



**STRENGTHENING WOMEN'S LEADERSHIP AND  
PARTICIPATION IN THE RENEWABLE ENERGY  
SECTOR IN CUBA (FORMER-CUBA)**

**INTERNATIONAL BIDDING DOCUMENTS  
ACQUISITION OF AUTONOMOUS  
PHOTOVOLTAIC SYSTEMS (SSPS) AND  
DEMONSTRATION SOLAR PARK (PSD)**

**Final Version**

**JUNE-AUGUST 2023**

**INTERNATIONAL BIDDING DOCUMENTS  
(BD)  
FORMER 0623-001-SFV/PS**

**SUBJECT:           LOT 1: PURCHASE OF STAND-ALONE PHOTOVOLTAIC  
                          SYSTEMS (SSPS)**

**LOT 2: ACQUISITION OF 100 kW DEMONSTRATIVE SOLAR  
                          FARM**

**BD NO:             FORMER 0623-001-SFV/PS**

**Project:            Strengthening women's leadership and participation in the  
                          renewable energy sector in Cuba - FORMER**

**Country:           Cuba (delivery CIF)**

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## SECTION 0. INTRODUCTION

Bidding is open to local and international bidders regardless of the goods to be procured.

Cowater International is a Canadian organization in charge of the acquisition process. This includes the solicitation and receipt of bids, the evaluation of bids, the selection of the supplier and the payment of goods.

**ENERGOIMPORT** is the Cuban entity in charge of receiving and customs clearing of the goods purchased in this process.

Decisions related to procurement, bidding processes and the evaluation of the technical suitability of the goods to be procured will be made through the **Project Evaluation Committee (PEC)**.

For the purposes of this document, the **Bidder** refers to the company or consortium of companies that submit a technical-financial Proposal to this call for tenders, while the **Supplier** refers to the company or consortium of companies that was awarded the Contract, as a result of the evaluation carried out by the Evaluation Committee.

The following is the competitive document presenting the international bidding terms and conditions (**Bidding Documents, or BD**) for the acquisition of:

- **LOT 1** - Stand-alone solar photovoltaic systems (SSPS) to serve homes and farms in the Province of Holguin, Republic of Cuba.

and

- **LOT 2** - Goods for the installation of a 100 kWp Demonstration Solar Park (DSP) for the University of Moa located in the Province of Holguin.

**Bidders may submit Proposals for either or both lots.**



## SECTION 1. LETTER OF INVITATION

Cowater International (hereinafter Cowater) hereby invites you to submit a Proposal to this International Tender for the above subject.

These Bidding Documents include the following documents and the General Terms and Conditions of Contract which are entered on the Proposal Data Sheet (PDS):

- Section 1: This Letter of Invitation
- Section 2: Instructions to Bidders
- Section 3: Proposal Data Sheet (PDS)
- Section 4: Evaluation Criteria
- Section 5: Terms of Reference (TOR) - LOT 1
- Section 6: Terms of Reference (TOR) - LOT 2
- Section 7: Proposal Forms to be Submitted.
  - Form A: Technical Proposal Submission Form
  - Form B: Bidder's Information Form
  - Form C: Joint Venture, Consortium or Partnership Information Form
  - Form D: Qualifications Form
  - Form E: Technical Proposal Form
  - Form F: Financial Proposal Submission Form
  - Form G: Financial Proposal Form
  - Form H: Guarantee Forms

If interested in submitting a Proposal in response to these BD, prepare your Proposal in accordance with the requirements and procedure set forth in these BD and submit it by the Proposal Submission Deadline set forth in the Proposal Data Sheet. **Bidders may submit Proposals for either or both lots.**

Please confirm receipt/review of these BDs by sending an email to [FORMER.bidding@cowater.com](mailto:FORMER.bidding@cowater.com), indicating whether or not you intend to submit a Proposal. This will enable you to receive any modifications or updates to the BD. If you require any further clarification, please contact us at the contact email address indicated in the attached Proposal Data Sheet.

Cowater looks forward to receiving your Proposal and thanks you in advance for your interest in the procurement opportunities offered by this international tender.

**Issued and approved by FORMER Project Evaluation Committee**

## SECTION 2. INSTRUCTIONS TO BIDDERS

<b>A. GENERAL PROVISIONS</b>	
<b>1. Introduction</b>	<p>1.1 Bidders shall comply with all requirements of these BD, including any modifications made in writing by Cowater.</p> <p>1.2 Bidders may submit Proposals for both lots or for either lot.</p>
<b>2. Fraud and corruption, gifts and hospitality</b>	<p>2.1 Cowater rigorously applies a zero-tolerance policy for prohibited practices, including fraud, corruption, collusion, unethical and unprofessional practices, and obstruction by Cowater suppliers, and requires bidders/suppliers to adhere to the highest ethical standards during the procurement process and Contract execution. All Bidders shall comply with Cowater's Supplier Code of Ethics and Safeguards, which is available at the following link: <a href="https://www.cowater.com/en/ethics-and-safeguards/">https://www.cowater.com/en/ethics-and-safeguards/</a>.</p> <p>2.2 Bidders/suppliers shall not offer gifts or hospitality of any kind to Cowater staff members, including recreational trips to sporting or cultural events or theme parks, offers of vacations or transportation, or invitations to extravagant lunches or dinners.</p> <p>2.3 Under this policy, Cowater will proceed as follows:</p> <ol style="list-style-type: none"> <li>a) It will reject a Proposal if it determines that the selected Bidder has engaged in corrupt or fraudulent practices in competing for the Contract in question.</li> <li>b) It will declare a supplier ineligible, either permanently or for a specified term, for the award of a Contract if at any time it determines that such supplier has engaged in corrupt or fraudulent practices in competing for or performing a Cowater Contract.</li> </ol>
<b>3. Eligibility</b>	<p>3.1 A Bidder must not be suspended, excluded or otherwise identified as ineligible by Cowater or the National Electrical Union (Cuban counterpart of the FORMER Project; henceforth, MINEM/UNE). Therefore, suppliers must inform Cowater if subject to any sanction or temporary suspension imposed by these (or any other) organizations.</p> <p>3.2 It is the Bidder's responsibility to ensure that beneficial owners, their employees, members of Joint Ventures, Consortia or Partnerships, subcontractors, service providers, suppliers and/or their employees meet the eligibility requirements established by Cowater.</p>
<b>4. Conflict of interest</b>	<p>4.1 Bidders shall strictly avoid conflicts with other work assigned or with their own interests and shall act without regard to future work. Any Bidder who is shown to have a conflict of interest will be disqualified. Without limiting the generality of the foregoing, Bidders, and any of their affiliates, shall be deemed to have a conflict of interest with one or more parties to this bidding process if they:</p> <ol style="list-style-type: none"> <li>a) are or have been associated in the past with a firm, or any of its affiliates, that has been retained by Cowater or MINEM/UNE to provide services in the preparation of the design, specifications, Terms of Reference, cost estimate and analysis, and other documents to be used in the procurement of the goods and services related to this selection process.</li> </ol>

## A. GENERAL PROVISIONS

	<p>b) have participated in the preparation and/or design of the program or project related to the services requested in these BD; or</p> <p>c) are in conflict for any other reason as may be determined by Cowater in its sole discretion.</p> <p>4.2 In case of doubt in the interpretation of a potential conflict of interest, Bidders shall inform Cowater and seek its confirmation as to whether or not such a conflict exists.</p> <p>4.3 Similarly, Bidders shall disclose in their Proposals their knowledge of the following:</p> <p>a) if the: owners, co-owners, executives, directors, majority shareholders of the entity submitting the Proposal or key personnel, are relatives of Cowater personnel involved in procurement functions and/or in the Government of Cuba, or of any Executing Partner receiving the goods contemplated in these BD; and</p> <p>b) any other circumstances that could give rise to a real or perceived conflict of interest, collusion or unfair competitive practices.</p> <p>Failure to disclose such information may result in rejection of the Proposal(s) affected by the nondisclosure.</p> <p>4.4 The eligibility of Bidders that are wholly or partially owned by the Government of Cuba will be subject to further evaluation by the Project Evaluation Committee, and to the review of various factors, such as whether they are registered, operated and managed as an independent business entity, the extent of government ownership or participation, receipt of subsidies, mandate and access to information related to these BD, among others. Conditions that may allow undue advantages over other Bidders may result in the eventual rejection of the Proposal.</p>
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### 5. Timeline of the bidding process

5.1 The days referred to in this table correspond to calendar days.

Activities	Dates
1. Publication of the invitation to bid	6/5/23
2. Sending of Specific Conditions sheet	Until 6/12/23
3. Consultation period for Bidders	6/13/23 6/23/23
4. Deadline for response from FORMER's procurement experts	6/14/23 6/28/23
5. Consultation period and receipt of Technical and Financial Proposals.	Until 23:00 Ottawa time 9/6/23
6. Proposal Opening Ceremony with honorary witnesses	9/7/23
7. Evaluation and selection of Proposals with the support of ENERGOIMPORT	Until 9/18/23
8. Notification of correctable errors or omissions	9/19/23
9. Error correction period	Until 9/26/23
10. Financial evaluation	9/29/23
11. Award	9/30/23

## A. GENERAL PROVISIONS

	12. Notification and publication of the award	10/3/23
	13. Deadline for the provision of the Performance Guarantee	10/10/23
	14. Subscription (signing) of Contract	10/17/23

## B. PREPARATION OF PROPOSALS

<b>6. General considerations</b>	<p>6.1 The Bidder, in preparing the Proposal, is expected to examine the BD carefully. Any significant irregularity in providing the information requested in the BD may result in rejection of the Proposal.</p> <p>6.2 The Bidder shall not be permitted to take advantage of any errors or omissions in the BD. If such errors or omissions are discovered, the Bidder shall notify Cowater.</p>
<b>7. Cost of Proposal preparation</b>	7.1 The Bidder shall bear any and all costs associated with the preparation and/or submission of the Proposal, regardless of whether or not the Proposal is selected. Cowater shall not be responsible for such costs, regardless of the performance or results of this procurement process.
<b>8. Language</b>	8.1 The Proposal, as well as all related correspondence exchanged between the Bidder and Cowater, shall be in the language(s) specified in the Data Sheet.
<b>9. Documents included in the Proposal</b>	<p>9.1 The Proposal must include the following documents:</p> <ul style="list-style-type: none"> <li>a) Documents establishing Eligibility and Qualifications of the Bidder</li> <li>b) Technical Proposal</li> <li>c) Financial Proposal</li> <li>d) Bid Guarantee, if requested in Data Sheet</li> <li>e) Any attachments and/or appendices to the Proposal</li> </ul>
<b>10. Documents establishing Bidder Eligibility and Qualifications</b>	10.1 The Bidder shall provide documentary evidence of its status as an eligible and qualified supplier, using the Forms provided in Section 7, and providing the documents requested in those forms. In order for a Bidder to be awarded a Contract, its capabilities must be documented to Cowater's satisfaction.
<b>11. Format and content of the Technical Proposal</b>	<p>11.1 The Bidder must submit a Technical Proposal using the standard Forms and templates provided in Section 5 (for LOT 1) and Section 6 (for LOT 2) of the BD.</p> <p>11.2 The Technical Proposal shall not include prices or financial information. Otherwise, it may be rejected.</p> <p>11.3 Where required in Section 5 (LOT 1) or Section 6 (LOT 2), samples of the items shall be submitted within the times specified and, unless otherwise specified by Cowater, at no cost to Cowater.</p> <p>11.4 Where applicable and required in Section 5 (LOT 1) or Section 6 (LOT 2), the Bidder shall describe the training program required for the installation, maintenance and operation of the equipment offered, as well as the cost to Cowater. Unless otherwise specified, such training and training materials shall be provided in the language of the Proposal (preferably in Spanish), as stipulated in the Data Sheet.</p>



<p><b>12. Format and content of the Financial Proposal</b></p>	<p>12.1 The Financial Proposal shall be prepared using the standard Form provided in Section 7 of the BD. It shall list all major cost components associated with the goods and the detailed breakdown of such costs.</p> <p>12.2 All deliverables and activities described in the Technical Proposal that are not quoted in the Financial Proposal will be considered included in the activity or item prices as well as in the total final price.</p> <p>12.3 Prices and other financial information will not be disclosed elsewhere except in the Financial Proposal.</p> <p>12.4 The financial Proposal must be submitted in Canadian dollars (CAD).</p>
<p><b>13. Guarantees: Bid Guarantee, Performance Guarantee, Advance Payment Guarantee and Quality Guarantee.</b></p>	<p><b>Bid Guarantee</b></p> <p>13.1 If requested in the Data Sheet, a Bid Guarantee in the amount provided in the Data Sheet must be provided. The Bid Guarantee shall be valid until 30 days after the final validity date of the Proposal.</p> <p>13.2 The Bid Guarantee shall be included with the Technical Proposal. If the BD request the Bid Guarantee, but it is not attached to the Technical Proposal, the Proposal will be rejected.</p> <p>13.3 If it is found that the amount or validity period of the Bid Guarantee is less than Cowater's request, Cowater reserves the right to reject the Proposal.</p> <p>13.4 If an electronic submission is authorized in the Data Sheet, Bidders must include a copy of the Bid Guarantee in their submission and the original of the Bid Guarantee must be sent by courier service or hand-delivered according to the instructions in the Data Sheet no later than the date of submission of the Proposal.</p> <p>13.5 Cowater may execute the Bid Guarantee and reject the Proposal if one or more of the following conditions occur:</p> <ul style="list-style-type: none"> <li>a) if the Bidder withdraws its Proposal during the validity period specified in the Data Sheet, or</li> <li>b) in the event that the selected Bidder does not proceed to: <ul style="list-style-type: none"> <li>i. sign the Contract after Cowater has issued an award; or</li> <li>ii. provide the Performance Guarantee, insurance or other documents required by Cowater as a prerequisite for the effectiveness of the Contract that may be awarded to the Bidder.</li> </ul> </li> </ul> <p>13.6 Cowater will return the Bid Guarantee to all unsuccessful Bidders once the Contract is signed with the successful Bidder.</p> <p><b>Performance Guarantee</b></p> <p>13.7 If requested in the Data Sheet, a Performance Guarantee, in the amount provided in the Data Sheet, must be furnished. The Performance Guarantee will be required only from the successful Bidder and must be submitted using the Performance Guarantee form included in Section 7, or another form acceptable to the Evaluation Committee.</p> <p>13.8 The original of the Performance Guarantee must be submitted at the time of signing the Contract. Once received and the Contract signed, the Bid Guarantee will be returned.</p>

	<p>13.9 The Performance Guarantee shall be valid for 30 days after the scheduled completion date of the Contract. It is further understood that if the Contract period is modified during the execution of the Contract, the Guarantee will have to be updated to the new period.</p> <p>13.10 If the selected Bidder fails to submit the above-mentioned Performance Guarantee or fails to sign the Contract, this will constitute sufficient grounds to cancel the award and execute the Bid Guarantee. In this case, Cowater may award the Contract to the Bidder whose Bid is evaluated as the second best by the Evaluation Committee.</p> <p><b>Advance Payment Guarantee</b></p> <p>13.11 When an advance payment to the Supplier has been agreed to, the Supplier shall furnish an Advance Payment Guarantee equal to one hundred percent (100%) of the amount of the advance payment. This Guarantee shall be required only from the successful Bidder (Supplier) and shall be submitted using the Advance Payment Guarantee Form included in Section 7, or another form acceptable to the Evaluation Committee.</p> <p>13.12 This guarantee shall be valid for 30 days after the date of final validity of the Contract and may be terminated upon full reimbursement of the advance payment.</p> <p><b>Quality Guarantee</b></p> <p>13.13 If requested in the Data Sheet, a Quality Guarantee shall be provided in the amount specified in the Data Sheet. The Quality Guarantee shall be required from the Supplier upon receipt of the goods and services and completion of the Contract and shall be submitted using the Quality Guarantee form included in Section 7 or another form acceptable to the Evaluation Committee.</p> <p>13.14 The amount of the guarantee, which is 5% of the contract, will be calculated based on the final price of the Contract and will be valid for 12 months from the date of final receipt of the goods and issuing the Acceptance Certificate by ENERGOIMPORT, which terminates the Contract.</p> <p>13.15 Upon receipt of the original Quality Guarantee, the Performance Guarantee and the Advance Payment Guarantee (if any) will be returned.</p> <p>13.16 Any work performed and/or replacement of the goods and services supplied by the Supplier during the period of this warranty shall also be guaranteed for a period of 12 months, counted from the date of correction and/or replacement of the same by means of an extension of the Quality Guarantee on a proportional basis for the goods and services covered by the Contract and the extension shall be for 12 months, counted from the date of replacement of the same.</p>
<p><b>14. Currency</b></p>	<p>14.1 All prices will be presented or quoted according to the currency to be established in the Data Sheet.</p>
<p><b>15. Joint Venture, Consortium or Partnership</b></p>	<p>15.1 If the Bidder is a group of legal entities that will form or have formed a Joint Venture, Consortium or Partnership for the Proposal, they must confirm the following in their Proposal: (i) that they have designated one of the parties to act as the lead entity, duly vested with authority to legally bind the members of the Joint Venture,</p>

	<p>Consortium or Partnership jointly and severally; which shall be duly evidenced by a duly notarized Agreement between such legal entities, which Agreement shall be submitted with the Proposal, and (ii) that if awarded the Contract, the Contract shall be between Cowater and the designated lead entity, who shall act for and on behalf of all the entities comprising the Joint Venture, Consortium or Partnership.</p> <p>15.2 After the Proposal Submission Deadline, the principal entity designated to represent the Joint Venture, Consortium or Partnership may not be changed without Cowater's prior written consent.</p> <p>15.3 The lead entity and the member entities of the Joint Venture, Consortium or Partnership shall comply with the provisions of Clause 16 herein regarding the submission of a single Proposal.</p> <p>15.4 The description of the organization of the Joint Venture, Consortium or Partnership shall clearly define the role expected of each of the Joint Venture, Consortium or Partnership entities in meeting the requirements of the BD, both in the Proposal and in the Joint Venture, Consortium or Partnership Agreement. All entities comprising the Joint Venture, Consortium or Partnership will be subject to eligibility evaluation and qualifications by the Project Evaluation Committee.</p> <p>15.5 When the Joint Venture, Consortium or Partnership submits the record of its history and experience, it shall clearly differentiate between the following:</p> <ul style="list-style-type: none"> <li>a) the commitments that have been assumed jointly by the Joint Venture, the Consortium or the Partnership; and</li> <li>b) the commitments that have been assumed by individual entities of the Joint Venture, the Consortium or the Partnership.</li> </ul> <p>15.6 Previous contracts entered into by individual independent experts who are permanently associated or have been temporarily associated with any of the member firms may not be presented as experience of the Joint Venture, Consortium or Partnership or of its members, and only the experience of individual experts may be evaluated in the presentation of their individual credentials.</p> <p>15.7 In any event a joint venture, consortium or partnership shall not be made up of more than 3 entities.</p>
<p><b>16. A single Proposal</b></p>	<p>16.1 The Bidder (including individual members of any Joint Venture, Consortium or Partnership) must submit only one Proposal, either in its own name or as part of a Joint Venture, Consortium or Partnership.</p> <p>16.2 Proposals submitted by two or more Bidders will be rejected if any of the following situations are proven:</p> <ul style="list-style-type: none"> <li>a) that have at least one controlling associate, director or shareholder in common; or</li> <li>b) that any of them receives or has received any direct or indirect subsidy from the others; or</li> <li>c) that have the same legal representative for the purposes of these BD; or</li> <li>d) who have a relationship with each other, directly or through common third parties, that places them in a position with access to information relative to another Bidder's Proposal, or with influence over such other Bidder's Proposal, with respect to this Bid process;</li> </ul>

	<p>e) that they are subcontractors to each other, one within the other's Proposal and vice versa, or that a subcontractor to one Proposal also submits another Proposal in its name as a prime bidder; or</p> <p>f) that key personnel who have been proposed on a Bidder's team participate in more than one Proposal received in this Tender process. This personnel-related condition does not apply to subcontractors who are included in more than one Proposal.</p>
<b>17. Period of validity of the Proposal</b>	<p>17.1 Proposals shall be valid for the period specified in the Data Sheet, starting at the Proposal Submission Deadline. Cowater may reject any Proposal valid for a shorter period and consider that it does not comply with all the requested requirements.</p> <p>17.2 During the Proposal Validity Period, the Bidder shall keep its original Proposal unchanged, including availability of Key Personnel, proposed rates and total price.</p>
<b>18. Extension of the period of validity of the Proposal</b>	<p>18.1 In exceptional circumstances, prior to the expiration of the Proposal Validity Period, Cowater may request Bidders to extend the validity period of their Proposals. The request and responses shall be in writing and shall be deemed to form an integral part of the Proposal.</p> <p>18.2 If the Bidder agrees to extend the validity of its Proposal, it shall do so without modifying the original Proposal.</p> <p>18.3 The Bidder has the right to refuse to extend the validity of its Proposal, in which case the Proposal will not be evaluated further.</p> <p>18.4 The Bid Guarantee must be updated with the new established term.</p>
<b>19. Clarifications to the BD (by Bidders)</b>	<p>19.1 Bidders may request clarification on any of the documents related to these BD prior to the date indicated in the Data Sheet. Any request for clarification must be sent in writing in the manner indicated in the Data Sheet. If queries are sent by other means not specified, even if they are sent to Cowater staff members. Cowater shall have no obligation to respond or to confirm that the inquiry was officially received.</p> <p>19.2 Cowater will provide responses to requests for clarification received through the method specified in the Data Sheet.</p> <p>19.3 Cowater undertakes to respond to such requests for clarification promptly, but any delay in responding shall not imply any obligation on the part of Cowater to extend the deadline for submission of Proposals, unless Cowater deems such an extension to be justified and necessary.</p>
<b>20. Amendments to the BD</b>	<p>20.1 At any time prior to the Proposal submission deadline, Cowater may, for any reason (e.g., in response to a request for clarification from a Bidder), modify the BD by amendment. Amendments will be made available to all prospective Bidders through the means of transmission specified in the Data Sheet.</p> <p>20.2 If the modification is substantial, Cowater may extend the Proposal submission deadline to allow Bidders reasonable time to incorporate the modification into their Proposals.</p>
<b>21. Alternative Proposals</b>	<p>21.1 Unless otherwise specified in the Data Sheet, alternative Proposals will not be considered. If the Data Sheet allows the submission of an alternative Proposal, the Bidder may submit an</p>

	<p>alternative Proposal only if it complies with the requirements of the BD. Cowater will only consider the alternative Proposal offered by the Bidder whose Proposal was the highest rated according to the specified evaluation method. When the conditions for acceptance are met, or when the justifications have been clearly stated, Cowater reserves the right to award a Contract on the basis of an alternative Proposal.</p> <p>21.2 If several Proposals or alternative Proposals are submitted, they should be clearly marked as "Main Bid" and "Alternate Bid".</p>
<b>22. Pre-proposal meeting</b>	<p>22.1 When appropriate, a pre-Proposal meeting will be held at the date, time and place specified in the Data Sheet. All Bidders are encouraged to attend. Non-attendance, however, will not result in disqualification of an interested Bidder. Minutes of the Bidders' conference will be distributed by e-mail, as specified in the Data Sheet. No oral statement made during the conference may modify the terms and conditions of the BD, unless specifically incorporated in the <i>Bidders' Conference Minutes</i> or issued or published as an amendment to the BD.</p>

### C. SUBMISSION AND OPENING OF PROPOSALS

<b>23. Submission</b>	<p>23.1 The Bidder shall submit a duly signed and complete Proposal comprising the documents and forms in accordance with the requirements in the Data Sheet. Submission must be made either in person, by courier service or by electronic transmission, as specified in the Data Sheet.</p> <p>23.2 The Proposal must be signed by the Bidder or by a person duly authorized to represent it. The authorization must be communicated by means of a document accrediting such authorization, issued by the legal representative of the Bidder, or a power of attorney accompanying the Proposal.</p> <p>23.3 Bidders should note that the mere act of submitting a Bid, in and of itself, implies that the Bidder fully accepts the <i>General Terms and Conditions of the Contract</i>.</p>
<b>23-a. Submission of physical copy (manual)</b>	<p>23.4 Submission of the bidding documents must be done electronically. The exception to this applies to the submission of guarantees and specific legal documentation.</p>
<b>23-b. Submission by e-mail</b>	<p>23.5 Submission by e-mail shall be made as follows:</p> <ol style="list-style-type: none"> <li>a) The electronic files that are part of the Proposal must comply with the format and requirements indicated in the Data Sheet.</li> <li>b) The files with the Technical Proposal and the Financial Proposal MUST BE COMPLETELY SEPARATE. The Financial Proposal must be encrypted with different passwords and clearly labeled. Files must be sent to the dedicated email address specified in the Data Sheet.</li> <li>c) The password to open the Financial Proposal should only be provided when requested by Cowater. Cowater will request the password only from Bidders whose Technical Proposal meets all requested requirements. Failure to provide a correct password may result in rejection of the Proposal.</li> </ol>
<b>24. Deadline for Proposal submission</b>	<p>24.1 Cowater will receive complete Proposals in the form, and no later than the date and time, specified in the Data Sheet. Cowater will only acknowledge the date and time it received the Proposal.</p>



	24.2 Cowater will not consider any Proposals submitted after the deadline for submission of Proposals.
<b>25. Withdrawal, Substitution and Modification of Proposals</b>	<p>25.1 The Bidder may withdraw, substitute or modify its Proposal after submission at any time prior to the deadline for submission of Proposals.</p> <p>25.2 Manual and Email Submissions: A Bidder may withdraw, substitute or modify its Proposal by sending a written notice to Cowater, duly signed by an authorized representative, which must include a copy of the authorization (or power of attorney). The substitution or corresponding modification of the Proposal, if any, must accompany the respective written notice. All notices must be submitted in the same manner specified for submission of Proposals, clearly marked "WITHDRAWAL", "SUBSTITUTION" or "MODIFICATION".</p> <p>25.3 Proposals whose withdrawal is requested will be returned unopened to the Bidder (manual submissions only), unless the Proposal is withdrawn after it has been opened.</p>
<b>26. Proposal Opening</b>	26.1 There is no public opening of Proposals for this Bid. Cowater will open the Proposals in the presence of honorary witnesses.

#### D. EVALUATION OF PROPOSALS

<b>27. Confidentiality</b>	<p>27.1 Information relating to the review, evaluation and comparison of Proposals, and the recommendation for award of the Contract, may not be disclosed to Bidders or any other person not officially involved in such process, even after publication of the Contract award.</p> <p>27.2 Any attempt by a Bidder or anyone on behalf of the Bidder to influence Cowater in the review, evaluation and comparison of Proposals or decisions relating to the award of the Contract, may, by decision of the Evaluation Committee, cause rejection of its Proposal and, consequently, be subject to the application of Cowater's existing supplier sanctions procedures.</p>
<b>28. Evaluation of Proposals</b>	<p>28.1 The Bidder may not alter or modify its Proposal in any way after the deadline for submission of Proposals. Cowater will perform the evaluation only on the basis of the Technical and Financial Proposals submitted.</p> <p>28.2 The evaluation of the Proposals is carried out in the following steps:</p> <ol style="list-style-type: none"> <li>a) Preliminary examination</li> <li>b) Eligibility and Minimum Qualifications (if prequalification is not carried out)</li> <li>c) Evaluation of Technical Proposals</li> <li>d) Evaluation of Financial Proposals</li> </ol>
<b>29. Preliminary examination</b>	29.1 The <i>Evaluation Committee</i> will examine the Proposals to determine whether they meet the minimum documentary requirements as started in Section 4. The <i>Evaluation Committee</i> reserves the right to reject any Proposal at this stage.
<b>30. Evaluation of Eligibility and Minimum Qualifications</b>	30.1 Bidder's Eligibility and Qualifications will be evaluated against the Eligibility and Minimum Qualifications requirements specified in Section 4 (Evaluation Criteria).

	<p>30.2 In general terms, suppliers that meet the following criteria will be considered qualified:</p> <ul style="list-style-type: none"> <li>a) They must not be part of Cowater's or UNE's list of ineligible suppliers.</li> <li>b) They are in a good financial position and have access to adequate financial resources to execute the Contract and meet all existing commercial commitments.</li> <li>c) They have similar experience, technical expertise, production capacity, quality certifications, quality control procedures and other relevant resources for provision of the required goods.</li> <li>d) They fully comply with Cowater's General Terms and Conditions of Contract.</li> <li>e) There is no consistent history of court/arbitration decisions against the Bidder.</li> <li>f) They have a record of timely and satisfactory performance with their clients.</li> </ul>
<p><b>31. Evaluation of Technical and Financial Proposals</b></p>	<p>31.1 The evaluation team shall review and evaluate the Technical Proposals based on their responsiveness to the Terms of Reference and other documentation in the BD, applying the evaluation criteria, sub-criteria and scoring system specified in Section 4 (Evaluation Criteria). It will be considered that a Proposal does not comply with all the requirements requested in the technical evaluation stage if it does not reach the minimum technical score indicated in the Data Sheet. When necessary and if so indicated in the Data Sheet, the <i>Evaluation Committee</i> may invite Bidders who comply with the technical requirements to make a presentation of their Technical Proposals.</p> <p>31.2 In the second stage, only the Financial Proposals of those Bidders that reach the minimum technical score will be opened for evaluation. The Financial Proposals corresponding to Technical Proposals that do not comply with all the requested requirements will remain closed and, in the case of manual submissions, will be returned closed to Bidders. For Proposals submitted by e-mail, the <i>Evaluation Committee</i> will not request the passwords of the Financial Proposals of the Bidders whose Technical Proposals did not comply with all the requested requirements.</p> <p>31.3 The evaluation method that governs this Bid will be the one indicated in the Data Sheet, and may be one of the following two (2) methods: (a) the lowest-price method, which selects the lowest financial Proposal among the Bidders that best meet all the requested requirements; or (b) the combined scoring method that will be based on a combination of the technical score and the financial score.</p> <p>31.4 Where the Data Sheet specifies a combined scoring method, the formula for scoring Proposals shall be as follows:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><u>Scoring of Technical Proposal (TP):</u></p> <p><b>TP Score</b> = (Total score obtained for the Proposal under review / Maximum score obtained for all evaluated TP) x 100</p> <p><u>Scoring of Financial Proposal (FP):</u></p> <p><b>FP Score</b> = (Lowest price Proposal for all evaluated FP / Price of Proposal under review) x 100</p> </div>

	<p>Combined total score:</p> <p><b>Combined score</b> = (TP Score) x (TP Weight, 45 %) + (FP Score) x (FP Weight, 55 %)</p>
<p><b>32. Post-Proposal Evaluation Exercise</b></p>	<p>32.1 The <i>Evaluation Committee</i> reserves the right to conduct a verification exercise, subsequent to the evaluation, with the objective of determining to its full satisfaction the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but is not limited to, all of the following options or a combination thereof:</p> <ul style="list-style-type: none"> <li>a) Verification of the accuracy, truthfulness and authenticity of the information provided by the Bidder.</li> <li>b) Validation of the degree of compliance with the Bid requirements and evaluation criteria based on the findings of the <i>Evaluation Committee</i>.</li> <li>c) Investigation and reference checks with governmental entities with jurisdiction over the Bidder, or with previous clients, or any other entity that may have done business with the Bidder.</li> <li>d) Investigation and reference checks with previous clients on the performance of ongoing or completed contracts, including physical inspections of previous work, as required.</li> <li>e) Physical inspection of the Bidder's offices, branches or other facilities where its operations are carried out, with or without prior notice to the Bidder.</li> <li>f) Other means deemed appropriate by the <i>Evaluation Committee</i>, at any time during the selection process, prior to the award of the Contract.</li> </ul>
<p><b>33. Clarification of Proposals</b></p>	<p>33.1 To assist in the review, evaluation and comparison of Proposals, the <i>Evaluation Committee</i> may, at its discretion, request clarification of its Proposal from any Bidder.</p> <p>33.2 The Evaluation Committee's request for clarification and response shall be in writing and no modification of the prices or material elements of the Proposal shall be requested, offered, or permitted, except to provide clarification and confirm the correction of any arithmetic errors discovered by the Evaluation Committee in the evaluation of the Proposals, in accordance with the BD.</p> <p>33.3 Any unsolicited clarifications submitted by a Bidder with respect to its Proposal other than in response to a request by the Evaluation Committee will not be considered during the review and evaluation of Proposals.</p>
<p><b>34. Proposal Responsiveness</b></p>	<p>34.1 The Evaluation Committee's determination of a Proposal's responsiveness will be based on the content of the Proposal itself. A Proposal that is substantially responsive is one that complies with all the terms, conditions, TOR and requirements of the BD without material or significant deviation, reservation or omission.</p> <p>34.2 If a Proposal does not substantially comply with all of the requested requirements, it will be rejected by the Evaluation Committee and the Bidder may not subsequently adjust it by correcting the material or significant deviation, reservation or omission.</p>
<p><b>35. Nonconformities, repairable errors and omissions</b></p>	<p>35.1 Provided that a Proposal substantially complies with all requested requirements, the Evaluation Committee may rectify nonconformities or omissions in the Proposal that, in the opinion of the</p>

	<p>Evaluation Committee, do not constitute a material or significant deviation.</p> <p>35.2 The Evaluation Committee may request the Bidder to submit the necessary information or documentation, within a reasonable time, to rectify non-conformities or non-material omissions in the Proposal related to documentation requirements. Such omission must not relate to any aspect of the Proposal price. Failure of the Bidder to comply with the request may result in rejection of the Proposal.</p> <p>35.3 In the case of a Financial Proposal that has been opened, the Evaluation Committee will verify, and correct arithmetic errors as follows:</p> <p>a) If there is a discrepancy between the unit price and the total obtained by multiplying the unit price by the quantity, the unit price will prevail and the total should be corrected, unless, in the opinion of the Evaluation Committee, there is an obvious decimal point error in the unit price, in which case the total quoted will prevail and the unit price should be corrected.</p> <p>b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals will prevail, and the total must be corrected.</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>35.4 If the Bidder does not accept the correction of the errors made by the <i>Evaluation Committee</i>, its Proposal shall be rejected and the corresponding guarantee shall be forfeited.</p>
<b>36. Tie Resolution</b>	<p>36.1 In the event of a tie in the Combined total score in accordance with the above criteria, the tie-breaking criterion will be the highest score obtained in the Financial Proposal associated with each Bidder.</p> <p>36.2 If a tie persists, the award will go to the first bid to be received in this tender, in accordance with the date indicated in Section 3, Proposal Data Sheet: Item 14 - Deadline for submission of the Proposal; and Item 15 - Permitted mode for submission of Proposals.</p>
<b>E. AWARDING OF THE CONTRACT</b>	
<b>37. Right to accept or reject any or all Proposals</b>	<p>37.1 The <i>Evaluation Committee</i> reserves the right to accept or reject any Proposal, to declare that any or all Proposals do not meet all requested requirements, and to reject all Proposals at any time prior to award of the Contract, without incurring any liability or obligation to inform the affected Bidders of the reasons for the <i>Evaluation Committee's</i> decision. The <i>Evaluation Committee</i> shall not be obligated to award the Contract to the lowest priced Proposal.</p>
<b>38. Award criteria</b>	<p>38.1 Prior to the expiration of the validity of the Proposal, the <i>Evaluation Committee</i> will award the Contract to the qualified Bidder according to the award criteria indicated in the Data Sheet.</p>
<b>39. Information meeting</b>	<p>39.1 <i>Not applicable in this process; unsuccessful bids will be informed via email.</i></p>
<b>40. Right to modify the requirements at time of Contract award</b>	<p>40.1 <b>Lot 1: As specified in Section 5.1, at the time of</b> Contract award, the <i>Evaluation Committee</i> reserves the right to change the quantity of goods requested. <b>Lot 2:</b> At the time of Contract award, the <i>Evaluation Committee</i> reserves the right to modify the quantity of</p>

	goods, up to a maximum of twenty-five percent (+/-25%) of the total financial Proposal for this lot.
<b>41. Signing of Contract</b>	41.1 The successful Bidder shall sign and date the Contract and return it to Cowater, according to the date established in the bid process schedule (Clause 5 of the General Provisions), additionally, and if required, shall submit the original of the Performance Guarantee. Failure to comply with these requirements may be sufficient grounds for the annulment of the award and the forfeiture of the Bid Guarantee, if applicable, in which case Cowater may award the Contract to the Bidder whose Bid has obtained the second highest score or issue a new call for Proposals.
<b>42. Type of Contract and General Terms and Conditions</b>	42.1 The model Contract to be signed and the General Terms and Conditions applicable to the Contract in this particular case, as specified in the Data Sheet, may be consulted in the forms annexed to the BD. The Contract in question shall comply with the requirements of the beneficiary country.
<b>43. Liquidated damages</b>	43.1 If so specified in the Data Sheet, Cowater shall apply a Liquidation for damages and/or risks caused to Cowater as a result of the Supplier's delays or failure to perform its obligations under the Contract.
<b>44. Payment provisions</b>	<p>44.1 Payments will be made only upon Cowater's acceptance of the work performed or receipt to satisfaction of the materials and equipment. Terms of payment shall be within thirty (30) days after receipt of invoice and the appropriate authority issues the certificate of acceptance of the work with direct supervision by the Contractor. Cowater will make the transfer in Canadian dollars. <i>Please note that your bank will perform currency conversions based on the exchange rate of the day and bank charges for the service.</i></p> <p>44.2 Except when Cowater's interests so require, it is Cowater's standard practice not to make advance payments (i.e., payments without having received any product). If an advance payment is allowed in the Data Sheet, it may not exceed 20% of the total Contract price. If the value exceeds CAD 30,000 the successful Bidder shall submit a Bank Guarantee for the full amount of the advance payment.</p>
<b>45. Claims from suppliers</b>	45.1 The complaint procedure established by Cowater for its Bidders provides an opportunity for appeal to those persons or companies who have not been awarded a Contract through a competitive award process. In the event that a Bidder considers that it has not been treated fairly, it may send its complaint to the official mailing address.
<b>46. Other provisions</b>	<p>46.1 In the event that the Bidder offers a lower price to the host Government (e.g., UNE) for similar goods, Cowater shall be entitled to the same lower value. Cowater's General Terms and Conditions shall prevail.</p> <p>46.2 Cowater shall be entitled to receive the same prices as those offered by the same Supplier in contracts with other entities of international technical cooperation or multilateral banking. Cowater's General Terms and Conditions shall prevail.</p>
<b>47. Place of delivery of goods and services</b>	47.1 The place of delivery of the goods and services are indicated in the Data Sheet as well as the applicable Incoterms. These shall be applied in the Contract and shall serve as the basis for the treatment of taxes and insurance to be contracted.



## SECTION 3. PROPOSAL DATA SHEET

The following data for services to be procured shall supplement, complete or amend the provisions of the BD. In case of conflict between the Instructions to Bidders, the Data Sheet and other attachments or references attached to the Data Sheet, the provisions of the Data Sheet shall prevail.

N°	Ref. to Section 2	Data	Instructions / Specific requirements
1	8	Language (of the Proposal)	English or Spanish
2	11	Submission Proposals by ToR Lots (Partial Proposals)	Yes <b>LOT 1:</b> 255 SSPS for dwellings and 120 SSPS for farms <b>LOT 2:</b> 100 kWp Demonstration Solar Park for installation on roofs of the University of Moa
3	21	Alternative Proposals	Proposals for improvements, submitted during the consultation period, are accepted.
4	22	Pre-Proposal meeting	No
5	17	Proposal Validity Period	60 days after the receipt of Technical and Financial Proposals deadline
6	13	Guarantees required: a) Bid Guarantee b) Performance Guarantee, c) Advance Payment Guarantee d) Quality Guarantee	<b>Forms of Guarantees acceptable by Cowater International:</b> <ul style="list-style-type: none"> <li>• Bank guarantee</li> <li>• Cashier's Check / Certified Check</li> </ul> <b>Required for all Bidders.</b> a) Bid Guarantee Amount: 2% of the total value of the offer  <b>Required from the awarded Bidder.</b> b) Performance Guarantee Amount: 15% of the total value of the Contract c) Advance Payment Guarantee Amount: 100% of the value of the advance to be paid d) Quality Guarantee Amount: 5% of the final value of the Contract
7	44	Prepayment at time of signing Contract	Yes, up to 20% advance
8	43	Liquidated damages	Yes Percentage of Contract price per day of delay: 0.5% up to 20%. Maximum number of days of delay 40, after which Cowater may terminate the Contract.
9	47	Place of delivery and Incoterms	The place of delivery is a port in Cuba. The Incoterm applied is CIF at the agreed port of destination. (Incoterms 2010 or later)
10	14	Currency of the Proposal	Canadian Dollars (CAD)
11	5	Deadline for submission of requests for clarification	9/6/2023
12	19	Contact details for submitting requests for clarification and questions	Liaison person at Cowater: Luis Esteban Arrieta  E-mail address: <a href="mailto:FORMER.bidding@cowater.com">FORMER.bidding@cowater.com</a>
13	19	Means of transmission of the Complementary Information for Bidding,	Direct communication to potential Bidders by e-mail and Cowater's website ( <a href="http://www.cowater.com">www.cowater.com</a> ).

		and answers and clarifications from consultations	
14	24	Deadline for submission of Proposal	On or before 9/6/2023 23:00 Ottawa time
15	23	Permitted Mode of Submitting Proposals	Proposals to be sent by e-mail. The guarantees and other legal documentation are required physically at the following address: Cowater International Inc. 200 Laurier Avenue West 5 <sup>th</sup> floor Ottawa, On, K1P 6M7, Canada Att: Patrick Peixe
16	23-b	E-mail for submission of Proposal	<a href="mailto:FORMER.bidding@cowater.com">FORMER.bidding@cowater.com</a>
17	23-b	Electronic submission requirements (e-mail)	<ul style="list-style-type: none"> <li>• Format: PDF files only</li> <li>• The file name must have a maximum length of 60 characters and must not contain letters or special characters other than the Roman alphabet/keyboard.</li> <li>• The files must not contain viruses or be corrupted.</li> <li>• The password for the Technical Proposal must not be provided to Cowater until the date indicated, in accordance with numeral 14 (only for submission by e-mail).</li> <li>• The Financial Proposal password should not be provided to Cowater until requested by Cowater.</li> <li>• Maximum file size per transmission: 50 MB max.</li> <li>• Mandatory subject line in the e-mail:  1175.0: <i>Name of your</i> institution FORMER 0623-001-SFV/PS</li> <li>• The required documents in original (e.g., Bid Guarantee) should be sent to the following address with a PDF copy as part of the electronic submission: Cowater International Inc. 200 Laurier Avenue West 5<sup>th</sup> floor Ottawa, On, K1P 6M7, Canada Att: Patrick Peixe</li> </ul>
18	28, 31, 38	Method of evaluation for the award of a Contract	The minimum technical score required to advance to the next phase is 45%. The Financial Proposal will have the remaining 55%.
19		Expected start date of the Contract	10/17/2023
20		Maximum expected duration of the Contract	The time will be discussed between the two parties.
21	38	Cowater will award the Contract to:	To the first place (bidder) considered by the Evaluation Committee.
22	42	Type of Contract	Procurement of materials.
23	42	Applicable Terms and Conditions of the Cowater Contract	As specified in the Contract to be signed.
24		Other information related to the Bidding	The second-place bidder will be called in case the Contract with the first-place bidder cannot be signed.

## SECTION 4. EVALUATION CRITERIA

### Preliminary examination criteria

Proposals will be reviewed to determine if they are complete and have been submitted in accordance with the requirements of the BD, based on the affirmative/negative response to the following criteria:

Criteria	Yes / No
• Corresponding signatures.	
• Power of attorney (if applicable)	
• Presentation of the required documents.	
• Submission of Technical Proposal and Financial Proposal (in sealed envelope/PDF files) separately.	
• Validity of the bid/offer.	
• Submission of the Bid Guarantee in accordance with the requirements of the BD and the period of validity.	

### Minimum Eligibility Criteria and Qualifications

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

If the Proposal is submitted as a Joint Venture / Consortium / Partnership, each member must meet minimum criteria, unless otherwise specified.

Subject	Criteria	Requirement for submission of the document	Pass / Fail
<b>ELIGIBILITY</b>			
<b>Legal status</b>	The Bidder is a legally registered entity.	Form B: Bidder Information Form.	
<b>Eligibility</b>	The Bidder is not suspended, debarred, or otherwise identified as ineligible by Cowater or the UNE.	Form A: Technical Proposal Submission Form	
<b>Conflict of interest</b>	In accordance with clause 4 of the BD, there must be no conflicts of interest.	Form A: Technical Proposal Submission Form	
<b>Bankruptcy</b>	The Bidder has not been declared bankrupt or is not involved in any bankruptcy or receivership proceedings and has no pending court judgment or legal action that could jeopardize its operations in the foreseeable future.	Form A: Technical Proposal Submission Form	
<b>QUALIFICATION</b>			
<b>History of unfulfilled contracts<sup>1</sup></b>	Failure to perform a Contract resulting from the Bidder's default during the last 3 years.	Form D: Qualification Form.	

<sup>1</sup> Default, as decided by Cowater, shall include all contracts where: (a) the Bidder has not denounced the default, including by referral to the dispute resolution mechanism under the respective Contract, and (b) the contracts have been denounced and fully terminated. Non-compliance shall not include contracts where the dispute resolution mechanism

<b>Litigation history</b>	Inconsistent history of court/arbitration awards against the Bidder during the last 3 years.	Form D: Qualification Form.	
<b>Previous experience</b>	Minimum of 3 years of relevant experience.	Form D: Qualification Form.	
	Minimum of 4 contracts of similar value, nature and complexity executed in the last 5 years. <i>(In the case of a Joint Venture / Consortium / Partnership at least one member entity must comply with the requirement)</i>	Form D: Qualification Form.	
<b>Financial position</b>	Minimum average annual billings of CAD 700,000 during the last 3 years. <i>(In the case of a Joint Venture / Consortium / Partnership at least one member entity must comply with the requirement)</i>	Form D: Qualification Form.	
	The Bidder must demonstrate the current solvency of its financial position and indicate expected long-term profitability. <i>(In the case of a Joint Venture / Consortium / Partnership at least one member entity must comply with the requirement)</i>	Form D: Qualification Form.	

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has overruled the Employers' decision. Non-compliance must be based on all information on fully resolved disputes or litigation, i.e., a dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the Contract in question and where all avenues of appeal available to the Bidder have been exhausted.

## Technical Evaluation Criteria

Summary of Technical Proposal evaluation forms		Points	
1.	Qualifications, capacity and experience of the Bidder	150	
2.	Proposed methodology, approach, and implementation plan.	100	
3.	Technical evaluation criteria	250	
	<b>Total</b>	<b>500</b>	
Section 1. Qualifications, capacity and experience of the Bidder		Type of accreditation of the requirement	Points
1.1	Company reputation and credibility / reliability of products offered in the solar PV industry. Include a brief description of the organization. <i>(In case of Joint Venture / Consortium / Partnership, all Parties must cumulatively comply with the requirement.)</i>	<ul style="list-style-type: none"> <li>Reference letter from client who purchased similar equipment, or</li> <li>Copy of the invoice / bill or tax document proving the payment of the services rendered by the client.</li> <li>Ten (10) points are earned for each letter of reference, letter/copy of invoice or bill or tax document submitted. Maximum of 5 credits.</li> </ul>	50
1.2	Relevance of expertise and experience in similar bids in the Latin America and Caribbean (LAC) region or in Cuba.	<ul style="list-style-type: none"> <li>Reference letter from client who purchased similar equipment, or</li> <li>Copy of the invoice / bill or tax document proving the payment of the services rendered by client.</li> <li>Ten (10) points are earned for each letter of reference, letter/copy of invoice or bill or tax document submitted. Maximum of 4 references. These must not be the same as those submitted in item 1.1.</li> </ul>	40
1.3	Overall organizational capacity that may affect implementation: management structure, financial stability and project funding capacity, project management controls, extent to which any work would be outsourced (if so, provide details).	<ul style="list-style-type: none"> <li>The Bidder shall briefly describe (no more than 2 pages) how it will address any risks that may affect the procurement process and its quality control procedures, based on its organizational capacity.</li> </ul>	30
1.4	Organizational commitment to sustainability (mandatory weight) <ul style="list-style-type: none"> <li>The organization complies with ISO 14001 or ISO 14064 or equivalent.</li> <li>The organization demonstrates a significant commitment to sustainability through other means (15 points). For example, internal company policy documents on women's empowerment, climate change mitigation, or membership in business institutions that promote these issues.</li> </ul>	<ul style="list-style-type: none"> <li>Current ISO 14001, 14064 certificate, or equivalent (15 points)</li> <li>Documents evidencing compliance with any of the commitments mentioned above (15 points).</li> </ul>	30
	<b>Total Section 1</b>		<b>150</b>
Section 2. Proposed methodology, approach and implementation plan			Points
2.1	Understanding of the technical specifications of the requirements to be met by the components to be procured: Were the important aspects of the bid addressed in sufficient detail? Were the different components of the bid adequately weighted against each other?		20



2.2	Description of the Bidder's approach and methodology to meet or exceed the requirements of the Terms of Reference.	30
2.3	Implementation plan, including a Gantt chart or timetable showing the detailed sequence of activities to be carried out and their corresponding deadlines.	30
2.4	Demonstration of the ability to effectively plan, integrate and implement sustainability measures in the execution of the Contract.	20
	<b>Total Section 2</b>	<b>100</b>
<b>Section 3. Technical evaluation criteria</b>		<b>Points</b>
<b>3.1</b>	<b>Technical specifications</b>	<b>200</b>
3.1.1	Development of contents, detailed description of the equipment offered. Specification of technical characteristics, equipment data sheets, certifications, warranties and other requested documents.	100
3.1.2	Description of the important activities: manufacturing, transportation, storage and testing. Functional coherence between the different activities is detailed.	70
3.1.3	Detailed delivery schedule and functional chronogram, by week. Graphic and photographic documentation.	30
<b>3.2</b>	<b>Proposed improvements</b>	<b>50</b>
3.2.1	Proposed improvements to the technical characteristics of the components of stand-alone photovoltaic systems (SSPS): photovoltaic modules, solar batteries, inverters, support structures.	25
3.2.2	Proposed improvements to the technical characteristics of additional components to the SSPS (wiring, grounding system, lightning protection system, etc.).	25
	<b>Total Section 2</b>	<b>250</b>

## SECTION 5. TERMS OF REFERENCE (TOR) - LOT 1

### 5.1 Introduction

The project aims to provide components and materials, as well as autonomous photovoltaic systems (SSPS) in homes and farms in fourteen (14) municipalities in the Province of Holguín, Republic of Cuba, within the framework of the FORMER Cuba Project.

It was agreed to install two types of configurations to serve the following number of homes and rural farms.

- Configuration 1: SSPS of 1.0 kWp nominal power to supply electricity to 600 rural homes.
- Configuration 2: SSPS of 2.0 kWp nominal power to supply electricity to 450 homes and rural farms.
- The quantities to be purchased, once the Contract is awarded, may vary according to the possible scenarios presented below:

Possible purchase scenarios, 1 kWp and 2 kWp systems	Scenario 1		Scenario 2		Scenario 3	
	1 kW	2 kW	1 kW	2 kW	1 kW	2 kW
<i>Number of units</i>	255	120	420	250	600	450

### 5.2 Goal

Describe the technical specifications of the minimum requirements to be met by the components of the SSPS to be acquired, according to the configurations shown in the previous chapter.

### 5.3 Project location

Holguin Province is located at the following coordinates: 20°39'53 "N longitude, 74°57'19 "W latitude, at an altitude of 20 masl.

It has an average annual temperature of 25°C, with an average maximum of 35°C in July and August, and an average minimum of 18°C. The thermal amplitude of the monthly averages is approximately 6°C.

The average relative humidity is high, with averages in the order of 68%. The amplitude of the average maximum and minimum values is in the order of 30%.

**Table 1. Climatic characteristics of the province of Holguin.**

Variable	Historical values	
Temperature	Average	25°C
	Maximum average	35°C
	Minimum average	18°C
Relative humidity	Average	68%
	Average 7:00 h	95%
	Average 13:00 h	62%

## 5.4 Technical information on components

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Photovoltaic generator (photovoltaic modules)	<ul style="list-style-type: none"> <li>• Monocrystalline silicon.</li> <li>• Peak power rating: 585 W<sub>p</sub> at SMC<sup>2</sup>.</li> <li>• Minimum efficiency: 20 %.</li> <li>• Minimum useful life: 25 years.</li> <li>• Peak power after 25 years should not be below 84% of the initial rated peak power, measured in SMC. Decline process must be linear and not staggered.</li> <li>• Minimum of 72 photovoltaic cells.</li> <li>• Rigid anodized aluminum frame. The securing of the photovoltaic module to its support can only be done by means of mechanical elements (screws, nuts, washers, etc.).</li> <li>• Junction box firmly attached to the module. Cable inlets and outlets must be provided with cable glands.</li> <li>• Protection rating: IP 67 minimum.</li> <li>• Minimum three <i>bypass</i> diodes.</li> <li>• Voltage of the maximum power point of the photovoltaic generator, at ambient temperature equal to the annual maximum of the site and at a radiation of 800 W/m<sup>2</sup>, V<sub>MAX</sub> (T<sub>MAX</sub>): Between 14.5 V to 15.0 V.</li> <li>• PID-free<sup>3</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>• Label: Affixed firmly or printed on the bottom surface of the photovoltaic module. Minimum information: Make, model, serial number, trade name (if any), date of manufacture, module type, nominal voltage, maximum power in peak watts (W<sub>p</sub>) at SMC, normal cell operating temperature, maximum voltage at SMC, maximum current at SMC, open circuit voltage at SMC, short circuit current at SMC.</li> <li>• Current certificates of compliance with IEC 61730-2 and IEC 61215, stating the name and other details of the institution<sup>4</sup> issuing the certificates.</li> <li>• Manufacturer's warranty certificate on the rated peak power of the photovoltaic module. The certificate must indicate the make, model and peak power of the module and the warranty period.</li> <li>• Certificates of optimum performance of the final product and minimum efficiency, catalog of failures and I-V curves.</li> <li>• Comply with IEC 62804 (2015) "<i>Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation (PID)</i>".</li> <li>• Peak power guarantee at 25 years of useful life, measured at SMC. This power warranty must be linear and not staggered. If the supplier is not the manufacturer, supplier must submit documentation from the PV module manufacturer that complies with this requirement.</li> <li>• FAT test protocols (at Contract signature)</li> </ul>
Inverters	<ul style="list-style-type: none"> <li>• Single-phase, pure sine wave electronic type 1.0 kW rated power (Configuration 1)</li> <li>• Single-phase, pure sine wave electronic type 2.0 kW rated power (Configuration 2)</li> </ul>	<ul style="list-style-type: none"> <li>• Label: Located on the surface of the inverter. Minimum information: manufacturer's name, model, serial number, trade name (if any), input voltage, output voltage, power rating and electrical diagram (must</li> </ul>

<sup>2</sup> Standard Measurement Conditions (SMC): 1000W/m<sup>2</sup>; 25°C; AM=1.5, Normal Incidence.

<sup>3</sup> The Potential Induced Degradation (PID) effect is the degradation effect caused by leakage currents between the panel cells and the other panel components. There is a current flowing between the aluminum frame, glass, tedlar and EVA to the panel cells. This causes extreme stress on the cells of the affected module resulting in reduced performance.

<sup>4</sup> Issued by a certifying institution independent of the manufacturer that has ISO 17025 certification in force at the date of issuance of the aforementioned certificates.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Input voltage: 24 V DC / MPPT.</li> <li>• Output voltage: 120 V AC <math>\pm</math> 3% for any load factor.</li> <li>• Frequency: 60 Hz <math>\pm</math> 5 % for any load factor.</li> <li>• Voltage for power consumption disconnection: Higher than 11.4 V and lower than 11.7 V.</li> <li>• Voltage for imminent power failure alarm: Between 11.82 V and 12.0 V.</li> <li>• Voltage for power reconnection: Between 13.5 V and 13.8 V.</li> <li>• 20 A charging current for batteries (Configuration 1)</li> <li>• 40 A charging current for batteries (Configuration 2)</li> <li>• Visual information by means of luminous, digital or analogical signals. Must provide at minimum: battery voltage or state of charge, alarm signal for proximity of disconnection of loads and disconnection of consumption.</li> <li>• Support the transients of loads described in the Introduction chapter.</li> <li>• Compatibility with loads, both partially and as a whole.</li> <li>• Efficiency: over 90% at rated power.</li> <li>• Power factor of the generated power: between <math>\pm</math> 0.8 (both inductive and capacitive)</li> <li>• Low output harmonic distortion (THD <math>\leq</math> 3%) for any load factor.</li> <li>• Low self-consumption (<math>\leq</math> 3%) for any load factor.</li> <li>• Surface made of stainless material or, failing that, sand-blasted and oven-painted, with double anticorrosive base (epoxy) or similar.</li> <li>• Polarity of DC and AC side terminals clearly identified on the inverter surface.</li> <li>• Integrated fault protection equipment for input and output overvoltage, input and output overcurrent, undervoltage, input and output short-circuit, input reverse polarity and overheating must be clearly identified. These shall be easily changeable by the user without the need to open the inverter or use tools.</li> </ul>	<p>clearly show the location of the terminals for making DC and AC connections).</p> <ul style="list-style-type: none"> <li>• Technical specifications booklet: Those presented on the label (electrical efficiency for partial loads, self-consumption, peak current, load disconnection voltage, load reset voltage and protections), installation, operation and maintenance, personal safety and the requested warranty certificates.</li> <li>• Provide information on: <ul style="list-style-type: none"> <li>– Capacity curve (P-Q) or operating curve. Indicate minimum and maximum technical power (in particular, how they are achieved with the use of static VAR compensation (SVC) devices.</li> <li>– Ranges of active and reactive power generation ramps – ascending and descending - and setting values.</li> <li>– Diagnostic and maintenance software.</li> <li>– License (if applicable) per location, with unlimited time or free renewal for operation and configuration software.</li> </ul> </li> <li>• Comply with the Cuban directives of Electrical Safety and Electromagnetic Compatibility (both certified by the manufacturer), incorporating protections against: <ul style="list-style-type: none"> <li>– Short circuits in alternating current.</li> <li>– Overvoltages, both on the AC and DC sides.</li> <li>– Comply with voltage quality according to IEC 61000-4-30.</li> </ul> </li> <li>• Declaration of rated AC power output for a temperature of 50°C. Guarantee correct operation for temperature and relative humidity conditions in Cuba.</li> <li>• Warranty, if applicable, of one license per location with unlimited time or free renewal for the operation and configuration software.</li> <li>• Supply of diagnostic and maintenance software for UNE use.</li> <li>• Delivery of the general electrical diagram of the inverter offered for each configuration.</li> <li>• Delivery of the software allowing to modify the inverter's factory settings during FAT tests, as well as a lifetime license for software if applicable.</li> <li>• Comply with the Cuban Electromagnetic Compatibility Directive or 2004/108/CE<sup>6</sup>.</li> </ul>

<sup>6</sup> It shall not emit noise or interference to other electrical equipment.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Easy access to the electronic board of the inverter, so that it can be repaired locally. The board or its devices must not be sealed or covered with any material.</li> <li>• Inverter start-up: automatic or manual. Must have a switch to turn the equipment on or off.</li> <li>• All terminals, nuts, washers and other accessories made of stainless steel.</li> <li>• Electronic elements must be tropicalized and have natural cooling.</li> <li>• Minimum protection rating of IP 65<sup>5</sup>.</li> <li>• Lightning protection system and Type I + II surge suppressors for the DC side and Type II or III for the AC side.</li> </ul>	
Solar batteries	<ul style="list-style-type: none"> <li>• Lead with gel electrolyte (Pb-Gel), sealed and maintenance-free.</li> <li>• Rated capacity: 2x150 Ah (Configuration 1) and 2x250 Ah (Configuration 2), 12 VDC (with connection cable)</li> <li>• Initial capacity at the time of delivery: Not less than 5% or more than 20% of the initial capacity requested.</li> <li>• Discharge rate: C10, up to a final voltage of 1.75V per cell at 25°C ambient temperature.</li> <li>• Capacity correction factor for temperature: 1 % / °C, up to a minimum final voltage of 1.75V per cell at 25°C.</li> <li>• Monthly self-discharge: Maximum 8%.</li> <li>• Compatible with inverter load cycles</li> <li>• Designed to work with frequent deep discharges and simultaneous charge-discharge cycles.</li> <li>• Protection with DC <i>circuit breakers</i> in the form of a 60 A double-pole low-load disconnecting switch.</li> <li>• Working temperatures: between 15°C and 50°C.</li> <li>• Service life: 10 years according to IEC61427 standard.</li> </ul>	<ul style="list-style-type: none"> <li>• Label: Affixed firmly or printed on the surface (side or top) of the battery. Minimum information: Make, model, serial number, trade name (if any), date of manufacture, rated voltage and capacity in ampere-hours (Ah) for a given number of hours of discharge, which must also be indicated.</li> <li>• Booklets for technical specifications, operation and maintenance, installation and warranty certificates requested. The specifications must include the information presented on the label, electrolyte density, charge and discharge curves for different numbers of hours, at minimum for 10, 20 and 100 hours.</li> </ul>

<sup>5</sup> Resistant to ultraviolet radiation, while providing for proper thermal management of the equipment; this will prevent the entry of rodents, reptiles or other animals that can cause short circuits.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Fixing device as an integral part of the battery box to facilitate safe transportation of the battery.</li> <li>• Polarity marked on the solar battery box next to each terminal, by means of a low or high relief printing with the following symbologies: "+" for positive polarity (red sheathed cable) and "-" for negative polarity (black sheathed cable). The cables shall be class 5, XLPE.</li> <li>• Solar battery terminals fixed to the cables by means of bolts, which must be delivered with their respective washers and nuts.</li> <li>• Solar battery covers may be removed manually without major difficulties and without the need for tools, and should prevent galvanic coupling.</li> <li>• All terminals, nuts, washers and other accessories must be made of stainless steel.</li> </ul>	
<p>Alternating current cabinet (AC panel)</p>	<ul style="list-style-type: none"> <li>• Design Description: <ul style="list-style-type: none"> <li>– Metal, galvanized steel (SECC type), for 120 V single-phase.</li> <li>– Protection level IP 34 and IK 10.</li> <li>– Corrosion-resistant material and paint for locations with high humidity or exposed to high salinity levels (C5 I, according to ISO 12944)</li> <li>– Raised from the floor surface at least 5 cm on supporting legs or castors with mechanical brakes.</li> <li>– Interconnection conductors with arc fault extinguishing mechanism.</li> <li>– Basic communication interface with the user.</li> <li>– Grounding system for protection against external overvoltages (induced surges and lightning) with grounding cable class 5, XLPE, 25 mm<sup>2</sup>, with green and yellow sheathing.</li> </ul> </li> <li>• External connection panel must have: <ul style="list-style-type: none"> <li>– Modular circuit breaker, calculated according to the peak current of the offered inverter with type B curve at the output socket.</li> <li>– 30mA differential circuit breaker on AC input.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• IP 34 and IK 10 protection level certification.</li> <li>• Certificate of protection level C5 I according to ISO 12944.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Connection of the load through screw terminals.</li> <li>- Surge suppressors.</li> <li>• LCD screen displaying:               <ul style="list-style-type: none"> <li>- Battery state of charge.</li> <li>- System status (On/Off, Alerts). Alerts shall be accompanied by audible signals.</li> <li>- Photovoltaic system status.</li> <li>- Internal cabinet temperature.</li> </ul> </li> <li>• The elements contained in the cabinet (batteries and inverter) must be completely inaccessible to the user by means of a door with a lock or bolted plate.</li> <li>• The enclosure data plate shall be metal with numbers labeled on it. This plate shall be held in place by <i>cherry</i> nut plate rivets.</li> </ul>	
Support structures	<ul style="list-style-type: none"> <li>• Support structures that allow the adjustment of the angle of the modules to be supported from 0° to 20° (<i>Portrait</i> mode mounting)</li> <li>• Material: 80 micron hot-dip galvanized steel, with prevention of corrosion effects.</li> <li>• Means of fastening the modules and attaching the structure to 6-inch round wooden beams.</li> <li>• Minimum 50 micron hot-dip galvanized steel fasteners.</li> <li>• Must withstand winds of 120 km/h.</li> <li>• Wooden structures and posts must be of high density (0.8 g/cm<sup>3</sup> to 0.9 g/cm<sup>3</sup>), cut from the heartwood and with an ambient drying time of more than two months.</li> <li>• Useful life: Twenty (20) years.</li> </ul>	<p>The following documents shall be submitted with the bid:</p> <ul style="list-style-type: none"> <li>• Drawings of the structure offered, in AUTOCAD and PDF format, showing its exploded view and dimensioning.</li> <li>• Assembly manual of the structure offered, emphasizing the tightening torque of the screws to be used.</li> <li>• Calculation report of the support structure offered.</li> <li>• Technical specifications of all materials used, including bolts, nuts, washers, etc.</li> <li>• Wrenches or devices necessary to assemble the structure.</li> <li>• Lifetime warranty.</li> </ul>
Electrical Conductors (Direct Current)	<ul style="list-style-type: none"> <li>• Copper conductor made up of twisted (stranded) wires</li> <li>• Cross-section of 6 mm<sup>2</sup> for exterior cables</li> <li>• Colors: Red (+) and Black (-)</li> <li>• Rated voltage (DC): 1.5 kV</li> <li>• Rated current: 70 A</li> <li>• Class 5 according to DIN VDE0295 / IEC60228.</li> </ul>	<ul style="list-style-type: none"> <li>• Labeling: At a minimum, the type of cable, cable cross-section and cable manufacturer must be indicated on outer protective sheath.</li> <li>• Comply with IEC norm CD 62930:2017 "<i>Electric cables for photovoltaic systems</i>".</li> </ul>



Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Minimum of RHW type for exteriors and THW for interiors.</li> <li>• Double insulation.</li> <li>• XLPE insulation.</li> <li>• High resistance to abrasion and erosion.</li> <li>• Outdoor use.</li> <li>• Tube and tray with lid.</li> <li>• UV-resistant cable sheath and plastic cable ties for fastening the cables to the support structure.</li> <li>• Conductors shall be connected with MC4 connectors.</li> <li>• Specific and copper terminals.</li> </ul>	<ul style="list-style-type: none"> <li>• Comply with IEC norm 60811 "<i>Common test methods for insulation and sheathing materials for electric cables</i>" or the respective Cuban Technical Standard.</li> <li>• TÜV, CE and RoHS certificates or similar.</li> </ul>
Electrical conductors (Alternating Current) for inverter output and for interiors of houses and farms	<ul style="list-style-type: none"> <li>• Copper cable, 12 AWG gauge, for indoor electrical installations.</li> <li>• Rated voltage: 600 V.</li> <li>• Operating temperature: 90°C (dry climate), 75°C (humid climate)</li> </ul>	Manufacturing standard: IEC 60228
Mounting kit consisting of SSPS connectors and interconnecting cables, and accessories for indoor housing and farms.	<ul style="list-style-type: none"> <li>• Pair of MC4 Y-type connectors (female and male)</li> <li>• Pair of MC4 connectors (female and male)</li> <li>• Plastic cable ties for outdoor use, black color, 3.5x200 mm</li> <li>• 1 inch PVC corrugated flexible hose, black color.</li> <li>• Double outlets, 15 A, 120 V.</li> <li>• Single switches, 10 A, 120 V.</li> </ul>	
Grounding system	<ul style="list-style-type: none"> <li>• Components: Four (4) vertical electrodes 1.8 meters long and 16 mm<sup>2</sup> section.</li> <li>• Material: Copper plated steel.</li> <li>• Bolts, nuts, clamps and screws for the interconnection of ground electrodes and other elements of the system.</li> <li>• Bare copper conductor with 50mm<sup>2</sup> section.</li> <li>• U-type connector for 50 mm<sup>2</sup> bare copper conductor diameter and M8 eye terminal for 50 mm<sup>2</sup> cable .</li> <li>• Tin-plated copper terminals for 50<sup>2</sup> mm cable for grounding well (grounding pit) with manhole cover 40 cm x 40 cm x 40 cm.</li> </ul>	<ul style="list-style-type: none"> <li>• The final solution to be offered must be compatible with all the technological equipment offered.</li> <li>• The maximum electrical resistance of the grounding system should be 10 Ω.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
<p>Factory Acceptance Tests (FAT)</p>	<ul style="list-style-type: none"> <li>• These shall be performed following a test protocol based on the specific regulations for each component of the system.</li> <li>• Factory Acceptance Tests (FAT) will be performed on 10% of the total quantity of the following equipment, in the presence of three (03) specialists and one (01) commercial representative of the client: <ul style="list-style-type: none"> <li>– Photovoltaic modules.</li> <li>– Investors.</li> <li>– Solar batteries.</li> <li>– Equipment cabinets.</li> <li>– Support structures.</li> <li>– Solar photovoltaic system integration</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The test protocol and the regulations for its execution must be submitted by the Supplier to the client during the Contract negotiation for approval, incorporating, if necessary, any test that the Supplier deems convenient and that is present in the equipment's regulations.</li> <li>• The protocols must be submitted in Spanish. Each protocol must refer to the epigraph and the standard that certifies it. In the case of protocols that are made with electrical measurement instruments, they must specify the heading and the IEC standard where the protocol is evidenced.</li> <li>• The costs of the tests should be included in the price quoted by the bidder.</li> <li>• The main photovoltaic components shall be un-used, and shall not be more than two (02) years old, except for the battery, which shall not be more than one (01) year old.</li> <li>• These tests may result in the rejection of the Lot, so the Supplier has the right to attend such tests.</li> <li>• A random sample selection based on ISO 2859-1:1999 (en) "<i>Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection</i>" will be performed.</li> <li>• If the lot is rejected by the tests performed by UNE, with the participation of COWATER, the Supplier shall replace the entire Lot at no cost to the FORMER Cuba Project.</li> <li>• In the event that the AQL per lot is met, it should be noted that it does not invalidate the rejection of individual modules or components due to defects, which must be replaced by the Supplier at no cost to UNE.</li> <li>• The Supplier shall be obliged to provide the Client (UNE) with the test results of the photovoltaic modules and their components. UNE reserves the right to test such PV modules and their components at a local or externally-accredited laboratory, or if the client has sufficient capacity to demonstrate the execution of testing work on PV modules and their components. The tests carried out by UNE shall prevail over the FAT.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Technical assistance	It shall be the responsibility of the Bidder.	<ul style="list-style-type: none"> <li>• The Bidder shall provide the client with the technical data sheets and user manuals of all components and technological instruments, in digital format, at the bidding stage.</li> <li>• The Bidder shall supply to the client, in printed format, the technical data sheets and user's manuals of all the equipment and technological instruments in Spanish language and upon arrival of the equipment in Cuba.</li> <li>• The Bidder shall provide technical assistance service for the total equipment, with the objective of ensuring that the supply guarantees the full operation of the SSPSs.</li> <li>• The scope of technical assistance shall be provided during Contract negotiation for approval between the Supplier and UNE prior to Contract signature. In addition, the documentation associated with the scope of technical assistance shall be delivered by the Supplier in digital and hard copy format.</li> <li>• UNE, with the technical support of the COWATER team, will be responsible for approving the component equipment and technological solutions.</li> </ul>
After-sales service and warranties	<ul style="list-style-type: none"> <li>• An after-sales service (minimum 10 years) will be offered for the supply of components and warranties for the following equipment, for a period not less than those set forth below.</li> <li>• Photovoltaic module <ul style="list-style-type: none"> <li>– Warranty against defects: Five (5) years.</li> <li>– Performance warranty: Ten (10) years.</li> </ul> </li> <li>• Inverter <ul style="list-style-type: none"> <li>– Warranty against defects: Three (3) years.</li> <li>– Performance warranty: Ten (10) years.</li> </ul> </li> <li>• Equipment cabinet <ul style="list-style-type: none"> <li>– Warranty against defects: Three (3) years.</li> </ul> </li> <li>• Solar battery <ul style="list-style-type: none"> <li>– Warranty against defects: Six (6) months.</li> <li>– Performance warranty Two (2) years.</li> </ul> </li> <li>• Support structure</li> </ul>	<ul style="list-style-type: none"> <li>• The Supplier shall provide the UNE with the purchase codes for each of the components during the Contract negotiation stage. These purchase codes will be provided in an Excel format list for approval by the Project Evaluation Committee (PEC), in order to achieve independence in the purchase of supplies, and thus guarantee the replenishment of supplies after the end of the warranty period.</li> <li>• The terms and conditions of the guarantees will be established in the respective Contract.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Warranty against defects: Ten (10) years.</li> <li>• Grounding system</li> <li>- Warranty against installation failures: Five (5) years.</li> </ul>	
Spare parts	Spare parts are offered by the Bidder.	<ul style="list-style-type: none"> <li>• Spare parts to ensure the operation and sustainability of the facilities.</li> <li>• The spare parts suggested by the Bidder will be evaluated based on its experience with the technology to be offered.</li> <li>• The Proposal will be evaluated during the bidding process.</li> </ul>
Documents to be submitted by the Bidder	At the bidding stage, the Bidder must present	<ul style="list-style-type: none"> <li>• PAN and .OND files corresponding to the proposed supply, including simulations.</li> <li>• Technical data sheets and user manuals for all supplies and equipment.</li> <li>• Electrical schematic of the entire photovoltaic system (general mono-line diagram)</li> <li>• Descriptive report of the photovoltaic system.</li> <li>• List of supplies offered.</li> <li>• Detailed drawings of the support structure, both mechanical and civil.</li> <li>• Equipment installation, operation and maintenance manuals.</li> <li>• Trip curves of all protection devices and coordination among these. If there are fuses to protect control circuits, provide minimum melting time and maximum clearing time curves.</li> <li>• List of supplies with quantities and prices.</li> <li>• Spare parts list.</li> <li>• FAT test protocols (PV modules, inverters, support structures, AC and DC cabinets).</li> <li>• Scope of technical assistance.</li> </ul> <p><b>Note:</b> All documents will be delivered in digital and printed format.</p>

## 5.5 Appendix: List of Components - Lot 1

ITEM	PRODUCTS	SPECIFICATIONS	MAXIMUM AMOUNT	U/M
1	<b>Photovoltaic modules</b>	Monocrystalline silicon photovoltaic modules, 585 Wp	3 000	U
2	<b>Support structures.</b> For the following configurations*			
2.1	Configuration 1: Two (02) ground-mounted photovoltaic modules	Table material: 80 micron hot-dip galvanized steel. Bolt material: stainless steel. Tilt adjustment: 0 - 20 degrees	600	U
2.2	Configuration 2: Four (04) ground-mounted photovoltaic modules		450	U
3	<b>Equipment cabinet.</b> Physically contains in its interior the following elements: Inverter, batteries, safety elements.	Cabinet made of galvanized steel sheets (SECC). Protection rating IP-34 and IK 10. With LCD display.	1 050	U
4	<b>Inverter:</b> For the following configurations			
4.1	Configuration 1: Two (02) ground-mounted photovoltaic modules	1.0 kW / 24 VDC, 120 VAC (-10%~+5%) , 50/60 Hz pure sine wave. 20A	600	U
4.2	Configuration 2: Four (04) ground-mounted photovoltaic modules	2.0 kW / 24 VDC, 120 VAC (-10%~+5%) , 50/60 Hz pure sine wave. 40A	450	U
5	<b>Thermomagnetic circuit breaker</b>			
5.1	Thermomagnetic circuit breaker (Configuration 1)	12A, 250V, 1P, Curve Type B	600	U
5.2	Thermomagnetic circuit breaker (Configuration 2)	20A, 250V, 1P, Curve Type B	450	U
6	<b>Maintenance-free Gel Batteries:</b> For the following configurations			
6.1	Configuration 1: Two (02) ground-mounted photovoltaic modules	150 Ah, 12V DC, C10, 2 units in series for 1.0 kW SSPS, with connecting cable	1200	U
6.2	Configuration 2: Four (04) ground-mounted photovoltaic modules	250 Ah, 12V DC, C10, 2 units in series for a 2.0 kW SSPS, with connecting cable	900	U
6.3	Configuration 1: Two-pole low-load disconnectors	60A, 24V	600	U
6.4	Configuration 2: Two-pole low-load disconnectors	100A, 24V	450	U
7	<b>Grounding system.</b> Composed of the following elements			
7.1	Copper electrodes Ø 16 mm, Length 1.8 m.	Made of copper plated steel. Including clamps and M8X20 bolts, 4 for each house and farm.	4 200	U
7.2	1x 50mm <sup>2</sup> bare copper cable	G/Y BVR 1x50mm <sup>2</sup> , 35 m for each dwelling and farm	36 750	M
7.3	U-type connector	U Terminal-50mm <sup>2</sup> , 8 for each dwelling and property	8 400	U
7.4	M8 eye terminal	For 50mm <sup>2</sup> cable for connection of the ground cable in the Equipment cabinet for SSPS, 8 per system	8 400	U
8	<b>Mounting kit consisting of connectors and interconnection cables for SSPS</b>			
8.1	MC4 Y-type connectors	Pair of MC4 Y-type connectors (female and male), 4 sets per system	4 200	U
8.2	MC4 connectors	Pair of MC4 connectors (female + male), 4 sets per system	4 200	U
8.3	SSPS interconnecting CD cable, Black color	1x6mm <sup>2</sup> , resistant to UV radiation, 25 meters per system	26 250	M

<b>8.4</b>	SSPS interconnection CD cable, colored Red	1x6mm <sup>2</sup> , UV radiation resistant, 25 meters per system	<b>26 250</b>	M
<b>8.5</b>	Plastic cable ties	Outdoor use, black, 3.5x200 mm (pack of 100 units), 30 packs per house and farm.	<b>31 500</b>	U
<b>8.6</b>	1-inch PVC corrugated flexible hose	Black color, 50 m per roll, 25 meters per house and property	<b>26 250</b>	M
<b>8.7</b>	Cable 12 AWG	Internal installation of the house and farm, 50 meters with 2 wires	<b>105 000</b>	M
<b>8.8</b>	Double socket	Internal installation of the dwelling and farm, 5 per dwelling and farm	<b>5 250</b>	U
<b>8.9</b>	Single switch	Internal installation of the house and property, 6 per house and property	<b>6 300</b>	U

**Note:** For more information on the technical characteristics of the components and materials, please refer to Chapter 5.4 of this Section 5.

## SECTION 6. TERMS OF REFERENCE (TOR) - LOT 2

### 6.1 Introduction

The project aims to provide the components for a Small Demonstration System (SDS) of photovoltaic solar energy, with a total power of 100kW, to be installed on two roofs of the University of Moa (Municipality of Moa, Holguin Province).

The PSD will be interconnected to the local power grid to inject the generated energy directly.

### 6.2 Goal

Describe the minimum technical requirements to be met by the SDS components to be installed on the roofs of the University of Moa, for the purposes of this expression of interest.

### 6.3 Project Location

The municipality of Moa is located northeast of the province of Holguin, at a longitude of 20°39'53 "N, latitude of 74°57'19 "W and an altitude of 20 meters above sea level.

The average annual temperature is 25°C, with an average maximum of 35°C in the months of July and August, and an average minimum of 18°C. The thermal amplitude of the monthly averages is approximately 6°C.

The average relative humidity is high, with averages in the order of 68%. The amplitude of the average maximum and minimum values is in the order of 30%.

**Table 1. Climatic characteristics of the province of Holguin.**

Variable	Historical values	
Temperature	Average	25°C
	Maximum average	35°C
	Minimum average	18°C
Relative humidity	Average	68%
	Average 7:00 h	95%
	Average 13:00 h	62%

### 6.4 Existing infrastructure

Two rooftops at the University of Moa have been selected on which to install the SDS. The roofs are made of prefabricated concrete slabs, double T typology and asphalt waterproofing membrane, with a gable slope, and the walls of the buildings are made of concrete.

These roofs belong to the buildings of the Teaching area (D2) and the Residence area (R2), whose maximum height above ground level is ~14 m.



**Figure 1: Aerial view of the rooftops for SDS installation**



The two planned subsystems will be installed on domed or cupola-type support structures, where the PV modules will be mounted in an east-west orientation.

1. **Subsystem Building D2:** 112 photovoltaic modules of 450 Wp and 2 string inverters of 25 kW each will be installed.

In addition, this subsystem will have an educational array of 8 photovoltaic modules of 450 Wp and 2 inverters of 1.5W each, which will be installed on top of the University's Specialized Classroom on Renewable Energy Sources.

2. **Subsystem Building R2:** 112 photovoltaic modules of 450 Wp and 2 string inverters of 25 kW each will be mounted.

The educational photovoltaic subsystem (D2\*) will consist of components with the following characteristics.

- *Educational PV subsystem 1:* Four 450 Wp monocrystalline silicon PV modules, with a solar tracker and a 1.5 kW single-phase inverter; in addition, a D2000 single-phase meter will be installed to monitor the energy produced for educational and research purposes.
- *Educational PV subsystem 2:* Four 450 Wp bifacial monocrystalline silicon PV modules, with a solar tracker and a 1.5 kW single-phase inverter; a D2000 single-phase meter will also be installed to monitor the energy produced for educational and research purposes.

**Table 2. SDS Subsystems**

Building	PV modules [450 Wp]	Investors [25 kW] [25 kW]
D2	112	2 x 25 kW
D2*	8	2 x 1.5 kW
R2	112	2 x 25 kW
<b>TOTAL</b>	<b>232</b>	<b>4 x 25 kW + 2 x 1.5 kW</b>

(\*) Didactic and research part of the D2 subsystem.

Last but not least, it is important to take into account the high contamination of the town of Moa, due to the existing nickel refining factory.

## 6.5 Electrical connection of the SDS to the existing infrastructure

The D2 building subsystem will be connected to an existing General Distribution Board (GDB) in the Teaching area, fed by a 100 kVA (2 x 50), 240 V three-phase (3F-N), 60 Hz transformer bank (two 50 kW single-phase transformers connected in open delta by the secondary; one of them with center *tap* connected to ground, to supply the single-phase loads at 115 V), whose short-circuit current is  $I_{cc} = 1.2$  kA.

The R2 building subsystem will be connected to the existing GDB of the Residence area, which is fed from another 150 kVA (1 x 50 + 1 x 100), 240 V three-phase (3F-N), 60 Hz transformer bank (one 50 kVA single-phase transformer and one 100 kVA transformer connected in open delta through the secondary; the 100 kVA transformer with center *tap* connected to ground to supply the single-phase loads at 115 V), whose short-circuit current is  $I_{cc} = 1.06$  kA.

String inverters and the AC cabinet will be installed on top of each building. Both will be mounted on a support structure with a shed roof. In addition, for research purposes it is planned to install 2 photovoltaic trackers on the roof of building D2 (subsystem D2\*), which will serve 4 photovoltaic modules of 450 Wp and a single-phase inverter of 1.5 kW per tracker; 4 bifacial photovoltaic modules of monocrystalline silicon will be installed on one of these, and 4 photovoltaic modules of monocrystalline silicon on the other.

All communications will reach the control booth by fiber optic located on the roof of the D2 building. There will be a replica of the communication and limited supervision for didactic purposes in the Specialized Classroom on Renewable Energy Sources, located on the second level of this building. In other words, it is expected that some variables will be defined in the preliminary and detailed engineering stages,

## 6.6 Technical information on components

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Photovoltaic generator (photovoltaic modules)	<ul style="list-style-type: none"> <li>• Monocrystalline silicon for the grid-connected subsystem (D2 and R2).</li> <li>• Bifacial monocrystalline silicon for education and research subsystem (D2*)</li> <li>• Minimum peak power: 450 W<sub>p</sub> to SMC<sup>7</sup> .</li> <li>• Minimum efficiency: 20 %.</li> <li>• Minimum useful life: 25 years.</li> </ul>	<ul style="list-style-type: none"> <li>• Certificates, failure catalog and I-V curves.</li> <li>• Current certificates of compliance with IEC 61730-2 (2016) and IEC 61215-1 (2021)<sup>8</sup> .</li> <li>• PID-free<sup>9</sup> .</li> <li>• Comply with IEC 62804 (2015) "<i>Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation</i>".</li> <li>• Certificate of guarantee of peak power (W<sub>p</sub>) of photovoltaic module after 25 years of operation, certifying that it does not decrease below 84% of the initial nominal maximum power measured at SMC, and the decrease is linear.</li> <li>• If the supplier is not the manufacturer, it must submit documentation from the PV module manufacturer that complies with this requirement.</li> <li>• FAT test protocols (at Contract signature)</li> </ul>
String inverters	<ul style="list-style-type: none"> <li>• Three-phase, 25 kW pure sine wave electronic type<sup>10</sup> .</li> <li>• Single-phase, 1.5 kW pure sine wave electronic type.</li> <li>• Output voltage: 230 V AC (line voltage), three-phase line-to-line (3F-N)</li> <li>• Input voltage: 48 V DC.</li> <li>• Frequency: 60 Hz.</li> <li>• Efficiency: Over 98% (European standard) and 97.4 % (Californian standard)</li> <li>• Power factor of the generated power: between ± 0.8 (both inductive and capacitive)</li> <li>• Low output harmonic distortion (THD &lt; 3%)</li> </ul>	<ul style="list-style-type: none"> <li>• Information about: <ul style="list-style-type: none"> <li>– Capacity curve (P-Q) or operating curve. Indicate minimum and maximum technical power (in particular, how they are achieved with the use of static VAR compensation (SVC) devices.</li> <li>– Time-stress tolerance curve, which establishes stability against voltage dips.</li> <li>– Ranges of active and reactive power generation ramps - ascending and descending - and setting values.</li> <li>– Diagnostic and maintenance software.</li> <li>– License (if applicable) per location, with unlimited time or free renewal for operation and configuration software.</li> </ul> </li> </ul>

<sup>7</sup> Standard Measurement Conditions (SMC): 1000W/m<sup>2</sup> ; 25°C; AM=1.5, Normal Incidence.

<sup>8</sup> Issued by a certifying institution independent of the manufacturer that has ISO 17025 certification in force at the date of issuance of the aforementioned certificates. The certificates must state the make and model of the photovoltaic module being certified, must be valid at the date of submission and must be submitted complete and legible.

<sup>9</sup> The Potential Induced Degradation (PID) effect is the degradation caused by leaked current between the panel cells and the other panel components. A current is produced, flowing between the aluminum frame, glass, Tedlar and EVA, to the panel cells. This causes extreme stress on the affected panel cells resulting in reduced performance.

<sup>10</sup> In continuous operation, as a minimum of real power under the climatic and environmental conditions of the installation site.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Support the transients of the described loads.</li> <li>• Ability to withstand voltage dips without disconnecting from the grid.</li> <li>• Self-consumption in night mode of less than 0.2% of nominal power.</li> <li>• Integrated overvoltage, undervoltage, overheating, overheating, frequency and <i>islanding</i> fault protection equipment <sup>11</sup> .</li> <li>• Detection of insulation faults in direct current and double disconnection in case of faults.</li> <li>• Must control automatic and manual connection-disconnection maneuvers with the network.</li> <li>• Active downward frequency regulation as a function of power.</li> <li>• Minimum protection rating of IP 65<sup>12</sup> .</li> <li>• Must continue to deliver power to the grid continuously under solar radiation conditions 10 % higher than the standard test condition, withstanding peaks of 30 % higher than the standard test condition for periods of up to 10 seconds.</li> <li>• Type I + II lightning protection system and Type I + II surge suppressors for DC side and Type II or III surge suppressors for AC side</li> <li>• Natural cooling.</li> <li>• Remote and local communication interface (RS485 - fiber optic)</li> <li>• Storage of basic operating information for at least 30 days, exportable to a computer, laptop or tablet in open format.</li> <li>• Measurement of fundamental electrical parameters: <ul style="list-style-type: none"> <li>– Frequency.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Comply with the Cuban directives of Electrical Safety and Electromagnetic Compatibility (both certified by the manufacturer), incorporating protections against: <ul style="list-style-type: none"> <li>– AC short circuits.</li> <li>– Network voltage out of range.</li> <li>– Network frequency out of range.</li> <li>– Overvoltages, both on the AC and DC sides.</li> <li>– Disturbances present in the network such as micro-cuts, pulses, cycle defects, absence and network return, etc.</li> <li>– Comply with voltage quality as per IEC 61000-4-30.</li> <li>– Anti-islanding protection.</li> </ul> </li> <li>• Declaration of rated AC power output for a temperature of 50°C. Guarantee correct operation for the conditions in Cuba of temperature and relative humidity.</li> <li>• Warranty, if applicable, of one license per location with unlimited time or free renewal for operation and configuration software.</li> <li>• Supply of diagnostic and maintenance software for UNE use.</li> <li>• Delivery of detailed electrical control and power drawings for proposed inverters.</li> <li>• Delivery of the software allowing modification of string inverter factory settings during FAT tests, as well as a lifetime license for any software used.</li> <li>• Comply with the Cuban Electromagnetic Compatibility Directive or 2004/108/CE<sup>13</sup> .</li> <li>• The electronics must be tropicalized.</li> </ul> <p><b>Note:</b> Should inverters do not comply with the requested voltage of 230 V (line voltage), three-phase line-to-line (3F-N), 60 Hz, the installation of a three-phase transformer will not be accepted as an alternative solution.</p>

<sup>11</sup> Island segregated from the National Electric Service - S.E.N.

<sup>12</sup> Resistant to ultraviolet radiation, while providing for proper thermal management of equipment; this shall prevent entry of rodents, reptiles or other animals that can cause short circuits.

<sup>13</sup> Shall not emit noise or interference to other electrical equipment.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Voltage per phase.</li> <li>- Current per phase.</li> <li>- Power in the four quadrants (Active and Reactive, Generated and Consumed)</li> <li>- Energy in the four quadrants (Active and Reactive, Generated and Consumed)</li> <li>- Power factor.</li> </ul>	
Environmental monitoring station	<ul style="list-style-type: none"> <li>• From secondary classes, these will communicate and integrate to the SCADA system. Results of the measurements to be transmitted via GRPS.</li> <li>• Components: <ul style="list-style-type: none"> <li>- 1 Anemometer.</li> <li>- 1 Weathervane.</li> <li>- 1 Pyranometer SR20-D2 (generator plane)</li> <li>- 1 Pyranometer SR20-D2 (horizontal plane)</li> <li>- 1 Thermometer (room temperature)</li> <li>- 1 Thermometer (temperature of photovoltaic modules)</li> <li>- 1 Bracket designed to attach to support structures and easily mount all above mentioned devices, with an angle of inclination equal to that of the generator.</li> <li>- To be secured with mechanical expansions in concrete.</li> <li>- The height should be as low as possible, above the roof of the D2 building.</li> </ul> </li> </ul>	
Alternating current cabinet (AC panel)	<ul style="list-style-type: none"> <li>• Metallic, galvanized steel, for 230 V three-phase.</li> <li>• IP 65 protection for outdoor use.</li> <li>• With main thermomagnetic circuit breaker and thermomagnetic switches that will protect the AC cables of inverters inside.</li> <li>• Power and control circuits for exterior lighting on each roof included.</li> <li>• Ensure correct coordination (full selectivity) between each of the thermomagnetic circuitbreakers.</li> </ul>	

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Interrupting capacity as a function of short-circuit levels, operating temperature and type of curve to be used.</li> <li>• Surge suppressors type 2, one for each phase.</li> <li>• Characteristics: <ul style="list-style-type: none"> <li>– Cable entry and exit from underneath.</li> <li>– Voltage indicator lamps and lamps indicating manual and automatic status of the lighting control circuit on the roof.</li> <li>– Position selector for manual and automatic operation of lighting control on the roof of each building.</li> <li>– Slotted channels for cable management.</li> <li>– Physical grounding with washers and nuts on the doors as well as on the cabinet itself (for each AC cabinet, a grounding lug with its terminals will be supplied).</li> <li>– The bridges to interconnect one circuitbreaker with another will be by busbar combs.</li> <li>– The doors will be locked with keys to prevent access by unauthorized persons.</li> </ul> </li> <li>• The fastening of the thermomagnetic breakers shall be by DIN rail. In cases where, due to the capacity of the thermomagnetic breakers, the fastening is with screws and nuts, an attachment that enables fastening to a DIN rail shall be provided.</li> <li>• Light metallic structure for mounting cabinets, with a shed type roof to avoid direct incidence of ultraviolet rays and rain. Minimum possible roof height to reduce wind effects. Galvanized steel material <math>\geq 90 \mu\text{m}</math>, including securing with mechanical expansions.</li> </ul>	
Support structures	<ul style="list-style-type: none"> <li>• Two types of support structures: a dome type and solar tracking type.</li> <li>• Dome-type support structures (east-west oriented) <ul style="list-style-type: none"> <li>– Angle of inclination: <math>10^\circ</math>.</li> <li>– Horizontal mounting.</li> <li>– Material: Galvanized steel <math>\geq 90 \mu\text{m}</math>.</li> <li>– With counterweight anchoring solution.</li> </ul> </li> </ul>	<p>The following documents shall be submitted with the bid:</p> <ul style="list-style-type: none"> <li>• Drawings of the structure offered in AUTOCAD and PDF format, showing its exploded view and dimensioning.</li> <li>• Assembly manual for the structure offered, emphasizing the torque or tightness of the screws to be used.</li> <li>• Calculation report of the support structure offered.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Galvanized steel or stainless steel screws.</li> <li>• Support structures for PV system with solar tracking (east-west oriented) <ul style="list-style-type: none"> <li>- Angle of inclination: 10°.</li> <li>- Horizontal mounting.</li> <li>- Self-positioning.</li> <li>- Self-powered.</li> <li>- For 4 photovoltaic modules of 450 Wp.</li> <li>- Material: galvanized steel <math>\geq 90 \mu\text{m}</math>.</li> <li>- Accessories for anchoring in concrete, assembly, installation and communication with SCADA platform.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Technical specifications of all materials used, including bolts, nuts, washers, etc.</li> <li>• Technical documentation of the rotation mechanism.</li> <li>• Wrenches or devices required to assemble each type of support structure.</li> </ul>
Current measuring transformers (TC)	<ul style="list-style-type: none"> <li>• Manufacturing standard: IEC 60044-1.</li> <li>• Toroidal ring type current transformer.</li> <li>• For outdoor installation, class 0.5, 5 VA.</li> <li>• Insulation voltage 0.6/1 kV.</li> <li>• Working frequency 60 Hz.</li> <li>• Overload factor 120%.</li> <li>• Insulation level 3 kV in 1 minute, 5 A through the secondary.</li> <li>• Epoxy resin cast, secondary with copper screw terminals, with plastic cap to cover the secondary terminals.</li> </ul>	
Cabinet for current measuring transformers	<ul style="list-style-type: none"> <li>• Fiberglass reinforced polyester construction, light gray color, includes safety lock.</li> <li>• With hinged door, with sealable triangular lock without viewing port.</li> <li>• Self-extinguishing according to UNE 53315 and 21095.</li> <li>• With polyester insulating blind mounting plate fixed to the bottom.</li> <li>• With 4 holes on the rear face for wall mounting.</li> <li>• Approximate dimensions 550x550x210 mm.</li> <li>• Protection IP 43, IK-10.</li> <li>• No holes or perforations for cable entry.</li> </ul>	




Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Protection system against direct lightning strikes	<ul style="list-style-type: none"> <li>• Lightning arrester with priming device, mounted on a mast to prevent shading of the PV modules installed on each roof. The mast will be attached to the wall of each building and placed in a vertical position.</li> <li>• Mechanical expansion screws for fastening the mast structure to concrete wall.</li> <li>• Lightning rod down conductors (at least two down conductors) with 50 mm<sup>2</sup> cross section. Each down conductor shall have a test joint and a plastic pipe protection up to 2 m from ground level.</li> </ul>	
Control and supervision booth	<p>Pre-assembled with light and resistant materials.</p> <ul style="list-style-type: none"> <li>• Chair, desk and file for the SDS operator.</li> <li>• Minimum dimensions for communication equipment, control and supervisor's living facilities.</li> <li>• Air-conditioned with tropicalized equipment, window type, 230 V single-phase, 60 Hz, approved ecological refrigerant R-410A.</li> <li>• Walls and roof of the shed with antirust material and heat absorption.</li> <li>• Security and gate with limited access.</li> <li>• Lighting with LED technology that guarantees 100 lux and power outlets.</li> <li>• Control of the luminaire through a single pole single throw switch, attached to the structure of the building and on opposite wall when opening door.</li> <li>• Outlets 2P+T, 10 A, type B 5-15 NEMA. Plugs for electrical equipment to be connected must be of the same type B 5-15 NEMA and comply with IEC 60083.</li> <li>• Watertightness. Water penetration should be prevented by closing windows and door during heavy rainfall.</li> <li>• Corrosion protection, according to ISO 12944, with a corrosivity category of C5-I (very high).</li> <li>• RAL 7004 paint color that reflects sunlight and lowers thermal load on sides.</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation certifying the quality of the resources that comprise it will be handed over.</li> <li>• The plug in of the luminaire to be offered will be provided, in order to perform simulation in Dialux software.</li> </ul>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Anchorage in concrete with mechanical expansions for a reinforced concrete slab of 25 MPa and 10 cm thick.</li> <li>• Hooks or ears that allow control house to be hoisted.</li> <li>• Slings should be included which support the weight of the control house at time of hoisting to place it on the roof of building D2.</li> <li>• Fire detection system.</li> </ul>	
Electrical Conductors (Direct Current)	<p>Technical characteristics:</p> <ul style="list-style-type: none"> <li>• Copper conductor.</li> <li>• Cross section of 4 mm<sup>2</sup>.</li> <li>• Insulation level U<sub>o</sub> /U<sub>o</sub> (U<sub>m</sub>): 1.5 / 1.5 (1.8) kV.</li> <li>• Class 5.</li> <li>• Double insulation.</li> <li>• XLPE insulation.</li> <li>• High resistance to abrasion and erosion.</li> <li>• Outdoor use.</li> <li>• Tube and tray with lid.</li> <li>• Ultraviolet radiation-resistant cable sheath, as well as plastic cable ties for fastening cables to support structure.</li> <li>• Cross-section shall ensure Joule losses of less than 1.50% of the rated voltage on the DC side.</li> <li>• The conductors shall be connected with MC4 connectors.</li> </ul>	Comply with IEC CD 62930:2017 " <i>Electric cables for photovoltaic systems</i> ".
Electrical conductors (Alternating Current)	<ul style="list-style-type: none"> <li>• Multiway copper conductor.</li> <li>• Insulation level U<sub>o</sub> /U<sub>o</sub> (U<sub>m</sub>): 1.1 / 1.1 (1.2) kV.</li> <li>• Class 5.</li> <li>• XLPE insulation.</li> <li>• For use in PVC conduit.</li> <li>• High resistance to abrasion and erosion.</li> <li>• Cross section shall ensure Joule losses of less than 1.5% of the rated voltage.</li> </ul>	
Electrical conduits	<ul style="list-style-type: none"> <li>• Resistant to ultraviolet rays.</li> </ul>	

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• For electrical use.</li> <li>• In lengths of 6 meters.</li> <li>• DC electrical conductors are to be channelled through galvanized metal trays with covers.</li> <li>• Fasteners.</li> <li>• AC electrical conductors shall be channeled through PVC conduit for outdoor use.</li> <li>• Accessories for installation on roof and accessories for wall mounting.</li> </ul> <p>Flex type metallic electric cable tray with cover:</p> <ul style="list-style-type: none"> <li>• Include all elements associated with the assembly and installation of the tray.</li> <li>• Tools needed to cut the trays and plates.</li> <li>• Elements to guarantee assembly of the electrical trays in the case of irregularities on the roof.</li> <li>• Electrolytic galvanized steel and stainless steel material.</li> <li>• Fastening between trays shall guarantee correct equipotentialization.</li> <li>• Elements allowing the equipotentialization of the metallic structure by tightening the 50 mm<sup>2</sup> cable that will be connected to the bare copper cable laid on the roof.</li> <li>• Fastening bases permitted by the manufacturer and system for fastening on the roof.</li> <li>• Assembly and disassembly of the covers should be simple and without the use of tools.</li> </ul>	
Grounding system	<ul style="list-style-type: none"> <li>• Mesh composed of vertical electrodes (copper or copper-coated steel rods) interconnected with horizontal buried electrode (50 mm<sup>2</sup> stranded bare copper wire) bordering the entire perimeter of the buildings where the SDS will be installed.</li> <li>• Grounding grid must have a grounding resistance at the industrial frequency of less than 2 Ω.</li> <li>• Materials and equipment to perform exothermic welding.</li> </ul>	

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Fire protection system	<ul style="list-style-type: none"> <li>• Fire detection system for the control house, with emergency signal lamp and audible alarm.</li> <li>• Dry powder extinguishers.</li> </ul>	UNE will provide technical characteristics of extinguisher at bidding stage.
Lighting system	<ul style="list-style-type: none"> <li>• LED floodlights at 230 V, 60 Hz.</li> <li>• Illumination level higher than 15 lux.</li> <li>• Voltage drop of lighting circuit less than or equal to 3%.</li> <li>• Power supply of each lighting circuit with 3-way copper multi-conductor cable, section 3 x 6 mm<sup>2</sup>, with PVC insulation of (0.6/1) kV, channelled through PVC pipes, Ø 19mm, (¾ in).</li> </ul>	<ul style="list-style-type: none"> <li>• The 'plug in' of the luminaire to be offered will be provided, in order to perform simulation in Dialux software.</li> <li>• The control of the floodlights will be done manually and automatically, using a position selector, pushbutton panels, manual and automatic position indicator lamps, time switch, magnetic contactor, thermomagnetic switch with DIN rail fastening that will independently protect the control circuit and the feeders of each power circuit. All elements associated with the control circuit of the floodlights will be installed inside each of the AC cabinets. These cabinets shall have IP 65 protection for outdoor use, with cable entry and exit below.</li> </ul>
Photovoltaic module cleaning equipment	<p>Minimum components:</p> <ul style="list-style-type: none"> <li>• One or two brushes, circular or straight, with bristles suitable for cleaning photovoltaic modules.</li> <li>• A telescopic tube with a minimum extension of 5 m (16 ft)</li> <li>• Water hose attached to the tube for easy cleaning.</li> <li>• Water pump (optional)</li> <li>• Accessories.</li> </ul>	Cleaning equipment must be approved by the PV module manufacturers.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
Measuring equipment	<p><b>Energy meter P2000T</b></p> <ul style="list-style-type: none"> <li>• Technical characteristics: <ul style="list-style-type: none"> <li>– Standard, IEC 62053-21.</li> <li>– Three-phase, for 4-wire or 3-wire connection.</li> <li>– 230 V, three-phase, 60 Hz.</li> <li>– Tropicalized, IP 54 protection, maximum working temperature 60 °C.</li> <li>– Possibility of programming at least 4 tariffs of kWh registers and 4 tariffs of maximum kW demands, 15-minute integration.</li> <li>– Possibility of storing data from the previous 12 months.</li> <li>– For connection to transformers of 5 (10) A current.</li> <li>– Multi-range operating voltage, variable from 57.7 to 240 V (line-to-neutral) at 60 Hz.</li> <li>– Recording of the load profile in kW and kVAr.</li> <li>– Communication option for data transmission via optical port, RS-485 and internal GSM/GPRS 2G/3G modem.</li> <li>– Registration in 4 quadrants.</li> <li>– Quartz oscillator time clock.</li> <li>– Automatic and user-programmable adjustment for daylight savings time.</li> <li>– Polycarbonate base.</li> <li>– Transparent polycarbonate cover resistant to ultraviolet rays, with rubber gasket and closure screws for seals.</li> <li>– User programmable display indication.</li> <li>– MODBUS and DLMS/ COSEM communication protocol.</li> </ul> </li> <li>• Measurement functions: <ul style="list-style-type: none"> <li>– Phase, line and neutral current.</li> <li>– Phase and line voltage.</li> <li>– Frequency.</li> <li>– Power.</li> <li>– Power factor.</li> </ul> </li> </ul>	<p>The wiring diagram and the Electrical Union logo must be printed on the nameplate.</p> <div data-bbox="1451 320 1715 655" style="text-align: center;">  </div>

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Active Energy Generated and Consumed (kWh), class 1.</li> <li>- Reactive Energy Generated and Consumed (kVArh), class 2.</li> <li>- Remote communication.</li> </ul> <p><b>Energy meter D2000</b></p> <ul style="list-style-type: none"> <li>• Technical characteristics: <ul style="list-style-type: none"> <li>- Two-phase multifunction electronic.</li> <li>- Operating voltage 2x120/208 V.</li> <li>- Frequency of 60 Hz.</li> <li>- 2 phases and 3 wires.</li> <li>- Working current of 2x10(100) A.</li> <li>- Communication option for data transmission via optical port and RS-485.</li> <li>- GSM/GPRS 2G/3G communication modem, compatible with the AMR system via GPRS.</li> </ul> </li> </ul> <p>Measurement functions:</p> <ul style="list-style-type: none"> <li>- Phase, line and neutral current.</li> <li>- Phase and line voltage.</li> <li>- Frequency.</li> <li>- Power.</li> <li>- Power factor.</li> <li>- Active Energy Generated.</li> <li>- Reactive Energy Generated.</li> <li>- Remote communication.</li> </ul> <p><b>Measuring leads to be connected between P2000T meters and TCs</b></p> <ul style="list-style-type: none"> <li>• Technical characteristics: <ul style="list-style-type: none"> <li>- Rated voltage 0.6/1 kV.</li> <li>- Minimum operating temperature -15 °C.</li> <li>- Maximum conductor temperature 70 °C.</li> </ul> </li> </ul>	

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>- Maximum short-circuit temperature 160 °C (max. 5 sec.)</li> <li>- No flame propagation.</li> <li>- Conductor of 7 flexible cables, copper wires.</li> <li>- Conductor cross-section of 2.5 mm<sup>2</sup>.</li> <li>- Flexible PVC insulation, type PVC/A.</li> <li>- Identification by 7 colors; yellow, orange, red, blue, green, white and black (according to RAL color chart).</li> <li>- Copper screen with stranded wires.</li> <li>- Separating tape from the screen to the conductor, can be made of nylon or polyester.</li> <li>- Black PVC cover.</li> </ul>	
10-pole test block, for testing three-phase electric energy meters	<ul style="list-style-type: none"> <li>• Operating voltage 600 V.</li> <li>• Rated current 20 A.</li> <li>• Current circuits with devices to short-circuit the secondaries of current transformers.</li> <li>• Voltage circuits with opening device</li> <li>• With one terminal for the neutral.</li> <li>• Transparent cover enabled for seals.</li> <li>• With phase identification by colors.</li> <li>• Dimensions of the block shall not exceed 200x100x85 mm. The 85 mm measurement is the total height, up to the edge of the cover screw.</li> </ul>	
Energy meter cabinets	<p>For measuring instruments P2000T and D2000.</p> <ul style="list-style-type: none"> <li>• Fiberglass-reinforced polyester base, light gray color, includes safety lock.</li> <li>• Fiberglass-reinforced polyester cover, light gray color, with a UV-resistant polycarbonate window, with a lockable closure to place the security seals.</li> <li>• Self-extinguishing according to UNE 53315 and 21095.</li> <li>• With mounting plate for the energy meter.</li> <li>• Connection terminal.</li> <li>• With 4 holes on the rear face for wall mounting.</li> </ul>	The wiring diagram must be printed on the nameplate. Also the Union Electrica logo must be on the nameplate.

Components	Technical requirements	Information / Certifications / Compliance / Guarantees
	<ul style="list-style-type: none"> <li>• Approximate dimensions 590x320x160 mm.</li> <li>• Protection IP 43, IK-10.</li> </ul>	
Communication and supervision	<ul style="list-style-type: none"> <li>• Preferred technology: SCADA supervisory software similar or equal to Schneider and measurement and control equipment similar or equal to Schneider. Automation technology other than the one stated as preferred is acceptable for evaluation.</li> <li>• All communication ports of data networks using copper cables shall be protected with surge protection devices (on RS485 lines and TCP-IP cables).</li> <li>• All automatic system equipment shall have a backup power supply system (UPS) with minimum 4-hour autonomy.</li> <li>• Automation and communications equipment is for industrial use, with guaranteed operation in conditions of temperature up to 55°C and relative humidity of 95%.</li> <li>• For equipment and panels or cabinets used for indoor installation, an ambient temperature of 40°C and relative humidity of 90% shall be used used.</li> <li>• All automation cabinets are protected against corrosion category C5-I and meet all specifications of ISO 12944 (Protection of steel structure against corrosion by painting system). In addition, the equipment is designed with IP 65 protection.</li> <li>• Complies with electromagnetic compatibility regulations (see NC 800:(ed.2.0), 2017-12).</li> <li>• The equipment and systems are designed to fully recover from power loss without manual intervention.</li> <li>• The automatic system shall include self-diagnosis of the automation and communications equipment, reporting all events via SCADA.</li> <li>• Texts of messages to the operator and system maintenance personnel shall be in Spanish.</li> <li>• Shall include supplies for protection of wiring in conduit and fastening to concrete.</li> </ul>	<ul style="list-style-type: none"> <li>• Shall preferably be technology proposed to facilitate and guarantee full access to technology transfer during the implementation of the system and its subsequent operation.</li> <li>• In case of presenting technology from a third party, the Supplier must ensure the presence of technicians from the manufacturer of the technology proposed in the technical discussions with specialists from COWATER and UNE, so that the latter are clear about the scope of technology transfer.</li> <li>• Guaranteed direct access to technical consultations with the technology manufacturer.</li> <li>• The development license of the offered supervision system shall be provided at no additional cost, allowing necessary configuration modifications during the post-warranty period.</li> <li>• All necessary Run Time and Software Development licenses shall be provided without time expiration.</li> <li>• Service, configuration and operation manuals for the proposed Supervision System shall be supplied, as well as a DEMO version in Spanish for evaluation by the client.</li> <li>• All source programs for the programming of the automation shall be provided.</li> <li>• Extensive and detailed information shall be provided on the proposed supervision system, illustrating its functionalities, protocols for exchange of information with other systems, and referencing the different facilities where installed.</li> <li>• Joint development of system engineering, allowing Cuban specialists to achieve total independence from the manufacturer in the development, configuration, modification, operation and subsequent maintenance of the installations. Active participation of Cuban automation specialists in all stages of the engineering and factory tests must be achieved.</li> <li>• Guarantee training activities to achieve total technological transfer, such that Cuban specialists can, during the post-warranty period, perform the necessary modifications to the original configuration of</li> </ul>



Components	Technical requirements	Information / Certifications / Compliance / Guarantees
		<p>the Supervision system and, in case of failure, perform the total restoration of the SCADA system as well as the necessary knowledge to replace and configure any of the damaged systems and equipment in the automation system without intervention of the supplier's specialists. The effectiveness of these training activities will be verified by means of a previously-agreed procedure that will be part of the final acceptance report on the system.</p> <ul style="list-style-type: none"> <li>• The control and automation cabinets are supplied assembled, with programming and configuration of required equipment completed and tested in the factory to guarantee operation.</li> <li>• The projects, programming and configuration of the equipment shall be carried out jointly with Cuban technicians, thus achieving total technology transfer.</li> <li>• The electrical part shall be integrated into the proposed Control System, such that the installation can be monitored, controlled and supervised locally. In addition, the main variables of the solar tracking system shall be integrated. The SCADA system must be viewable in the Specialized Classroom; the most appropriate communication solution will be provided for this purpose.</li> <li>• The license for all software supplied with the automation system shall be guaranteed without expiry during the lifetime of the installation.</li> </ul>

## 6.7 Appendix: List of Components - Lot 2

ITEM	PRODUCTS	SPECIFICATIONS	CANTIDAD	U/M
1	Photovoltaic modules	Monocrystalline silicon photovoltaic modules, 450 Wp. Includes 4 monocrystalline silicon photovoltaic modules, 450 Wp for D2* subsystem with solar tracker.	228	U
		Bifacial monocrystalline silicon photovoltaic modules, 450 Wp, for solar tracker.	4	U
	<b>Support structures</b>			
3	For D1 and D2: 224 photovoltaic modules (see reference picture at end of list)	Dome type, east-west orientation, angle of inclination 10°, horizontal mounting, made of galvanized steel ≥ 90 µm for 224 panels, roof attachment with counterweight. Galvanized steel or stainless steel screws.	1	Kit
4	For D2*: 4 photovoltaic modules	Solar tracker system, east-west, horizontal axis, self-orienting, self-powered, for 4 modules of 450 Wp monocrystalline, galvanized steel ≥ 90 µm. Includes accessories for fastening to concrete floor, mounting, installation and remote communication.	1	Kit
5	For D2*: 4 photovoltaic modules	Solar tracker system east-west, horizontal axis, self-orienting, self-powered, for 4 bifacial modules of 450 Wp, galvanized steel ≥ 90 µm. Includes accessories for anchoring to concrete floor, mounting, installation and remote communication.	1	Kit
	<b>Investors</b>			
6	For D1 and D2	25 kW, voltage 230 V (line voltage), three-phase line-to-line (3F-N), frequency 60 Hz.	4	U
7	For D2*	1.5 kW, voltage 230 V (line voltage), single-phase (line-to-line), frequency 60 Hz.	2	U
8	<b>Control booth</b>	Tropicalized and air-conditioned, fastened with mechanical expansions.	1	U
9	<b>Weather or environmental station</b>	Includes accessories, power supply, installation cables and remote communication.	1	U
10	<b>Alternating Current Panel (PCA D2)</b>	IP 65, 230 V, for building system D2. Contains: <ul style="list-style-type: none"> <li>☒ 1 switch, molded case, 250 A, 3 poles 230 V, 25 kA.</li> <li>☒ 2 modular switches 80 A, 3-pole 230 V, 6 kA.</li> <li>☒ 1 lighting switch 10 A, 2-pole, 230 V, 6 kA.</li> <li>☒ 1 control house switch 40 A, 2-pole 230 V, 6 kA.</li> <li>☒ 1 backup switch 10 A, 3-pole, 230 V, 6 kA.</li> <li>☒ 2 modular switches 10 A, 2-pole 230 V, 6 kA (solar trackers)</li> <li>☒ 3 surge suppressors type 2, 230 VAC</li> <li>☒ 1 magnetic contactor for lighting control with on/off buttons, including time switch.</li> </ul>	1	U
11	<b>Alternating Current Panel (GDB D2)</b>	IP 65, 230 V, wall-mounted, for GDB Building D2. Contains: <ul style="list-style-type: none"> <li>☒ 1 molded case switch 250 A, 3 poles 230 V, 25 kA.</li> <li>☒ 3 surge suppressors type 1, 230 V AC.</li> </ul>	1	U
12	<b>Panel AC power (PCA R2)</b>	IP 65, 230 V, for R2 building system. Contains: <ul style="list-style-type: none"> <li>☒ 1 molded case switch 250 A, 3 poles 230 V, 25 kA.</li> <li>☒ 2 modular circuit breakers 80 A, 3-pole 230 V, 6 kA.</li> <li>☒ 1 lighting switch 10 A, 2-pole 230 V, 6 kA.</li> <li>☒ 1 backup switch 10 A, 3-pole 230 V, 6 kA.</li> <li>☒ 3 surge suppressors type 2, 230 V AC.</li> <li>☒ 1 magnetic contactor for lighting control with on/off buttons, including time switch.</li> <li>☒ 1 photocell.</li> </ul>	1	U
13	<b>Alternating Current Panel (GDB R2)</b>	IP 54, 230 V, wall-mounted, for GDB Building D2. Contains: <ul style="list-style-type: none"> <li>☒ 1 switch, molded case 250 A, 3 poles, 230 V, 25 kA.</li> <li>☒ 3 surge suppressors type 1, 230 VAC</li> </ul>	1	U
14	<b>Energy meter</b>	P2000T with protective enclosure (incl. test leads L=25 m, test terminal, TC with enclosure)	2	U
15	<b>Energy meter</b>	D2000 direct connection, with protection cabinet.	2	U
16	<b>Roofed structure for inverters and panels (PCAD2)</b>	Galvanized structure ≥90 µm, fastened with mechanical expansions, including accessories for mounting 2 x 25 kW inverters and AC panel, 1.5 kW inverters and D2000 energy meters, etc.	1	U
17	<b>Roofed structure for inverters and panels (PCAR2)</b>	Galvanized structure ≥90 µm, fastened with mechanical expansions, including accessories for mounting 2 x 25 kW inverters and AC panel, etc.	1	U

<b>DC cabling and conduit accessories</b>				
18	Photovoltaic cable	Copper, 1 x 4 mm <sup>2</sup> cross section, 1.5 / 1.5 (1.8) kV, XLPE insulation, Class 5, red.	400	M
18	Photovoltaic cable	Copper, 1 x 4 mm <sup>2</sup> cross section, 1.5 / 1.5 (1.8) kV XLPE insulation, Class 5, black.	400	M
19	Connectors	CM4/CM4 for photovoltaic cable with built-in locking system. Electrical protection of contacts against handling. High thermal stability. UV resistant, with IP 67. Insulation category II.	70	U
20	Ventilated metal trays	Galvanized for outdoors (120 mm x 60 mm) with cover, including accessories for fastening on metal structures of the photovoltaic modules and, eventually, on concrete floor.	50	M
21	Ventilated metal trays,	Galvanized for outdoors (60 mm x 60 mm) with cover, including accessories for fastening on metal structures of the photovoltaic modules and, eventually, on concrete floor.	160	M
<b>AC cabling and conduit accessories</b>				
22	<b>Multiconductor cable</b>	4-way copper, section 3 x 120 mm <sup>2</sup> + d1 x 70 mm <sup>2</sup> with PVC insulation of (0.6/1) kV, PVC sheath.	150	M
	<b>Multiconductor cable</b>	4-way copper, section 3 x 25 mm <sup>2</sup> + 10 mm <sup>2</sup> with PVC insulation of (0.6/1) kV, PVC sheath.	100	M
23	<b>Multiconductor cable</b>	3-way copper, section 3 x 6 mm <sup>2</sup> with PVC insulation of (0.6/1) kV, PVC sheath.	50	M
24	<b>Multiconductor cable</b>	3-way copper, section 3 x 4 mm <sup>2</sup> with PVC insulation of (0.6/1) kV, PVC sheath.	20	M
25	<b>Pipe</b>	PVC, Ø 75mm, (3") and accessories: Weatherproof, UV resistant, includes accessories for installation and fastening in concrete.	150	M
26	<b>Terminal</b>	For cable with 120 mm <sup>2</sup> section.	12	U
27	<b>Terminal</b>	For cable with 70 mm <sup>2</sup> section.	4	U
28	<b>Terminal</b>	For cable with 25 mm <sup>2</sup> section.	24	U
29	<b>Terminal</b>	For cable with 10 mm <sup>2</sup> section.	8	U
30	<b>Terminal</b>	For cable with 6 mm <sup>2</sup> section.	10	U
<b>Grounding system</b>				
31	<b>Cable</b>	Electrolytic copper stranded 50 mm <sup>2</sup> .	700	M
32	<b>Pica</b>	Ø19 x 2000 mm, ¾" copper thread, 254 µm.	12	U
33	<b>Ground well (pit)</b>	Polypropylene 250 mm x 250 mm x 250 mm x 250 mm	8	U
34	<b>Test bridge</b>	Brass for pit.	8	U
35	<b>Braided union</b>	Tin-plated copper 25 x 3.5 x 500 Ø 11 mm	90	U
36	<b>Stainless steel screw nut and washer</b>	M10 x 35	164	U
37	<b>Ring terminal</b>	Tinned copper 50 mm <sup>2</sup> , M12.	100	U
38	<b>Stainless steel screw nut and washer</b>	M12 x 35	100	U
39	<b>Ground rod</b>	6-way copper, M10	6	U
40	<b>Cable/cable mold</b>	In T 50/70	1	U
41	<b>Mold clamp</b>	General model S	1	U
42	<b>Multiple cable mold</b>	70/pica 19 mm	1	U
43	<b>Apliweld-T</b>	Soldering tablets (20 u)	5	U
44	<b>Apliweld-E</b>	Electronic starter (10 u)	5	U
45	<b>Apliweld-E Kit</b>	Complete ignition kit.	2	U
46	<b>Apliweld-E</b>	Basic accessories	2	U
47	<b>Safety glasses</b>		2	U
48	<b>Work gloves</b>		2	U
<b>Direct lightning strike protection system</b>				
49	<b>Lightning Arrester</b>	With priming device with 4 m high mast. Protection level I. Protection radius 51 m, with 2 m over the object to be protected.	1	U
50	<b>Lightning Arrester</b>	With priming device with 6 m high mast. Protection level I. Protection radius 63 m, with 2 m over the object to be protected.	1	U

51	Pipe	PVC, Ø 19mm, (¾") and accessories to protect downspouts, weatherproof, UV resistant, includes accessories for installation and fastening to concrete, etc.	40	M
<b>Lighting system</b>				
52	LED Projector	10 W, 230 V, 60 Hz , with brackets and accessories for fastening to concrete parapet.	20	U
53	Multiconductor cable	3-way copper 3 x 6 mm <sup>2</sup> section with PVC insulation of (0.6/1) kV, to be laid through PVC pipes.	200	M
54	Pipe	PVC, Ø 19mm, (¾") and accessories, weatherproof, UV resistant, includes accessories for installation and fastening to concrete.	200	M
55	Junction box	Dimensions: 100 x 100 x 50, with cover and concrete fastening accessories.	25	U
56	Cleaning equipment for PV module		1	U
<b>Communication and supervision</b>				
57	SCADA supervision software	Preferred technology: Similar or equal to Schneider and measuring and control equipment similar or equal to Schneider. It is acceptable to evaluate an automatic technology other than the preferred one.	1	U

(\*) Reference image



## SECTION 7. PROPOSAL FORMS DELIVERABLES / CHECKLIST

This form serves as a checklist for the preparation of your Proposal. Complete the Bid Forms / Deliverables in accordance with the instructions on the forms and return them as part of your Proposal submission. Alterations to the format of the forms will not be permitted and substitutions will not be accepted.

Before submitting your Proposal, be sure to comply with the Data Sheet 22 Proposal Submission instructions.

### Technical Proposal Envelope:

<b>Have you correctly completed all the Proposal Forms?</b>	
⇒ Form A: Technical Proposal Submission Form	<input type="checkbox"/>
⇒ Form B: Bidder's Information Form	<input type="checkbox"/>
⇒ Form C: Joint Venture, Consortium or Partnership Information Form	<input type="checkbox"/>
⇒ Form D: Qualification Form	<input type="checkbox"/>
⇒ Form E: Technical Proposal Form	<input type="checkbox"/>
⇒ Form H: Bid Guarantee	<input type="checkbox"/>
<b>Have you provided the required documents to meet evaluation criteria in Section 4?</b>	<input type="checkbox"/>

### Financial Proposal Envelope:

Must be submitted in a separate sealed envelope/password protected e-mail.

⇒ Form F: Financial Proposal Submission Form	<input type="checkbox"/>
⇒ Form G: Financial Proposal Form	<input type="checkbox"/>

# Form A: Submission of Technical Proposal

[NOTE TO BIDDER. The form is required to be submitted on company letterhead].

Name of Bidder:	[Insert Bidder's name].	Date:	[Insert date]
BD reference:	Insert BD reference number]		

We, the undersigned, offer to provide the services for [Insert bid title and Lot number(s)] in accordance with your BD No. [Insert reference number of the BD]. We submit our Technical Proposal by means of this document (Financial Proposal to be submitted in a separate sealed envelope<sup>14</sup>).

We hereby declare that our firm, its affiliates or subsidiaries or employees, including members of a Joint Venture/Consortium/Partnership or subcontractors or suppliers for any part of the Contract:

- a) are not subject to the prohibition of procurement by Cowater or the UNE;
- b) have not been suspended or sanctioned, have not been denied access, and have not been deemed inadmissible by Cowater or UNE or any other international organization;
- c) have no conflict of interest in accordance with clause 4 of the BD;
- d) do not employ or intend to employ any person who is or has been a member of Cowater's staff within the **past year**, if such Cowater staff member has or had a prior professional relationship with our firm as a member of Cowater's staff within the **past three years of service**;
- e) have not filed for bankruptcy nor are involved in any bankruptcy or receivership proceedings, and do not have any pending court judgments or legal actions that could jeopardize their operations in the foreseeable future;
- f) are not engaged in prohibited practices, including but not limited to corruption, fraud, fraud, coercion, collusion, obstruction or any other unethical practices, with Cowater or the UNE, or conduct business in a manner that may cause financial, operational, reputational or other risks to Cowater or the UNE; and *agree to the principles of the Cowater Supplier Code of Conduct*.
- g) *accept the General Terms and Conditions applicable to the Cowater Contract, if awarded.*

*We declare that all information and statements made in this Proposal are true and agree that any misinterpretation or misrepresentation contained herein may lead to our disqualification or sanction by Cowater.*

*We offer to provide services in accordance with the Proposal documents, including Cowater's General Conditions of Contract, and in accordance with the Terms of Reference.*

*Our Proposal shall be valid and remain binding on us for the period of time specified in the Proposal Data Sheet.*

We understand and acknowledge that there is no obligation on your part to accept any Proposal you receive.

*I, the undersigned, certify that I am duly authorized by [Insert name of Bidder] to sign this Proposal and be bound by it if accepted by the Evaluation Committee.*

Name: \_\_\_\_\_

Position: \_\_\_\_\_

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

[Affix the Bidder's official seal].

<sup>14</sup> Or in electronic format with password-protected access.

## Form B: Bidder's Information Form

<b>Bidder's legal name</b>	[Complete]
<b>Legal address</b>	[Complete]
<b>Year of registration</b>	[Complete]
<b>Bidder's Authorized Representative Information</b>	Name and position: [Complete]. Telephone numbers: [Complete] E-mail: [Complete].
<b>Are you a Cowater or UNE supplier?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes for Cowater, [Insert Cowater vendor number]. <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes for UNE, [Insert UNE supplier number].
<b>Countries of operation</b>	[Complete]
<b>No. of full-time employees</b>	[Complete]
<b>Quality assurance certificate (e.g., ISO 9000 or equivalent) (If yes, provide a copy of the valid certificate)</b>	[Complete]
<b>Does the Company in which you work have an accreditation such as ISO 14001 related to the environment? (If yes, please provide a copy of the valid certificate)</b>	[Complete]
<b>Does the Company in which you work have a written Environmental Policy Statement? (If yes, please provide a copy)</b>	[Complete]
<b>Contact Person: Cowater may contact this person for clarification during the evaluation of the Proposal.</b>	Name and position: [Complete]. Telephone numbers: [Complete] E-mail: [Complete].
<b>Please attach the following documents:</b>	<ul style="list-style-type: none"> <li>▪ Company profile, <u>not to</u> exceed fifteen (15) pages, including printed brochures and product catalogs relevant to the goods to be procured.</li> <li>▪ Certificate of Incorporation/Registration of the company.</li> <li>▪ Tax registration/payment certificate issued by internal revenue authority showing Bidder is current with its tax obligations, or a tax relief certificate, if the Bidder enjoys such privilege.</li> <li>▪ Trade name registration documents, if applicable.</li> <li>▪ Authorization from the local government to locate and operate at such location, if applicable.</li> <li>▪ Official letter of appointment as local representative, if the Bidder submits a Proposal on behalf of an entity located outside Cuba.</li> <li>▪ Power of attorney (if applicable)</li> </ul>

Name: \_\_\_\_\_

Position: \_\_\_\_\_

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

[Affix the Bidder's official seal].



# Form C: Joint Venture / Consortium / Partnership Information Form

Name of Bidder:	[Insert name of Bidder].	Date:	[Insert date]
BD reference:	[Insert BD reference number]		

To be completed and submitted with your Proposal if submitting as a Joint Venture / Consortium / Partnership.

N°	Associate name and contact information (address, phone numbers, fax numbers, e-mail address)	Proposed proportion of responsibilities (in %) and type of services to be performed
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

<b>Name of main partner</b> (with authority to bind the Joint Venture, Consortium or Partnership during the Bidding process and, in the event a Contract is awarded, during the execution of Contract)	[Complete]
---	------------

Attached is a copy of the document below signed by each associate detailing the likely legal structure and confirmation of individual and collective responsibility of the members of said Joint Venture:

- Letter of intent for the creation of a Joint Venture or,
- a Joint Venture/Consortium/Partnership agreement

We hereby confirm that, if the Contract is awarded, all parties to the Joint Venture / Consortium / Partnership will be individually and collectively liable to Cowater for compliance with the provisions of the Contract.

Name of partner: \_\_\_\_\_

Name of partner: \_\_\_\_\_

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

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

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Name of partner: \_\_\_\_\_

Name of partner: \_\_\_\_\_

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

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

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## Form D: Qualification Form

Name of Bidder:	[Insert Bidder's name].	Date:	[Insert date]
BD reference:	[Insert BD reference number]		

If a Joint Venture, Consortium or Partnership, all sections must be completed by each associate.

### History of Unfulfilled Contracts

<input type="checkbox"/> No breach of Contract during the last 3 years.			
<input type="checkbox"/> Contracts not fulfilled during the last 3 years			
Year	Portion of breach of Contract	Contract identification	Total Contract amount (present value in USD)
		Client Name: Client Address: Reasons for noncompliance:	

### Litigation history (including pending litigation)

<input type="checkbox"/> No litigation history during the last 3 years.			
<input type="checkbox"/> Litigation history as follows.			
Year of dispute	Amount in dispute (in USD)	Contract identification	Total Contract amount (present value in USD)
		Client Name: Client Address: Matter in dispute: Party that initiated dispute: Dispute status: Awarded portion, in case of resolution:	

### Previous relevant experience

List only previous similar contracts successfully completed within the last 5 years.

List only those contracts for which the Bidder was legally engaged or subcontracted by the Client as a firm or as one of the partners in the Consortium or Joint Venture. Activities and tasks completed by individual experts independent of the Bidder or through other firms cannot be presented as relevant experience of the Bidder or the Bidder's associates or sub-consultants, but may be claimed by the Experts themselves in their resumes. The Bidder should be prepared to substantiate the claimed experience by submitting copies of relevant documents and references, if requested by Cowater.

Project name & country of assignment	Client contact details and reference	Contract value	Period of activity & status	Types of activities performed

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

Statement of satisfactory performance from the top 3 (three) or more Clients is attached.

# Financial position

Annual turnover during the last 3 years	Year	USD
	Year	USD
	Year	USD
Last credit rating (if applicable); indicate source		

Financial information (in USD equivalent)	Historical information for the last 3 years		
	Year 1	Year 2	Year 3
	<i>Balance sheet information</i>		
Total assets (TA)			
Total liabilities (PT)			
Current assets (CA)			
Current liabilities (LC)			
	<i>Income statement information</i>		
Total/gross revenues			
Earnings before income taxes			
Net income			
Solvency Ratio			

- Attached are copies of audited financial statements (balance sheets, including all related notes and income statements) for the years required above that meet the following conditions:
- a) These must reflect the financial situation of the Proponent or it's part in a Joint Venture, and not associated or parent companies.
  - b) Historical financial statements shall be audited by a certified public accountant.
  - c) Historical financial statements shall correspond to accounting periods already completed and audited. Statements for partial periods will not be accepted.

# Form E: Technical Proposal Form

Name of Bidder:	[Insert Bidder's name].	Date:	[Insert date]
BD reference:	[Insert BD reference number]		

The Bidder's Proposal must be organized to follow this Technical Proposal format. Where the Bidder is presented with a requirement or requested to use a specific approach, the Bidder must not only confirm acceptance of the requirement, but also describe how it intends to meet it. When a descriptive response is requested, failure to provide a descriptive response will be considered a failure to meet all of the requested requirements.

### SECTION 1: Bidder's Qualifications, Capacity and Experience

- 1.1 Company reputation and credibility/reliability of products offered in the solar PV industry. Include a brief description of the organization.
- 1.2 Relevance of expertise and experience in similar bids in the Latin America and Caribbean (LAC) region or in Cuba.
- 1.3 Overall organizational capacity that may affect implementation: management structure, financial stability and project funding capacity, project management controls, extent to which any work would be outsourced (if so, provide details).
- 1.4 Commitment of the organization to sustainability.
  - o The organization complies with ISO 14001 or ISO 14064 or equivalent.
  - o The organization demonstrates a significant commitment to sustainability through other means. For example, internal company policy documents on women's empowerment, climate change mitigation, or membership in business institutions that promote these issues.

### SECTION 2: Proposed Methodology, Approach, and Implementation Plan

This section should demonstrate the Bidder's responsiveness to the Terms of Reference (ToR) by identifying the specific components proposed, addressing the requirements, providing a detailed description of the essential execution features proposed, and demonstrating how the proposed methodology meets or exceeds the requirements. All important aspects should be addressed in sufficient detail, and the different components of the project should be appropriately weighted against each other.

- 2.1 Understanding of the technical specifications of the requirements to be met by the components for procurement: Were the important aspects of the tender addressed in sufficient detail? Were the different components of the tender adequately weighted against each other?
- 2.2 Description of the Bidder's approach and methodology to meet or exceed the requirements of the Terms of Reference.
- 2.3 Implementation plan, including a Gantt chart or timetable showing the detailed sequence of activities to be carried out and their corresponding deadlines.
- 2.4 Demonstration of the ability to effectively plan, integrate and implement sustainability measures in the execution of the Contract.

### SECTION 3: Technical evaluation criteria

This section should demonstrate that the specifications of the technical characteristics of all components of the stand-alone photovoltaic systems have been well understood. As a result of this premise, the equipment is offered in accordance with these specifications. Coherence between the different activities to be carried out and the timelines described must be given importance. Improvements to the technical specifications will receive additional points.

#### 3.1 Technical Report

- 3.1.1 Development of contents, detailed description of the equipment offered. Specification of technical characteristics, equipment data sheets, certifications, warranties and other requested documents.
- 3.1.2 Description of important activities: manufacturing, transportation, storage and testing. Functional coherence between the different activities is detailed.
- 3.1.3 Detailed work program and functional schedule by weeks. Graphic and photographic documentation.

### **3.2 Proposed improvements**

- 3.2.1 Proposed improvements to the technical characteristics of the components of stand-alone photovoltaic systems (SSPS): photovoltaic modules, solar batteries, inverters, support structures.
- 3.2.2 Proposed improvements to the technical characteristics of additional components to the SSPS (wiring, grounding system, lightning protection system, equipotentialization, etc.).

# Form F: Financial Proposal Submission Form

(In separate envelope or separate file with password)

Name of Bidder:	[Insert Bidder's name].	Date:	[Insert date]
BD reference:	Insert BD reference number]		

We, the undersigned, offer to provide services for [Insert Bid Title] under your BD No. [Insert BD Reference Number]. We submit our Financial Proposal by means of this document, in a separate sealed envelope<sup>15</sup>.

The attached Financial Proposal is for the amount of [Insert amount in words and figures].

*Our Proposal shall be valid and remain binding on us for the period of time specified in the Proposal Data Sheet.*

We understand that there is no obligation on your part to accept any Proposal you receive.

Name: \_\_\_\_\_

Position: \_\_\_\_\_

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

**[Affix the Bidder's official seal].**

<sup>15</sup> Or in electronic format with password-protected access

# Form G: Financial Proposal Form

Name of Bidder:	[Insert Bidder's name].	Date:	[Insert date]
BD reference:	Insert BD reference number]		

The Bidder must prepare the Financial Proposal following the format below and submit it in a separate envelope or file from the Technical Proposal, as indicated in the Instructions to Bidders. Any financial information provided in the Technical Proposal will lead to disqualification of the Bidder.

The Financial Proposal must be aligned with the requirements in the Terms of Reference and the Bidder's Technical Proposal.

**Currency of the Proposal: [Insert currency].**

**Table 1: Summary of general prices**

	CAD amounts
<b>Financial Proposal for training services</b>	
Professional fees	
Other costs	
<b>Total Amount of Training Proposal</b>	



**Table 2: Detail of unit prices**

Item	Description of Good or Service	Unit of measure	Quantity	Unit Price	Taxes <sup>16</sup>	Final Unit Price
1						
2						
3						
4						
5						
6						
...						[Total]

**TOTAL BID VALUE:** ..... (Canadian Dollars) [Include total by adding the values in Tables 1 and 2].

**Total value of the offer in letters:** .....

[Insert name and surname of the person who will sign Financial Proposal] as [insert as necessary] duly authorized to act for and on behalf of [insert Bidder's name and company seal here, if applicable].

Signature \_\_\_\_\_ [Insert date]

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<sup>16</sup> If applicable.

# Form H: Formats of Guarantees

## H1. Bid Guarantee

**The Bid Guarantee must be issued using the official header of the issuing bank.  
Except for the fields indicated, no changes can be made to this template.**

---

To: **Cowater International**

*[Insert the contact information specified in the Data Sheet].*

WHEREAS *[Name and address of Bidder]* (hereinafter referred to as "the Bidder") has submitted a Proposal to Cowater International dated *[Insert date]* for the execution of *[Insert title of services]* Services (hereinafter referred to as "the Proposal"):

AND WHEREAS, you have stipulated that the Bidder shall provide you with a Bank Guarantee from a recognized bank in the amount specified herein as security in the event that the Bidder:

- a) does not sign Contract after award by Cowater International;
- b) withdraws Proposal after the Proposal opening date;
- c) does not comply with Cowater International's variation of requirements, in accordance with the instructions in the BD; or
- d) fails to provide the Performance Guarantee, insurance or other documents that Cowater International may request as a condition for the effective performance of the Contract.

AND WHEREAS, we have agreed to grant the Bidder said Bank Guarantee;

NOW THEREFORE we hereby affirm that we are Guarantors and liable to you, on behalf of the Bidder, up to a total of. *[amount of the guarantee] [in words and figures]*, which constitutes the sum payable in the types and proportions of currencies in which the Price Proposal is paid; and we undertake to pay to you, upon your first written demand and without argument or objection of any kind, the sum or sums within the limits of. *[aforesaid amount of security]* without the necessity of your proving or crediting the grounds or reasons for your claim, in the sum specified herein.

This guarantee will be valid until 30 days after the date of final validity of the Proposals.

### **SIGNATURE AND STAMP OF THE BANK PROVIDING THE GUARANTEE**

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_  
Name of the bank: \_\_\_\_\_  
Address: \_\_\_\_\_

***[Affix the Bank's official seal] [Affix the Bank's official seal]***

# H2. Performance Guarantee

**The Performance Guarantee must be issued using the official letterhead of the issuing bank. Except for the fields indicated, no changes can be made to this template.**

---

To: **Cowater International**

*[Insert the contact information specified in the Data Sheet].*

WHEREAS *[Name and address of Supplier]* (hereinafter referred to as "the Supplier") has entered into a Contract with Cowater International dated *[Insert date]*, Number *[Insert Contract number]*, pertaining to tender *[Insert BD number]* for the supply of goods and services *[Insert brief description of Goods and Related Services]* (hereinafter referred to as "The Contract"):

AND WHEREAS, you have stipulated that the Supplier shall provide you with a Bank Guarantee from a recognized bank in the amount specified herein as security in the event that the Supplier:

- a) breaches or is in breach of its obligations under the Contract,
- b) provides goods and services which do not comply with Cowater International's variation of requirements, in accordance with the instructions in the Bidding Terms and/or the Contract; or
- c) fails to provide Quality Guarantee, insurance or other documents that Cowater International may request as a condition of Contract completion.

AND WHEREAS, we have agreed to grant the Supplier said Bank Guarantee;

NOW THEREFORE we hereby affirm that we are Guarantors and liable to you, on behalf of Supplier, up to a total of. *[amount of the guarantee] [in words and figures]*, constituting the sum payable in the types and proportions of currencies in which the Contract is paid; and we undertake to pay to you, upon your first written demand and without argument or objection of any kind, the sum or sums within the limits of *[amount of the security referred to above]* without the need for you to prove or credit the grounds or reasons for your claim, in the sum specified herein.

This guarantee shall be valid until 30 days after the date of final validity of the Contract.

### **SIGNATURE AND STAMP OF THE BANK PROVIDING THE GUARANTEE**

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Name of the bank: \_\_\_\_\_

Address: \_\_\_\_\_

***[Affix the Bank's official seal] [Affix the Bank's official seal]***

### H3. Advance Payment Guarantee

**The Advance Payment Guarantee must be issued using the official letterhead of the issuing bank. Except for the fields indicated, no changes can be made to this template.**

---

To: **Cowater International**

*[Insert the contact information specified in the Data Sheet].*

WHEREAS *[Name and address of Supplier]* (hereinafter referred to as "the Supplier") has entered into a Contract with Cowater International dated *[Insert date]*, Number *[Insert Contract number]*, pertaining to tender *[Insert BD number]* for the supply of goods and services *[Insert brief description of Goods and Related Services]* (hereinafter referred to as "The Contract"):

Likewise, we understand that, in accordance with the terms of the Contract, an advance payment will be made against an Advance Payment Guarantee.

AND WHEREAS, you have stipulated that the Supplier shall provide you with a Bank Guarantee from a recognized bank in the amount specified herein as security in the event that the Supplier:

- a) breaches or is in breach of its obligations under the Contract,
- b) has used the advance payment for purposes other than those stipulated for the provision of goods and services.

AND WHEREAS, we have agreed to grant the Supplier said Bank Guarantee;

NOW THEREFORE we hereby affirm that we are Guarantors and liable to you, on behalf of Supplier, up to a total of. *[amount of the guarantee] [in words and figures]*, which constitutes the sum payable in the types and proportions of currencies in which the Contract advance is paid; and we undertake to pay to you, upon your first written demand and without argument or objection of any kind, the sum or sums within the limits of. *[aforesaid guarantee amount]* without the necessity of your proving or crediting the grounds or reasons for your claim, in the sum specified herein.

As a condition for submitting any claim and making this guarantee effective, the referred advance payment must have been received by the Supplier in its account number *[insert number]* at the *[insert name and address of the bank]*.

This guarantee shall be valid until 30 days after the date of final validity of the Contract.

**SIGNATURE AND STAMP OF THE BANK PROVIDING THE GUARANTEE**

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_  
Name of the bank: \_\_\_\_\_  
Address: \_\_\_\_\_

***[Affix the Bank's official seal] [Affix the Bank's official seal]***

# H4. Quality Guarantee

**The Quality Guarantee must be issued using the official header of the issuing bank. Except for the fields indicated, no changes can be made to this template.**

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To: **Cowater International**

*[Insert the contact information specified in the Data Sheet].*

WHEREAS *[Name and address of Supplier]* (hereinafter referred to as "the Supplier") has entered into a Contract with Cowater International dated *[Insert date]*, Number *[Insert Contract number]*, pertaining to tender *[Insert BD number]* for the supply of goods and services *[Insert brief description of Goods and Related Services]* (hereinafter referred to as "The Contract"):

AND WHEREAS, you have stipulated that the Supplier shall provide you with a Bank Guarantee from a recognized bank in the amount specified herein as security in the event that the Supplier:

- d) fails to perform or is in breach of its obligations under the Contract, with respect to the quality of goods and services contracted,
- e) provides goods and services which do not comply with Cowater International's variation of requirements, in accordance with the instructions in the Bidding Terms and/or the Contract; or
- f) provides goods reported as defective by Cowater International which are not repaired or replaced within the warranty period stipulated in the Contract.

AND WHEREAS, we have agreed to grant the Supplier said Bank Guarantee;

NOW THEREFORE we hereby affirm that we are Guarantors and liable to you, on behalf of the Supplier, up to a total of. *[amount of the guarantee] [in words and figures]*, constituting the sum payable in the types and proportions of currencies in which the Contract is paid; and we undertake to pay to you, upon your first written demand and without argument or objection of any kind, the sum or sums within the limits of. *[amount of the security referred to above]* without the need for you to prove or credit the grounds or reasons for your claim, in the sum specified herein.

This warranty shall be valid until 365 days after the date of final validity of the Contract.

### **SIGNATURE AND STAMP OF THE BANK PROVIDING THE GUARANTEE**

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Name of the bank: \_\_\_\_\_

Address: \_\_\_\_\_

***[Affix the Bank's official seal] [Affix the Bank's official seal]***

Form I: Contract Form