

Information Copy Not for Bidding



The Government of the Democratic Socialist Republic of Sri Lanka

Funded By:

The Government of the Republic of India

Ministry of Power and Energy

SRI LANKA SUSTAINABLE ENERGY AUTHORITY (SLSEA)

INVITATION FOR BIDS:
DESIGN, SUPPLY, INSTALLATION, TESTING, COMMISSIONING
OPERATION & MAINTENANCE OF SOLAR PV ROOFTOP SYSTEMS FOR
RELIGIOUS PLACES
PROJECT NAME: ILOC – SOLAR PV ROOFTOP FOR RELIGIONS PLACES IN SRI LANKA

Procurement No: SEA/PD/RES/03/2024

BIDDING DOCUMENT

INTERNATIONAL LIMITED COMPLETIVE BIDDING (INDIA ONLY)



Sri Lanka Sustainable Energy Authority
No. 72, Ananda, Coomaraswamy Mawatha
Colombo 07, Sri Lanka
Tel: +94112575203
Fax: +94112575089
Email: procurement.slsea@gmail.com

Information Copy Not for Bidding

Invitation for Bids (IFB)
Invites bids from Indian Firms
Sri Lanka Sustainable Energy Authority (SLSEA)
Ministry of Power and Energy
Funded By:

The Government of the Republic of India

**INVITATION FOR BIDS FOR DESIGN, SUPPLY, INSTALLATION, TESTING,
COMMISSIONING, OPERATION & MAINTENANCE OF SOLAR PV ROOFTOP
SYSTEMS FOR RELIGIOUS PLACES.**

**PROJECT NAME: ILOC – SOLAR PV ROOFTOP FOR RELIGIOUS PLACES IN SRI
LANKA**

Procurement No.: SEA/PD/RES/03/2024

The Sri Lanka Sustainable Energy Authority (SLSEA) invites sealed bids from eligible and qualified Indian bidders for design, supply, installation, testing, commissioning, operation and maintenance of Solar PV Rooftop Systems for Religious Places in Sri Lanka

1. Once awarded the contract, the successful bidder shall design, supply, install, test, commission operate and maintain, Solar PV Rooftop Systems as follows.
 - Number of systems to be installed- 5,000
 - PV System Capacity 5kWac each.
 - Installation period- One hundred and sixty (160) Calendar days from the contract award.
 - Free service and maintenance period-five (05) years.
2. Eligible bidders who are interested may acquire additional information from Sri Lanka Sustainable Energy Authority.
web link: <http://www.energy.gov.lk/index.php/en/procurement>
3. A complete set of Bidding Documents in English language can be collected from SLSEA procurement division or by sending a mail to procurement.slsea@gmail.com and a non-refundable tender fee of Sri Lankan Rupees twenty-five thousand (LKR 25,000.00) has to be made to the SLSEA Accounts branch by cash, clearly mentioning the reference as SEA/PD/RES/03/2024. The payment receipt shall be submitted along with the bid. Bidders who wish to make online transfers for the above may transfer the above amount to the following account,
Account number: 0074944408
Bank name: Bank of Ceylon (code is 7010)
Branch: Torrington square (code is 453)
SWIFT code: BCEYLKLX
The receipt shall be attached with the bid submission
4. Sealed bids marked 'SEA/PD/RES/03/2024' on the top left-hand corner of the envelope shall be sent to the address below on or before 10:30 hrs in Sri Lankan time on 16th February 2024 (Sri Lankan time: GMT + 5:30 Time Zone). Late bids will be rejected. Bids will be opened soon after the closing time.
5. All bids must be accompanied by a "Bid-Security," of USD one hundred and seventy thousand (USD 170,000.00) as a bank guarantee as per the prescribed format in the Bid document. Bid Security shall be an unconditional bank guarantee issued by a bank approved by the Central Bank of Sri Lanka and operating in Sri Lanka or issued by a bank based in another country but the bid security certified by a bank approved by the

Information Copy Not for Bidding

Central Bank of Sri Lanka and operating in Sri Lanka. Note: An irrevocable letter of credit or a cashier's certified cheque is not acceptable.

6. The Pre bid meeting of the above project is scheduled to be held on 07th February 2024 at 10:30 hrs in Sri Lankan time. Only companies registered in India are eligible to participate in the procurement process

Director General,

Sri Lanka Sustainable Energy Authority,

No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka

Telephone: +94 11-2575203 Facsimile Number: +94 011-2575089

Electronic mail address: procurement.slsea@gmail.com

Information Copy Not for Bidding

SRI LANKA SUSTAINABLE ENERGY AUTHORITY

INVITATION FOR BIDS DESIGN, SUPPLY, INSTALLATION, TESTING, COMMISSIONING, OPERATION & MAINTENANCE OF SOLAR PV ROOFTOP SYSTEMS FOR RELIGIOUS PLACES.

PROJECT NAME: ILOC – SOLAR PV ROOFTOP FOR RELIGIOUS PLACES – SRI LANKA

Procurement No.: SEA/PD/RES/03/2024

INTERNATIONAL LIMITED COMPETITIVE BIDDING PROCEDURE

Bidder's Name :

(Issued To) :

Address :

Tel. :

Fax. :

Date :

Bid No. :

Non-refundable bid document Fee Receipt No :

Date:.....

Bank name and address (Only for fund transfers):.....

.....

Issuing Officer

Seal

BIDDING DOCUMENTS

Information Copy Not for Bidding

Bidding Document for Provision of Solar Power Systems for ILOC-SOLAR PV ROOFTOP FOR RELIGIOUS PLACES SRI LANKA - under reference No SEA/PD/RES/03/2024 is provided the following

I. Instructions to Bidders

NPA

II. Bidding data sheet

III. Qualifications and Experience of the Bidders

IV. Bidding Forms

V. Employer's Requirement

VI. Condition of Contract

VII. Contract Data

VIII. Form of Contract

Prospective bidders are instructed to submit their bids in the formats attached to the bidding documents issued by the Chairman, Procurement Committee, Sri Lanka Sustainable Energy Authority, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka.

Bids submitted in any other format will not be considered for evaluation.

Information Copy Not for Bidding

Section I. Instructions to Bidders (ITB)

ITB shall be read in conjunction with the Section II, Bidding Data Sheet (BDS), which shall take precedence over ITB.

General

1. Scope of Bid
 - 1.1 The Purchaser indicated in the Bidding Data Sheet (BDS), issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section V, Schedule of Requirements. The name and identification number of this procurement are specified in the BDS. The name, identification, and number of lots (individual contracts), if any, are provided in the BDS.
 - 1.2 Throughout these Bidding Documents:
 - (a) the term “in writing” means communicated in written form by mail (other than electronic mail) or hand delivered with proof of receipt;
 - (b) if the context so requires, “singular” means “plural” and vice versa; and
 - (c) “day” means calendar day.
2. Source of Funds
 - 2.1 Payments under this contract will be financed by the source specified in the BDS.
3. Ethics, Fraud and Corruption
 - 3.1 The attention of the bidders is drawn to the following guidelines of the Procurement Guidelines published by National Procurement Agency:

Parties associated with Procurement Actions, namely, suppliers/contractors and officials shall ensure that they maintain strict confidentiality throughout the process;

Officials shall refrain from receiving any personal gain from any Procurement Action. No gifts or inducement shall be accepted. Suppliers/contractors are liable to be disqualified from the bidding process if found offering any gift or inducement which may have an effect of influencing a decision or impairing the objectivity of an official.
 - 3.2 The Purchaser requires the bidders, suppliers, contractors, and consultants to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy:
 - (a) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public

official in the procurement process or in contract execution;

- (b) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
- (c) “collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser to establish bid prices at artificial, noncompetitive levels; and
- (d) “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.

3.3 If the Purchaser found any unethical practices as stipulated under ITB Clause 3.2, the Purchaser will reject a bid, if it is found that a Bidder directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question.

4. Eligible Bidders

- 4.1 All bidders shall possess legal rights to supply the Goods under this contract.
- 4.2 A Bidder shall not have a conflict of interest. All bidders found to have conflict of interest shall be disqualified. Bidders may be considered to have a conflict of interest with one or more parties in this bidding process, if they:
 - (a) are or have been associated in the past, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under these Bidding Documents ; or
 - (b) submit more than one bid in this bidding process. However, this does not limit the participation of subcontractors in more than one bid.
- 4.3 A Bidder that is under a declaration of ineligibility by the National Procurement Agency (NPA), at the date of submission of bids or at the date of contract award, shall be disqualified. The list of debarred firms is available at the website of NPA, www.npa.gov.lk .
- 4.4 Foreign Bidder may submit a bid only if so stated in the BDS.

Information Copy Not for Bidding

- | | |
|--|--|
| 5. Eligible Goods and Related Services | 5.1 All goods supplied under this contract shall be complied with applicable standards stipulated by the Sri Lanka Standards Institute (SLSI). In the absence of such standards, the Goods supplied shall be complied to other internationally accepted standards. |
|--|--|

Contents of Bidding Documents

- | | |
|----------------------------------|---|
| 6. Sections of Bidding Documents | 6.1 The Bidding Documents consist of 2 Volumes, which include all the sections indicated below, and should be read in conjunction with any addendum issued in accordance with ITB Clause 8. |
|----------------------------------|---|

Volume 1

- Section I. Instructions to Bidders (ITB)
- Section VI. Conditions of Contract (CC)
- Section VIII. Contract Forms

Volume 2

- Section II. Bidding Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Schedule of Requirements
- Section VII. Contract Data
- Invitation For Bid

Information Copy Not for Bidding

- 6.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid.
7. Clarification of Bidding Documents
- 7.1 A prospective Bidder requiring any clarification of the Bidding Documents including the restrictiveness of specifications shall contact the Purchaser in writing at the Purchaser's address specified in the BDS. The Purchaser will respond in writing to any request for clarification, provided that such request is received no later than ten (10) days prior to the deadline for submission of bids. The Purchaser shall forward copies of its response to all those who have purchased the Bidding Documents, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Clause 8.
8. Amendment of Bidding Documents
- 8.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum.
- 8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have purchased the Bidding Documents.
- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB Sub-Clause 23.2
- Preparation of Bids**
9. Cost of Bidding
- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
10. Language of Bid
- 10.1 The Bid, as well as all correspondence and documents relating to the Bid (including supporting documents and printed literature) exchanged by the Bidder and the Purchaser, shall be written in English language.
11. Documents Comprising the Bid
- 11.1 The Bid shall comprise the following:
- (a) Bid Submission Form and the applicable Price Schedules, in accordance with ITB Clauses 12, 14, and 15;
 - (b) Bid Security or Bid-Securing Declaration, in

Information Copy Not for Bidding

accordance with ITB Clause 20;

- (c) documentary evidence in accordance with ITB Clauses 18 and 29, that the Goods and Related Services conform to the Bidding Documents;
- (d) documentary evidence in accordance with ITB Clause 18 establishing the Bidder's qualifications to perform the contract if its bid is accepted; and
- (e) any other document required in the BDS.

- | | |
|---|--|
| 12. Bid Submission Form and Price Schedules | 12.1 The Bidder shall submit the Bid Submission Form using the form furnished in Section IV, Bidding Forms. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested. |
| 13. Alternative Bids | 13.1 Alternative bids shall not be considered. |
| 14. Bid Prices and Discounts | <p>14.1 The Bidder shall indicate on the Price Schedule the unit prices and total bid prices of the goods it proposes to supply under the Contract.</p> <p>14.2 Any discount offered against any single item in the price schedule shall be included in the unit price of the item. However, a Bidder wishes to offer discount as a lot the bidder may do so by indicating such amounts appropriately.</p> <p>14.3 If so indicated in ITB Sub-Clause 1.1, bids are being invited for individual contracts (lots) or for any combination of contracts (packages). Unless otherwise indicated in the BDS, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer any price reduction (discount) for the award of more than one Contract shall specify the applicable price reduction separately..</p> <p>14.4 (i) Prices indicated on the Price Schedule shall include all duties and sales and other taxes already paid or payable by the Supplier:</p> <ul style="list-style-type: none"> (a) on components and raw material used in the manufacture or assembly of goods quoted; or (b) on the previously imported goods of foreign origin <p>(ii) However, VAT shall not be included in the price but shall be indicated separately;</p> |

Information Copy Not for Bidding

- (iii) the price for inland transportation, insurance and other related services to deliver the goods to their final destination;
 - (iv) the price of other incidental services
- .
- 14.5 The Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected, pursuant to ITB Clause 31.
- 14.6 All lots, if any, and items must be listed and priced separately in the Price Schedules. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items.
15. Currencies of Bid
- 15.1 Unless otherwise stated in Bidding Data Sheet, the Bidder shall quote in Sri Lankan Rupees and payment shall be payable only in Sri Lanka Rupees.
16. Documents Establishing the Eligibility of the Bidder
- 16.1 To establish their eligibility in accordance with ITB Clause 4, Bidders shall complete the Bid Submission Form, included in Section IV, Bidding Forms.
17. Documents Establishing the Conformity of the Goods and Related Services
- 17.1 To establish the conformity of the Goods and Related Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section V, Schedule of Requirements.
- 17.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description (given in Section V, Technical Specifications) of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Schedule of Requirements.
- 17.3 The Bidder shall also furnish a list giving full particulars, including quantities, available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period if specified in the BDS following commencement of the use of the goods by the Purchaser.

Information Copy Not for Bidding

- | | | |
|---|------|--|
| 18. Documents Establishing the Qualifications of the Bidder | 18.1 | <p>The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:</p> <ul style="list-style-type: none"> (a) A Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods; (b) that, if required in the BDS, in case of a Bidder not doing business within Sri Lanka, the Bidder is or will be (if awarded the contract) represented by an Agent in Sri Lanka equipped and able to carry out the Supplier's maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and (c) that the Bidder meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria. |
| 19. Period of Validity of Bids | 19.1 | Bids shall remain valid until the date specified in the BDS. A bid valid for a shorter date shall be rejected by the Purchaser as non responsive. |
| | 19.2 | In exceptional circumstances, prior to the expiration of the bid validity date, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 20, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid. |
| 20. Bid Security | 20.1 | The Bidder shall furnish as part of its bid, a Bid Security or a Bid-Securing Declaration, as specified in the BDS. |
| | 20.2 | <p>The Bid Security shall be in the amount specified in the BDS and denominated in Sri Lanka Rupees, and shall:</p> <ul style="list-style-type: none"> (a) at the bidder's option, be in the form of either a bank draft, a letter of credit, or a bank guarantee from a banking institution; (b) be issued by a institution acceptable to Purchaser. The acceptable institutes are published in the NPA website, www.npa.gov.lk. (c) be substantially in accordance with the form included |

in Section IV, Bidding Forms;

- (d) be payable promptly upon written demand by the Purchaser in case the conditions listed in ITB Clause 20.5 are invoked;
- (e) be submitted in its original form; copies will not be accepted;
- (f) remain valid for the period specified in the BDS.

20.3 Any bid not accompanied by a substantially responsive Bid Security or Bid Securing Declaration in accordance with ITB Sub-Clause 20.1 and 20.2, may be rejected by the Purchaser as non-responsive.

20.4 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the Performance Security pursuant to ITB Clause 43.

20.5 The Bid Security may be forfeited or the Bid Securing Declaration executed:

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Submission Form, except as provided in ITB Sub-Clause 19.2; or
- (b) if a Bidder does not agreeing to correction of arithmetical errors in pursuant to ITB Sub-Clause 30.3
- (c) if the successful Bidder fails to:
 - a. sign the Contract in accordance with ITB Clause 42;
 - b. furnish a Performance Security in accordance with ITB Clause 43.

21. Format and Signing of Bid

21.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB Clause 11 and clearly mark it as "ORIGINAL." In addition, the Bidder shall submit a copy of the bid and clearly mark it as "COPY." In the event of any discrepancy between the original and the copy, the original shall prevail.

21.2 The original and the Copy of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder.

21.3 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

Information Copy Not for Bidding

Submission and Opening of Bids

22. Submission, Sealing and Marking of Bids
- 22.1 Bidders may always submit their bids by mail or by hand.
- (a) Bidders submitting bids by mail or by hand, shall enclose the original and the copy of the Bid in separate sealed envelopes, duly marking the envelopes as “ORIGINAL” and “COPY.” These envelopes containing the original and the copy shall then be enclosed in one single envelope.
- 22.2 The inner and outer envelopes shall:
- (a) Bear the name and address of the Bidder;
- (b) be addressed to the Purchaser in accordance with ITB Sub-Clause 23.1;
- (c) bear the specific identification of this bidding process as indicated in the BDS; and
- (d) bear a warning not to open before the time and date for bid opening, in accordance with ITB Sub-Clause 261.
- If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid.
23. Deadline for Submission of Bids
- 23.1 Bids must be received by the Purchaser at the address and no later than the date and time specified in the BDS.
- 23.2 The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB Clause 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
24. Late Bids
- 24.1 The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB Clause 23. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
25. Withdrawal, and Modification of Bids
- 25.1 A Bidder may withdraw, or modify its Bid after it has been submitted by sending a written notice in accordance with ITB Clause 22, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB Sub-Clause 21.2, (except that no copies of the withdrawal notice are required). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

- (a) submitted in accordance with ITB Clauses 21 and 22 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” or “MODIFICATION;” and
- (b) received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB Clause 23.

25.2 Bids requested to be withdrawn in accordance with ITB Sub-Clause 25.1 shall be returned to the Bidders only upon notification of contract award to the successful bidder in accordance with sub clause 41.1..

25.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Submission Form or any extension thereof.

26. Bid Opening

26.1 The Purchaser shall conduct the bid opening in public at the address, date and time specified in the BDS.

26.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding bid may be opened at the discretion of the Purchaser. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only envelopes that are opened and read out at Bid opening shall be considered further.

26.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the Bid Prices, including any discounts and alternative offers; the presence of a Bid Security or Bid-Securing Declaration, if required; and any other details as the Purchaser may consider appropriate. Only discounts and alternative offers read out at Bid opening shall be considered for evaluation. No Bid shall be rejected at Bid opening except for late bids, in accordance with ITB Sub-Clause 24.1.

- 26.4 The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; the Bid Price, per lot if applicable, including any discounts, and the presence or absence of a Bid Security or Bid-Securing Declaration. The bids that were opened shall be resealed in separate envelopes, promptly after the bid opening. The Bidders' representatives who are present shall be requested to sign the attendance sheet. A copy of the record shall be distributed to all Bidders who submitted bids in time.

Evaluation and Comparison of Bids

- | | |
|----------------------------|---|
| 27. Confidentiality | <p>27.1 Information relating to the examination, evaluation, comparison, and post-qualification (if applicable) of bids, and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the Contract Award.</p> <p>27.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and post-qualification of the bids or contract award decisions may result in the rejection of its Bid.</p> <p>27.3 Notwithstanding ITB Sub-Clause 27.2, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, from the time of bid opening to the time of Contract Award, it should do so in writing.</p> |
| 28. Clarification of Bids | <p>28.1 To assist in the examination, evaluation, comparison and post-qualification of the bids, the Purchaser may, at its discretion, request any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered for purpose of evaluation. The Purchaser's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB Clause 30.</p> |
| 29. Responsiveness of Bids | <p>29.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself.</p> <p>29.2 A substantially responsive Bid is one that conforms to all the terms, conditions, and specifications of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:</p> |

Information Copy Not for Bidding Section I. Instructions to Bidders

- (a) affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
 - (b) limits in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
 - (c) if rectified would unfairly affect the competitive position of other bidders presenting substantially responsive bids.
- 29.3 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.
30. Nonconformities, Errors, and Omissions
- 30.1 Provided that a Bid is substantially responsive, the Purchaser may waive any non-conformities or omissions in the Bid that do not constitute a material deviation.
 - 30.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
 - 30.3 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:
 - (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;
 - (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
 - (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 subject to (a) and (b) above.

Information Copy Not for Bidding

- 30.4 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid-Securing Declaration shall be executed.
31. Preliminary Examination of Bids
- 31.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 11 have been provided, and to determine the completeness of each document submitted.
- 31.2 The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these documents or information is missing, the Bid shall be rejected.
- (a) Bid Submission Form, in accordance with ITB Sub-Clause 12.1;
 - (b) Price Schedules, in accordance with ITB Sub-Clause 12;
 - (c) Bid Security or Bid Securing Declaration, in accordance with ITB Clause 20.
32. Examination of Terms and Conditions; Technical Evaluation
- 32.1 The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the CC and the Contract Data have been accepted by the Bidder without any material deviation or reservation.
- 32.2 The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clause 17, to confirm that all requirements specified in Section V, Schedule of Requirements of the Bidding Documents have been met without any material deviation or reservation.
- 32.3 If, after the examination of the terms and conditions and the technical evaluation, the Purchaser determines that the Bid is not substantially responsive in accordance with ITB Clause 29, the Purchaser shall reject the Bid.
33. Conversion to Single Currency
- 34.1 If the bidders are allowed to quote in foreign currencies in accordance with sub clause 15.1, for evaluation and comparison purposes, the Purchaser shall convert all bid prices expressed in foreign currencies in to Sri Lankan Rupees using the selling rates prevailed 28 days prior to closing of bids as published by the Central Bank of Sri Lanka. If this date falls on a public holiday the earliest working day prior to the date shall be applicable.

Information Copy Not for Bidding

- | | |
|-------------------------|--|
| 34. Domestic Preference | 34.1 Domestic preference shall be a factor in bid evaluation only if stated in the BDS. If domestic preference shall be a bid-evaluation factor, the methodology for calculating the margin of preference and the criteria for its application shall be as specified in Section III, Evaluation and Qualification Criteria. |
| 35. Evaluation of Bids | <p>35.1 The Purchaser shall evaluate each bid that has Been determined, up to this stage of the evaluation, to be substantially responsive.</p> <p>35.2 To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined in this ITB Clause 35.</p> <p>35.3 To evaluate a Bid, the Purchaser shall consider the following:</p> <ul style="list-style-type: none"> (a) the Bid Price as quoted in accordance with clause 14; (b) price adjustment for correction of arithmetic errors in accordance with ITB Sub-Clause 30.3; (c) price adjustment due to discounts offered in accordance with ITB Sub-Clause 14.2; and 14.3 (d) adjustments due to the application of the evaluation criteria specified in the BDS from amongst those set out in Section III, Evaluation and Qualification Criteria; (e) adjustments due to the application of a domestic preference, in accordance with ITB Clause 34 if applicable. <p>35.4 The Purchaser's evaluation of a bid may require the consideration of other factors, in addition to the factors stated in ITB Sub-Clause 35.3, if specified in BDS. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of bids</p> <p>35.5 If so specified in the BDS, these Bidding Documents shall allow Bidders to quote for one or more lots, and shall allow the Purchaser to award one or multiple lots to more than one Bidder. The methodology of evaluation to determine the lowest-evaluated lot combinations, is specified in Section III, Evaluation and Qualification Criteria.</p> |
| 36. Comparison of Bids | 36.1 The Purchaser shall compare all substantially responsive bids to determine the lowest-evaluated bid, in accordance |

Information Copy Not for Bidding

with ITB Clause 35.

- | | |
|--|---|
| 37. Postqualification of the Bidder | <p>37.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid is qualified to perform the Contract satisfactorily.</p> <p>37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 18.</p> <p>37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Purchaser shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.</p> |
| 38. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids | <p>38.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders.</p> |

Award of Contract

- | | |
|---|---|
| 39. Award Criteria | <p>39.1 The Purchaser shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.</p> |
| 40. Purchaser's Right to Vary Quantities at Time of Award | <p>40.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section V, Schedule of Requirements, provided this does not exceed twenty five percent (25%) or one unit which ever is higher and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.</p> |
| 41. Notification of Award | <p>41.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted.</p> <p>41.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.</p> <p>41.3 Upon the successful Bidder's furnishing of the signed Contract Form and performance security pursuant to ITB Clause 43, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 20.4.</p> |

Information Copy Not for Bidding

- | | |
|--------------------------|--|
| 42. Signing of Contract | 42.1 Within Seven (7) days after notification, the Purchaser shall complete the Agreement, and inform the successful Bidder to sign it. |
| | 42.2 Within Seven (7) days of receipt of such information, the successful Bidder shall sign the Agreement. |
| 43. Performance Security | 43.1 Within fourteen (14) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the CC, using for that purpose the Performance Security Form included in Section VIII Contract forms. The Employer shall promptly notify the name of the winning Bidder to each unsuccessful Bidder and discharge the Bid Securities of the unsuccessful bidders pursuant to ITB Sub-Clause 20.4. |
| | 43.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid-Securing Declaration. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily. |

Information Copy Not for Bidding Section 11 –Bidding Data Sheet

The following specific data for the Contract of event management supplies and services shall complement supplement or amend the provisions in the instruction to bidders (ITB)

ITB Clause Reference	A. General
ITB 1.1	The purchaser is Sri Lanka Sustainable Energy Authority
ITB 1.1	Name of contract: Design, Supply, Installation, Testing, Commissioning, Operation & Maintenance of Solar PV Power Systems for Religious Places Sri Lanka Identification Number No.: SEA/PD/RES/03/2024
ITB 2.1	Source of Funding is the Government of the Republic of India. Payments will be made by SLSEA subject to progress made by the contractor
ITB 4.2(b)	Subcontractors are solar PV service providers(installers) who should be selected from Sri Lanka. They should have been registered in Sri Lanka Sustainable Energy Authority. The subcontractors may be selected at the discretion of the bidder. see Section III for more details The bidder can submit only one bid in this bidding process.
ITB 4.4	Only companies registered in India are eligible for this procurement. Only one bidder will be selected for this procurement. see Section III for more details
	B. Contents of Bidding Documents
ITB 7.1	For the Purpose of Clarification of bid, purchaser’s address is Procurement Division, Sri Lanka Sustainable Energy Authority, No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka Telephone: +94 011-2575203 Facsimile Number: +94 011-2575089 The pre-bid meeting will be held on 07th February 2024 at 10:30 hrs in Sri Lankan Time in SLSEA board room located at the above address.
ITB 8.2	Addendums if any, will be published on the SLSEA website under this Procurement reference
	C. Preparation of Bids
ITB 11.1(e)	See Section V – Employer’s requirement: Clauses 11 & 13 and Section III – Qualifications, Experience and Evaluation of the Bidders: Clause 1. Employer’s requirement: Clauses 11 & 13
ITB 14.3	Bidder shall quote 100% of all items, components, accessories of the systems as described in Section V
ITB 14.4	All the goods imported by the successful bidder for this tender are free of taxes and duties.

Information Copy Not for Bidding

ITB 15.1	Bidder shall quote all the items in United States Dollars and payments will be made in Indian Rupees.
ITB 16.1	The goods imported by the Bidder will be exempted from all taxes and duties in respect of the imported items such as solar pv panels, inverters and other required materials and equipment.
ITB 17.3	Once a solar pv system is installed, it is expected to be functioned for 20 years.
ITB 18.1(a)	As specified in the Form 12 in the Section IV
ITB 18.1(b)	Bidder shall provide free after sales services and maintenance for 5 years period and therefore sufficient spare parts stock has to be maintained.
ITB 19.1	The period of bid validity is 189 days from the date of bid opening
ITB 20.1	<p>The Bid shall include a Bid Security issued by an acceptable agency to a purchaser using the form for bid security (unconditional Guarantee) included in Section IV Bidding Forms. The agencies acceptable to the purchaser are;</p> <ol style="list-style-type: none"> 1) Any Bank operating in Sri Lanka under the Central Bank of Sri Lanka 2) A bank based in another country but the Guarantee “confirmed” by a bank operating in Sri Lanka under central bank of Sri Lanka.
ITB 20.2	<p>The amount of the Bid Security shall be USD one hundred and seventy thousand (USD 170,000.00)</p> <p>The validity period of the bid security shall be until 20 September 2024</p>
	D. Submission and Opening of Bids
ITB 22.2 (c)	<p>The inner and outer envelopes shall bear the following identification marks ‘SEA/PD/RES/03/2024’ All the duly signed required documents including ORIGINAL and DUPLICATE shall be submitted within one envelope clearly marked ORIGINAL on the top left-hand corner and clearly marked as DUPLICATE in the top left-hand corner.</p> <p>Both of the envelope ORIGINAL and DUPLICATE then placed and sealed in one envelope and marked ‘SEA/PD/RES/03/2024’.</p>
ITB 23.1	<p>For bid submission purposes, the Purchasers address is:</p> <p>Chairman, Procurement Committee Procurement Division, Address: Sri Lanka Sustainable Energy Authority, No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka Telephone: +94 11-2575203 Facsimile Number: +94 11-2575089</p> <p>The deadline for the submission of bids is:</p> <p>Date: 16th February 2024 Time: 10:30 hrs in Sri Lanka Time Location: Sri Lanka Sustainable Energy Authority, No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka</p>

Information Copy Not for Bidding

ITB 26.1	<p>The bid opening shall take place:</p> <p>Bids will be opened soon after the closing time, at the Board Room of SLSEA, No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka</p> <p>Date:16th February 2024 Time: 10:30 hrs Sri Lanka Time</p>
	E. Evaluation and Comparison of Bids
ITB 34.1	Domestic preference shall not be a bid evaluation factor.
ITB 35.3(d)	Evaluation will be carried out as set out in Section III, Evaluation and Qualification Criteria
ITB 35.4	The following factors and methodology will be used for evaluation; See section III – Paragraph 2
ITB 35.5	Bidder shall quote for the total scope, only a one bidder is selected for this procurement.

Information Copy Not for Bidding

Section III.

Qualifications, Experience and Evaluation of the Bidders

Eligibility Information Qualifications Experience

1. The Bidder shall be a body incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto, engaged in the business of Power/Infrastructure. A copy of certificate of incorporation, Memorandum of Association & Article of Association shall be furnished along with the bid in support of the above.
2. Bidder's Experience
 - (i) Bidder's (Contractor) Solar PV rooftop experience should be at least five (05) years on or before the bid submission deadline.
 - (ii) On or before the deadline for bid submission, the contractor's total installation capacity for solar photovoltaic power generating projects must be at least 25 MW, and this must include at least 1,200 projects with capacities of 20 kW or below.
3. Sub-contractor(s)'s Experience
 - (i) Sub-contractor(s)'s (Solar PV service provider in Sri Lanka- Installation party) experience in solar rooftop installations should be at least five (05) years on or before the bid submission deadline.
 - (ii) On or before the deadline for bid submission, the sub-contractor(s)'s total installation capacity for solar photovoltaic power generating projects must be at least 1MW, and this must include at least 50 projects with capacities of 20 kW or below.
 - (iii) Sub-contractor(s)'s (Solar PV service provider in Sri Lanka- Installation party) should have obtained valid registration from Sri Lanka Sustainable Energy Authority (SLSEA) for "Soorya Bala Sangramaya" before the date of publishing of this Bid document.
4. Personnel/ Technical staff

The Bidder must demonstrate that it has sufficient competent human resources for key positions that meet the following minimum requirements and the bidder must have the capability to complete installation within the given period.

Information Copy Not for Bidding

No.	Position	No of personals	Minimum Qualifications	Total Work Experience [years]	Experience In Similar Work [years]
1	Project Coordinator	1	Masters Degree in Engineering or Management	15	05
2	Project Manager	10	BSc Eng or Equivalent	05	03
3	Design Engineer	5	BSc Eng or Equivalent in Electrical/Electronics Engineering	05	03

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Information Forms included in Section IV-Forms of Bid.

5. Financial Situation

a. Historical Financial Performance

Submission of audited balance sheets and income statements or, if not required by the law of the Bidder's country, other financial statements acceptable to the SLSEA, for three (03) years from 2018 to 2023 including 2022 to demonstrate the current soundness of the Bidder's financial position and its prospective long-term profitability.

b. Average Annual Turnover

The company shall have a minimum recorded turnover of USD 15 million in three (03) years from the period between 2018 to 2023. However, the three-year period shall include the year 2022.

c. Financial Resources

Using Forms 3 and 4 in Section IV (Bidding Forms) the Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:

- (1) the cash-flow requirement, USD 05 million
- (2) the overall cash flow requirements for this contract and its current works commitment.

d. Bidder shall not have been blacklisted. The officer who sign the bid submission on behalf of the company shall be duly authorized (Either board resolution or power of attorney).

Information Copy Not for Bidding

1. Evaluation Criteria

Following the bid opening, the Technical Evaluation Committee (TEC) will carefully review and assess each bid in order to identify the most responsive bidders among the others, and then rank the bidders in ascending order taking price into account. Prior to conducting a full review of bidders, the TEC will verify whether each bidder has met the following requirements.

- (1) Whether the Forms of Bid have been duly filled and properly signed.
- (2) Whether the Indian Government has granted its consent to the Bidder.
- (3) The bid must be filed with a copy of the power of attorney or a board resolution attesting to the legitimacy of the designated signatory.
- (4) Meets the requirements mentioned in Section I(ITB) along with Section II (BDS), Section III & Section V.

Information Copy Not for Bidding

Section IV.

Form of Bid

1. **Bid Submission Form** (Draft)

[date]

To: [name and address of Employer]

Having examined the bidding documents, we offer to supply the services equipment and related supplies [Name and identification number of Contract] in accordance with the Employer’s Description of Assignment, Priced Activity Schedule accompanying this Bid for the Contract price of[in figures], [in words] or any other sum derived in accordance with the said documents.

This Bid and your written acceptance of it shall constitute binding contract between us. We understand that you are not bound to accept the lowest or any Bid you received.

We hereby confirm that this Bid complies with the Bid validity required by the bidding documents and specified in the Bidding Data and agree to all the conditions including bid evaluation and contract award methods explained in the bidding document.

Authorized Signature :.....

Name and Title of Signatory :.....

Name of Bidder :.....

Official seal of Bidder :.....

Date :.....

Information Copy Not for Bidding

APPLICABLE FORMAT FOR PERFORMANCE GUARANTEE

..... *[Issuing Agency's Name, and Address of Issuing Branch or Office]*

Beneficiary:.....*[Name and Address of Employer]*.....

Date:

PERFORMANCE GUARANTEE NO:.....

We have been informed that.....*[name of Contractor/Supplier]*(hereinafter called “ the Contractor”) has entered into Contract No..... *[reference number of the contract]* dated.....with you, for the..... *[insert “ Construction”/“Supply”]* of*[name of contract and brief description of Works]* (hereinafter called “the Contract”).

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we *[name of Agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of..... *[amount in figures]* (.....) *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Prices is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation (s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the.....day of.....,20..... *[insert date,28 days beyond the scheduled contract completion date]* and any demand for payment under it must be received by us at this office on or before that date.

.....
[signature (s)]

Information Copy Not for Bidding

Format for Bid Security Guarantee

(this Bank Guarantee form shall be filled in accordance with the instructions indicated in brackets)

.....*(insert issuing agency's name, and address of issuing branch or office)*.....

Beneficiary:..... *(insert (by PE) name and address of Employer /Purchaser)*

Date: *(insert (by issuing agency)date)*

BID GUARANTEE No:..... *(insert (by Issuing agency number)*

We have been informed that*(insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners)* (hereinafter called “ the Bidder”)has submitted to you its bid dated.....*(insert (by issuing agency) date)* (hereinafter called “the Bid” for the execution/ supply *(select appropriately)*of *(insert name of Contract)* under invitation for Bids No..... *(insert IFB number)* (“the IFB”).

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we.....*(insert name of issuing agency)* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.....*(insert amount in figures)*..... *(insert amount in words)* up on receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (herein after “the ITB”) of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer/Purchaser during the period of bid validity,(i)fails or refuses to execute the Contact Form, if required, or (ii) fails or refuses to furnish the performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, up on our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, up on the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to*(insert Date)*

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date.....

(Signature of authorized representative(s))

Information Copy Not for Bidding

1. Priced Activity schedule

(Quoted prices should be in USD without VAT)

Invitation for bids for Design, supply, installation, testing, commissioning, operation & maintenance of solar PV rooftop systems for religious places.

project name: ILOC - solar PV rooftop for religious places in Sri Lanka

Procurement No.: SEA/PD/RES/03/2024

Item	Name of Project	Places	Number of Systems	Systems Unit Cost, USD	Total Cost without Tax, USD
01	Design, supply, installation, testing, commissioning operation & maintenance of solar PV rooftop systems for religious places (Including Utility Charges)	Religious places throughout the country	5,000		
Total Cost without Tax, USD					

Total Cost without Tax : USD.....

Tax-(%) : USD.....

Total Cost with taxes : USD.....

Total cost with taxes (in words) : USD.....

.....

Signature of bidder

Bidder's Name

Date

Company Stamp

Information Copy Not for Bidding

2. Priced Activity schedule

(Quoted prices should be in USD without VAT)

Invitation for bids for Design, supply, installation, testing, commissioning, operation & maintenance of solar PV rooftop systems for religious places in Sri Lanka.

project name: ILOC - solar PV rooftop for religious places in Sri Lanka

Procurement No.: SEA/PD/RES/03/2024

No	Requirements of employer	The country that supply goods and services	Unit	Qty	Unit Rate USD	Total Cost USD
1	Solar PV Module					
2	PV Inverters					
3	Array mounting structure					
4	Earthing system					
5	Surge Protection AC/DC					
6	AC Cables					
7	Solar PV Cables (DC)					
8	AC/DC Isolators /MCB					
9	Connection Boxes and required system component					
10	Design					
11	Installation					
12	Testing, commissioning, and Monitoring					
13	Operation and Maintenance Services					
14	Contingency					
	Total Cost without taxes					

Signature of bidder

Bidder's Name

Information Copy Not for Bidding

Form 1: Financial Situation

Bidder must fill in this form

Information from Balance Sheet

Financial Data for Previous 3 Years (any 3 years from 2018 to 2023 including 2022) [USD]			
	Year 1:	Year 2:	Year 2022
Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the above three years, as indicated above, complying with the following conditions.
- All such documents reflect the financial situation of the Bidder and not sister or parent companies.
 - Historic financial statements must be audited by an Audit Firm.
 - Historic financial statements must be complete, including all notes to the financial statements.
 - Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Information Copy Not for Bidding

Form 2: Average Annual Turnover

Bidder shall fill in this form

Annual Turnover Data for the Previous 3 Years (from 2018 to 2023 including 2022)	
Year	Amount in USD
Year 1	
Year 2	
2022	

Average Annual Turnover

The information supplied should be the Annual Turnover of the Bidder in terms of the amounts billed to clients for each year for contracts in progress or completed.

Information Copy Not for Bidding

Form 3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III Qualifications and Experience of the Bidders

Financial Resources		
No.	Source of financing	Amount (USD)
1		
2		
3		

Form 4: Current Contract Commitments

Bidders should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [USD]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [USD]
1					
2					
3					
4					
5					

Form 5: General Experience

Information Copy Not for Bidding

Each Bidder must fill in this form

General Experience				
Starting Month Year	Ending Month Year	Years	Contract Identification and Name Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder

Fill up one (1) form per contract.

Contract of Similar Size and Nature		
Contract No.	Contract Identification	
Award Date	Completion Date	
Role in Contract	<input type="checkbox"/> Contractor <input type="checkbox"/> Management Contractor <input type="checkbox"/> Subcontractor	
Total Contract Amount	USD	
If partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer's Name Address Telephone/Fax Number E-mail		
Description of the similarity related to this contract		

Personnel

Information Copy Not for Bidding

Bidders should provide the names of suitably qualified personnel to meet the requirements specified in Section III (Qualifications and Experience of the Bidders). The data on their experience should be supplied using the Form below for each candidate.

Form 8: Proposed Personnel

1.	Title of position*
	Name :
2.	Title of position*
	Name :
3.	Title of position*
	Name :
4.	Title of position*
	Name :

*As listed in Section III (Qualifications and Experience of the Bidders).

Information Copy Not for Bidding

Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III (Qualifications and Experience of the Bidders). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

Form 11: Details of equipment

Item of Equipment					
Equipment Information	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 5px;">Name of manufacturer</td> <td style="padding: 5px;">Model and power rating</td> </tr> <tr> <td style="padding: 5px;">Capacity</td> <td style="padding: 5px;">Year of manufacture</td> </tr> </table>	Name of manufacturer	Model and power rating	Capacity	Year of manufacture
	Name of manufacturer	Model and power rating			
Capacity	Year of manufacture				
Current Status	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Current location</td> </tr> <tr> <td style="padding: 5px;">Details of current commitments</td> </tr> </table>	Current location	Details of current commitments		
Current location					
Details of current commitments					
Source	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Indicate source of the equipment</td> </tr> <tr> <td style="padding: 5px;"> <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured </td> </tr> </table>	Indicate source of the equipment	<input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured		
Indicate source of the equipment					
<input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured					

Omit the following information for equipment owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Information Copy Not for Bidding

Form 12: Manufacturer's Authorization for Solar PV modules, PV Inverters and Solar PV Cables

Manufacturer's Authorization

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid, if so indicated in the BDS.]

Date: *[insert date (as day, month and year) of Bid Submission]*

No.: *[insert number of bidding process]*

To: *[insert complete name of Purchaser]*

WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 27 of the Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Duly authorized to sign this Authorization on behalf of: *[insert complete name of Bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

Signature of bidder

Bidder's Name

Date

Company Stamp

Section V - Employer's (Purchaser's) Requirement

SPECIFICATION

1. Introduction

The Solar PV system and other associated system elements shall be designed to ensure continuity of operation under all working conditions and to facilitate inspection, maintenance, and repairs. Every effort shall be made during design and selection of equipment, with a reasonable safety margin, to ensure;

1. Trouble free operation of the solar PV system during its intended design life
2. Safety of operating personnel, equipment, and accessories
3. Continuous supply of spare parts in case of faulty situation

1.1 General

- a. This specification covers the general requirements for Design, Supply, Installation, Commissioning, Operation and Maintenance of 05 kWac solar PV rooftop systems.

Item	Name of Project	Location	System Capacity	Number of Systems to be Established
01	Design, supply, installation, testing, commissioning operation & maintenance of 5kW solar PV rooftop systems for each religious place.	Throughout the country	5kWac	5,000

- b. The list of proposed locations of religious places will be provided after awarding the contract. 5,000 religious places are located at throughout the country.
- c. Layout plan and mounting structures to be prepared. Solar panels shall be mounted on an Aluminum structure without much affecting the architectural view of the building. The cost of Aluminum structure is required to be included in the Bid. A certification from a structural engineer is to be obtained to ensure the roof stability. If roofs of building consist of concrete slab, Aluminum structure should be placed on the concrete roof without drilling the slab.
- d. Single line diagram of the system shall be as specified in *Annex – B. With all DC/AC protection devices.*

- e. Complete system shall comply with the utility requirements for net metering facility and auto isolation feature (*anti-islanding*) shall be available when failure or malfunction of utility grid connection.
- f. All equipment offered shall be brand new, latest in model/version and currently in production and shall comply with IEEE 1547/VDE 0126 -1-1. It shall be completed with standard components and accessories to perform the desired functions and conform to the required specifications.
- g. The design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/SLSI standard. Systems installation should be done according to the SLS 1522.(Refer to the Annex C)

1.2 Scope

The scope of work includes;

Design, supply, installation, testing, commissioning, operation and maintenance of solar PV rooftop systems of having capacity 5kWac each with associated power evacuation system and other facilities. The Solar PV system shall be connected to the existing low voltage network of the building which operates at 230/400 Volts, 50 Hz under Net Metering scheme

- a. Supply and complete installation of the required number of solar panels with all necessary mounting structures and associated civil works on the allocated space of the roof and water supply system shall be installed for each roof to clean the PV module. DC/AC ratio shall be designed between 1.2 or 1.5 according to the manufacture's instruction of the inverter.
- b. Supply and installation of all other standard components to complete the system including the inverter, combiner box, distribution board AC and DC cables and isolation switches, surge arrestors and protection devices.
- c. Installation of necessary grounding system
- d. Testing and Commissioning of the system
- e. Certification of the system complied with the utility regulations to obtain the net metering facility.
- f. Providing essential Maintenance Services to each Solar PV System for five years (05) from the date of grid connected without any additional cost to the purchaser. The Supplier must sign the maintenance services agreement with the client before releasing the final payment of 10%..

- g. A comprehensive web-based IT Solution Package shall be established by the Contractor to monitor the project progress such as number of installation completed/in-progress, capacity installed, records of maintenance and services. The database shall be capable of generating periodic reports requirements of the GoSL for the progress monitoring.
- h. The bidder shall submit the progress report monthly to [SLSEA] in Prescribed format. The above work scope may be achieved by accomplishing following the essential milestones.
 - a. Inspection of premises.
 - b. Assessment of identified roof structures for structural integrity and load bearing capacity.
 - c. Assessment of the surrounding area for water availability.
 - d. Assessment of surrounding area for system grounding.
 - e. Site solar resource assessment.
 - f. Design the solar PV system.
 - g. Procure required equipment and accessories deliver them to the site.
 - h. Prepare the roof structure in line with structural assessment and solar PV system design.
 - i. Arrange all equipment, materials and tools required for installation, testing and commissioning of the plant.
 - j. Carry out the installation, testing, commissioning and acceptance testing (including performance verification testing under site conditions) for solar PV systems.
 - k. String cables are properly tagged, identified and traceable at key locations (at array, junction box , inverter).
 - l. Durable warning signs and labeling should be displayed to identify the components and their hazardous nature.
 - m. Emergency shutdown procedure, single line diagram should be displayed near the inverter.
 - n. Essential documentation including Operation and Maintenance Manuals (including operational and maintenance procedures) and layout diagrams for trouble shooting.
 - o. Train the designated representatives of the client.
 - p. Deliver and hand over of essential spare parts (*if any*) and tool kits for routine operation & maintenance work.
 - q. Carry out essential maintenance of the solar PV system for five years (05) to ensure that the plant is operated to deliver guaranteed energy output.
 - r. Insurance should be covered by both client and the contractor for human damage and material damage during the construction period.
 - s. The Bidder shall be responsible and take an Insurance Policy for transit-cum storage-cum-erection for all the materials to cover all risks and liabilities for the supply of materials on the site basis, storage of materials at site, erection, testing and commissioning

t. Inspection and Testing

The contractor shall make necessary arrangements and facilities for inspection of the equipment by facilitating three (3) officers with technical background appointed by the purchaser and also carry out necessary acceptance/sample tests in accordance with the relevant International Standards of the following material and equipment offered without any additional cost to the purchaser.

- i. Solar Photovoltaic Modules ii. PV Inverters iii. MC4
- iv. DC Switch Disconnecter v. AC/DC Cables vi. AC/DC SPD
- vii. AC Disconnecter viii. String Fuses x. MCB

The contractor shall make necessary arrangements to observe the quality assurance system established in the factory of manufacturing. Also, random inspection of systems will be carried out by the purchaser or its representatives. Above all expenditure shall be borne by the contractor.

1.3 Annual Maintenance

Following activities should be carried out annually and annual maintenance report as per the recommended formats by IEC/SLSI/SLSEA/PUCSL should be submitted at the end of each year.

- a. Cleaning of Solar module
- b. Servicing the Inverters/ Enclosures
- c. Checking/ rectifying the structure, mounting, cabling & protection System (Corrosion, loose connection, etc)
- d. Checking of earth resistance and rectifying it if required.

Checking of all the equipment/ functions attached to System

1.4 System cost

- a. The system cost shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a basis such that the total Bid Price covers all the obligations mentioned in this specification with respect of Design, Supply, Installation, Testing and Commissioning Including Warranty, Operation & Maintenance, goods and services including spares required (if any) during operation & maintenance period.
- b. The Bidder has to take all necessary permits, approvals (CEB/LECO), licenses, and Insurance to complete the scope of work mentioned in *Clause 1.2* above. The project cost shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work for payment of his actual cost of execution of the project.

Information Copy Not for Bidding

- c. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever. The cost shall be inclusive of all duties and taxes, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation/adjustment shall be payable.
- d. The operation & maintenance of Solar PV System would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, inverters, spares, consumables & other parts till the end of the warranty period. Any system fault with the solar PV system that has been installed and commissioned by the contractor under this tender shall be fixed within 14 days when informed, during the five year maintenance and servicing period.
- e. The cost of inspection and testing shall be included in rates offered for PV Modules, PV inverters and Accessories
- f. Five years service and maintenance (including warranty claim, rectifying the faults and maintenance for proper operation of the systems) period is included to this project. Only one local solar pv service provider registered at SLSEA should be introduced with bid submission up to five years.
- g. Also, utility connection fee should bear by contractor.

2. Operating Conditions

- a. Design data:
 - i. Weather Condition Humid Tropical Climate
 - ii. Wind gusts speed,max 100m/s
 - iii. Min. Ambient Temperature 20°C
 - iv. Max. Ambient Temperature 40°C
 - v. Max. Relative Humidity 95%
- b. The solar PV array and mounting structure must be able to withstand wind gusts speed up to 100m/s without damage.
- c. All wiring, enclosures, and fixtures that are mounted outdoors must be resisted to high humidity, corrosion, insect and dust intrusion. The use of corrosion resistance terminals is required. Protection of the electronic circuit boards from corrosion by potting or applying a conformal coating is recommended.

- d. The design data specified herein are average values for concerned location. Its bidder's responsibility to obtain precise data required to optimize the performance of system without compromising safety norms on his own cost.

3. Grid Parameters

Bidders shall consider grid parameters specified herein to integrate the solar PV system with the utility grid. Also Bidders shall obtain further data (*if necessary*) from relevant authorities to establish complete synchronization and protection. Costs associated with the integration of solar PV system and utility grid shall be included in the bid and quote separately in the Price Schedule.

i. Grid Nominal Voltage	230/400 V
ii. Grid Highest Voltage	230/440 V
iii. Rated Fault Current	20 kA
iv. System frequency	50 Hz
v. Method of grounding	Solidly Earthed
vi. Grid Frequency Tolerance range	+/- 3%
vii. Grid Voltage Tolerance	+/- 6%

4. Accessories

4.1 Specifications/standards/requirements for Solar PV Modules

The solar PV modules intended to use for the proposed solar PV system should conform to following standards and requirements;

- a. Should be made out of mono crystalline silicon cells.
- b. Photo electrical conversion efficiency of Solar PV module shall be 21% or more.
- c. Module rating to be 400Wp to 580Wp or bidder propose more than this capacity but it should be less than or equal 28kg and provide manufacture recommendation for rooftop use.
- d. Rated output of module shall be within 0~ +5W of the declared value.
- e. Shall perform in an operating environment where; solar PV panel temperature ranges between 10°C to 85°C and relative humidity is 95%.
- f. To guarantee minimum generation loss due to an increase in module temperature, the Temperature coefficient of Pmax should not be equal or lower than -0.35%/°C.
- g. Economic life should be 25 years or more.
- h. Module fill factor shall be 0.78 or more.

Information Copy Not for Bidding

- i. Modules shall be encapsulated and sealed to protect silicon cells from external environment and prevent ingress of moisture during its economic life.
- j. The PV modules must be tested & approved by one of the IEC authorized test centers as per relevant and latest IEC standards.
- k. The modules should comply with **IEC 61215, IEC 61730, IEC 61701, IEC 62716 and IEC 62804 Electrical** Protection Class II and CE guidelines or latest for safety.
- l. Solar modules should be preferably of replaced origin and should be IEC 61215, IEC 61730 , UL 1703 & ISO 9001:2008 certified and comply to the QC080000 HSPM regulations (*certificate copies should be provided*)
- m. Solar cell surface to be coated with anti-reflective coating.
- n. Module frame shall be made out of corrosion resistant material and shall be compatible with the mounting structures to prevent corrosion.
- o. Module shall be built to withstand 100 m/s of wind speed.
- p. The bidder should be responsible for the product use in Sri Lanka (*Attach a copy of the Authorization letter from the manufacture*).
- q. Product warranty for the solar modules should be 12 years or more and linear performance warranty should be indicated against 85% power output in 25 years. Warranty statement from the supplier should be attached.
- r. Indicate the period of the insurance cover provided against the insolvency or bankruptcy of the manufacturer in case of a claim within the said warranty period.
- s. Manufacture shall have tier1 for Manufacturing the Solar PV Modules.

4.2 Identification of solar PV modules

Solar PV modules shall be provided with RF identification label. This should include following essential information pertaining to design and manufacture of solar cells and modules;

- a. name of the PV module manufacturer
- b. country of solar cells
- c. country of solar module
- d. date and year of manufacture of solar cells
- e. date and year of solar module manufacture
- f. type or model number
- g. serial number
- h. module I-V curve
- i. power rating
- j. name of testing agency for IEC certification
- k. date and year of obtaining IEC qualifying certificate for solar PV module
- l. maximum permissible system voltage for which the module is suitable

4.3 Specifications/standards/requirements for PV Inverter (or Power conditioning unit)

- a. The Inverter operation shall be based on Maximum Power Point Tracking (MPPT) principle.
- b. The grid interconnection protection scheme required (shall be as per the standards and requirement specified by the utility provider) at the grid interface may be built in to inverter or separately provided (Most of the modern Inverters are equipped with this protection scheme as a built-in capability). The Bidders are expected to study and understand the protection scheme required at the grid interface prior to choose the Inverter.
- c. Inverter shall be protected against incorrect polarity of DC input.
- d. The power quality of the Inverter output shall be as specified by the utility provider(as per the standard and specifications of Net Metering Scheme stipulated by CEB).
- e. The nominal Inverter power output shall be delivered to the existing low voltage network at single phases (1P /3P) , 230V 400V, 50 HZ.
- f. The operating range of the Inverter shall be +/- 6% nominal voltage and +/- 3% of power frequency. These settings should be adjustable to set the Inverter operating range.
- g. Propose inverter consist of voltage var control facility.
- h. DC surge protection - compatible with TYPE II protection class according to EN/IEC 61643-11
- i. AC surge protection- compatible with TYPE II protection class according to EN/IEC 61643-11 and Residual current monitoring
- j. The Inverter efficiency shall be 98% or more.
- k. The applicable IP class shall be IP 65 or more as per IEC 62208 specifications.
 - l. Shall be built with capability to synchronize with low voltage grid.
- m. Shall be built with capability to log data, remote monitoring and data transferring to remote computer.
- n. Shall be built with capability to protect against incorrect polarity.
- o. Inverters shall be warranted for a minimum of ten (10) years.
 - p. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter in addition to the above shall be as follows:
 - i. Grid Frequency Synchronization range: +/- 3Hz
 - ii. Maximum Input DC Voltage: Depending on the inverter used. (Shall not exceed overloading limits as specified by manufacturer)
 - iii. No-load losses: Less than 1% of rated power.
 - iv. THD: < 3%
- o. Inverters shall be capable of complete automatic operation including wake-up, synchronization & shutdown.

- p. Inverters should comply with applicable IEC standard for efficiency measurements and environmental tests as per standard codes IEC 61683 and IEC 60068 2(6, 21, 27,30, 75, 78). The MPPT units should qualify IEC 62093 and IEC 60068 2 (6, 21, 27, 30, 75, 78).
- q. Inverters should comply with IEEE 1547 (and IEC 62116) for islanding protection and interconnecting with grid as required by CEB/LECO.
- r. Inverters should be tested and approved by internationally recognized test houses.
- s. Should be capable of generating 5kW AC power which suit the local grid code.
- t. Manufacture shall have minimum of 5 years' experience in Manufacturing Inverters and Accessories.

4.4 Specifications/standards/requirements for Array Structure

- a. The structures provided shall be of flat-plate design with combination of I, C and L sections as per structure design requirement to withstand 100m/s wind speed. Suitable fastening arrangement such as grouting and clamping should be provided to secure the installation against the specified wind speed. The solar PV panel mounting structure shall be firmly secured on to the roof structure without affecting the structural integrity. This shall be performed in consultation with a qualified structural engineer.
- b. Structural material shall be corrosion resistant and electrolytic ally compatible with the materials used in the module frame, its fasteners, nut and bolts.
- c. Aluminum structures also can be used which can withstand the maximum wind speed of 100m/s. Necessary protection towards rusting shall be provided either by coating or anodization. The fasteners used should be made up of stainless steel. Proper sealing materials to be employed for roof penetrations. All structural members shall be made out of either hot dip galvanized steel or corrosion resistant aluminum or stainless steel.
- d. The structures shall be designed to allow easy replacement of any module. Panel array to be oriented towards East-West direction wherever possible.
- e. Each structure should have angle of inclination as per the site conditions to take maximum irradiance. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- f. Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.

Information Copy Not for Bidding

- g. The mounting structure could be removed easily on a major roof repair and reinstall using the same materials (*indicate the warranty of the mounting structure*).
- h. The module alignment and tilt angle shall be calculated to provide maximum annual energy output wherever possible. The existing roof alignment may be followed if the difference in energy yield (*energy maximum tilt angle Vs roof angle*) found to be insignificant. The panel mounting angle shall be as much as closed to the optimum value.
- i. Panels to be separated from the roof surface using a suitably designed insulation layer to prevent excessive heat being transferred to panels.
- j. Service path(minimum one feet) to be provided between arrays for services and maintenance which include replacement, inspection and cleaning of the panel.
- k. Panels to be separated from the roof surface using a suitably space (*as per the installations guide of SLSI*) to prevent the generation of excessive heat under the panels.
- l. Appearance of the roof, if visible at a distance, also to be considered for deciding mounting angle.
- m. Proper sealing materials to be employed for roof penetrations.
- n. Sealing materials shall be UV resistant and shall be designed to withstand the temperatures to which they are exposed.
- o. Dissimilar metals, if used, shall be isolated from one another using non-conductive materials.

4.5 Specifications/standards/requirements for Combiner Boxes (Junction Boxes)

- a. Shall be suitably rated (box bus bar) to handle the expected current flow at the combiner box.
- b. The array combiner boxes shall be sealed to prevent ingress of dust, vermin and moisture
- c. The IP rating shall be IP 65 or more
- d. Shall be provided earth test point for fault detection.
- e. Shall be equipped with suitable arrangement to disconnect and isolate arrays.
- f. Shall be fitted with cable glands for both incoming and outgoing cables.
- g. Cables to be properly terminated at the combiner box.
- h. Protective devices to be installed at combiner boxes to protect against over voltages and lightning conditions.
- i. Cables shall be properly tags for identification.

Information Copy Not for Bidding

- j. Ground fault protection to be provided either at combiner boxes or at inverters.

4.6 Distribution board

- a. DC Distribution panel is needed to receive the DC output from the array field, with analog measurement panel for voltage, current from different MJBs so as to check any failure in the array field.
- b. It shall have isolator of suitable rating for connection and disconnection of array sections. DCDB shall be fabricated by CRC Sheet to comply with IP-65 protection.

4.7 Cables and conduits

- a. The cables used in the system should be XLPE insulated copper conductors. Cables of various sizes as per load requirement for connecting all the modules/arrays to Junction Boxes, Junction Boxes to DC distribution box and DC distribution box to inverter. The cables shall be able to handle maximum expected current in case of a short circuit condition.
- b. Cross section area of the conductors shall be selected such that energy losses are within the stipulated limits.
- c. Cross section area of the conductors shall be selected such that voltages are managed at stipulated limits to facilitate trouble free operation of the equipments and PV system. Over current protection shall be provided at appropriate levels of the network.
- d. The DC cable network shall be designed such that energy losses are kept below 2% when transferring the rated power. Similarly energy losses at AC side shall be kept below 1%.
- e. Copper / Aluminum Cables of appropriate size shall be provided from Inverter onwards in AC side. Only copper wires of appropriate size and of reputed-made shall have to be used. However Aluminum cables can be used on AC side of transmission. The permissible voltage drop from the solar modules to inverter shall not be more than 2% of peak power voltage of the power source (solar panel).
- f. All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Cables shall be terminated using proper tools.
- g. All cables used outdoor shall comply with latest standards. In general relevant IEC standards should be adopted in calculation of current rating, voltage drops and cable de-rating factors.

- h. Cabling and other accessories should be warranted, and indicate the warranty period including for the workmanship.
- i. Cables to be taken through either conduits or cable trays and the same shall be firmly secured.
- j. All exposed cables, conduits and cable trays shall be resistance to UV radiation, heat and abrasion.
- k. Positive and negative DC cable should be lay separate conduit pipe.

4.8 Data monitoring equipment:

- a. The system performance parameters shall be measured by using a data logging system for maintenance, control and monitoring of system.
- b. Separate digital energy meter should be mounted with the system to obtain the energy generation. (most suitable to obtain more details such as the actual value of AC/ DC Voltage, Current & Energy generated by the solar system)

5. Protection

The system should be provided with all necessary protections like grounding, lightening, and grid islanding as follows:

5.1 Grounding protection

- a. All components and exposed metal parts in the system shall be properly grounded. Solar panels shall include both equipment and system grounding.
- b. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. AC Distribution Board and DC Distribution Board should also be earthed properly. It shall be ensured that all the grounding points are bonded together to make them at the same potential.
- c. Grounding shall meet such norms as specified in the electrical code of practice in use and as specified by utilities cost of necessary grounding shall be included in the bid.

5.2 Grid Islanding & Surge Protection

- a. Solar system shall be equipped with islanding protection. In addition to disconnection from the grid (islanding protection i.e. on no supply), under and over voltage conditions shall also be provided. Solar system shall include the type II surge protection devices (SPD) to protect the system from the surges.
- b. Solar system shall be provided with adequate rating fuses, fuses on inverter input side (DC) as well as output side (AC) for overload and short circuit

protection and disconnecting switches to isolate the DC and AC system for maintenances as needed.

- c. Fuses of adequate rating shall also be provided in each solar array module to protect them against short circuit.

6. Earthing

- a. All non-current carrying metal objects such as solar PV panel frames, mounting structures, enclosures etc shall be grounded using unbroken earth wire. Earth wire shall be neither disconnected nor connected via fuse or any other link which has the tendency for physical opening or separation.
- b. Earthing system shall be electrically connected to provide return to earth path from all equipment irrespective of their mechanical connection.
- c. Earth resistance shall be less than ten (10) Ohm.
- d. Test point shall be provided for earth electrode for inspection and testing
- e. The earth wire conductor shall be made out of copper and shall be designed to withstand expected highest current.

7 Site visits- Pre-bid Meeting

The bidder shall visit the site and acquaint all information that may necessary for the design purpose at his own cost. Pre-bid meeting will be held at SLSEA(See Section II – ITB 7.1)

8 Manuals and Training

- a. The unit shall be supplied with necessary operation and service manuals in English, Tamil and Sinhalese
- b. The successful bidder shall provide a complete on-site training to the staff-in-charge on operation and maintenance of the unit.

9. Warranties & Guarantees

- a. The bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials.
- b. The bidder shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts (*if any*) for a period of not less than 5 years from the date of grid connection.
- c. Such a warranty shall also include servicing and preventive maintenance during this period. Bidder shall specify in detail the means available to them to implement such a warranty.

- d. Indicate the warranty from the date of commissioning is required for the performance of the system. Further, minimum warranty is required for the inverters and modules with not more than 15% performance degradation in accordance with industrial standard warranty conditions.

10. Utility Requirement

There should be a lockable isolating switch which should be located at an accessible place to the utility personal at any time.

11. Documents

The following documents shall be submitted along with the bid.

1. Catalogues with technical literature of the offered units
2. Duly filled and signed technical schedule
3. Schematic drawings for panel layout
4. Previous supply records of the bidder and installer.
5. Single line diagram.
6. Certificate from internationally recognized testing laboratory or organization to conform the quality of the equipment
7. Performance curve of PV panels for its life time
8. Warranty contract and associated documents
9. Manufacture authorization letters.
10. Energy calculation by 20 years
11. PV recycling process after the warranty period to be submitted. (same to be applied to all accessories including panels removed from the plant due to any defects)
12. Flash test report for each PV modules shall be provided with delivering the equipment to the site, before installing.
13. DC/AC cable calculation sheets are provided.

12. Safety of Personal

The maximum safety, consistent with good erection practice in the case of work above ground, must be afforded to personnel directly engaged on this Contract, or who in the normal course of their occupation find it necessary to utilize temporary works erected by the Contractor or frequent the working area. Reasonable measures shall be taken to afford adequate protection against material falling from a higher level onto personnel below. The operation of or connections to any items of equipment once made live shall be subject to a "Permit to Work" system in a form agreed between the contractor and the purchaser in accordance with the purchaser's standard regulations for such work.

13. Manufacturing Experience

Manufacture shall have minimum of 5 years' experience in Manufacturing PV Inverters, PV Modules and Accessories. Further, the manufacturer shall have minimum of five (5) year experience in supplying PV Module and Inverters for different countries other than the country of manufacturer.

SCHEDULE OF PARTICULARS

(To be filled by the Bidder for the offered system)

1. Project milestone plan covering project time period from the date of signing the contract to completion of all the installations (up to the commissioning and handing over)

2. Solar Panels / PV Module

Descriptions	Required Specification	Bidders response		If 'No' indicate the bidders offered
		Yes	No	
Model No/ Trade name	Mention			
Country of Origin	Mention			
Country of Manufacture	Mention			
Dimension	Mention			
Total Area Required	Mention			
Weight	Mention			
Output Cables	Mention			
Panel Capacity	400Wp to 580Wp			
No. of Panels	Mention			
Working Temperature	0 ⁰ C to 85 ⁰ C			
Module Efficiency	21% or more			
Cell Type	mono crystalline (P-Type or N-Type)			
Power Tolerance	0/+5W			
Product Warranty	12 years or more			

25-year Linear Performance warranty	85% or more and Warranty			
Commercial Life time	25 years or more			
Number of bypass diodes	3 or more			
Anti-PID test	Passed			
Salt mist corrosion	Required with proof			
Ammonia corrosion	Required with proof			
Dust & stand	Required with proof			
Fire test	Required with proof			
High temperature and high humidity environment.	Required with proof			
Application class rating	A			
Standard	IEC 61215, IEC 61730			
	IEC 61701, IEC 62716			
	IEC 62804 PID			
Protection Rating	IP 67 or more			
Quality Management	ISO 9001: 2008, ISO 14001:2004 or Equivalent			

3. PV Inverter

No	Description	Specified	Particulars
1	Model No/ Trade name	Mention	
2	Country of Origin	Mention	
3	Country of Manufacture	Mention	
4	Is an accredited agency	Mention	
5	(a) PV Inverter Types	String Inverter	
	(b) Inverter Technology	Transformer less	
6	Operating Temperature Range	Mention	
7	Cooling Method	Mention	
8	Protection Rating	IP 65 or more	

9	DC Protection	in build	
10	AC Protection	in build	
11	Lightning / Surge Protection (TYPE II)	in build	
12	Relative Humidity	0% - 100%	
13	Efficiency	98% or More	
14	Maximum input DC power	Mention	
15	Maximum output AC power	Mention	
16	Rated Grid Voltage	AC 230 V/400V	
17	Voltage Var control facility	Required	
18	AFCI protection	Required	
19	Rated Grid Frequency	50 Hz	
20	Maximum AC Output Apparent Power	Mention	
21	Power Factor	Mention	
22	Short Circuit Proof	Mention	
23	Internal Consumption at Night	Mention	
24	Ground Fault Monitoring	Mention	
25	Reverse Polarity Protection	Mention	
26	Grid Code	IEC 62116/ IEEE 1547 /SLS1547	
27	Other standards (IEC)	IEC 62109-1, IEC 62109-2	
28	Warranty	10 Years	

4. Cables and Mounting Components

No	DC / AC Cables	Bidder's Response	
		DC	AC
1	Make		
2	Country of Origin		
3	Standards	EN 50618: 2014 or Equivalent	SLS
4	Application Range		
5	Design		
6	Product Feature		
7	Minimum Bending Radius		

Information Copy Not for Bidding

8	Nominal Voltage		
9	Temperature Range		
10	UV protected		
	Mounting Structure	Requirements	Bidder's Response
i	Railings	Aluminum alloy (6063)	
ii	Nuts & Bolts	Aluminum alloy/Stainless Steel	
iii	Other fixing components	Aluminum alloy (6063)	

5. Monitoring System

No	Required Feature	Bidder's Response		Remarks
		Yes	No	
1	Real Time data			
2	Past Data			
3	Peak Power			
4	Cumulating Power			
5	CO ₂ Emission			
6	Power & Energy Graphs			
7	Fault & Safety Event			

6. Surge Protection Device

No	Feature	AC	DC
1	Model		
2	Country of origin		
3	Manufacture		
4	Type of design		
5	Maximum Current		
6	Maximum Energy		
7	Maximum number of surges		
8	Response Time		
9	Case Material		
10	Warranty		

Information Copy Not for Bidding

7. List of main items (Pl. indicate no of quantity in the following table according to the bidder's design)

Designed Capacity(kW _{DC})	Solar Module	Inverter	DC SPD	AC SPD	DC Switch disconnector	AC disconnector	Circuit Breaker	String Fuse		PV String	Average proposed Units(kWh /Year)
								+	--		

8. After sale Service

Item. No	Descriptions	Bidders Response
1	Availability of stocks	
2	After sale services(Maintenance) (i). How many dates/hours require attending from the failure notified date? (ii). How do you arrange to sign the service agreement after warranty period? (iii). How many dates spend to repair the item from notified date?	

I confirm that we abide the provisions of the relevant laws and regulations as required to enable us to submit this Bid and execute the project, in the event of our selection as Successful Bidder. We further undertake and agree that all such factors as mentioned in this specification have been fully examined and considered while submitting the Bid.

Name & Address :

.....

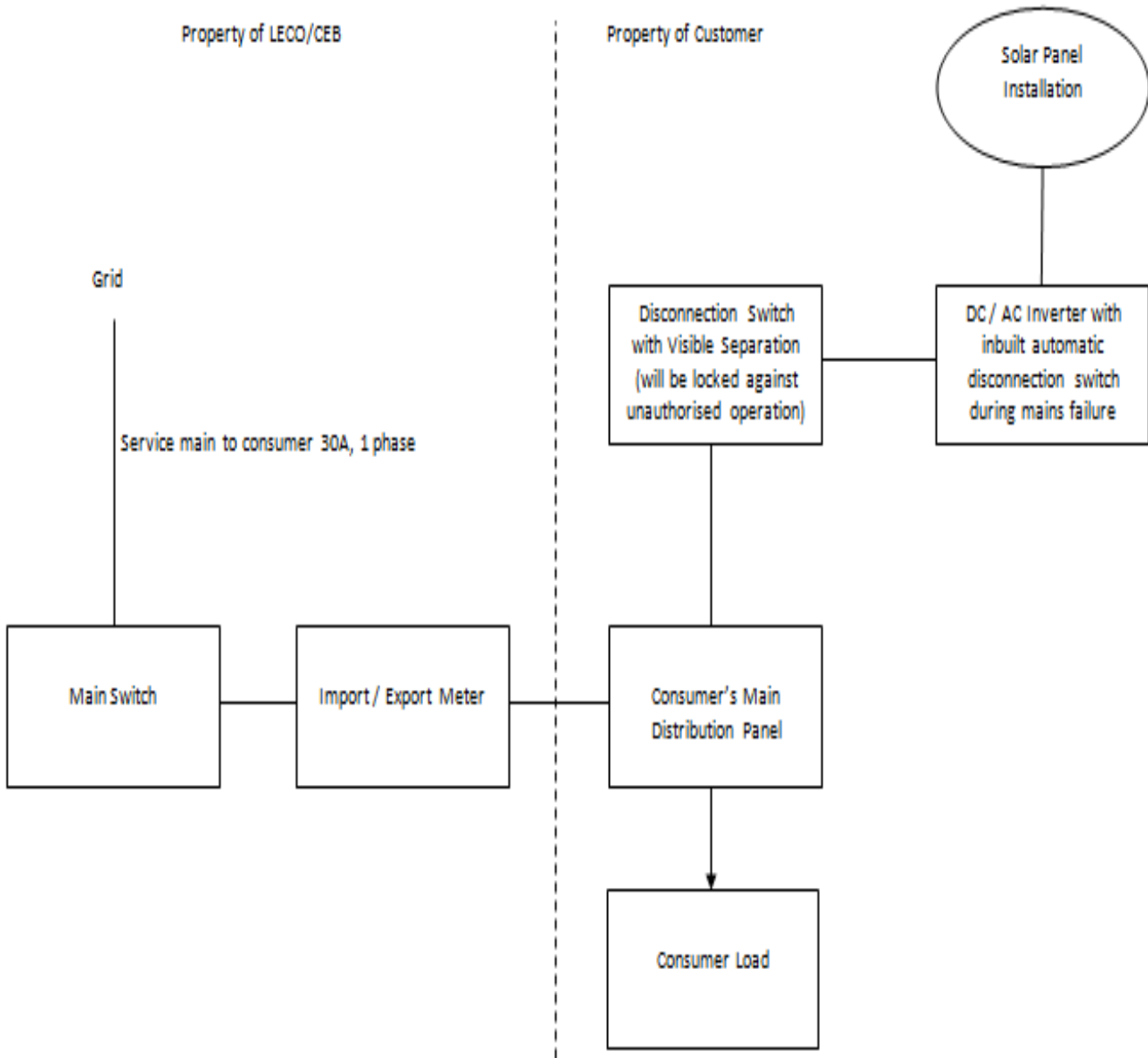
.....

Signature : Date :

Company Stamp

Annex B

Single Line Diagram of the System



Information Copy Not for Bidding

Section VI. Conditions of Contract

Table of Clauses

1.	Definitions.....	50
2.	Contract Documents.....	51
3.	Fraud and Corruption	51
4.	Interpretation.....	51
5.	Language	52
6.	Joint Venture, Consortium or Association.....	52
7.	Eligibility	52
8.	Notices	52
9.	Governing Law	53
10.	Settlement of Disputes	53
11.	Scope of Supply	53
12.	Delivery and Documents.....	53
13.	Supplier’s Responsibilities.....	53
14.	Contract Price.....	53
15.	Terms of Payment.....	54
16.	Taxes and Duties	54
17.	Performance Security.....	54
18.	Copyright	54
19.	Confidential Information.....	55
20.	Subcontracting	55
21.	Specifications and Standards	55
22.	Packing and Documents.....	56
23.	Insurance	56
24.	Transportation.....	56
25.	Inspections and Tests	56
26.	Liquidated Damages	57
27.	Warranty.....	58
28.	Patent Indemnity	58
29.	Limitation of Liability.....	59

30. Change in Laws and Regulations	60
31. Force Majeure	60
32. Change Orders and Contract Amendments.....	61
33. Extensions of Time	61
34. Termination.....	62
35. Assignment.....	63

Information Copy Not for Bidding

Section VI. Conditions of Contract

- 1. Definitions**
- 1.1 The following words and expressions shall have the meanings hereby assigned to them:
- (a) “Contract” means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
 - (b) “Contract Documents” means the documents listed in the Contract Agreement, including any amendments thereto.
 - (c) “Contract Price” means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
 - (d) “Day” means calendar day.
 - (e) “Completion” means the fulfillment of the supply of Goods to the destination specified and completion of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
 - (f) “CC” means the Conditions of Contract.
 - (g) “Goods” means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
 - (h) “Purchaser” means the entity purchasing the Goods and Related Services, as specified in the Contract Data.
 - (i) “Related Services” means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.
 - (j) “Subcontractor” means any natural person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.

Section VI General Conditions of Contract 51

- (k) “Supplier” means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
 - (l) “The Project Site,” where applicable, means the place named in the Contract Data.
- 2. Contract Documents**
- 2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.
- 3. Fraud and Corruption**
- 3.1 The Government of Sri Lanka requires the Purchaser as well as bidders, suppliers, contractors, and consultants to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy:
- (i) “corrupt practice” means offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
 - (ii) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
 - (iii) “collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser to establish bid prices at artificial, noncompetitive levels; and
 - (iv) “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.
- 4. Interpretation**
- 4.1 If the context so requires it, singular means plural and vice versa.
- 4.2 Entire Agreement
- The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether

written or oral) of the parties with respect thereto made prior to the date of Contract.

4.3 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

4.4 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

5. Language

5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be written in English language. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

6. Joint Venture, Consortium or Association

6.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.

7. Eligibility

7.1 All goods supplied under this contract shall be complied with applicable standards stipulated by the Sri Lanka Standards Institute. In the absence of such standards, the Goods supplied shall be complied to other internationally accepted standards, such as British Standards.

8. Notices

8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the **Contract Data**. The term “in writing” means communicated in written form with proof of receipt.

Section VI General Conditions of Contract 53

- 8.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.
- 9. Governing Law** 9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Democratic Socialist Republic of Sri Lanka.
- 10. Settlement of Disputes** 10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the Arbitration Act No:11 of 1995.
- 10.3 Notwithstanding any reference to arbitration herein,
- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
 - (b) the Purchaser shall pay the Supplier any monies due the Supplier.
- 11. Scope of Supply** 11.1 The Goods and Related Services to be supplied shall be as specified in the Schedule of Requirements.
- 12. Delivery and Documents** 12.1 Subject to CC Sub-Clause 32.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. Where applicable the details of shipping and other documents to be furnished by the Supplier are specified in the **Contract Data**.
- 13. Supplier's Responsibilities** 13.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with CC Clause 11, and the Delivery and Completion Schedule, as per CC Clause 12.
- 14. Contract Price** 14.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not

vary from the prices quoted by the Supplier in its bid.

15. Terms of Payment

- 15.1 The Contract Price, shall be paid as specified in the **Contract Data**.
- 15.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to CC Clause 12 and upon fulfillment of all other obligations stipulated in the Contract.
- 15.3 Payments shall be made promptly by the Purchaser, but in no case later than twenty eight (28) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.

16. Taxes and Duties

- 16.1 The Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

17. Performance Security

- 17.1 If required as specified in the **Contract Data**, the Supplier shall, within fourteen (14) days of the notification of contract award, provide a performance security of Ten percent (10%) of the Contract Price for the performance of the Contract.
- 17.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 17.3 As specified in the **Contract Data**, the Performance Security, if required, shall be in Sri Lanka Rupees and shall be in the format stipulated by the Purchaser in the **Contract Data**, or in another format acceptable to the Purchaser.
- 17.4 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations.

18. Copyright

- 18.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall

Information Copy Not for Bidding

remain vested in such third party.

19. Confidential Information

19.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under CC Clause 19.

19.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.

19.3 The above provisions of CC Clause 19 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

19.4 The provisions of CC Clause 19 shall survive completion or termination, for whatever reason, of the Contract.

20. Subcontracting

20.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the bid. Such notification, in the original bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.

20.2 Subcontracts shall comply with the provisions of CC Clauses 3 and 7.

21. Specifications and Standards

21.1 Technical Specifications and Drawings

(a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in Section V, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the Goods' country of origin.

- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with CC Clause 32.

- 22. Packing and Documents** 22.1 The Supplier shall pack the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract.
- 23. Insurance** 23.1 Unless otherwise specified in the **Contract Data**, the Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery.
- 24. Transportation** 24.1 Unless otherwise specified in the **Contract Data**, responsibility for arranging transportation of the Goods shall be a responsibility of the supplier.
- 25. Inspections and Tests** 25.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the **Contract Data**.
- 25.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place as specified in the **Contract Data**. Subject to CC Sub-Clause 25.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.
- 25.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in CC Sub-Clause 25.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

Information Copy Not for Bidding

- 25.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.
- 25.5 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods comply with the technical specifications codes and standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.
- 25.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.
- 25.7 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to CC Sub-Clause 25.4.
- 25.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to CC Sub-Clause 25.6, shall release the Supplier from any warranties or other obligations under the Contract.

26. Liquidated Damages

- 26.1 Except as provided under CC Clause 31, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the **Contract Data** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a

maximum deduction of the percentage specified in those **Contract Data**. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to CC Clause 34.

27. Warranty

- 27.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.
- 27.2 Subject to CC Sub-Clause 21.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.
- 27.3 Unless otherwise specified in the **Contract Data**, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the **Contract Data**.
- 27.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- 27.5 Upon receipt of such notice, the Supplier shall, within the period specified in the **Contract Data**, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- 27.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the **Contract Data**, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

28. Patent Indemnity

- 28.1 The Supplier shall, subject to the Purchaser's compliance with CC Sub-Clause 28.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the

Contract by reason of:

- (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
- (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

- 28.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in CC Sub-Clause 28.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.
- 28.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.
- 28.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.
- 28.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

29. Limitation of Liability

- 29.1 Except in cases of criminal negligence or willful misconduct,

- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
- (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the purchaser with respect to patent infringement

**30. Change in
Laws and
Regulations**

30.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Sri Lanka that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with CC Clause 14.

31. Force Majeure

31.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

31.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

31.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably

practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

32. Change Orders and Contract Amendments

32.1 The Purchaser may at any time order the Supplier through notice in accordance CC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:

- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) the method of shipment or packing;
- (c) the place of delivery; and
- (d) the Related Services to be provided by the Supplier.

32.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.

32.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

32.4 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

33. Extensions of Time

33.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to CC Clause 12, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

33.2 Except in case of Force Majeure, as provided under CC Clause 31, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the

Supplier liable to the imposition of liquidated damages pursuant to CC Clause 26, unless an extension of time is agreed upon, pursuant to CC Sub-Clause 33.1.

34. Termination**34.1 Termination for Default**

- (a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:
 - (i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to CC Clause 33;
 - (ii) if the Supplier fails to perform any other obligation under the Contract; or
 - (iii) if the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in CC Clause 3, in competing for or in executing the Contract.
- (b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to CC Clause 34.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

34.2 Termination for Insolvency.

- (a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

34.3 Termination for Convenience.

- (a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the

Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

- (b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
 - (i) to have any portion completed and delivered at the Contract terms and prices; and/or
 - (ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

35. Assignment

35.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

Information Copy Not for Bidding

Section VII.

Contract Data

The following Contract Data shall supplement and/or amend the Conditions of Contrast (CC) whenever there is a conflict in the provisions herein shall prevail over those in the condition of the contract.

CC	
1.1 (i)	The contract name: Invitation for bids for design, supply, installation, testing, commissioning operation & maintenance of solar PV rooftop systems for each religious place. project name: ILOC– solar PV rooftop for religious places Procurement No.: SEA/PD/RES/03/2024
1.1 (e)	The contract completion within 160 days from the date of signing the contract
1.1 (h)	The Purchaser is Sri Lanka Sustainable Energy Authority The authorized representatives are: For the Purchaser: Director General, Sri Lanka Sustainable Energy Authority
1.1(l)	Project sites are 5000 religious places in throughout the country
8.1	For clarification of bid , purchaser’s address is Procurement Division, Sri Lanka Sustainable Energy Authority, No. 72, Ananda Coomaraswamy Mawatha, Colombo 07, Sri Lanka Telephone: +94 011-2575203 Facsimile Number: +94 011-2575089 Purchaser will assist in any case if the contract fails to get the information/s through the appointed communication officer of each institute. A request is to be made by the contractor to the purchaser if such an event occurs.
15.1	The method and conditions of payment to be made to the Supplier under this Contract shall be as follows: 1. First Payment(Advance Payment): 10% of the contract value will be paid after submitting the advance payment guaranty and after signing the contract agreement.

Information Copy Not for Bidding

	<p>2. Second Payment: 50% of the contract value will be released goods delivered to the sites or stores within Sri Lanka and after the purchaser has accepted it.</p> <p>3. Third Payment: 30% of the contract value will be released after connected to the grid and on utility acceptance. (Payment will be paid measurably if the contractor completed less quantities)</p> <p>4. Finally, 10% of the contract price will be retained by SLSEA. This amount will be released in each year by 2% during five (5) years on technical recommendation. (Payment will be paid measurably if the contractor completed less quantities)</p>
15.2	The contractor should complete and forward completed works for the approval of the purchaser within the scheduled time.
15.3	Report submitted for the payment approval is checked by the purchaser and if an error is found contractor shall correct them within the time specified in the purchaser's notice
17.1	A Performance Security of 10% of total contract price obtained from a Commercial bank operates and registered under Central Bank of Sri Lanka
25.1	The inspections and tests shall be done by the purchaser (Implementing agency) or its designated representative shall be entitled. The contractor shall undergo all expenses at no cost to the purchaser.
25.2	The Inspections and tests shall be conducted at each site, contractor's and sub-contractor's stores.
26.1	The liquidated damages rate is 0.05 percent of the contract price per day with a maximum of 10% of the total contract price and will apply when there is a failure to deliver goods and perform the service within the period specified in the contract.

Information Copy Not for Bidding

Section VIII. Contract Forms

Table of Forms

1. Contract Agreement	68
2. Performance Security	70
3. Bank Guarantee for Advance Payment	71

Information Copy Not for Bidding

1. Contract Agreement (Draft)

THIS CONTRACT AGREEMENT is made

the *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*.

BETWEEN

- (1) *[insert complete name of Purchaser]*, a *[insert description of type of legal entity, for example, an agency of the Ministry of or corporation]* and having its principal place of business at *[insert address of Purchaser]* (hereinafter called “the Purchaser”), and
- (2) *[insert name of Supplier]*, a corporation incorporated under the laws of *[insert: country of Supplier]* and having its principal place of business at *[insert: address of Supplier]* (hereinafter called “the Supplier”).

WHEREAS the Purchaser invited bids for certain Goods and ancillary services, viz., *[insert brief description of Goods and Services]* and has accepted a Bid by the Supplier for the supply of those Goods and Services in the sum of *[insert Contract Price in words and figures, expressed in the Contract currency(ies)]* (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:
 - (a) This Contract Agreement
 - (b) Contract Data
 - (c) Conditions of Contract
 - (d) Technical Requirements (including Schedule of Requirements and Technical Specifications)
 - (e) The Supplier’s Bid and original Price Schedules
 - (f) The Purchaser’s Notification of Award
 - (g) *[Add here any other document(s)]*
3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
5. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of *Democratic Socialist Republic of Sri Lanka* on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

2. Performance Security

[Note: the purchaser is required to fill the information marked as "" and delete this note prior to selling of the bidding document]*

[The issuing agency, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]

----- *[Issuing Agency's Name, and Address of Issuing Branch or Office]* -----

* **Beneficiary:**----- *[Name and Address of Employer]* -----

Date: -----

PERFORMANCE GUARANTEE No.: -----

We have been informed that ----- *[name of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. ----- *[reference number of the contract]* dated ----- with you, for the ----- *Supply* of ----- *[name of contract and brief description]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Supplier, we ----- *[name of Agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[amount in figures]* (-----) *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the day of, 20.. *[insert date, 28 days beyond the scheduled completion date including the warranty period]* and any demand for payment under it must be received by us at this office on or before that date.

[signature(s)]

Information Copy Not for Bidding

3. Guarantee for Advance Payment

[The issuing agency, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated.]

Date: *[insert date (as day, month, and year) of Bid Submission]*

ICB No. and title: *[insert number and title of bidding process]*

[issuing agency's letterhead]

Beneficiary: *[insert legal name and address of Purchaser]*

ADVANCE PAYMENT GUARANTEE No.: *[insert Advance Payment Guarantee no.]*

We, *[insert legal name and address of issuing agency]*, have been informed that *[insert complete name and address of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert date of Agreement]* with you, for the supply of *[insert types of Goods to be delivered]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance is to be made against an advance payment guarantee.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount(s)]*⁵⁰ *in figures and words* upon receipt by us of your first demand in writing declaring that the Supplier is in breach of its obligation under the Contract because the Supplier used the advance payment for purposes other than toward delivery of the Goods.

It is a condition for any claim and payment under this Guarantee to be made that the advance payment referred to above must have been received by the Supplier on its account *[insert number and domicile of the account]*

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[insert date]*⁵¹.

[signature(s) of authorized representative(s) of the issuing agency]

⁵⁰ The bank shall insert the amount(s) specified in the CONTRACT DATA and denominated, as specified in the CONTRACT DATA, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Purchaser.

⁵¹ Insert the Delivery date stipulated in the Contract Delivery Schedule. The Purchaser should note that in the event of an extension of the time to perform the Contract, the Purchaser would need to request an extension of this Guarantee from the bank. Such request must be in writing and must be made prior to the expiration date established in the Guarantee. In preparing this Guarantee, the Purchaser might consider adding the following text to the Form, at the end of the penultimate paragraph: "We agree to a one-time extension of this Guarantee for a period not to exceed *[six months]**[one year]*, in response to the Purchaser's written request for such extension, such request to be presented to us before the expiry of the Guarantee."

Information Copy Not for Bidding

Information Copy Not for Bidding

Annex C

Standards Code	Topic	Description	International Standards	Mandatory requirement
SLS 1522 (2016)	Sri Lanka Standards Code of Practice for Grid Connected PV Power Systems.	<p>This Technical Standards defines the minimal information and documentation required to be handed over to a customer following the installation of a grid connected PV system. This standard also describes the installation, testing and commissioning procedure and documentation expected to verify the safe installations and correct operation of the system.</p> <p>It is for use by system designers and installers of grid connected net energy metered solar PV systems as a template to provide effective documentation to a customer. By detailing the expected installation, testing & commissioning procedure, it is also intended to assist in the verification / inspection of a grid connected PV system after installation and for subsequent re-inspection, maintenance or modifications.</p> <p>Additional, it is written for grid connected net energy metered solar PV systems only and not for AC module systems or systems that utilize energy storage (e.g. batteries) or hybrid systems.</p>	None	Yes
SLS 1542 (2016)	Electric Cable for Photovoltaic System.	<p>This Technical Standard specifies cables for use in PV System, for installation at the Direct Current (DC) side. These cables are suitable for permanent outdoor use for many years under variable demanding climate conditions. Relatively stringent requirements are set for these products in line with the expected harsh usage conditions. It is applies to low smoke halogen free, flexible, single core power cables with cross link insulation and sheath.</p> <p>In particular for use at the DC side of photovoltaic system, with a nominal DC voltage of 1.5kV between conductors and between conductor and earth. The cables are suitable to be used with Class II equipment. The cable are design to operate at a nominal maximum conductor temperature of 90 °C, but for a maximum of 20 000 hours a maximum conductor temperature of 120 °C at a maximum ambient temperature of 90 °C is permitted.</p>	EN 50818 (2014)	Yes

Standards Code	Topic	Description	International Standards	Mandatory requirement
SLS 1543	Safety of Power Converts for Use in Photovoltaic Power System	This Sri Lanka Standard Specification is published in two parts.	IEC 62109	Yes
	Part 1 (2016) General Requirements	Applies to the power conversion equipment (PCE) for use in Photovoltaic (PV) systems where a uniform technical level with respect to safety is necessary. This standard defines the minimum requirements for the design and manufacture of PCE for protection against electric shock, energy, fire, mechanical and other hazards. This standard provides general requirements applicable to all types of PV PCE.	IEC 62109-1 (2010) Edition 1.0	Yes
	Part 2 (2016) Particular Requirements for Inverters	Covers the particular safety requirements relevant to DC to AC (Alternating Current) inverter products as well as products that have or perform inverter functions in addition to other functions, where the inverter is intended for use in photovoltaic power systems. Inverters covered by this standard may be grid-interactive, stand-alone, or multiple mode inverters may be supplied by single or multiple photovoltaic modules grouped in various array configurations, and may be intended for use in conjunction with batteries or other forms of energy storage.	IEC 62109-2 (2011) Edition 1.0.	Yes
SLS 1544	Terrestrial Photovoltaic Design Qualification and Type Approval	This Sri Lanka Standard Specifications for is published in different parts although only part of it has been used	IEC 61215	Yes
	Part 1 (2016) Test Requirements	Lays down requirements for the design qualification and type approval of terrestrial photovoltaic (PV) modules suitable for long-term operation in general open-air climates, as defined in IEC 60721-2-1 (unwritten in this document).	IEC 61215-1 (2016) Edition 1.0	Yes
	Part 1-1 (2016) Special Requirements for Testing of Crystalline Silicon Photovoltaic Modules.	This part of IEC 61215 lays down IEC requirements for the design qualification and type approval of terrestrial photovoltaic (PV) modules suitable for long-term operation in general open-air climates, as defined in IEC 60721-2-1. This standard is intended to apply to all terrestrial flat plate module materials such as crystalline silicon module types as well as thin-filmCdTmodules. This standard does not apply to modules used with concentrated sunlight although it may be utilized for low concentrator modules (1 to 3 suns). For low concentration modules, all tests are performed using	IEC 61215-1-1 (2016) Edition 1.0.	Yes

Standards Code	Topic	Description	International Standards	Mandatory requirement
		<p>the current, voltage and power levels expected at the design concentration. This standard does not address the particularities of PV modules with integrated electronics, nit may however be used as a basis for testing such PV modules.</p> <p>The objective of this test sequence is to determine the electrical and thermal characteristics of the module and to show, as far as possible within reasonable constraints of cost and time, that the module is capable of withstanding prolonged exposure in climates described in the scope. The actual lifetime expectancy of modules so qualified will depend on their design, their environment and the conditions under which they are operated.</p> <p>The standard defines PV technology dependent modifications to the testing procedures and requirements per IEC 61215-1:2016 and IEC 61215-2:2016.</p>		
	Part 2 (2016) Test Procedures	<p>This is similar to the above standard, therefore is intended to apply to all terrestrial flat plate module materials such as crystalline silicon module types as well as thin-film modules.</p> <p>The objective of this test sequence is to determine the electrical and thermal characteristics of the module and to show, as far as possible within reasonable constraints of cost and time, that the module is capable of withstanding prolonged exposure in general open-air climates. The actual lifetime expectancy of modules so qualified will depend on their design, their environment and the conditions under which they are operated.</p>	IEC 61215-2 (2016) Edition 1.0.	Yes
SLS 1545	Photovoltaic Modules Performance Testing and Energy Rating	This Sri Lanka Standard Specification for is published in two parts		
	Part 1 (2016) Irradiance and Temperature Performance Measurements and Power Rating.	<p>This part of IEC 61853 describes requirements for evaluating PV module performance in terms of power (watts) rating over a range of irradiances and temperatures. IEC 61853-2 describes test procedures for measuring the performance effect of angle of incidence; the estimation of module temperature from irradiance, ambient temperature and wind speed; and impact of spectral response on energy production. IEC 61853-3 describes the calculations of PV module energy (watt-hours) ratings. IEC 61853-4 describes the standard time periods and weather conditions that can be utilized for calculating standardized energy ratings.</p> <p>The object of this part of IEC 61853 is to define a testing and rating system, which provides the PV module power (watts)</p>	IEC 61853-1 (2011) Edition 1.0.	Yes

Standards Code	Topic	Description	International Standards	Mandatory requirement
		at maximum power operation for a set of defined conditions. A second purpose is to provide a full set of characterization parameters for the module under various values of irradiance and temperature. This set of measurements is required in order to perform the module energy rating described in IEC 61853-3.		
	Part 2 (2017) Spectral Responsivity, Incidence Angle and Module Operating Temperature Measurements.	The IEC 61853 series establishes IEC requirements for evaluating PV module performance based on power (watts), energy (watt-hours) and performance ratio (PR). It is written to be applicable to all PV technologies, but may not work well for any technology where the module performance changes with time (e.g. modules change their behaviour with light or thermal exposure), or which experience significant non-linearities in any of their characteristics used for the modelling. The purpose of this part of IEC 61853 is to define measurement procedures for measuring the effects of angle of incidence of the irradiance on the output power of the device, to determine the operating temperature of a module for a given set of ambient and mounting conditions and measure spectral responsivity of the module. A second purpose is to provide a characteristic set of parameters which will be useful for detailed energy predictions. The described measurements are required as inputs into the module energy rating procedure described in IEC 61853-3.	IEC 61853 (2016) Edition 1.0	Yes
SLS 1546	Photovoltaic System Power Conditioners – Procedure for Measuring Efficiency	Describes guidelines for measuring the efficiency of power conditioners used in stand-alone and utility-interactive photovoltaic systems, where the output of the power conditioner is a stable AC voltage of constant frequency or a stable DC voltage	IEC 61683 (1999) Edition 1.0	Yes
SLS 1547 (2016)	Photovoltaic System – Characteristic of the Utility Interface	Applies to utility-interconnected photovoltaic (PV) power systems operating in parallel with the utility and utilizing static (solid-state) non-islanding inverters for the conversion of DC to AC. Lays down requirements for interconnection of PV systems to the utility distribution system. It describes specific recommendations for systems rated at 10 kVA or less, such as may be utilized on individual residences single or three phases. This standard applies to interconnection with the low voltage utility distribution system.	IEC 61727 (2004) Edition 1.0	Yes
SLS 1553	Photovoltaic Module Safety Qualification	This Sri Lanka Standard Specification for is published in two parts		

Standards Code	Topic	Description	International Standards	Mandatory requirement
	Part 1 (2017) Requirements for construction	Specifies and describes the fundamental construction requirements for photovoltaic (PV) modules in order to provide safe electrical and mechanical operation. Specific topics are provided to assess the prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses. This part 1 of SLS 1553 (IEC 61730) pertains to the requirements of construction. PV modules covered by this standard are limited to a maximum DC system voltage of 1500 V.	IEC 61730-1 (2016) Edition 2.0.	Yes
	Part 2 (2017) Requirements for Testing	Defines the requirements of testing. This International Standard series lays down IEC requirements of terrestrial photovoltaic modules suitable for long-term operation in open-air climates. The sequence of tests required in this standard may not test for all possible safety aspects associated with the use of PV modules in all possible applications. This standard utilizes the best sequence of tests available at the time of its writing. There are some issues, such as the potential danger of electric shock posed by a broken PV module in a high voltage system, which should be addressed by the system design, location, restrictions on access and maintenance procedures. The objective of this standard is to provide the testing sequence intended to verify the safety of PV modules whose construction has been assessed by IEC 61730-1. The test sequence and pass criteria are designed to detect the potential breakdown of internal and external components of PV modules that would result in fire, electric shock, and/or personal injury. The standard defines the basic safety test requirements and additional tests that are a function of the PV module end-use applications. Test categories include general inspection, electrical shock hazard, fire hazard, mechanical stress, and environmental stress.	IEC 61730-2 (2016) Edition 2.0	Yes
SLS 1554	Low-Voltage Switchgear and Control gear	This Sri Lanka standard specification for is published in three parts:		
	Part 1 (2017) General Rules.	The purpose of this standard is to harmonize as far as practicable all rules and requirements of a general nature applicable to low-voltage switchgear and control gear to obtain uniformity of requirements and tests throughout the corresponding range of equipment and to avoid the need for testing to different standards.	IEC 60947-1 (2014) Edition 5.2	Yes

Standards Code	Topic	Description	International Standards	Mandatory requirement
		All those parts of the various equipment standards which can be considered as general have therefore been gathered in this standard together with specific subjects of wide interest and application, e.g. temperature-rise, dielectric properties, etc.		
	Part 2 (2017) Circuit-Breakers	This part of IEC 60947 series applies to circuit-breakers, the main contacts of which are intended to be connected to circuits, the rated voltage of which does not exceed 1000 V AC or 1500 V DC; it also contains additional requirements for integrally fused circuit-breakers. Circuit-breakers rated above 1000 V AC but not exceeding 1500 V AC may also be tested to this standard. It applies whatever the rated currents, the method of construction or the proposed applications of the circuit-breakers may be.	IEC 60947-2 (2016) Edition 5.0	Yes
	Part 3 (2017) Switches, Disconnectors, Switch-Disconnectors and Fuse-Combinations Units.	This part of IEC 60947 applies to switches, disconnectors, switch-disconnectors and fuse combination units to be used in distribution circuits and motor circuits of which the rated voltage does not exceed 1000 V AC or 1 500 V DC. The manufacturer shall specify the type, ratings and characteristics according to the relevant standard of any incorporated fuses. This part does not apply to equipment coming within the scope of IEC 60947-2, IEC 60947-4-1 and IEC 60947-5-1. However, when switches and fuse-combination units coming into the scope of this part are normally used to start, accelerate and/or stop an individual motor they shall also comply with other additional requirements,	IEC 60947-3 (2017) Edition 3.2. IEC 60947-4-1 IEC 60947-5-1	Yes
SLS-IEC 62446-1 (2017):	Photovoltaic System Requirements for Testing, Documentation and Maintenance.	This Technical Standards is published in one part for grid connected system, documentation, commissioning tests and inspection.	IEC 62446-1 (2017) Edition 1.0.	Yes
IEC 61701	Salt mist corrosion testing of photovoltaic (PV) modules	Describes test sequences useful to determine the resistance of different PV modules to corrosion from salt mist containing Cl ⁻ (NaCl, MgCl ₂ , etc.).		Yes
IEC 60068- 2	Environmental testing	This part of IEC 60068 deals with cold tests applicable to both non heat-dissipating and heat dissipating specimens. For non heat-dissipating specimens, Tests Ab and Ad do not		Yes

Standards Code	Topic	Description	International Standards	Mandatory requirement
		deviate essentially from earlier issues. Test Ae has been added primarily for testing equipment that requires being operational throughout the test, including the conditioning periods. The object of the cold test is limited to the determination of the ability of components, equipment or other articles to be used, transported or stored at low temperature.		
IEC 60227	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 1: General requirements	Applies to rigid and flexible cables with insulation, and sheath if any, based on polyvinyl chloride, of rated voltages U_0/U up to and including 450/750 V used in power installations of nominal voltage not exceeding 450/750 V a.c		YES
SLS IEC 60364	Low Voltage Electrical Installation	This Sri Lanka standard specification for is published in one part:		
	Part 6 (2018) verification		(IEC 60364-6 (2016) Edition 1.0.	YES
SLS IEC 62548: 2018	Photovoltaic (PV) array- Design Requirements		(IEC 62548(2016) Edition 1.0.	YES
SLS 1473	Low voltage surge protective devices	This Sri Lanka standard specification for is published in six parts:		yes
	Part 5 (2019) Requirements and test methods for SPDs for photovoltaic installations			YES
	Part 6 (2019) Surge protective devices connected to the d.c. side of photovoltaic installations – Selection and application principles			YES
SLS 1637 (2019)	Connectors for DC-application in photovoltaic systems – Safety requirements and tests			Yes

Information Copy Not for Bidding

Abbreviations

SLSEA	-	Sri Lanka Sustainable Energy Authority
CEB	-	Ceylon Electricity Board
ITB	-	Instructions to Bidders
BDS	-	Bidding Data Sheet
CC	-	Condition of Contract
kW	-	Kilo Watt
kWh	-	Kilo Watt Hour
VAT	-	Value Added Tax
GOSL	-	Government of Sri Lanka
NPA	-	National Procurement Agency (Now Public Finance/Procurement Commission) https://www.treasury.gov.lk/web/procurement-guidelines-and-manuals/section/procurement%20manual
PV	-	Photovoltaic
Ph	-	Phase
SLS/SLSI	-	Sri Lanka Standards Institution
MCB	-	Miniature Circuit Breaker
MCCB	-	Moulded Case Circuit Breaker
DC	-	Direct Current
AC	-	Alternative Current
IEC	-	International Electro technical Commission
IEEE	-	Institute of Electrical and Electronics Engineers
ISO	-	International Organization for Standardization
I-V	-	Current - voltage
PID	-	Potential Induced Degradation

MPPT	-	Maximum Power Point Tracker
Hz	-	Hertz
V	-	Voltage
DG	-	Diesel Generator
THD	-	Total Harmonic Distortion
IP	-	Ingress Protection