be maximum 45-53 Hz.

4.3.12. The grid voltage range (phase – neutral) should be 190-270V.

4.3.13. The relative humidity under operating conditions should be up to 95%.

4.3.14. The inverters should be equipped with “residual current monitoring unit” sensitive to all poles.

4.3.15. The inverters must not be originated from manufacturers/countries included in the Sanction List of the United Nations.

4.3.16. The inverters should be equipped with a system for distance monitoring through an integrated web server, and the following data should be accessible via Internet and on the inverter free of charge:

- Instant power generation
- Daily power generation
- Power generated since installation
- Panel voltage
- Grid voltage

The Contractor shall provide distance monitoring system even if there is no internet available at the site, through mobile internet connection options, etc.

4.3.17. The product guarantee duration shall be 2 years and warranty duration should be for 10 years.

4.3.18. The inverters should be in compliance with standards VDE0126-1-1, IEC62109, RD 1663, G59, G83, EN61000-6-2, EN61000-6-3, AS4777, and bear EC Declaration of Conformity and CE marking.

4.3.19. The protection class shall be Class I to IEC 62103, Class III to IEC 60664 High Voltage Category or Class I to IEC 62103, Class III to IEC 60664 high voltage category, and comprise at least 3 or 4 of the quality certificates to EN 50178 and EN 62109 equivalent to the above mentioned protection standards, and each MPPT shall be protected by a surge arrester.

4.3.20. The following documents for the inverters offered should be submitted under section 3.9:

- A catalogue indicating the technical characteristics, dimensions, weight and installation details, etc.,
- Type test results and competence certificates for the inverters offered issued by accredited institutions comprising relevant testing capacity and competence,
- The installation, assembly, operating, troubleshooting and maintenance guides shall be delivered in Turkish.

4.3.21. The Contractor shall submit to the Contracting Authority the catalogue of the inverters offered, and a certificate of authorisation for sales, installation and service and guarantee/warranty certificate in Turkish issued by the main manufacturer or Turkish distributor of the inverters.

4.4. SUPPORTING STRUCTURE FOR PANELS

4.4.1. The construction on which the PV panels shall be installed, must at least be resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.

4.4.2. The construction shall be designed for an operational life of at least 25 years and made of corrosion resistant material (hot-dip, galvanized, etc.).

4.4.3. All connections shall be water proof and impact resistant.

4.4.4. The PV panels shall be mounted on the construction profiles using appropriate connection apparatus (clamps). The holes on the PV panels shall not be used for bolt mounting. The clamps to be used for mounting the PV panels on the construction profiles shall be made of aluminum and necessary measures shall be taken to avoid stealing.

4.4.5. Gaps shall be provided between the PV panels to avoid resistance against wind.

4.4.6. The aluminum items to be used in the supporting structure shall be in compliance with EN AW 6063 T5 and TS EN 12010 (2010) and the steel items should be galvanized. Galvanizing shall be according to TS 914 EN ISO 1461.

4.4.7. Necessary isolation shall be provided to avoid contact with water at the point of connection of the construction with the soil.

4.4.8. The construction stands shall be level, aligned without inclination.

4.4.9. The supporting structures for the PV panels shall be fixed on the ground by constructing reinforced concrete platforms and/or beams at the installation sites. The concrete to be used must be ready made concrete.

4.4.10. All metallic components used in the construction shall be grounded by a grounding strip/line.

4.4.11. All galvanization and paint damaged during installation shall be properly repaired.

4.5. CABLES AND CABLING (INSIDE THE PV PANEL)

4.5.1. All cables and cabling works within the PV plant shall be in compliance with applicable technical legislation.

4.5.2. The Contractor shall be responsible for cabling between the PV panels (PV panels – inverter, inverter – grid, grounding cables, etc.), supply and installation of cables in accordance with the Project.

4.5.3. The DC cables, connectors and connection items, shall be solar equipment specially designed for use in PV plants.

4.5.4. The PV power cables shall be resistant to high temperature and heat, UV resistant, double isolated, halogen free, lead free (preferably), nominal cable section approved by accredited institutions, in compliance with IEC 60228 and IEC 60287.

4.5.5. The solar DC cables to be used in the system shall be manufactured for a rated voltage of 1800 V.

4.5.6. The solar cables shall be suitable for use at temperatures between -40°C and +90°C.

4.5.7. The voltage drop on the cables between the PV panels and connection boxes (if any) and inverters shall be maximum 2% at maximum current.

4.5.8. In case it is needed to join the cables, these joints shall be made by using connectors. The connectors and other connection elements shall be suitable for operating temperatures between -40°C and +90°C, and have a protection class of IP 67 (as female-male connection done).

4.5.9. The AC cables shall be TSE certified and in compliance with TS IEC 60502.

4.5.10. The maximum operating temperature for the AC cables shall be at least 70°C.

4.5.11. All low voltage cables to be used shall have a cross section to allow a voltage drop of maximum 2%.

4.5.12. The AC cables shall be color coded, PVC isolated, and made of NYY copper or NAYY aluminum conductors. The protection conduits used for cable or pipe passages, concrete/wall passages, etc. shall be made of hard PVC with an inner diameter of less than 100 mm.

The aerial cables shall be steel cored, aluminum conductors.

4.5.13. The Contractor is responsible for collecting information on existence of underground utilities at the installation site such as underground cables, water supply pipes, telephone lines, etc., and the Contractor shall be solely responsible for all issues and legal sanctions that may be encountered.

4.5.14. All cables shall be corded in cable racks and on/in metallic construction using cable ties at every 30 cm or fixed appropriately.

4.5.15. The cables between the internal panel and Plant AC bar shall be dimensioned such that a voltage drop of maximum 3% is allowed under full load.

4.5.16. The cabling between the inverters and plant transformer shall be passed through cable trays and underground as required.

4.5.17. For the cables for underground installation, the cabling pathway shall be dug in accordance with the applicable standards. The base of the cable trench should be level and compressed and free of any stones, roots and pipes.

4.5.18. All cables used shall be affixed with indelible labels at both ends.

4.5.19. The Contractor shall submit all technical documentation, catalogues, etc. for the solar AC cables and connection elements offered.

4.6. PROTECTION, SWITCHING MATERIALS, RELAYS, PANELS AND METERS

4.6.1. The short circuit current capacity of DC MCBs shall be at least 5 kA, their operating temperature range shall be in between -25°C and +60°C. The DC MCBs should be in compliance with IEC 60947-2.

4.6.2. If the parallel PV panel strings are to be joined outside the inverter, joining shall not be done by using terminal blocks they will be joined on a common bar inside the panel and the (+) and (-) conductors shall be insulated from each other.

4.6.3. The rated discharge current of the surge arresters shall be not less than 20 kA per pole, and the maximum discharge current shall not be less than 40 kA.

4.6.4. The MCBs shall be of type C and compliant with IEC 898.

4.6.5. The 1-minute test resistance voltage of the load disconnect circuit breaker shall not be less than 3 kV, and its rated pulse voltage resistance shall not be less than 8 kV.

4.7. CONNECTION TO GRID

4.7.1. The transformer shall meet the power and technical requirements set out in the Project.

4.7.2. The Contractor shall provide all supply and workmanship for installation of the transformer and cells, erection of posts, cabling, association and grid connection.

4.7.3. A two-way meter (suitable for remote reading, 5 (120) Amperes (A) directly connected and active-reactive measuring) in compliance with all communiques and regulations of TEDAŞ and EMRA. The meter to be used shall meet the requirements laid down in the Procedures and Principles for Evaluation of Requests for Grid connection and System Utilization of Power Plants to Generate Unlicensed Electricity in the Electricity Market.

4.7.4. The Compact Circuit Breaker (CCB) shall be capable of shifting its position automatically depending on the switching (on/off) signals.

4.7.5. A Grid Protection Relay (GPR) shall be equipped to send an “on” signal to the CCB in case of fluctuations in the grid and an “off” signal when the grid turns back to normal. The GPR shall provide Over Voltage (ANSI 59), Low Voltage – Level 1 (ANSI 27), Low Voltage – Level 2 (ANSI 27), Over Frequency (ANSI 81/O), Low Frequency (ANSI 81/U), Vector Offset and RCOF (df/dt) (ANSI 81R) protections as

described in the Communiqué implementing the Regulation on Unlicensed Electricity Generation in Electricity Market.

4.7.6. All electrical control panels (i.e. Local Control panels, main panels, MBC panels, etc.) to be used in the PV Plant shall have a protection class of IP 65. The rated voltage of the panel insulation shall be 1000 VAC and 1500 VDC.

4.7.7. The joining panels shall be water and dust proof made of non-combustible material and should provide easy connection to meet connection requirements. All DC panels shall have a protection class of at least IP 65. In case 1 unit of DC combiner box is used, 5% of DC fuses and surge arresters shall be additionally supplied as spare.

4.7.8. All exterior electrical control panels shall be placed on top of concrete base, which is approved by TEDAŞ.

4.7.9. All electrical control panels shall meet the TEDAŞ requirements for sign plates for definitions, operating manuals and warning signs.

4.7.10. The equipment required for synchronization of the system with the grid (voltage and frequency compatibility) shall be installed by the Contractor. In case of system grid failure or grid parameters getting out of permitted values, PV plant shall not be started until these parameters get into the appropriate intervals.

4.7.11. The Contractor is responsible from connecting the PV to the grid as per the approved technical project documentation by TEDAŞ and/or local electricity distribution company

4.7.12. The Contractor shall obtain approval of the authorized power distribution company (TEDAS and/or the local electricity distribution company) for the connection of power from the PV plant to the grid (the Contractor is responsible for paying all the fees for this purpose). (i.e. The contractor is responsible for preparing the Provisional Acceptance and Final Acceptance dossiers in accordance with TEDAŞ's and local electricity distribution companies' requirements, submitting them and getting the necessary approval for these dossiers, except the zoning plan permits which are under responsibility of UNDP)

4.8. GROUNDING

4.8.1. All electrical and electronic equipment to be installed for the PV plant as well as the cabins, all carrying metallic components, all auxiliary metallic installation items shall be properly grounded in accordance with applicable standards, regulations and comments of the authorities. Grounding shall be made on both DC side and AC side.

4.8.2. The PV plan area shall be isolated from the soil for both protection purposes and avoiding vegetation in the area. A 10 cm thick ground cover shall be formed by pebblestones which can not be compacted into the ground.

4.8.3. A grounding network shall be formed within the PV installation site, and the elements and metallic components of the PV plant shall be connected to this grounding network.

4.8.4. All non-current bearing components shall be joined on the equipotential bar and grounded.

4.8.5. The grounding resistance shall not exceed the value defined in the Regulation on Grounding. Grounding material shall be added until that value is achieved. All grounding lines shall be joined to each other to ensure that they are at equipotential.

4.8.6. The grounding system shall consist of two main parts as DC and AC:

- DC Grounding: System grounding (panel, inverter, DC box, etc.) and protection grounding (grounding of all non-current bearing metallic components).
- AC Grounding: System grounding (grounding of star point of the step-up transformer) and protection grounding (grounding of all non-current bearing metallic components).

4.9. DATALOGGING,REMOTE MONITORING SYSTEM, SCADA AND POWER QUALITY ANALYZER

4.9.1. The datalogging system shall be capable of continuously measuring, transferring and recording the following parameters:

- Solar radiation - kWh/m² (the piranometer used in measuring the solar radiation shall be of Class A because the radiation measurement results shall be used in calculating the annual power generation and standard performance rate of the PV Plant).
- Module temperature (°C)
- Ambient temperature (°C)
- Wind velocity (m/s)

For all inverters within the PV Plant;

- DC output (input to inverter) current, voltage and instant power of each PV panel string.
- Output current, voltage, instant power, frequency and power factor of the inverter.

4.9.2. The remote monitoring system shall – in addition to the data listed in the previous item – present the following data numerically and graphically:

- Total power generated by each PV panel string.
- Total power fed into the grid.
- Solar PV system efficiency.
- Amount of power generated by the PV Plant in the day, in the last one month, in the last one year and since installation of the PV Plant.
- Amount of CO₂ emissions avoided.
- Financial income provided by the PV Plant.
- The system Logbook (extraordinary incidents in the PV Plant, fault and failure messages, alerts).
- Comparison of inverter performances.
- Other data in addition to above that may be deemed by the Contractor as necessary.

4.9.3. A day-end report for each unit and total system as well as a month-end report at the end of each month shall be sent to the e-mail addressed to be specified by the Contracting Authority. These reports shall also summarize the data, graphs and tables mentioned in the foregoing articles.

4.9.4. The remote monitoring system shall instantly send the extraordinary incidents, faults, failure messages and alerts on the PV Plant to the e-mail addresses and GSM numbers specified by the Contracting Authority until the final acceptance.

4.9.5. SCADA shall consist of below mentioned equipment and specifications

- RTU Units (DI/Dos included)
- RTU Software and Programming
- 3G + 3G or 3G + WAN Port Modem
- Power Quality Recorder
- Wiring between Power Quality Recorder, Current Transformer and Voltage Transformer
- Parameter settings of power quality equipment
- RTU Panel (consisting of ancillary hardware (i.e. surge arrestor, circuit breakers, electric terminal blocks)
- Wiring between RTU panel and Mono Block Concrete Kiosk.
- RTU shall be used for obtaining the digital signals that are not delivered from relays. (e.g. door switch, redresser fault, fire detector, etc.)
- Engineering and programming services, supervision, commissioning and PTP test (Integration of relevant electricity distribution company's SCADA and Power Quality System)

- RTU shall transmit the necessary information to relevant electricity distribution companies SCADA system. It shall also provide necessary information to Power Quality Monitoring System through its power quality recorder

4.9.6. All equipment, software and hardware components pertaining to the Datalogger, Remote Monitoring Systems and SCADA shall be supplied by the Contractor.

4.9.7. A desktop computer with at least the following characteristics shall be supplied by the Contractor for use in the Datalogging System (to be installed by the Contractor):

- Processor speed: 3.5 GHz
- Memory (RAM) capacity: 16 GB
- (RAM) Type: DDR3
- Memory Bus Speed: 1333 MHz
- Disk capacity: 2 TB
- Video Card memory: 2 GB
- Operating System: Windows 7, 64 Bit TR
- The system shall be equipped with an optical drive i.e. 16x double-layer DVD writer/reader (RW).
- The equipment shall be provided with keyboard, optical mouse, laser printer and 22" LED or LCD monitor.

4.9.8. The installation file of the viewer software which displays the file in which the data are recorded, and the original licensed CD/DVD of the licensed software shall also be delivered to the Contracting Authority.

4.9.9. The Contractor shall submit to the Contracting Authority a detailed scheme of the Datalogger and Remote Monitoring Systems to be installed as well as the technical documentation, catalogues, etc for the components to be used.

4.9.10. Power Quality Analyser shall be used if it was demanded by the local utility company.

Power Quality Analyser shall;

- Comply with IEC 61850 protocol, having gateway functionality and be able to notify alarms via e-mail, to detect waveshape changes and be multilingual.
- Record ultra-fast electrical parameters every 100 ms or every cycle
- Have IEC 62053 Class 0.2S energy measurement accuracy, IEC61000-4-30 ClassA certification, Harmonic standard compliance with IEC61000-4-7, IEC61000-4-15 flicker standard compatibility, IEEE5 19 and IEEE1159 compatibility, EN50160 compliant reporting

4.10. ACCESS TO PV PLANT

4.10.1. The installation sites in all villages are easily accessible by using the existing walkways and roads. Therefore, there is no need for additional road construction for access to the PV Plant.

5. PROJECT SITE SAFETY AND SECURITY

5.1. The contractor shall be responsible for purchasing/storage/import/delivery or manufacturing from the point of purchase/manufacturing to the workplace, loading and unloading from vehicles, storing and stacking; cement, sand, the frame of the steel doors, its leaves, metal sections and supports as well as its section and sheet steel bars for carrier rails, Ø2.5 mm thick galvanized barbed wire, Ø3 mm galvanized guy wire, Ø3 mm thick and 50x50 mm aperture sized galvanized gauze wire, 2.63 m high prefabricated reinforced concrete bay and buttress pillars in amounts that confirm to the necessary TSE standards.

5.2. The contractor shall dig the necessary anchorage holes on the borders of the PV Plant installation site for the reinforced concrete pillars in accordance with the spacing and size demands from the Contracting Authority. Reinforced concrete pillars shall be erected in the holes and concreted with anchorage concrete.

5.3. Galvanized trellis fence, barbed wire and guy wire shall be stretched between the reinforced concrete pillars as demanded by the Contracting Authority to avoid unauthorized penetration to the PV Plant.

5.4. An entry door shall be produced and installed after being painted with one coat of primer and 2 coats of oil paint, as prescribed by the Contracting Authority. A sign that states that the site is being supported by the 'Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Turkey' shall be mounted on the entry door with DGF, GEF and UNDP logos, with the following statement: ***"This site has been constructed with grant support from the 'Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Turkey' project, run by the Directorate General of Forestry (GDF) and United Nations Development Programme (UNDP) with support from the Global Environment Fund (GEF)."*** The aforementioned logos shall be provided to the Contractor by the Contracting Authority.

5.5. Intercepting ditches shall be dug around the barbed wire fence, starting from the sides of the wire fence, in the dimensions prescribed in the project. The materials dug out from the ditches shall be piled neatly near the ditches.

5.6. The Contractor shall compensate third parties for the material and intangible damages to existing infrastructure facilities due to work carried out in the project site. The Contractor shall be responsible for fixing damaged infrastructure facilities and road pavements. All transport, workmanship, laboratory work that may be required to test the quality of any materials during the implementation of the contract and insurance expenses in this scope shall be provided by the Contractor.

5.7. The Contractor shall outfit the Site and all equipment with lightening rod systems in accordance with relevant regulations (TS EN 62305). There shall not be an active system. Lightening rods shall be placed in accordance with the risk analysis. Lightening rods shall be designed either for Rolling Sphere method or protection angle method. Wind loads have to be calculated. Each lightening rod has equipotential with general grounding. Lightening rod grounding conductor, connection elements and system shall have anticorrosive characteristics. Each connection point shall have corrosion tapes. There shall not be resistance inequalities.

AC and DC Type 1+2 and Type 3 surge arrestors shall be used throughout the PV plant.

5.8. Camera and alarm systems equipped to view the PV Plant area from all angles shall be set up around the PV Plant. At least 6 cameras and 2 recording devices shall be used.

The cameras to be set up shall have at least the following features:

- Cameras should be 2MP bullet type.
- Cameras should have 1/2", 7 cmos sensor.
- Cameras should support double stream H265 / H264 compression
- Cameras should have at least 128gb micro cd card input.
- Cameras should be the same brand as the recorder and should comply with other onvif members, have DWDR feature so as to get maximum performance to adjust light level where light is low, at least 4 areas of masking.
- The camera should have IP 67 protection level.
- Camera body and brackets should be metal, and at least 40 meters of night vision

5.9. The network video recording (NVR) devices to be set up shall at least have the following features:

- NVR should have 8 channel PoE.
- Shall have preview and play support at least up to 8 MP
- Shall support 6 TB HDD
- The bandwidth should be 80 Mbps
- Shall have 2 core processor
- The operating system should be embedded Linux
- Compression method should be H265
- Shall have motion detection and sabotage detection
- Shall give access to maximum 128 users
- Shall have 2 usb ports.
- Shall have at least 1- V6A and 1- HDMI port
- Shall be the same brand as camera and should be an ONVIF member.

5.10. Harddisk Drive should be at least 4 TB and should be able to work 7 days / 24 hours.

5.11. Network Cable:

Should be manufactured according to ANSI/TIA/EIA 568-C.2, ISO/IEC, and CENELEC EN standards, shall support ANSI/TIA T568A and T568B connection types, Should comply with IEC 61156-5, CENELEC EN 50288-6-1standards, should support 250 MHz bandwidth in 100 meters should comply

with Flame retardance IEC 60332-1-2 standards, should have a separator between twisted-pair spirals so as to prevent signal intervention, should be 23AWG copper solid conductive, outside diameter should be O.D 6.2 mm, 1000 Base-TX Gigabit Ethernet, 10Base-T, 100Base-TX Fast Ethernet, (IEEE 802.3) 100 VG – AnyLAN, (IEEE802.12)155/622 Mbps ATM, 100MHz Broadband Video, Voice, T1, ISDN, PVC cover, Operating temperature, White (RAL9010)

5.12. Cabinets; Wall-mounted cabinets should be able to convert to ground type by installing wheel and pinion feet. 9U vertical type 600*600 rack cabinet. The load carrying capacity is 100 kg.

5.13. Wireless Modem with SIM Card installed for monitoring Cameras and Inverters

5.14. At least 4 CE approved projectors with the following features shall be installed (including cabling and bonding) to provide illumination to the project site: body and front window frame made of injection molded aluminum casting, painted with oven dried paint, tempered front glass, 250° C heat and puncture resistant, IP20 protection rating, covered with special silicone gasket between the glass and body, junction box behind or under the body, constant current LED driver circuit and cooler consisting of special high-power LEDs with at least 100 lumens per wattage, at least 30.000 hours of luminescence life time, generating at least 90% efficiency, capability to run between (-20 ° C and + 85 ° C), having assembly apparatus required for its installation into the ground, manufactured according to TS EN 60598-1, TS 8702 EN 60598-2-5, TS EN 61347-2-13 standards and the Regulation on electrical equipment designed for use within the limits of the Low Voltage Directive (LVD) 2014/35/EU. Attention shall be paid to illuminating the wire fence, solar panels and transformer.

6. INSPECTION, TESTING AND APPROVAL PROCEDURES

6.1. The Contracting Authority may require Maximum Power Assignment Tests and Field Acceptance Tests to be conducted in a laboratory for 1% of the PV panels stated in the PV Plant project. These tests shall be conducted by the Contractor without any demands for additional payment.

6.2. The Contractor shall be responsible for carrying out the tests, inspections and acceptance procedures to be conducted by the Electricity Distribution Company to connect PV Plant to the network and begin the exchange of power. An Electrical and Electronics Engineer/Electrical Engineer/Electronics Engineer/Mechanical Engineer or equivalent having a work experience of at least 2 years in the field of PV installations recruited by the Contractor shall be present during these operations.

6.3. Missing and faulty equipment detected by the Regional Electricity Distribution Company during inspections and tests shall be fixed and brought up to standard within 10 calendar days at the latest.

6.4. Final Acceptance shall be granted 1 (one) year after provisional acceptance by local electricity distribution company, once the defects and deficiencies that had been detected are corrected and all necessary

aspects have been addressed during the defects liability period. The Performance Security will only be released as per ITB Item 9.

6.5. During the provisional acceptance by local electricity distribution company, the functionality, project suitability as per the approved technical project documentation by TEDAŞ and/or local electricity distribution company by issuing the call letter (Çağrı Mektubu), and technical specifications of PV Plant shall be checked. The Contracting Authority shall not be granting Final Acceptance before all deficiencies have been resolved, even if TEDAŞ (Turkish Electricity Distribution Corporation) has already provided approval for connection to grid.

7. DEFECTS LIABILITY PERIOD, GUARANTEE, TECHNICAL SUPPORT AND MAINTENANCE

7.1. Defects liability period, as per Article 47 of General Conditions of Contract for Civil Works, will be 12 months after the provisional acceptance by local electricity distribution company.

7.2. Guarantee will be provided by the Contractor to fix failures or malfunctions of the system stemming from the deficiencies in goods for 2 years at no cost. Warranty period is on the other hand, is for 10 years for which the Contractor provides technical service, workmanship, spare parts, etc. at the cost of service/goods.

7.3. The Contractor shall ensure that all equipment and tools (including workmanship quality) to be used in the system and the system that he shall set up, shall be free of errors, new and of the highest quality and that their guarantee durations are 2 years as per the local regulations. If the materials used (including any and all parts) fail during the guarantee period (24 months) after provisional acceptance due to design, workmanship or material quality, the Contractor shall be responsible for supplying and installing the same material. Starting from the PV Plant Provisional Acceptance date, the warranty periods of the components to be used in the system shall be as follows:

- The proposed PV panels shall be under warranty for at least ten (10) years.
- PV panel substructure; 10 (ten) years.
- Invertors; 10 (ten) years.
- Other parts/sections; 10 (ten) years.

7.4. The guarantee period shall begin on the date of Provisional Acceptance for the PV Plant by UNDP.

7.5. Defects and failures that occur during the guarantee period shall be remedied by the Contractor replacing/repairing defective hardware or parts free of charge.

7.6. All expenses stemming from materials, workmanship and transportation costs for parts incurred by malfunctions that occur during the warranty period shall be covered by the Contractor.

7.7. Following the provisional acceptance of PV Plant, for two years the Contractor must act within 48 hours following notification by UNDP if any malfunctions occur.

7.8. If the inverter or any other equipment malfunctions, it may be replaced with a spare to ensure that the malfunction is remedied in the specified amount of time. After the defective equipment is repaired, it shall replace the spare equipment. Defective equipment shall be repaired and replaced within 1 month at the latest notification by UNDP.

7.9. The contractor shall have sufficient aftersales services capacity in accordance with applicable legislation and provide periodic maintenance to the PV Plant every 3 (three) months free of charge during the guarantee period to ensure that no malfunctions occur.

7.10. The Contractor shall give a detailed description of the periodic maintenance schedule and maintenance work to be performed during the guarantee period before provisional acceptance.

8. TRAINING AND DOCUMENTATION

8.1. The Contractor shall provide maximum 10 (ten) personnel from the REC/Implementing Partner selected by the Contracting Authority with 3 (three) days of training, minimum 4 (four), maximum 8 (eight) hours a day. Training shall take place in each of the provinces that the bidder submitted a bid. Training shall take place in a venue to be allocated in the village and/or near the PV plant area and the training shall be in Turkish. Contractor shall receive declarations from the trainees that they will not be taking action in cases that TEDAŞ/local electricity distribution should be notified such as electricity leakage.

8.2. The personnel who shall be giving the training should be either a member of the Electrical Engineering, Electronics Engineering, Electrical-Electronics Engineering or Mechanical Engineering departments of universities in Turkey or abroad, who can demonstrate works completed in PV, either in configuration or R&D. The CV of this trainer shall be presented with the bid submission.

8.3. The training program shall be presented to the approval of the Contracting Authority before the training takes place, along with information on the personnel who shall lead the training.

8.4. The training shall ensure that authorized operators are able to continuously carry out the following activities:

- Regular facility inspection / oversight and maintenance activities
- Use of the data recording and remote monitoring system
- Manual Activation / Deactivation
- Troubleshooting

- Reporting malfunctions and extraordinary conditions

8.5. The trainings shall be given with the support of documents prepared in Turkish and shall be aimed at giving knowledge and skills on system members to relevant technical personnel.

8.6. The PV Plant shall be provided with the following documents shall be provided on CD and in paper/blueprint:

- Design diagram of the network and PV Plant
- Block connection diagrams and single line diagram
- Troubleshooting guide
- Posters for users with basic features, functions and maintenance procedures
- Data recording system manual
- Safety and safety features, work safety instructions
- There shall be headings such as "To Do" and "Not to Do".
- Complete equipment list,
- Detailed specifications and manuals for each equipment
- Test procedure and report
- Mechanical and electrical design plans, as - built projects
- Operation, maintenance and test catalog
- All necessary electrical documents and pictures

9. CONSTRUCTION WORKS NOT IN COMPLIANCE WITH THE APPLICABLE PROJECTS

9.1. Construction works not in compliance with the applicable projects or its specifications shall be re-made by the Contractor in compliance with the project and its specifications, if the inspection committee deems it necessary. The Contractor shall re-make at no cost to the Contracting Authority.

10. OCCUPATIONAL HEALTH AND SAFETY MEASURES

10.1. The Contractor shall comply with the requisitions of the General Conditions for Contract for Civil Works.

10.2. Before the work commences, the Contractor shall hold the necessary meetings and ensure coordination with third parties and institutions/organizations (Institutions for phone lines, Traffic Directorate, etc.) as per

local legislation to ensure that necessary precautions are taken for the safety of workers and the quality of the work, such as procuring necessary traffic signs depending on the amount of traffic.

10.3. Health and Safety Equipment (Insulated carpet (10m², insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher) will be provided by the Contractor.

10.4. The Contractor shall be liable to give its own personnel the necessary training for the realization of this work for social security, insurance or Personal Protection Equipment. Otherwise, accountability, the legal and criminal responsibility for all accidents that occur as a result of negligence, employing illegal or unlicensed workers, shall be on the Contractor.

10.5. The Contractor shall provide all health precautions necessary to protect the health of workers in accordance with the provisions of the occupational health and safety regulations.

10.6. The Contractor shall be wholly responsible for observing local Social Security and Human Resources legislation, hiring workers or paying for their labor rights pertaining to rights of workers and employers, hiring workers, etc. The Contracting Authority holds no responsibility in this regard.

10.7. The Contractor has to notify UNDP on staff changes; before any changes are made.

10.8. If specific knowledge or skills are necessary to complete certain tasks, the Contractor shall be responsible for hiring personnel competent for such tasks (asphalt cutting, use of a compactor, EFM welding, PPRC welding etc.)

10.9. The contractor shall be the direct employer of the workers he recruits for the works he has undertaken. As such, in order to prevent occupational accidents and occupational diseases, it is necessary to take all required Occupational Health and Safety precautions stated in Occupational Health and Safety Law No. 6331, Labor Law No. 4857, Social Security Insurance Law, related Directives and Regulations and other local regulations, and to make sure that the rules are observed at the worksite, to provide all kinds of materials, tools and supplies, to keep them at the workplace, to ensure that they are used by the workers and to check whether the precautions taken are abided by.

10.10. The contractor shall be obliged to follow up on the relevant laws and regulations on Occupational Health and Safety and to fulfil all legal obligations. Otherwise, the legal and criminal responsibility for all accidents that occur as a result of negligence, employing or unlicensed illegal workers shall be on the Contractor.

10.11. The Contractor shall procure all types of insurances defined in General Conditions of Contract for Civil Works and insurances specifically identified in Section 5.a.

SECTION 5.B: OTHER RELATED REQUIREMENTS

Further to the Schedule of Requirements in the preceding Table, Bidders are requested to take note of the following additional requirements, conditions, and related services pertaining to the fulfilment of the requirements:

Delivery Term	For all two LOTs, the equipment shall be delivered on “Turnkey” basis, after installation, commissioning. For international deliveries, the delivery term is “DAP”; whereby the contractor shall follow exactly the same process for installation and commissioning. Please kindly refer to the Payment Condition Table in Bid Data Sheet Item 25.
Exact Address of Delivery/Installation Location	Lot 1: Afyon Lot 2: Konya
Inspection upon “turnkey” delivery	An inspection committee from UNDP will do an inspection for the provisional and final acceptance.
Installation Requirements	As per Section 5a, Schedule of Requirements and Technical Specifications/Technical Requirements/Bill of Quantities
Testing Requirements	As per Section 5a, Schedule of Requirements and Technical Specifications/Technical Requirements/Bill of Quantities
Scope of Training on Operation and Maintenance	As per Section 5a, Schedule of Requirements and Technical Specifications/Technical Requirements/Bill of Quantities
Commissioning	As per Section 5a, Schedule of Requirements and Technical Specifications/Technical Requirements/Bill of Quantities
Warranty Period	The guarantee period is for 2 Years after provisional acceptance by UNDP when the Contractor will provide services/repair/hardware/spare parts for goods in case of failure or malfunctions at no extra cost. The Contractor will provide a warranty for 10 years while technical service, workmanship and spare parts will be available through paying the price for services and goods to the Contractor. The PV will be transferred to local government or non-government institutions after provisional acceptance. Contractor will be also in contact with this institution during the guarantee and warranty period.

Local Service Support	Must be available
Technical Support Requirements	Must be available
After-sale services Requirements	<input checked="" type="checkbox"/> Warranty on Parts and Labor for minimum period of 10 years, as explained and 2 years for guarantee period at no extra cost <input checked="" type="checkbox"/> Technical Support <input checked="" type="checkbox"/> Provision of Service Unit when pulled out for maintenance /repair <input type="checkbox"/> Others <i>[pls. specify]</i>
Conditions for Release of Payment	Please refer to Item 25 of Bid Data Sheet
All documentations, including catalogues, instructions and operating manuals, shall be in this language	Other (pl. specify) Turkish
Preconditions for Acceptance of Invoices by UNDP:	For all LOTs: <ul style="list-style-type: none"> • Complete delivery of all items (when the installation, commissioning, electricity production, transfer to grid and successful delivery of training are all made.) • Positive Inspection and Provisional Acceptance by UNDP at destination,
Inspection and Acceptance	<p>The inspection and provisional acceptance shall be conducted by the committee established by UNDP upon delivery of the installation completed under each LOT. The guarantee period will be initiated upon provisional acceptance by UNDP.</p> <p>Power plant to be installed is also subject to an additional inspection and acceptance in conjunction with the local electricity distribution company, after which the remaining 10% of the contract amount will be released.</p>

SECTION 6. RETURNABLE BIDDING FORMS/CHECKLIST

This form serves as a checklist for preparation of your Bid. Please complete the Returnable Bidding Forms in accordance with the instructions in the forms and return them as part of your Bid submission. No alteration to format of forms shall be permitted and no substitution shall be accepted.

Before submitting your Bid, please ensure compliance with the Bid Submission instructions of the BDS 22.

Technical Bid:

Have you duly completed all the Returnable Bidding Forms?	
▪ Form A: Bid Submission Form	<input type="checkbox"/>
▪ Form B: Bidder Information Form	<input type="checkbox"/>
▪ Form C: Joint Venture/Consortium/ Association Information Form (N/A)	<input type="checkbox"/>
▪ Form D: Qualification Form	<input type="checkbox"/>
▪ Form E: Format of Technical Bid/	<input type="checkbox"/>
▪ Form G: Form of Bid Security	
▪	<input type="checkbox"/>
Have you provided the required documents to establish compliance with the evaluation criteria in Section 4?	<input type="checkbox"/>

Price Schedule:

▪ Form F: Price Schedule Form	<input type="checkbox"/>
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FORM A: BID SUBMISSION FORM

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

We, the undersigned, offer to supply the goods and related services required for Turnkey Supply, Installation and Commissioning of 100 kWp on-grid Land Installed PV Plant in [insert province name] in accordance with your Invitation to Bid No. [Insert ITB Reference Number] and our Bid. We hereby submit our Bid, which includes this Technical Bid and Price Schedule.

Our attached Price Schedule is for the sum of [Insert amount in words and figures and indicate currency].

We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium /Association members or subcontractors or suppliers for any part of the contract:

- a) 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;
- b) 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;
- c) have no conflict of interest in accordance with Instruction to Bidders Clause 4;
- d) do not employ, or anticipate employing, any person(s) who is, or has been a UN staff member within the last year, if said UN staff member has or had prior professional dealings with our firm in his/her capacity as UN staff member within the last three years of service with the UN (in accordance with UN post-employment restrictions published in ST/SGB/2006/15);
- e) 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;
- f) undertake not to engage in proscribed practices, including but not limited to corruption, fraud, coercion, collusion, obstruction, 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 embrace the principles of the United Nations Supplier Code of Conduct and adhere to the principles of the United Nations Global Compact.

We declare that all the information and statements made in this Bid are true and we accept that any misinterpretation or misrepresentation contained in this Bid may lead to our disqualification and/or sanctioning by the UNDP.

We offer to supply the goods and related services in conformity with the Bidding documents, including the UNDP General Conditions of Contract and in accordance with the Schedule of Requirements and Technical Specifications/Technical Requirements.

Our Bid shall be valid and remain binding upon us for the period specified in the Bid Data Sheet.

We understand and recognize that you are not bound to accept any Bid you receive.

I, the undersigned, certify that I am duly authorized by [Insert Name of Bidder] to sign this Bid and bind it should UNDP accept this Bid.

Name: _____

Title: _____

Date: _____

Signature: _____

[Stamp with official stamp of the Bidder]

FORM B: BIDDER INFORMATION FORM

Legal name of Bidder	[Complete]
Legal address	[Complete]
Year of registration	[Complete]
Bidder's Authorized Representative Information	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Are you a UNGM registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, [insert UNGM vendor number]
Are you a UNDP vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, [insert UNDP vendor number]
Countries of operation	[Complete]
No. of full-time employees	[Complete]
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	[Complete]
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):	[Complete]
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	[Complete]
Does your organization demonstrates 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	[Complete]
Is your company a member of the UN Global Compact	[Complete]
Contact person that UNDP may	Name and Title: [Complete]

contact for requests for clarifications during Bid evaluation	Telephone numbers: [Complete] Email: [Complete]
Please attach the following documents:	<ul style="list-style-type: none"> ▪ Company Profile, which should <u>not</u> exceed fifteen (15) pages, including printed brochures and product catalogues relevant to the goods and/or services being procured ▪ Certificate of Incorporation/ Business Registration* ▪ Tax Registration/Certificate issued by the Internal Revenue Authority ▪ Trade name registration papers, if applicable ▪ Quality Certificate (e.g., ISO, etc.) and/or other similar certificates, accreditations, awards and citations received by the Bidder, if any ▪ Environmental Compliance Certificates, Accreditations, Markings/Labels, and other evidences of the Bidder's practices which contributes to the ecological sustainability and reduction of adverse environmental impact (e.g., use of non-toxic substances, recycled raw materials, energy-efficient equipment, reduced carbon emission, etc.), either in its business practices or in the goods it manufactures ▪ Patent Registration Certificates, if any of technologies submitted in the Bid is patented by the Bidder ▪ Certification or authorization to act as Agent on behalf of the Manufacturer, or Power of Attorney. ▪ Export Licenses, if applicable ▪ Local Government permit to locate and operate in assignment location, if applicable ▪ Official Letter of Appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country <p><i>* In Turkey, this corresponds to the Trade Registry Gazette that demonstrates the year of establishment of the business, articles of association, shareholders etc. if the business has updated/revised its articles of association and/or the shareholders, the trade registry gazette(s) that demonstrate(s) the most updated information on these matters should be provided as well).</i></p>

FORM C: JOINT VENTURE/CONSORTIUM/ASSOCIATION INFORMATION FORM**(NOT APPLICABLE IN THIS TENDER)**

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

To be completed and returned with your Bid if the Bid is submitted as a Joint Venture/Consortium/Association.

No	Name of Partner and contact information (address, telephone numbers, fax numbers, e-mail address)	Proposed proportion of responsibilities (in %) and type of goods and/or services to be performed
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

Name of leading partner (with authority to bind the JV, Consortium, Association during the ITB process and, in the event a Contract is awarded, during contract execution)	[Complete]
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We have attached a copy of the below referenced document signed by every partner, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture:

☐ Letter of intent to form a joint venture **OR** ☐ JV/Consortium/Association agreement

We hereby confirm that if the contract is awarded, all parties of the Joint Venture/Consortium/Association shall be jointly and severally liable to UNDP for the fulfillment of the provisions of the Contract.

Name of partner:

Signature: _____

Date: _____

Name of partner:

Signature: _____

Date: _____

Name of partner:

Signature: _____

Date: _____

Name of partner:

Signature: _____

Date: _____

FORM D: ELIGIBILITY AND QUALIFICATION FORM

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

If JV/Consortium/Association, to be completed by each partner.

History of Non- Performing Contracts

<input type="checkbox"/> Non-performing contracts did not occur during the last 3 years (2016, 2017, 2018)			
<input type="checkbox"/> Contract(s) not performed in the last 3 years (2016, 2017, 2018)			
Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value in US\$)
		Name of Client: Address of Client: Reason(s) for non-performance:	

Litigation History (including pending litigation)

<input type="checkbox"/> No litigation history for the last 3 years (2016, 2017, 2018)			
<input type="checkbox"/> Litigation History as indicated below			
Year of dispute	Amount in dispute (in US\$)	Contract Identification	Total Contract Amount (current value in US\$)
		Name of Client: Address of Client: Matter in dispute: Party who initiated the dispute: Status of dispute: Party awarded if resolved:	

Previous Relevant Experience

Please list only previous similar assignments successfully completed in the last 5 years (2014, 2015, 2016, 2017, 2018).

List only those assignments for which the Bidder was legally contracted or sub-contracted by the Client as a company or was one of the Consortium/JV partners. Assignments completed by the Bidder's individual experts working privately or through other firms cannot be claimed as the relevant experience of the Bidder, or that of the Bidder's partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. The Bidder should be prepared to substantiate the claimed experience by presenting copies of relevant documents and references if so requested by UNDP.

Project name &	Client & Reference	Contract	Period of	Types of activities
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Country of Assignment	Contact Details	Value	activity and status	undertaken

Bidders may also attach their own Project Data Sheets with more details for assignments above.

☐ Attached are the Satisfactory Performance/Provisional or Final Acceptance issued by Electricity Company/Work Completion Letter from the Top 2 (two) Clients or more for the similar contracts on Installation and Commissioning of at least 100 kWp on-grid land installed PV plant performed during the last 5 years (2014, 2015, 2016, 2017 and 2018) (*the Letters shall indicate the initiation and end date for the previous experience, its budget information, installed power, location of the plant explicitly*), for the similar previous contracts works on.

Financial Standing

Annual Turnover for the last 3 years	Year	USD
	Year	USD
	Year	USD
Latest Credit Rating (if any), indicate the source		

Financial information (in US\$ equivalent)	Historic information for the last 3 years(2016, 2017, 2018)		
	2016	2017	2018
	<i>Information from Balance Sheet</i>		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	<i>Information from Income Statement</i>		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

☐ Attached are copies of the audited financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following condition:

- Must reflect the financial situation of the Bidder or party to a JV, and not sister or parent companies;
- Historic financial statements must be audited by a certified public accountant;
- Historic financial statements must correspond to accounting periods already completed and audited. No statements for partial periods shall be accepted.

FORM E: FORMAT OF TECHNICAL BID

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

The Bidder's Bid should be organized to follow this format of the Technical Bid. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same will be viewed as non-responsive.

SECTION 1: Bidder's qualification, capacity and expertise

- 1.1 General organizational capability which is likely to affect implementation: management structure, financial stability and project financing capacity, project management controls, extent to which any work would be subcontracted (if so, provide details).
- 1.2 Relevance of specialized knowledge and experience on similar engagements done in the region/country.
- 1.3 Quality assurance procedures and risk mitigation measures.
- 1.4 Organization's commitment to sustainability.

SECTION 2: Scope of Supply, Technical Specifications/Technical Requirements, and Related Services

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements/specifications. All important aspects should be addressed in sufficient detail.

- 2.1 A detailed description of how the Bidder will deliver the required goods and services, keeping in mind the appropriateness to local conditions and project environment. Details how the different service elements shall be organized, controlled and delivered.
- 2.2 Explain whether any work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.
- 2.3 The bid shall also include details of the Bidder's internal technical and quality assurance review mechanisms.
- 2.4 Implementation plan including a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.
- 2.5 Demonstrate how you plan to integrate sustainability measures in the execution of the contract.

Technical Compliance Table for LOT 1					
Goods and services to be Supplied and Technical Specifications	Your response				
	Compliance with technical specifications		Specifications Quoted by the Bidder	Quality Certificate/Export Licenses, etc. (indicate all that apply and attach)	Comments
	Yes, we comply (Yes/No)	No, we cannot comply (indicate discrepancies)			
Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67					
Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as					

a whole including the PV panels installed on them.					
Assembly Workmanship of Panel and Supporting Structure					
Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)					
Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with residual current monitoring unit” sensitive to all poles.					
Installation Workmanship of Inverters					

Cabling					
DC Cabling					
Solar Cable 6mm ² (Red)					
Solar Cable 6mm ² (Black)					
Related Connector for DC Cabling					
AC cabling					
AC Cable 5X10 mm ² NYY					
AC Cable 4X1X95mm ² NYY					
Power Transmission Line (3 AWG SWALLOW) including its poles in line with TEDAŞ approved drawings					
MV Cable 3X1X95/16 N2XSY					
Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according to TEDAŞ technical specifications					
PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications and design drawings)					
Main Electrical Panel					
Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, cable and cable caps, etc.) according to TEDAŞ					

technical specifications and approved drawings. DM-2 Type 2 2H/A 4.30m)					
Pole Type 160 kVA transformer, including its pole and accessories, according to TEDAŞ technical specifications and approved drawings.					
PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site					
CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card					
Lightening Protection System in accordance with TS EN 62305					
Remote monitoring and data recording system including SCADA and Smart Logger and related cabling					
Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)					
Safety Fence (250m) and Access door (1 set)					
Installation of Safety Fence and Access Door					
Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod,					

labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)					
2-year Comprehensive Machinery Insurance (CMI) after provisional acceptance					

*As per Section 5a – Schedule of Technical Requirements and Specifications.

** Quantities are estimated based on preliminary design drawings. Payment shall be done according to approved drawings.

Other Related services and requirements <i>(based on the information provided in Section 5b)</i>	Compliance with requirements		Details or comments on the related requirements
	Yes, we comply	No, we cannot comply <i>(indicate discrepancies)</i>	
Guarantee			
Warranty			
Local Service Support			

Technical Compliance Table for LOT 2					
Goods and services to be Supplied and Technical Specifications	Your response				
	Compliance with technical specifications		Specifications Quoted by the Bidder	Quality Certificate/Export Licenses, etc. (indicate all that apply and attach)	Comments
	Yes, we comply (Yes/No)	No, we cannot comply (indicate discrepancies)			
Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67.					
Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.					
Assembly Workmanship of Panel and Supporting Structure					
Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be					

assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)					
Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with residual current monitoring unit” sensitive to all poles.					
Installation Workmanship of Inverters					
Cabling					
DC Cabling					
Solar Cable 6 mm ² (Red)					
Solar Cable 6 mm ² (Black)					
Related Connector for DC Cabling					
AC cabling					
AC Cable 5X10 mm ² NYY					
AC Cable 4X1X95mm ² NYY					
Under Ground Cable (3X1X50/16 XLPE)					
MV Cable 3X1X50/16 mm ² N2XSY					
Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according					

to TEDAŞ technical specifications					
PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications and design drawings)					
Main Electrical Panel					
Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, 160 kVA transformer) according to TEDAŞ technical specifications and approved drawings. Type 1B 6.40m)					
PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site					
CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card					
Lightening Protection System in accordance with TS EN 62305					
Remote monitoring and data recording system including SCADA and Smart Logger and related cabling					
Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to					

the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)					
Safety Fence (300m) and Access door (1 set)					
Installation of Safety Fence and Access Door					
Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)					
2-year Comprehensive Machinery Insurance (CMI) after provisional acceptance, in addition to insurance types requested as per General Conditions of Contract for Civil Works					

*As per Section 5a – Schedule of Technical Requirements and Specifications.

** Quantities are estimated based on preliminary design drawings. Payment shall be done according to approved drawings.

Other Related services and requirements <i>(based on the information provided in Section 5b)</i>	Compliance with requirements		Details or comments on the related requirements
	Yes, we comply	No, we cannot comply <i>(indicate discrepancies)</i>	
Guarantee			
Warranty			
Local Service Support			

SECTION 3: Management Structure and Key Personnel

- 3.1 Describe the overall management approach toward planning and implementing the project. Include an organization chart for the management of the project describing the relationship of key positions and designations. Provide a spreadsheet to show the activities of each personnel and the time allocated for his/her involvement.
- 3.2 Provide CVs for key personnel that will be provided to support the implementation of this project using the format below. CVs should demonstrate qualifications in areas relevant to the scope of goods and/or services.

Format for CV of Proposed Key Personnel

Name of Personnel	[Insert]
Position for this assignment	[Insert]
Nationality	[Insert]
Language proficiency	[Insert]
Education/ Qualifications	<i>[Summarize college/university and other specialized education of personnel member, giving names of schools, dates attended, and degrees/qualifications obtained.]</i> [Insert]
Professional certifications	<i>[Provide details of professional certifications relevant to the scope of goods and/or services]</i> ▪ Name of institution: [Insert] ▪ Date of certification: [Insert]
Employment Record/ Experience	<i>[List all positions held by personnel (starting with present position, list in reverse order), giving dates, names of employing organization, title of position held and location of employment. For experience in last five years, detail the type of activities performed, degree of responsibilities, location of assignments and any other information or professional experience considered pertinent for this assignment.]</i> [Insert]
References	<i>[Provide names, addresses, phone and email contact information for two (2) references]</i> Reference 1: [Insert] Reference 2: [Insert]

I, the undersigned, certify that to the best of my knowledge and belief, the data provided above correctly describes my qualifications, my experiences, and other relevant information about myself.

Signature of Personnel

Date (Day/Month/Year)

FORM F-1: PRICE SCHEDULE FORM FOR AFYON PV PLANT (LOT 1)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

The Bidder is required to prepare the Price Schedule following the below format. The Price Schedule must include a detailed cost breakdown of all goods and related services to be provided. Separate figures must be provided for each functional grouping or category, if any.

Any estimates for cost-reimbursable items, such as travel of experts and out-of-pocket expenses, should be listed separately.

No	Item*	Unit	Quantity**	Unit Price	Total Price (USD)
A. Main Plant Components					
A.1	Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67.	Piece	440		
A.2	Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.	Lump sum	1		
A.3	Assembly Workmanship of Panel and Supporting Structure	Lump sum	1		
A.4	Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)	Lump sum	1		
A.5	Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with	Piece	4		

	residual current monitoring unit” sensitive to all poles.				
A.6	Installation Workmanship of Inverters	Lump sum	1		
B. Electrical Supply and Works					
B.1	Cabling				
B.1.1	DC Cabling				
B.1.1.1	Solar Cable 6mm ² (Red)	meter	400		
B.1.1.2	Solar Cable 6mm ² (Black)	meter	400		
B.1.1.3	Related Connector for DC Cabling	set	25		
B.1.2	AC cabling				
B.1.2.1	AC Cable 5X10mm ² NYY	meter	100		
B.1.2.2	AC Cable 4X1X95mm ² NYY	meter	25		
B.1.2.3	Power Transmission Line (3 AWG SWALLOW) including its poles in line with TEDAŞ approved drawings	meter	1300		
B.1.2.4	MV Cable 3X1X95/16 N2XSY	meter	45		
B.2	Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according to TEDAŞ technical specifications	Lump Sum	1		
B.3	PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications, and design drawings)	Set	1		
B.4	Main Electrical Panel	Piece	1		
B.5.1	Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, cable and cable caps, etc.) according to TEDAŞ technical specifications and approved drawings. DM-2 Type 2 2H/A 4.30m)	Set	1		
B.5.2	Pole Type 160 kVA transformer, including its pole and accessories, according to TEDAŞ technical specifications and approved drawings.	Set	1		
B.6	PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site	Set	1		
B.7	CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card	Set	1		

B.8	Lightening Protection System in accordance with TS EN 62305	Set	1		
B.9	Remote monitoring and data recording system including SCADA and Smart Logger and related cabling	Set	1		
B.10	Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)	Lump Sum	1		
C. Safety					
C.1	Safety Fence (250m) and Access door (1 set)	Set	1		
C.2	Installation of Safety Fence and Access Door	Lump Sum	1		
C.3	Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)	Set	1		
D. Training					
D	Training	Lump Sum	1		
	GRAND TOTAL for LOT 1				

***“Grand Total for Lot 1” quoted above shall be the fixed contract price for LOT 1. The successful bidder shall not be entitled to receive any amount over and above this figure for whatsoever reason; including but not limited to solid conditions; length of cabling; etc. For this reason; the bidders shall make a thorough analysis of possible additional costs that may come out while preparing their bids.**

Name of Bidder: _____

Authorised signature: _____

Name of authorised signatory: _____

Functional Title: _____

FORM F-2: PRICE SCHEDULE FORM FOR KONYA PV PLANT (LOT 2)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

The Bidder is required to prepare the Price Schedule following the below format. The Price Schedule must include a detailed cost breakdown of all goods and related services to be provided. Separate figures must be provided for each functional grouping or category, if any.

Any estimates for cost-reimbursable items, such as travel of experts and out-of-pocket expenses, should be listed separately.

No	Item*	Unit	Quantity**	Unit Price	Total Price (USD)
A. Main Plant Components					
A.1	Panel, minimum 100 kWp (for a radiation of 1000 W/m ²) under standard operating conditions, each being of the same type and rated power and certified to IEC 61215, IEC 61730-1 and IEC 61730-2, having instant power output tolerance of 0/+5 W, resistant to wind velocity of at least 130 km/h, wind load of at least 2400 Pa and a snow load of at least 5400 Pa (IEC 61215), and protection class of IP 67.	Piece	440		
A.2	Supporting Structure, made of corrosion resistant material (hot-dip, galvanized, etc.), designed for an operational life of at least 25 years, resistant to wind with a velocity of 130 km/h and snow load of at least 5400 Pa as a whole including the PV panels installed on them.	Lump sum	1		
A.3	Assembly Workmanship of Panel and Supporting Structure	Lump sum	1		
A.4	Earthworks & Foundations for Supporting Structure (The PV panel carrying constructions shall be assembled at the installation sites by reinforced concrete platforms for each PV panel stand made of ready-made concrete. Contractor is responsible for leveling and other ground preparation arrangements for constructing the concrete platforms.)	Lump sum	1		
A.5	Inverter, having a maximum input voltage of 1000 VDC, maximum efficiency of at least 98%, equipped with communications port RS485, THD less than 3%, protection class of at least IP 65, operating temperature range between -25 and +60°C, and equipped with	Piece	4		

	residual current monitoring unit” sensitive to all poles.				
A.6	Installation Workmanship of Inverters	Lump sum	1		
B. Electrical Supply and Works					
B.1	Cabling				
B.1.1	DC Cabling				
B.1.1.1	Solar Cable 6mm ² (Red)	meter	350		
B.1.1.2	Solar Cable 6mm ² (Black)	meter	350		
B.1.1.3	Related Connector for DC Cabling	set	25		
B.1.2	AC cabling				
B.1.2.1	AC Cable 5X10mm ² NYY	meter	200		
B.1.2.2	AC Cable 4X1X95mm ² NYY	meter	7		
B.1.2.3	Under Ground Cable (3X1X50/16 XLPE)	meter	170		
B.1.2.4	MV Cable 3X1X50/16 mm ² N2XSY	meter	7		
B.2	Cabling Accessories of Item B.1 (Cable Duct, Cable Tray, UV Spiral, cable caps, etc.) according to TEDAŞ technical specifications	Lump Sum	1		
B.3	PV Plant Protection and Grounding (A grounding network to be formed within the PV installation site, and the elements and metallic components of the PV plant in accordance with Section 5a – Technical Requirements and Specifications, and design drawings)	Set	1		
B.4	Main Electrical Panel	Piece	1		
B.5	Mono Block Concrete Substation (Fully Equipped with accumulator rectifier group, MV cells, 160 kVA transformer) according to TEDAŞ technical specifications and approved drawings. Type 1B 6.40m)	Set	1		
B.6	PV Plant Lighting (At least 4 CE approved projectors (including cabling and bonding) to provide illumination to the project site	Set	1		
B.7	CCTV System including at least 6 cameras and 2 recording system with Wireless Modem including SIM Card	Set	1		
B.8	Lightening Protection System in accordance with TS EN 62305	Set	1		
B.9	Remote monitoring and data recording system including SCADA and Smart Logger and related cabling	Set	1		

B.10	Workmanship for Electrical Installation (Including cabling among parts and components within the plant as well as connection from plant to the Mono Block Concrete Substation and to the grid, any necessary excavations and restoration works)	Lump Sum	1		
C. Safety					
C.1	Safety Fence (300m) and Access door (1 set)	Set	1		
C.2	Installation of Safety Fence and Access Door	Lump Sum	1		
C.3	Health and Safety Equipment (Insulated carpet, insulated table, insulated gloves, insulated driving rod, labels and tags, at least 5 pieces of 6kg capacity fire extinguisher, 1 piece of 12 kg fire extinguisher and any other necessary equipment for HSE)	Set	1		
D. Training					
D	Training	Lump Sum	1		
	GRAND TOTAL for LOT 2				

*** “Grand Total for Lot 2” quoted above shall be the fixed contract price for LOT 2. The successful bidder shall not be entitled to receive any amount over and above this figure for whatsoever reason; including but not limited to solid conditions; length of cabling; etc. For this reason; the bidders shall make a thorough analysis of possible additional costs that may come out while preparing their bids.**

Name of Bidder: _____

Authorised signature: _____

Name of authorised signatory: _____

Functional Title: _____

FORM G: FORM OF BID SECURITY

In case the bidder applies for more than one Lot; it should submit a separate bid security for each LOT.

**Bid Security must be issued using the official letterhead of the Issuing Bank.
Except for indicated fields, no changes may be made on this template.**

To: UNDP
[Insert contact information as provided in Data Sheet]

WHEREAS [Name and address of Bidder] (hereinafter called “the Bidder”) has submitted a Bid to UNDP dated [Click here to enter a date.](#) to execute goods and/or services [Insert Title of Goods and/or Services] (hereinafter called “the Bid”):

AND WHEREAS it has been stipulated by you that the Bidder shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security if the Bidder:

- a) Fails to sign the Contract after UNDP has awarded it;
- b) Withdraws its Bid after the date of the opening of the Bids;
- c) Fails to comply with UNDP’s variation of requirement, as per ITB instructions; or
- d) Fails to furnish Performance Security, insurances, or other documents that UNDP may require as a condition to rendering the contract effective.

AND WHEREAS we have agreed to give the Bidder such Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Bidder, up to a total of *[amount of guarantee] [in words and numbers]*, such sum being payable in the types and proportions of currencies in which the Price Bid is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of guarantee as aforesaid]* without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

This guarantee shall be valid up to 30 days after the final date of validity of bids.

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Signature: _____

Name: _____

Title: _____

Date: _____

Name of Bank _____

Address _____

[Stamp with official stamp of the Bank]