

# SEALED QUOTATION DOCUMENT

## Procurement of Goods Sealed Quotation

**Supply, delivery, installation, testing and commissioning of solar lighting system with all accessories, all complete as per specification, Birtamod Municipality- 2, Sombare, Jhapa.**

**Issued by:**

**Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar  
Biratnagar, Morang Biratnagar Metropolitan City Morang**

Sealed Quotation Number

23-2081/082

Issued On

24-04-2025

## Table of Contents

Section I. Invitation for Sealed Quotation .....	
Section II. Instructions to Bidders .....	
Section III. Bid data sheet.....	
Section IV. Quotation form and price Schedule .....	
Section V. Schedule of requirements.....	
Section VI. General Conditions of contract .....	
Section VII.Special Conditions of contract .....	
Section VIII.Contract form .....	

# Abbreviations

BD .....	Bidding Document
BDF .....	Bidding Forms
BDS .....	Bid Data Sheet
BOQ .....	Bill of Quantities
COF .....	Contract Forms
DP .....	Development Partners
DoLI.....	Department of Local Infrastructure
ELI .....	Eligibility
EEC.....	Evaluation and Eligibility Criteria
GCC .....	General Conditions of Contract
GoN <sup>1</sup> .....	Government of Nepal
ICC .....	International Chamber of Commerce
IFB .....	Invitation for Bids
ITB .....	Instructions to Bidders
JV .....	Joint Venture
NCB .....	National Competitive Bidding
PAN .....	Permanent Account Number
PPA .....	Public Procurement Act
PPMO .....	Public Procurement Monitoring Office
PPR .....	Public Procurement Regulations
SBD .....	Standard Bidding Document
SCC .....	Special Conditions of Contract
TS .....	Technical Specifications
VAT .....	Value Added Tax
WRQ .....	Works Requirements

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<sup>1</sup> “GoN” word indicates all public entities according to Public Procurement Act, 2063

**Section - I**  
**Invitation for Sealed Quotation**

# Invitation for Sealed Quotation

Name of the Office: Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar

Address of the Office: Biratnagar, Morang Biratnagar Metropolitan City Morang

Invitation for Sealed Quotation for the procurement of Supply, delivery, installation, testing and commissioning of solar lighting system with all accessories, all complete as per specification, Birtamod Municipality- 2, Sombare, Jhapa.

Sealed Quotation No: 23-2081/082

Date of Publication : 24-04-2025

1. The Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar invites sealed quotations from registered Suppliers for the Supply, delivery, installation, testing and commissioning of solar lighting system with all accessories, all complete as per specification, Birtamod Municipality- 2, Sombare, Jhapa..
2. Eligible Suppliers may obtain further information and inspect the Sealed quotation Forms at the office of Biratnagar, Morang Biratnagar Metropolitan City Morang , 021474430, , mowsiep1@gmail.com.  
OR  
[may visit PPMO website [www.bolpatra.gov.np](http://www.bolpatra.gov.np).]
3. If hard copy is allowed then a complete set of Bidding Documents may be purchased from the office Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar Biratnagar, Morang Biratnagar Metropolitan City Morang and the office Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar Biratnagar, Morang Biratnagar Metropolitan City Morang by eligible Bidders on the submission of a written application, along with the copy of company/firm registration certificate, and upon payment of a non-refundable fee of NRs.1000.0 till 09-05-2025 12:00 during office hours.
4. Bidder who chooses to submit their bid electronically may download the bidding documents for e-submission from PPMO's e-GP i.e [www.bopatra.gov.np/egp](http://www.bopatra.gov.np/egp). Bidders, submitting their bid electronically, should deposit the cost of bidding document in the following account
  - i. Name of the Bank :Rastriya Banijya Bank Ltd.
  - ii. Name of Office :Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar
  - iii. Office Code no :3130013011
  - iv. Office Account No :1000100201010001
  - v. Rajaswa (revenue) Shirshak No :14229
5. Sealed bids must be submitted to the office Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar Biratnagar, Morang Biratnagar Metropolitan City Morang by hand or through e-GP system i.e [www.bopatra.gov.np/egp](http://www.bopatra.gov.np/egp) on or before 09-05-2025 12:00. Bids received after this deadline will be rejected.
6. The bids will be opened in the presence of Bidders' representatives who choose to attend at 09-05-2025 13:00 at the office of Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar.  
Bids must be valid for a period of 45 days after bid opening and must be accompanied by a bid security amounting to a minimum of 32000 , which shall be valid for 30 days beyond the validity period of the bid (i.e. [Refer Clause ITB 20.1]). If bidder wishes to submit the Cash Security, the cash should be deposited in Deposit Account No.[2120100202030000] at [Rastriya Banijya Bank Ltd. , Koshi Province, Biratnagar] and submit the receipt of the deposited amount of cash along with the Sealed Quotation.
7. If the last date of purchasing and /or submission falls on a government holiday, then the next working day shall be considered as the last date. In such case the validity period of the bid security shall remain the same as specified for the original last date of bid submission
8. The Purchaser reserves the right to accept or reject, wholly or partly any or all the Sealed Quotations without assigning any reason, whatsoever.

## **Section - II**

### **Instructions to Bidders**

#### **Notes on the Instructions to Bidders**

This section of the bidding documents should provide the information necessary for Interested Suppliers to prepare responsive bids, in accordance with the requirements of the Purchaser. It should also give information on bid submission, opening and evaluation, and award of Contract. These Instructions to Bidders shall not be part of the Contract and shall cease to have effect once the Contract is signed.

## Section II Instructions to Bidder

1. Scope of Works

1.1 The Purchaser stated in the BDS for the procurement of Goods as detailed in attached specifications, drawings and the bill of quantities provided herein. The name of Purchaser, name of project and contract identification number of Contracts are provided in the BDS.
2. Eligible Bidder

2.1 This Invitation for Bids is open to all registered Suppliers with eligibility criteria specified below.

Sl. No.	Criteria Title
1	Up to date Firm/Company Registration Certificate
2	VAT and PAN Registration Certificates
3	Tax Clearance Certificate/Tax return submission evidence/ evidence of time extension for the F/Y 2080/081 (Only for domestic bidders)
4	General Experience (Supply and Installation of Solar System)

2.2 A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO) and/or the DP in case of DP funded project, shall be ineligible to bid for a contract during the period of time determined by the GoN, PPMO and/or the DP.
3. One Quotation per Bidder

3.1 Each Bidder shall submit only one quotation, A Bidder who submits more than one quotation shall cause all the quotations with the Bidder's participation to be disqualified.
4. Cost of Bidding

4.1 The Bidder shall bear all costs associated with the preparation and submission of his Quotation and the Purchaser shall in no case be liable for those costs.
5. Site Visit

5.1 The Bidder at his own cost, responsibility and risk may visit the site of the supply, delivery or installation of Goods and acquire all necessary information for preparing the bid and entering into a contract for the procurement of Goods.
6. Content of Quotation Form

6.1 The Quotation Form comprise the documents listed below:
  1. Section I: Invitation for Sealed Quotation (SQ)
  2. Section II: Instructions to Bidders
  3. Section III: Bid Data Sheet
  4. Section IV Quotation Forms and Price Schedule
  5. Section V: Schedule of Requirements
  6. Section VI: General Conditions of Contract (GCC)
  7. Section VII: Special Conditions of Contract
  8. Section VIII: Contract Form
7. Clarification

7.1 A prospective Supplier/Bidder may obtain clarification on the Quotation Form from the the Purchaser on or before 5 days prior to the deadline for submission of Quotation.
8. Language of Quotation

8.1 All documents relating to the Quotation shall be in English or in Nepali.
9. Documents Comprising Quotation

9.1 The Quotation by the Bidder shall comprise the following:
  - a. Quotation Form and Price Schedules
  - b. Bid Security
  - c. Schedule of Requirements
10. Quotation Prices

10.1 The Bidder shall indicate on the appropriate Price Schedule the unit prices (where applicable) and total price in Nepali Rupees. for all items of the goods to be supplied under the contract.  
10.2 All duties, taxes and other levies payable by the Bidder under the contract shall be included in the rates, prices and total Bid Price submitted by the Bidder.  
10.3 Price quoted by the Bidder shall remain fixed and valid until completion of the Contract Performance and will not be subject to variation in any account.
11. Quotation Validity

11.1 The Sealed Quotation shall remain valid for the period of 45 days after opening of the quotation. A bid valid for a shorter period shall be rejected by the Purchaser as nonresponsive.

12. Quotation/Bid Security	<p>12.1 The Bidder shall furnish as part of its Sealed Quotation, in original form, a bid security as specified in the BDS. In case of e-submission of Quotation, the Bidder shall upload scanned copy of Bid security letter at the time of electronic submission of the Sealed Quotation. The Bidder accepts that the scanned copy of the Bid security shall, for all purposes, be equal to the original. The details of original Bid Security and the scanned copy submitted with e-Sealed Quotation should be the same otherwise the Sealed Quotation shall be non-responsive.</p> <p>12.2 The Bid Security shall be, at the Bidder's option, in any of the following forms:</p> <ul style="list-style-type: none"> <li>(a) an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law or;</li> <li>(b) a cash deposit voucher in the Purchaser's Account as specified in the BDS</li> </ul> <p>In the case of a bank guarantee, the Bid Security shall be submitted either using the Bid Security Form included in Section III (Bidding Forms) or in another Form acceptable to the Purchaser. The form must include the complete name of the Bidder. The Bid security shall be valid for minimum thirty (30) days beyond the original validity period of the bid</p> <p>12.3 Any Sealed Quotation not accompanied by an enforceable and substantially compliant bid security, shall be rejected by the Purchaser as nonresponsive. In case of e-Submission, if the scanned copy of an acceptable Bid Security letter is not uploaded with the electronic Bid then Bid shall be rejected.</p> <p>12.4 The Bid security shall be forfeited if:</p> <ul style="list-style-type: none"> <li>(a) a Bidder requests for withdrawal or modification during the period of Quotation validity specified by the Bidder on the Letter of Bid, after Sealed Quotation submission deadline.</li> <li>(b) a Bidder changes the prices or substance of the Sealed Quotation while providing information;</li> <li>(c) a Bidder involves in fraud and corruption pursuant to clause 26;</li> <li>(d) the successful Bidder fails to: <ul style="list-style-type: none"> <li>(i) furnish a performance security in accordance with clause 25;</li> <li>(ii) sign the Contract in accordance within the period stipulated in Letter of Award.; or</li> <li>(iii) accept the correction of arithmetical errors pursuant to clause 19.1</li> <li>(iv) fails to provide the clarification of its Quotation by the date and time set in the Purchaser's</li> </ul> </li> </ul>
13. Format and Signing of Quotations	<p>13.1 The Quotation shall be typed or written in indelible ink and shall be signed by an authorized person. Any entries or amendments including alternations, additions or corrections made shall be initialled by the same authorized person.</p>
14. Sealing and Marking of Quotations	<p>14.1 Bidders may submit their bids by manually or by electronically. When so specified in the BDS. Procedures for submission, sealing and marking are as follows: Bidders submitting bids by manually. The Bidder shall submit his bid in sealed envelopes. The envelope shall be addressed to the Purchaser as specified in the BDS and shall bear the name and identification number of the Sealed quotation.</p> <p>14.2 Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in the BDS</p>
15. Deadline for Submission of Quotations	<p>15.1 Quotations shall be delivered to the Purchaser at the address no later than the time and date specified in the BDS.</p>
16. Late Quotation	<p>16.1 Any Quotation received by the Purchaser after the deadline shall not be accepted and shall be returned unopened to the Bidder upon request.</p>
17. Modification And Withdrawal	<p>17.1 Sealed Quotations once submitted shall not be withdrawn or modified.</p>
18. Bid Opening	<p>18.1 The Purchaser shall open the Quotations in the presence of the Bidders' representatives who choose to attend at the time and in the place as specified in the BDS</p> <p>18.2 The Purchaser shall prepare and provide minutes of the opening including the information disclosed to those present.</p>
19. Process to be Confidential	<p>19.1 Information relating to the examination, evaluation and comparison of Quotations and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any efforts by the Bidder to influence the Purchaser in the Quotation evaluation, comparison or contract award decisions may result in rejection of Bidder's quotation.</p>
20. Examination of Quotations	<p>20.1 Prior to the detailed evaluation of Quotations, the Purchaser shall determine whether each Quotation</p> <ul style="list-style-type: none"> <li>(a) meets the eligibility criteria defined in Clause 2;</li> <li>(b) has been properly signed by the authorized person;</li> <li>(c) is accompanied by the required securities; and</li> <li>(d) is substantially responsive to the requirements of the Bidding documents.</li> </ul>



21. Evaluation and Comparison of Quotations	<p>21.1 In evaluating the Quotations, the Purchaser shall determine for each Sealed Quotation the evaluated Quotation Price by adjusting any corrections for errors. Quotations shall be checked by the Purchaser for any arithmetic errors. Errors shall be corrected by the Purchaser as follows:</p> <p>(a) only for unit price Contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price 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 total price as quoted shall govern and the unit price shall be corrected;</p> <p>(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>(c) If there is a discrepancy between the Quotation price in the Summary of Price Schedule and the Quotation amount in item (c) of the Letter of Quotation, the price in the Summary of Price Schedule will prevail and the Quotation amount in item (c) of the Letter of Quotation will be corrected.</p> <p>(d) 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) ,(b) and (c) above.</p> <p>21.2 In case of e-submission of bid, upon notification from the Purchaser, the bidder shall also submit the original of documents comprising the Sealed Quotation as per ITB 9 for verification of submitted documents for acceptance of the e-submitted bid. If a Bidder does not provide original of document of its Sealed Quotation by the date and time set in the Purchaser's request for clarification, its bid may be rejected.</p> <p>21.3 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its Quotation security shall be forfeited.</p> <p>21.4 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.</p>
22. Award of Contract	<p>22.1 The Purchaser shall decide the award of the contract to the Bidder whose Quotation is within the approved estimate and who has offered the lowest evaluated Price within Quotation validity period provided that such Bidder has been determined to be eligible in accordance with the provisions of Clauses 2.</p> <p>22.2 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.</p>
23. Purchaser's Right to Accept or Reject	<p>23.1 The Purchaser reserves the right to accept or reject any Quotation or to cancel the bidding process and reject all Quotations, at any time prior to the award of the contract, without assigning any reasons whatsoever and without thereby incurring any liability to the affected Bidder or Bidders.</p>
24. Notification of Award and Signing of Agreement	<p>24.1 The Bidder whose bid is accepted and all other participating bidders shall be notified of the award by the Purchaser.</p> <p>24.2 The notification (hereafter called the "Letter of Acceptance") to the successful Bidder shall state the sum that the Purchaser shall pay the Bidder in the execution and completion of the contract. Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver the Performance Security pursuant Clause 25 and sign the Agreement.</p> <p>24.3 Inability of the Bidder to make an Agreement within the above stated period shall result in the forfeiture of the Bidder's Quotation Security and , upon which the Contract shall then be awarded to the next successive successful Bidder.</p>
25. Performance Security	<p>25.1 Within seven (7) days of the receipt of Letter of Acceptance from the Purchaser, the successful Bidder shall furnish the performance security as stated below from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section VIII (Contract Forms), or another form acceptable to the Purchaser.</p> <p>i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price.</p> <p>ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows:</p> <p>Performance Security Amount =</p> $[(0.85 \times \text{Cost Estimate} - \text{Bid Price}) \times 0.5] + 5\% \text{ of Bid Price.}$ <p>The Bid Price and Cost Estimate shall be inclusive of Value Added Tax.</p>

26. Corrupt or Fraudulent Practices
- 26.1 The Purchaser shall reject a bid for award if it determines that the Bidder recommended for award of contract has engaged in corrupt or fraudulent practices in competing for the contract in question.
- 26.2 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.
27. Conduct of Bidders
- 27.1 The Bidder shall be responsible to fulfil his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN's Procurement Act and Regulations.
- 27.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :
- give or propose improper inducement directly or indirectly,
  - distortion or misrepresentation of facts
  - engaging or being involved in corrupt or fraudulent practice
  - interference in participation of other prospective bidders.
  - coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings,
  - collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Purchaser the benefit of open competitive bid price..
- 27.3 contacting the Purchaser with an intention to influence the Purchaser with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract
28. Blacklisting Bidder
- 28.1 Without prejudice to any other right of the Purchaser under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder:
- if it is proved that the bidder committed acts pursuant to the Sub-Clause 27.2,
  - if it is proved later that the bidder/Supplier had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract ,
  - if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract.
  - if it is proved that the contract agreement signed by the bidder was based on false or misrepresentation of bidder's qualification information,
  - Inability of the bidder signing the contract agreement, once the letter of acceptance to the successful bidder has been provided by the Purchaser.,
- 28.2 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.
29. Publication of contract award notice
- 29.1 Within three days of contract signing, the Public Entity shall publish a notice on the contract award with following information: in its notice board as well as shall manage to publish the notice on the notice board of District Coordination Committee, District Administration Office, Provincial Treasury and Controller Office and District Treasury and Controller Office, Such notice shall also be posted in its website and PPMO's website.
- Name of the procurement,
  - IFB number,
  - date and name of newspaper published the IFB notice,
  - name of the successful Bidder, and the contract price.
- 29.2 The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, within thirty days from the date of publication of contract award notice in accordance with ITB 29.1, requests in writing the grounds on which its bid was not selected.
30. Provision of PPA and PPR
- 30.1 If any provision of this document are inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this documents shall be void to the extent of such inconsistency and the provision of PPA and PPR shall prevail.

Section III Bid Data Sheet

ITB 1	<p>The scope of Supply is :</p> <p>The number of the Invitation for Sealed Quotation (SQ) is :23-2081/082The Purchaser is: Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar</p> <p>The Name of the Project is :Supply, delivery, installation, testing and commissioning of solar lighting system with all accessories, all complete as per specification, Birtamod Municipality- 2, Sombare, Jhapa.</p>
ITB 10	<p>The Bidder shall furnish a bid security, from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law with a minimum of NRs.32000, which shall be valid for 30 days beyond the validity period of the bid.</p>
ITB 10(a)	<p>Cash Deposit Account for Bid Security:</p> <p>Bank Name:Rastriya Banijya Bank Ltd.</p> <p>Bank Address:Koshi Province, Biratnagar</p> <p>Account holder's Name:KHA-2-3: DHARAUTI A/C (PRA.LE.NI.KA)</p> <p>Account Number:2120100202030000</p>
ITB 14.1	<p>Bidders shall have the option of submitting their bids electronically. Bidders shall follow the electronic bid submission procedures specified below:</p> <p>i. The bidder is required to register in the e-GP system <a href="https://www.bolpatra.gov.np/egp">https://www.bolpatra.gov.np/egp</a> following the procedure specified in e-GP guideline.</p> <p>ii. Interested bidders may either purchase the bidding document from the Purchaser's office as specified in the BDS or may download the from e-GP system.</p> <p>iii. The registered bidders need to maintain their profile data required during preparation of bids.</p> <p>iv. In order to submit their bids electronically the cost of the bidding document shall be deposited in the account specified in IFQ. In addition, electronic scanned copy (.pdf format) of the bank deposit voucher/cash receipt should also be submitted along with the bid.</p> <p>v. The bidder can prepare the their bids using data and documents maintained in bidder’s profile and forms/format provided in Sealed Quotation Document by Purchaser. The bidder may submit bids as a single entity or as a joint venture. The bidder submitting bid in joint venture shall have to upload joint venture agreement along with partner(s) Bolpatra ID provided during bidder’s registration.</p> <p>vi. Bidders (all partners in case of JV) should update their profile data and documents required during preparation and submission of their bids.</p> <p>vii. In case of bid submission in JV, the consent of the partners shall be obtained through the confirmation link sent to the registered email address and the partners shall have to acknowledge their confirmation.The required forms and documents shall be part of technical bids:</p> <p>1. Letter of Quotation (Mandatory)</p> <p>2.Quotation Security /Bank Guarantee (Mandatory)</p> <p>3. Company registration (Mandatory)</p> <p>4. VAT registration (Mandatory)</p> <p>5. Tax clearances certificate or evidence of tax return submission for the F/Y (Mandatory)</p> <p>6. Power of Attorney of Bid signatory (Mandatory)</p> <p>7. Completed Price Schedule (Mandatory)</p> <p>8. Bank Voucher for cost of bid document (Mandatory)</p> <p>9. Joint venture agreement (Mandatory in case of JV Bid)</p> <p>10. Additional documents specified in Bidding Document (any other required documents, which is not against the provision of Procurement Act/Regulation/Directives and Standard Bidding Document issued by PPMO)</p> <p>Note: The documents specified as “Mandatory” should be included in e-submission.</p> <p>viii. After providing all the details and documents, bid response documents will be generated from the system. Bidders are advised to download and verify the response documents prior to bid submission.</p> <p>ix. For verifying the authentic user, the system will send one time password in the registered email address of the bidder. System will validate the OTP and allow bidder to submit their bid.</p> <p>x. Once Quotation is submitted, bidders won’t able to modify/withdrawal their bid.</p> <p>xi. The Bidder/Quotation shall meet the following requirements and conditions for e-submission of bids:</p> <p>a) The e-submitted Quotations must be readable through PDF reader.The facility for submission of Quotation electronically through e-submission is to promote transparency, non-discrimination, equality of access, and open competition in the bidding process. The Bidders are fully responsible to use the e- submission facility properly in e-GP system as per specified procedures and in no case the Purchaser shall be held liable for Bidder's inability to use this facility.b) When a bidder submits electronic bid through the PPMO e-GP portal, it is assumed that the bidder has prepared the bid by studying and examining the complete set of the Bidding documents including specifications, drawings and conditions of contract.</p>
ITB 15	<p>The deadline for Sealed Quotation submission is:09-05-2025 12:00</p> <p>Address:Biratnagar, Morang Biratnagar Metropolitan City Morang</p>

ITB 18	<p>The Sealed Quotation opening shall take place at : Address :Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar Date and Time:09-05-2025 13:00</p> <p>a) e-GP system allows to download the Sealed Quotation response document only after bid opening date and time are met. Simultaneous login of two members of the opening committee is required for bid opening.</p> <p>b)The Purchaser shall conduct the opening of bid at the address on the same date and time as specified in bidding document in the presence of Bidders’ representatives who choose to attend</p>
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## **Section - IV**

### **Sample Forms**

# 1. Quotation and Price Schedules

Date:

To: *[name and address of the Purchaser]*

Gentlemen and/or Ladies:

Having examined the Sealed Quotation (SQ) documents, we the undersigned, offer to supply and deliver *[description of goods and services]* in conformity with the said SQ documents for the sum of *[total SQ amount in words and figures]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this SQ.

We undertake, if our SQ is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our SQ is accepted, we will obtain the guarantee of a bank in a sum equivalent to Five ( 5) percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Purchaser.

We agree to abide by this SQ for a Period of **45** days from the date fixed for SQ opening it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this SQ, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any SQ you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
*[signature]*

\_\_\_\_\_  
*[in the capacity of]*

Duly authorized to sign SQ for and on behalf of \_\_\_\_\_

## 2. Bidder's Information Form

*[The Bidder shall fill in this Form. No alterations to its format shall be permitted and no substitutions shall be accepted. In case of joint venture, each partner shall fill the information in separate form.]*

1.	Bidder's Legal Name	
2	Bidder's Address:	
3	Bidder's Country of Registration:	
4	Bidder's Year of Registration:	
5	Bidder's Legal Address in Country of Registration	
6.	Bidder's Authorized Representative Information: Name:  Address:  Telephone/Fax numbers:  Email Address:	
7	Bidder's Telephone/Fax numbers:	
8	Bidder's Email Address:	
	<b>Attached are copies of the following original documents.</b>  <input type="checkbox"/> 1. Firm Registration Certificate  <input type="checkbox"/> 2. Authorization to represent the firm	

### 3. Price Schedule for Goods

Name of Bidder \_\_\_\_\_ Contract Identification Number \_\_\_\_\_

Item	Description	Country of Origin	Quantity	Unit Price <sup>1</sup> EXW (in NRs)		Total Price (in NRs) (cols. 4x5)
				In Figure	In Words	
1	2	3	4	5		4x5=6
Total						
VAT						
Grand Total						

Note: Unit price shall include all custom duties and taxes, transportation cost to the final destination and insurance cost.

**[If there are more than one lot/slice/package, prepare Price Schedule form for each lot/slice/package]**

Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

Signed \_\_\_\_\_

Duly authorized to sign the Sealed Quotation for and on behalf of \_\_\_\_\_

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

<sup>1</sup> The price shall include all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the item or the customs duties and sales and other taxes paid on the previously imported item offered ex warehouse, ex showroom, or off-the-shelf. These factors should not be entered separately.



## 4. Bid Security

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

Beneficiary: ..... name and address of Employer.....

Date:.....

Bid Security No.: .....

We have been informed that ..... [*insert name of the Bidder*] (hereinafter called "the Bidder") intends to submit its bid (hereinafter called "the Bid") to you for the execution of ..... name of Contract ..... under Invitation for Bids No. .... ("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..... name of Bank. ....hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of. . .....amount in figures ..... (. ..... amount in words ..... ) upon 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 or modifies its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.
- (d) is involved in fraud and corruption in accordance with the ITB

This guarantee will remain in force up to and including the date .....number.....days after the deadline for submission of Bids as such deadline is stated in the instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

This Bank guarantee shall not be withdrawn or released merely upon return of the original guarantee by the Bidder unless notified by you for the release of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

Bank's seal and authorized signature(s) . . .

### Note:

The bid security of ..... has been counter guaranteed by the Bank .....on

..... (Applicable for Bid Security of Foreign Banks).

# Schedule of Requirement

## 1. List of Goods and Related Services

1 Electricity gas nuclear energy and fuels steam hot water and other sources of energy			
1.1 Solar energy			
Procurement Item Details			
SL. No	Item Description	Unit of Measurement	Quantity
1	Supply of solar PV array-Mono/Polycrystalline	Watt	6500.0
2	Grid tied inverter- 5kW, three phase	Nos	1.0
3	Flood light 50W	Nos	36.0
4	Supply of 2 core 50mm <sup>2</sup> twisted Aluminum ABC cable conductors for single phase for distribution in the settlement having minimum insulation thickness of 1.3mm and breaking load of 7KN	Meter	1800.0
5	NS Standard multi strand cable 2 core 16 Sq. mm copper	Meter	60.0
6	Supply of ABC cable connector (as required)	set	36.0
7	Supply of suspension clamp	set	36.0
8	Supply of DC distribution board with DC MCB for each string , main PV breakers, and DC surge protection devices	set	1.0
9	Supply of AC distribution board,Polycarbonate thermoplastic board with IP 64 or above, with IK 08/09 in accordance with IEC 60529 and EN 50298-98 featured with UV resistance, with self extinguishing property AC MCB, 2P, 19KA, AC surge protectors & accessories	set	1.0
10	supply and installation of Earthing system consisting of numbers of copper coated earth electrode having diameter of 20/25mm with a min. coating thickness of 250 microns and length of 3 meters. 2*25kgs/electrode of earth enhancing compound needs to be considered to fill 100-125mm augured hole surrounding the electrodes as to maintain the earth resistance of minimum of 5 ohm and a Heavy duty pit cover	Nos	3.0
11	Copper strip (3 x 25)	Kg	9.0
12	Lighting Arrester (Franklyn Type) with pole, insulators, saddles, cable ties etc. all complete set	set	1.0
13	PV array mounting structure (Hot deep galvanised) for ground mount type, and wind speed of at least 180km/hr- All complete	kWp	6.5
14	Transportation, installation, testing and commissioning of solar lighting system with necessary accessories and NEA and RETS charges, all complete	set	1.0
15	Insurance	Job	1.0

## 2. Delivery and Completion Schedule

1 Electricity gas nuclear energy and fuels steam hot water and other sources of energy					
1.1 Solar energy					
SL. No	Description of Goods	Final Destination	Earliest Delivery Date	Acceptable Delivery Date	Bidder's offered Delivery date
1	Supply of solar PV array- Mono/Polycrystalline	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
2	Grid tied inverter- 5kW, three phase	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
3	Flood light 50W	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
4	Supply of 2 core 50mm <sup>2</sup> twisted Aluminum ABC cable conductors for single phase for distribution in the settlement having minimum insulation thickness of 1.3mm and breaking load of 7KN	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
5	NS Standard multi strand cable 2 core 16 Sq. mm copper	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
6	Supply of ABC cable connector (as required)	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
7	Supply of suspension clamp	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
8	Supply of DC distribution board with DC MCB for each string ,main PV breakers, and DC surge protection devices	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
9	Supply of AC distribution board, Polycarbonate thermoplastic board with IP 64 or above, with IK 08/09 in accordance with IEC 60529 and EN 50298-98 featured with UV resistance, with self extinguishing property AC MCB, 2P, 19KA, AC surge protectors & accessories	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
10	supply and installation of Earthing system consisting of numbers of copper coated earth electrode having diameter of 20/25mm with a min. coating thickness of 250 microns and length of 3 meters. 2*25kgs/electrode of earth enhancing compound needs to be considered to fill 100-125mm augured hole surrounding the electrodes as to maintain the earth resistance of minimum of 5 ohm and a Heavy duty pit cover	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
11	Copper strip (3 x 25)	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
12	Lighting Arrester (Franklyn Type) with pole, insulators, saddles, cable ties etc. all complete set	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
13	PV array mounting structure (Hot deep galvanised) for ground mount type, and wind speed of at least 180km/hr- All complete	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	

SL. No	Description of Goods	Final Destination	Earliest Delivery Date	Acceptable Delivery Date	Bidder's offered Delivery date
14	Transportation, installation, testing and commissioning of solar lighting system with necessary accessories and NEA and RETS charges, all complete	Biramod Municipality- 2, Sombare, Jhapa	30 Days	30 Days	
15	Insurance	MoWSIE	Before Agreement	Before Agreement	

# Technical Specifications

<b>1 Electricity gas nuclear energy and fuels steam hot water and other sources of energy</b>
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<b>1.1 Solar energy</b>
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Sl. No.	Description of Goods	Particulars	Requirements	Bidder's Offer
1	Supply of solar PV array- Mono/Polycrystalline	As per Technical Specifications.	As per Technical Specifications.	
2	Grid tied inverter- 5kW, three phase	As per Technical Specifications.	As per Technical Specifications.	
3	Flood light 50W	As per Technical Specifications.	As per Technical Specifications.	
4	Supply of 2 core 50mm <sup>2</sup> twisted Aluminum ABC cable conductors for single phase for distribution in the settlement having minimum insulation thickness of 1.3mm and breaking load of 7KN	As per Technical Specifications.	As per Technical Specifications.	
5	NS Standard multi strand cable 2 core 16 Sq. mm copper	As per Technical Specifications.	As per Technical Specifications.	
6	Supply of ABC cable connector (as required)	As per Technical Specifications.	As per Technical Specifications.	
7	Supply of suspension clamp	As per Technical Specifications.	As per Technical Specifications.	
8	Supply of DC distribution board with DC MCB for each string ,main PV breakers, and DC surge protection devices	As per Technical Specifications.	As per Technical Specifications.	
9	Supply of AC distribution board, Polycarbonate thermoplastic board with IP 64 or above, with IK 08/09 in accordance with IEC 60529 and EN 50298-98 featured with UV resistance, with self extinguishing property AC MCB, 2P, 19KA, AC surge protectors & accessories	As per Technical Specifications.	As per Technical Specifications.	
10	supply and installation of Earthing system consisting of numbers of copper coated earth electrode having diameter of 20/25mm with a min. coating thickness of 250 microns and length of 3 meters. 2*25kgs/electrode of earth enhancing compound needs to be considered to fill 100-125mm augured hole surrounding the electrodes so as to maintain the earth resistance of minimum of 5 ohm and a Heavy duty pit cover	As per Technical Specifications.	As per Technical Specifications.	
11	Copper strip (3 x 25)	As per Technical Specifications.	As per Technical Specifications.	
12	Lighting Arrester (Franklyn Type) with pole, insulators, saddles, cable ties etc. all complete set	As per Technical Specifications.	As per Technical Specifications.	
13	PV array mounting structure (Hot deep galvanised) for ground mount type, and wind speed of at least 180km/hr- All complete	As per Technical Specifications.	As per Technical Specifications.	
14	Transportation, installation, testing and commissioning of solar lighting system with necessary accessories and NEA and RETS charges, all complete	As per Technical Specifications.	As per Technical Specifications.	
15	Insurance	As per Technical Specifications.	As per Technical Specifications.	

## **Conditions of Contract**

## Section VI. General Conditions of Contract

<b>1. Definitions</b>	<p>1.1 In this contract, the following terms shall be interpreted as indicated:</p> <ul style="list-style-type: none"><li>a. "The Contract" means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form Signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;</li><li>b. "The Contract Price" means the price payable to the Supplier under the contract for the full and proper performance of its contractual obligation;</li><li>c. "The Goods" means Equipment and related Accessories and spare-parts or any other materials which the Supplier is required to supply to the Purchaser under the contract;</li><li>d. "Services" means services ancillary to the supply of the goods such as transportation and insurance including the installation, commissioning and the operational and maintenance training of the supplied equipment.</li><li>e. "The Purchaser" means the procuring entity purchasing the goods;</li><li>f. "The Supplier" means the organization supplying the goods and services under this contract.</li></ul>
<b>2. Technical Specification</b>	<p>2.1 The goods supplied under this contract shall confirm to the standards mentioned in the Technical Specification.</p>
<b>3. Patent Right</b>	<p>3.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of goods or any part thereof in the Purchaser's country.</p>



<b>4. Performance Security</b>	<p>4.1 Within seven days (7) of receipt of award of contract from the Purchaser, the successful Bidder shall furnish the performance security in the Performance Security Form provided in the Bidding Documents for the due performance of the Contract in the amounts specified in the SCC.</p> <p>4.2 Failure of the successful Supplier to comply with the requirement of Sub - clause 4.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest Supplier or call for new sealed quotations.</p> <p>4.3 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.</p> <p>4.4 The validity of Performance Security shall be the sum of delivery period, warranty period from the date of the issue of final acceptance certificate to the Supplier and additional one month.</p> <p>4.5 The performance security shall be released within 28 days of completion of warranty period and upon submission of claim by the Supplier.</p>
<b>5. Inspection and Tests</b>	<p>5.1 The Purchaser or its Representative shall have the right to inspect and/or test the goods to confirm their conformity to the Technical Specification and the quality of performance after the supply and delivery of good to the Purchaser's premises</p> <p>5.2 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.</p>
<b>6. Packing</b>	<p>6.1 The Supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transmit to their final destination as indicated in the contract.</p> <p>6.2 The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage.</p> <p>6.3 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided in accordance with international standard and practice.</p>
<b>7. Delivery of Goods</b>	<p>7.1 Delivery of the goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in its Schedule of Requirements.</p>
<b>8. Insurance</b>	<p>8.1 The goods supplied under the contract shall be fully insured in the currency of the Sealed Quotation price against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified.</p>

<b>9. Warranty</b>	<p>9.1 The Supplier warrants that all the goods supplied under the contract shall fully comply with the specification laid down in the contract.</p> <p>9.2 Unless otherwise specified in the SCC, the warranty shall remain valid for one year after the goods have been delivered to the final destination indicated in the contract, and accepted by the Purchaser after installation and commissioning of equipment by the Supplier.</p> <p>9.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.</p> <p>9.4 Upon receipt of such notice, the Supplier shall, with all reasonable speed, replace the defective goods without cost to the Purchaser. The Supplier will be entitled to remove, at its own risk and cost, the defective goods.</p>
<b>10. Payment</b>	<p>10.1 Payment shall be made in the Nepalese currency as specified in the SCC</p> <p>10.2 Payment of the goods shall be made after the delivery and installation and commissioning of goods (if applicable) to the satisfaction of the Purchaser.</p>
<b>11. Prices</b>	<p>11.1 Prices charged by the Supplier for goods delivered under the contract shall not vary from the prices quoted by the Supplier in its sealed quotation.</p>
<b>12. Changed Order</b>	<p>12.1 Where the Purchaser desires to make changes in <b>Schedule of Requirement</b>, it shall not exceed more than 15 percent.</p>
<b>13. Liquidated Damages</b>	<p>13.1 If the Supplier fails to deliver any or all of the goods within the time period specified in the contract, the Purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 0.05 percent of the contract price of delayed goods for each day of delay until actual delivery, up to a maximum deduction of 10 percent of the delayed goods' contract price. Once the maximum is reached, the Purchaser may consider termination of the contract.</p>
<b>14. Resolution of Disputes</b>	<p>14.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.</p> <p>14.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or Supplier may give notice to the other party of it's 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.</p> <p>14.2.1 Any dispute or difference in respect of such a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be</p>

	<p>commenced prior to or after delivery of the Goods under the Contract.</p> <p>14.2.2 Arbitration proceedings shall be conducted in accordance with in accordance with the rules of Nepal Council of Arbitration (NEPCA).</p> <p>14.3 Notwithstanding any reference to arbitration herein,</p> <ul style="list-style-type: none"> <li>a. the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and</li> <li>b. the Purchaser shall pay the Supplier any monies due the Supplier.</li> </ul>
<b>15. Governing Language</b>	15.1 The Governing Language shall be: Nepali or English
<b>16. Applicable Law</b>	16.1 The applicable law shall be Laws of Nepal.
<b>17. Notices</b>	<p>17.1 Any Notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the SCC. The term "in writing" means communicated in written form with proof of receipt</p> <p>17.2 A Notice shall be effective when delivered or on the Notice's effective date, whichever is later.</p>
<b>18. Taxes and Duties</b>	18.1 The Supplier shall be entirely responsible for all taxes, duties, licence fees and other such levies imposed by the GON.
<b>19. Operation, Maintenance and Spare-parts Manuals</b>	19.1 The successful Supplier shall supply manufacturer's operation, maintenance and spare-part manuals of the goods (Equipment) as specified in SCC..
<b>20. Conduct of Suppliers</b>	<p>20.1 The Supplier shall be responsible to fulfil his obligations as per the requirement of the Contract Agreement, Quotation documents, GoN's Procurement Act and Regulations.</p> <p>20.2 The Supplier shall not carry out or cause to carryout the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :</p> <ul style="list-style-type: none"> <li>a. give or propose improper inducement directly or indirectly,</li> <li>b. distortion or misrepresentation of facts</li> <li>c. engaging or being involved in corrupt or fraudulent practice</li> <li>d. interference in participation of other prospective bidders.</li> <li>e. coercion or threatening directly or indirectly to impair or harm, any party or the property of the party involved in the procurement proceedings,</li> </ul>

	<ul style="list-style-type: none"> <li>f. collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Purchaser the benefit of open competitive bid price..</li> <li>g. contacting the Purchaser with an intention to influence the Purchaser with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract</li> </ul>
<b>21. Blacklisting Supplier</b>	<p>21.1 Without prejudice to any right of the Purchaser under this Contract, the GoN, Public Procurement and Monitoring Office (PPMO) may blacklist a Supplier for his conduct up to three years on the following grounds and seriousness of the act committed by the supplier:</p> <ul style="list-style-type: none"> <li>a. if it is proved that the supplier committed acts pursuant to the Sub - clause 20.2,</li> <li>b. if the supplier fails to sign an agreement pursuant to ITB Clause 24,</li> <li>c. if it is proved later that the supplier had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract ,</li> <li>d. if convicted by a court of law in a criminal offence which disqualifies the supplier from participating in the contract.</li> </ul> <p>21.2 A Supplier declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by PPMO and credit information bureau of Nepal.</p>

## Section VII - Special Conditions of Contract (SCC)

This SCC forms part of the Agreement

[Note: with the exception of the items for which the Purchaser's requirements have been inserted, the Bidder shall complete the following information before submitting his Sealed Quotation.]

GCC 1.1.1 (e)	The Purchaser shall be: Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar											
GCC 4.1	<p>The Currency of of the performance Security shall be in Nepalese Rupees.The amount of the performance security shall be as follows:</p> <p>(i) if bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price.</p> <p>(ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows:</p> <p>(iii) Performance Security Amount =[(0.85 x Cost Estimate – Bid Price) x 0.5] + 5% of Bid Price.</p> <p>The Bid Price and Cost Estimate shall be inclusive of Value Added Tax.</p>											
GCC 9.1	The warranty period shall be : 5 Year											
GCC 10	<p>The terms of payment to be made to the Supplier under the contract shall be as follows: Through the District Treasury Controller Office</p> <p>Payments shall be made in Nepalese Rupees in the following manner:</p> <p>Sample provisions:</p> <p>Advance Payment:[Usually not more than twenty (20)] percent of the contract price shall be paid within thirty (30) days of signing of the contract, and upon submission of request for advance and a bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law for equivalent amount valid until the goods are delivered and accepted and in the form provided in the Bidding Document.</p> <p>On Delivery and acceptance:[Hundred (100) percent. of the Contract Price of the Goods and related services (installation and commissioning of goods (if applicable)) to the satisfaction of the Purchaser delivered shall be paid within thirty (30) days upon submission of Tax Invoice and claim supported by the acceptance certificate issued by the Purchaser or its authorized person/s. Advance payment shall be deducted and settled in this payment.</p> <p>or</p> <p>On Delivery [Usually eighty (80)] percent. of the Contract Price of the Goods and related services delivered shall be paid within thirty (30) days of receipt of the Goods and upon submission of Tax Invoice.</p> <p>On acceptance: [Usually eighty (20)] percent. of the Contract Price of the Goods and related services (installation and commissioning of goods (if applicable)) to the satisfaction of the Purchaser. delivered shall be paid within thirty (30) days upon submission of Tax Invoice and claim supported by the acceptance certificate issued by the Purchaser or its authorized person/s</p> <p>or</p> <p>On Delivery and acceptance: One Hundred (100)] percent. of the Contract Price of the Goods and related services delivered shall be paid within thirty (30) days of receipt of the Goods and related services (installation and commissioning of goods (if applicable)) to the satisfaction of the Purchaser. and upon submission of Tax Invoice and claim supported by the acceptance certificate issued by the Purchaser or its authorized person/s</p> <p>TDS shall be deducted as per the prevailing rules and regulations.</p> <p>[Delete those not appropriate]</p> <p>Payments shall be made in Nepalese Rupees in the following manner:.</p> <table><tr><th>SL No</th><th>Milestone Name</th><th>Payment Percentage</th></tr><tr><td>1</td><td>Advance payment</td><td>0</td></tr><tr><td>2</td><td>Installment &amp; commission</td><td>100.0</td></tr></table>			SL No	Milestone Name	Payment Percentage	1	Advance payment	0	2	Installment & commission	100.0
SL No	Milestone Name	Payment Percentage										
1	Advance payment	0										
2	Installment & commission	100.0										
GCC 17.1	<p>For notices, the Purchaser’s address shall be:</p> <p>Attention: Ministry of Water Supply, Irrigation and Energy, Koshi Province, Biratnagar</p> <p>Address: Biratnagar, Morang Biratnagar Metropolitan City Morang</p> <p>Designation:</p> <p>Telephone: 021474430 Facsimile Number:</p> <p>Electronic Mail Address:</p>											

GCC 17.1	<div>For notices, the Suppliers’s address shall be:</div> <div>Attention:</div> <div>Address:</div> <div>Designation:</div> <div>Telephone:Facsimile Number:</div> <div>Electronic Mail Address:</div>
GCC 19.1	<div>The Supplier shall supply 5number of copies manufacturer's operation, maintenance and spare-part manuals of the goods (Equipment) in English or Nepali language as specified in SCC.</div>

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## **Section VIII. Contract Form**

### **1. Letter of Acceptance**

*[on letterhead paper of the Purchaser]*

*Date.....*

To: *(name and address of the Contractor )*

Subject: ..... *Notification of Award*

This is to notify that your Sealed Quotation dated . . . . for execution of the . . . . . *name of the contract and identification number, as given in the Contract Data/SCC . . . . .* for the Contract price of Nepalese Rupees *[insert amount in figures and words in Nepalese Rupees]*, as corrected in accordance with the Instructions to Bidders is hereby accepted in accordance with the Instruction to Bidders.

You are hereby instructed to contract this office to sign the formal contract agreement within 7 days. As per the Conditions of Contract, you are also required to submit Performance Security, as specified in SCC, consisting of a Bank Guarantee in the format included in Section VIII (Contract Forms) of the Bidding Document.

The Purchaser shall forfeit the bid security, in case you fail to furnish the Performance Security and to sign the contract within specified period.

Authorized Signature: .....

Name and Title of Signatory:

---

## **2. Contract Agreement**

THIS AGREEMENT made the \_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between *[name of Purchaser]* (hereinafter called “the Purchaser”) of the one part and *[name of Supplier]* of *[city and country of Supplier]* (hereinafter called “the Supplier”) of the other part:

WHEREAS the Purchaser invited Sealed Quotation for certain goods and ancillary services, viz., *[brief description of goods and services]* and has accepted a SQ by the Supplier for the supply of those goods and services in the sum of ..... *[contract price in words and figures]* (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 be deemed to form and be read and construed as part of this Agreement, viz.:
  - a. Form of Agreement
  - b. The Purchaser’s Notification of Award
  - c. The General Conditions of Contract;
  - d. Special Conditions of Contract
  - e. Quotation Form and the Price Schedule submitted by the Supplier;
  - f. The Schedule of Requirements;
3. 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.
4. 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 their respective laws the day and year first above written.

On behalf of the Purchaser

Name:

Designation:

Sign:

Seal:

On behalf of the Supplier

Name:

Designation:

Sign:

Seal:



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### **3. Performance Security**

Date :

To: *[name and address of the Purchaser]*

WHEREAS **[insert complete name of Supplier]** (hereinafter “the Supplier”) has received the notification of award for the execution of **[insert identification number and name of contract]** (hereinafter “the Contract”).

AND WHEREAS it has been stipulated by you in the aforementioned Contract that the Supplier shall furnish you with a security **[insert type of security]** issued by a reputable guarantor for the sum specified therein as security for compliance with the Supplier’s performance obligations in accordance with the Contract.

AND WHEREAS the undersigned **[insert complete name of Guarantor]**, legally domiciled in **[insert complete address of Guarantor]**, (hereinafter the “Guarantor”), have agreed to give the Supplier a security:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of **[insert currency and amount of guarantee in words and figures]** and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract, without cavil or argument, any sum or sums within the limits of **[insert currency and amount of guarantee in words and figures]** as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This security is valid until the **[insert day, month, year]**.

Name: **[insert complete name of person signing the Security]**

In the capacity of: **[insert legal capacity of person signing the Security]**

Signed: **[insert signature of person whose name and capacity are shown above]**

Duly authorized to sign the security for and on behalf of: **[insert seal and complete name of Guarantor]**

Date: **[insert date of signing]**

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#### **4. Bank Guarantee for Advance Payment**

To: *[name of the Purchaser]*

*[name of Contract]*

Gentlemen and/or Ladies:

In accordance with the payment provision included in the Contract, which amends Clause 10 of the General Conditions of Contract to provide for advance payment, *[name and address of Supplier]* (hereinafter called “the Supplier”) shall deposit with the Purchaser a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

We, the *[bank or financial institution]*, as instructed by the Supplier, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the Purchaser on its first demand without whatsoever right of objection on our part and without its first claim to the Supplier, in the amount not exceeding *[amount of guarantee in figures and words]*.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed there under or of any of the Contract documents which may be made between the Purchaser and the Supplier, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

The validity period of the guarantee shall be 30 days beyond the period scheduled for repayment of the advance payment and the guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until the Purchaser receives full repayment of the same amount from the Supplier.

Yours truly,

Signature and seal of the Guarantors

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*[name of bank or financial institution]*

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*[address]*

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*[date]*

# Technical Specifications and Scope of Work

## Scope of Work

Scope of work shall include design, planning, engineering, procurement, construction / erection, testing, commissioning and five years of operation and maintenance of solar grid connected solar PV project installed at different places. This project requires installation of solar rooftop system at given locations in different places of Koshi Province, Nepal.

The bid entails the installation of the complete system in accordance with the BoQ and technical specifications outlined in this document, following the terms and conditions specified herein.

Summary of Scope and division of responsibilities shall be as follows:

- i. The bidder should conduct site visits(s) if required to be familiarized with the required end product quality and analysis of the identified installation site before the submission of the bid. All the liabilities for site visit shall be the responsibility of the bidder itself.
- ii. The required for control room, solar array installation space and transmission and distribution system will be provided by the municipal offices or the institution itself but bidder shall be responsible for the preparing the area as per their requirement of installation.
- iii. Complete design of PV power system as per the requirement of the tender document and specified specification in bid document in technical specifications sections.
- iv. The bidder shall provide the following drawings along with the drawings mentioned in the respective technical specification sheet:
  1. As-built drawings
  2. Single line diagrams indicating all the components and related accessories, including protection system
- v. Bidder shall be responsible to supply, sourcing, procurement, transportation of all Solar rooftop equipment, required insurance till the time of commissioning of the system electrical components, communication components, structural components, civil engineering material, mechanical engineering components, construction machinery and all other construction equipment as required for development, implementation, construction, testing, commissioning.
- vi. Bidder shall be responsible for all the management activities related to Installation, Testing and Commissioning of proposed solar rooftop system and associated liabilities.
- vii. Bidder shall be responsible for **FIVE (5) year successful operation and maintenance of the solar rooftop system** from the date of successful commissioning.

- viii. The bidders shall provide the technical catalogue with detailed information of each equipment, components, and accessories along with its country of origin and manufacturer, technical standards and certifications.
- ix. The bidder shall provide the schedule of works (Design, supply, installation, commissioning, and related services).
- x. The bidder shall provide security on site as per insurance requirements and per all applicable codes and standards.
- xi. Training to the individuals nominated technician/operator from the beginning of operation and maintenance, handing over the plant to owner, provision of all the documentation necessary for the correct performance and maintenance for the life cycle time of Solar rooftop System.
- xii. The successful bidder must visit the site within a week from the date of signing of contract and submit the final design and field visit report within that time.

The plant shall be designed, manufactured, erected, and configured in such a way that it will achieve high life expectancy, high availability, and reliability with minimum power generation costs.

# Technical Specifications

## **1. SOLAR POWER GENERATION COMPONENTS**

The bidder shall clearly respond to the technical specifications and standards asked for the equipment's and rooftop system components in their technical proposal. The bidder shall provide the data sheet, product catalogue and technical specifications of all the indicated equipment's of power generation, transmission and distribution system including IV curve, efficiency curves, test certificates/reports, warranty assurance certificate, international standards that the proposed goods comply with.

### **1. Solar Photovoltaic (PV) Module**

#### **General Description**

The total required PV array capacity must be at least 6.5 kWp. The PV modules shall comply with following standards and technical specifications.

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
1	Manufacturer Name/Brand/Model		
2	Manufacturer's experience in manufacturing PV modules: Minimum 10 years		
3	The manufacturer shall have: ISO 9001, ISO14001, OHSAS 18001 Certificates		
4	Peak Power of Individual Module under STC $\geq$ 400 Watt-peak		
5	Array Capacity: As per the BoQ		
6	PV Module Efficiency: $\geq$ 17%		
7	Cell type: Crystalline/bifacial		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
8	No. of Cells per Module: Minimum 72		
9	Junction Box Protection: IP67 or better according to IEC 60529		
10	Operating Temperature: Minimum range of -20°C to +50°C		
11	Nominal Module Operating Temperature: 42±3 °C		
12	System Voltage: Minimum 1000 VDC		
13	<p>A letter provided by principal PV module manufacturer in their letter head stating the warranty period for their PV module.</p> <p>Product Workmanship Warranty: ≥ 10 years</p> <p>Performance Guarantee:</p> <p>first year: ≥ 97% of STC power</p> <p>10 year: ≥ 90% of STC Power</p> <p>25 years: ≥ 80% of STC Power</p> <p>linear warranty ≤ 0.8% per year from year 2 and onwards</p>		
14	<p>Local Certification required:</p> <p>RETS Certificate (PIT Certificate must be submitted with Bid and RST Certificate must be submitted before testing &amp; commissioning)</p>		
15	<p>International Certification:</p> <p>IEC 61215:2005 2<sup>nd</sup> Edition or</p> <p>IEC 61215-1:2016 and IEC 61215-2:2016 for Terrestrial photovoltaic (PV) modules - Design qualification</p>		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
	<p>and type approval – Part 1: Test requirements and Part 2: Test Procedures.</p> <p>IEC 61730 for PV module safety qualification, IEC 62804 for detection of potential induced degradation (PID)</p> <p>The test certificates must be provided.</p>		
16	All PV modules offered for the project must be of same type, same model, same power rating and same manufacturer		
17	The Bidder must submit the technical datasheet of PV Module		

## 2. Three-phase grid tied Inverter

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
1	Inverter type: Three Phase Grid interactive, capable of net metering with anti-islanding function		
2	Rated Power: $\geq 5\text{kW}$ @25°C		
3	AC output Voltage: Three Phase 415 Vac (L-L),		
4	Output Frequency: 50 Hz $\pm$ 2%		

5	Peak charging efficiency: minimum 93%		
6	Total Harmonic Distortion (THD): < 5%		
7	Power Factor: 0.85 lag to unity lead		
8	Protection class: IP21 or above		
9	Protection: DC breakers, surge protector, over-temperature, over current, anti-islanding		
10	Operating Temperature: Minimum range of 0°C to +50°C		
11	Communication Interface: Modbus or RS232 or RS485 or Ethernet pack embedded, should communicate with other equipment and monitoring system		
12	Quality certificate validation by AEPC or third party assigned by AEPC, could be produced after the installation, testing and commissioning		
14	<p>International Certifications:</p> <p>IEC 61727 for utility interface</p> <p>IEC 62116 for islanding</p> <p>EN 50530 for efficiency</p> <p>The Test Certificates or Test Reports from IEC accredited independent laboratory must be provided. The inverter must be certified by Certification Body Testing Laboratory or National Certification Body enlisted in IECEE or IECRE website.</p>		
15	The Bidder must submit the technical datasheet of PV inverter		



### 3. Control System

The purpose of the control system is to establish the communication between inverter, utility and load. The control system can be isolated or in-built in the inverter. The control system shall comply with the following standards and technical specifications.

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
1	Manufacturer Name/Brand/Model:		
2	No. of phase: 3-phase		
3	Degree of protection: IP21 or above		
4	Protection and switches: MCB, MCCB, SPDs etc. as per the requirement of load and inverter in ac as well as dc side. Each termination points to and from the control system shall be provided with the isolation unit (MCB, fuse, MCCB etc.) and the quality standard must be approved by the MoWSIE team		

### 4. Support Structure for PV Modules

The support structure shall comply with the following standards and technical specifications.

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
1	Tilt angle and orientation: Optimum PV production angle at given latitude/longitude of the site, oriented towards south		
2	Mounting structure design and foundation or fixation mounting arrangements shall consider all static and dynamic loads suitable for		

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
	<p>site. Support structure design and foundation or fixation mounting arrangements should withstand wind speed up to 170 km/hr</p>		
3	<p>The solar PV module structure must be made of MS hot dip galvanized suitable sections of rectangular tubes, angles and channels. The minimum standards to be followed are:</p> <p>Vertical leg (Main leg): Minimum 40mmx80mmx2mm Rectangular tube</p> <p>Rafter: Minimum 40mmx80mmx2mm Rectangular tube</p> <p>Purlins: Minimum 40*80*2mm Rectangular tube or</p> <p>Angles: Minimum 50*50*5mm</p> <p>Column bracing or supporting bracing: Minimum 40mmx40mmx5mm angle</p> <p>Base plate: 200mmx200mmx6mm</p> <p>The horizontal spacing between 2 vertical legs must be between 1.5-2 meters as per load conditions.</p> <p>The PV array must be designed with cross section with maximum 2 numbers for vertical placement and 4 numbers for horizontal placement. There must be minimum of 25mm uniform spacing between the modules.</p>		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
	The minimum thickness of galvanization must be at least 85 microns throughout the surface.		
4	The mounting structure and its accessories shall be able to resist at least 20 years of outdoor exposure without suffering damage or corrosion.		
5	Mounting structure shall be installed in such a way that PV array shading is minimized as much as possible considering site condition		
6	Clearance: Minimum necessary clearance between roof level and bottom edge of the PV modules/arrays for inclined roof top system, must be at least 20cm for easy maintenances		
7	Roofing: The structure must not cause any damage to the roofing, (appropriate procedure must be applied) in case of roof-top system including suitable grouting etc. to prevent water leakage.		
8	Stainless Steel (SS 304) nuts & bolts should be used for fixing modules with the structure. Stainless Steel (SS 304) or Galvanized bolts, nuts, fasteners, washers, mounting clamps should be used for fixing structure and compatible with materials which it is being fixed. In case of welding structure, the galvanization should be done after the fabrication work.		

## 5. DC Combiner Box

DC combiner box refers to the box where the PV modules/ strings are collected, and cables are routed towards Solar Charge Controller or PV inverter. The DC combiner box shall comply with the following standards and technical specifications.

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
1	The DC combiner box shall be rated for exterior installation suitable for the Site Conditions, shall be UV and weather resistant, and must be rated minimum for IP65 according to IEC 60529		
2	If number of strings into DC combiner box is more than two then DC box shall include the fuses reverse current to each string. String fuses shall be selected according to PV module manufacturer's recommendation on reverse current limit		
3	The system shall have DC isolation switch which can isolate the connection between PV array and the system. This isolation can be also within DC box.		
4	System must have appropriately sized surge protection device conforming to IEC 61643-11 and grounded adequately.		
5	DC box installation shall be protected from direct rain, Sun and dust		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
6	All cables must be connected properly and cable entering/outings into/from the box must be sealed properly (use of cable glands, cables shoes, copper tube, thimble, cable ties) so that dust and insects, mice cannot enter the box		

**6. 2 core 35 sq. mm and 50 sq. mm twisted Aluminium ABC Cable:**

The cables shall comply with the following standards and technical specifications.

<b>S. N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
1.	<b>Manufacturer:</b>		
2.	Country of Origin:		
3.	Type	Twisted Aluminium ABC Cable	
4.	Cable Size	35 & 50 sq.mm.	
5.	Number of Cores	2 core	
6.	Material of Construction	Aluminum	
7.	Color of Core	Red/Yellow/Blue/Black	
8.	Standard	IS 7098 Part1 or equivalent	
9.	High Voltage Test at 3Kv for 5 minutes of Full Drums	Should Withstand	

9.	Conductor Resistance (Max) at 20 deg. C	0.868 & 0.641 Ohm/km	
10.	Tensile Strength for Insulation	Standard	
11.	Tensile Strength for Outer Sheath	Standard	
12.	Elongation at Break for Insulation	Standard	
13.	Elongation at Break for Outer Sheath	Standard	

## 7. Cables and Accessories

The cables and accessories shall comply with the following standards and technical specifications.

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
1	Cables shall be selected with an insulation voltage level applicable to the system voltage for which they are used and ampacities suitable for the load being served		
2	Cables shall be multi-strand, PVC insulated cables and UV resistant, suitable for outdoor installations		
3	All DC and AC cables must be copper and color codes must be used for each positive, negative, R-Y-B-N.		
4	Allowable voltage drops from PV Module or PV Array to charge controller/PV inverter to battery <3%, battery to inverter <1%, inverter and AC loads <5%. <i>The bidder must present the calculation to show that the proposed cables meet this requirement.</i>		
5	Protection and safety: PV array to Charge Controller or Inverter		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
	cables: Cabling trench with high grade insulation protection (if required)		
6	Outdoor cables from PV plant to control room should be unarmored within suitable conduits.		
7	All external wiring, cabling, insulation material and junction boxes must be UV-resistant and terminals protected against dust and moisture.		
8	String junction boxes/string combiner boxes/main combiner boxes/grid connected AC combiner box must be minimum of IP65 according to IEC 60529		

## **8. Street Light (50 w)**

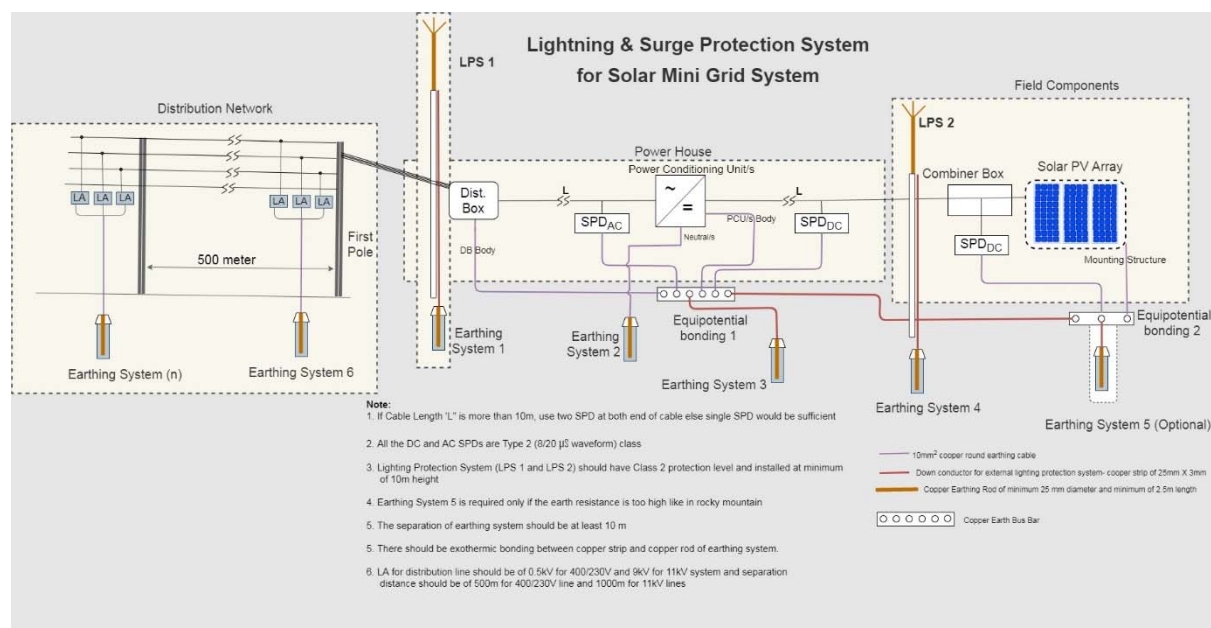
The street shall comply with the following standards and technical specifications.

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>
1.	Manufacturer/ Brand/ Model	
2.	Power: 50W	
3.	Voltage: 220±10%V	
4.	Housing: Aluminum Die-Cast with good heat sink fins	
5.	PF ≥0.9, IP≥65, IK 08	
6.	TDH<10%, CRI≥70	
7.	SPD: 4/10kV, Burning Life>50000hrs	

8.	Luminous Efficacy: $\geq 120\text{lm/w}$ , Beam Angle: $120^\circ$	
9.	LED Source: Metal based LED PCB Strip with PC Lense, toughened glass cover, compiling to IS: 16102 part-2 IS: 16103 part- I, IS: 16013 Part-2, IS: 16108 having manufacturer's warranted from Authorized Dealer/ Manufacturer from minimum period of 2 years.	

## 9. Generation System Earthing and Protections

The earthing and protections must be done separately for following points of the system such as PV module frame & array structure, Equipment Earthing, System Earthing, Lightning Protection System (LPS) Earthing. The earthing and protections shall comply with the following standards and technical specifications.



**Reference** lightning, earthing and surge protection system

S.N.	Specifications Required	Specifications Offered with Compliance	Reference Document (Specify Document)
1	The PV modules frame and array structure must be properly earthed,		



<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
	connected to an earth electrode via insulated stranded copper earth wire of minimum 10mm <sup>2</sup> and using the shortest practical direct route downwards that directs the cable away from sensitive electronic equipment and shall not enter the building. The maximum allowable earth resistance between array frame and earth electrode is 5 Ohms.		
2	Equipment Earthing: Equipment bonding shall be used to tie together casings of all equipment and enclosures, including all electronic equipment casings (MPPT controllers, inverters), battery rack, DC combiner boxes, AC combiner boxes, DC busbars and DC enclosures, with minimum 10 mm <sup>2</sup> earth cable, and connected via an insulated stranded copper earth wire of minimum 10 mm <sup>2</sup> connected to an earth electrode. The maximum allowable earth resistance between the metal parts of the devices and metal parts of the consumer earth terminal is 5 Ohms		
3	System Earthing: The AC neutral of Power Conditioning Unit/s must be properly earthed, connected to an earth electrode via insulated stranded copper earth wire of minimum 10 mm <sup>2</sup> . The maximum allowable earth resistance is 10 Ohms		
4	For PV frame & array structure earthing, equipment earthing and		

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
	<p>system earthing, plate earthing or rod earthing shall be preferred.</p> <p>For Rod Earthing, Copper Rod Size: 1 no. of each minimum 3 meters length x 25mm diameter Down Conductor Size: 25mm width x 3 mm thickness copper strip or as per the BoQ Backfill Compound: 2 nos. of each 25Kg</p>		
4	<p>The Lightning Protection System (LPS) must be able to minimize the damage to the surrounding environment and must comply with IEC 62305-3.</p> <p>Air Terminal Conductor: Stainless Steel Down Conductor Size: 25mm width x 3 mm or as per the BoQ thickness copper strip LPS height: Minimum 10 meters</p>		
5	<p>Earthing 1: Equipment earthing Earthing 2: PV array, structure &amp; DC SPDs Earthing 3: AC neutral earthing of PCU Earthing 4: LPS 1</p> <p>Earthing 1 and Earthing 2 can be done together. Please refer to the above schematic diagram.</p>		
6	<p>Separation between earthing system: Minimum 10 meters</p>		

## 10. Others

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
1	Appropriate labeling to the solar powered sockets, solar PV system components and its wirings.		
2	The Single Line Diagram (SLD) must be provided in Technical Bid. The As-built shall be furnished during the commissioning of the project.		
3	The SPD must be installed on both DC and AC side conforming to IEC 61643-11.		
4	The Switches/Circuit Breakers/Disconnectors/Fuses used must comply with IEC 60947 Part 1, 2 & 3: All parts		

### **11. MCB - Double Pole**

These circuit-breakers are intended for the protection against over-currents (overload and/or short-circuit) of wiring installations of the rural rooftop electricity users.

<b>S.N.</b>	<b>Specifications Required</b>	<b>Specifications Offered with Compliance</b>	<b>Reference Document (Specify Document)</b>
1	MCB used must comply with IEC 60898 or IEC 60947 with degree of protection of minimum IP20		

## **12. Human and Equipment Safety**

The following safety affairs are proposed.

- Safety Signage: High visibility warning signs such as electrical shock, acid burn, explosion etc., shall be placed at the recommended sections.
- Maintenance and safety equipment's shall be used while handling electrical work at the site such as eye glass, electrical safety gloves, acid spill kit etc.

## **13. Operation, Maintenance Manual and Training Program**

The bidder shall provide operation and maintenance manual and training to the system owners in English and Nepali language upon completion of the rooftop subproject.

The bidder shall prepare and provide operation and maintenance manual to system owners for review and approval not later than **two weeks** before the planned testing and commissioning date. The Operation and Maintenance Manual shall include information as minimum but not limited to followings:

- Basic System design and configuration
- Schedule for maintenance plan
- Schedule of corrective maintenance
- Contact details of Contractor and Component Supplier
- Troubleshooting instructions
- Safety and Safe Operation procedure
- DO's and Don'ts
- Emergency shutdown procedure