TURKANA COUNTY GOVERNMENT

MINISTRY OF TOURISM, CULTURE, ENVIRONMENT, CLIMATE CHANGE, NATURAL RESOURCE, ENERGY AND MINERAL RESOURCES,

DIRECTORATE OF ENERGY AND PETROLEUM

TENDER NO. TCG/EQF/040/2024-2025

PROPOSED SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF THE PROPOSED SOLAR PV SYSTEM FOR NARIOKOTOME GIRLS SECONDARY SCHOOL IN TURKANA COUNTY

ISSUE DATE: 6TH DEC 2024
OPEN/CLOSING DATE: 16TH DEC 2024

TENDER SPECIFICATIONS AND BILLS OF QUANTITIES

FOR

INSTALLATION WORKS

YOUTH

Prepared by:

DIRECTORATE OF ENERGY AND PETROLEUM,

MINISTRY OF TOURISM, CULTURE, ENVIRONMENT, CLIMATE CHANGE, NATURAL RESOURCE, ENERGY AND MINERAL RESOURCE,
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DEC 2024

Standard Bidding Document

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TENDER NO: ……
NEGOTIATION NUMBER: ……..

SECTION I INVITATION FOR TENDERS

SECTIONI: INVITATION TO TENDER

Date: JULY 2024

TENDER NAME:
PROPOSED SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF THE PROPOSED SOLAR PV SYSTEM FOR NARIOKOTOME GIRLS SECONDARY SCHOOL IN TURKANA COUNTY

TENDER REF: …….. NEGOTIATION NO. ……..

1.1 **The County Government of TURKANA (TCG) invites sealed bids from eligible candidates for the PROPOSED SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF THE PROPOSED SOLAR PV SYSTEM FOR NARIOKOTOME GIRLS SECONDARY SCHOOL IN TURKANA COUNTY**

1.2 **A complete set of tender documents may be downloaded free of charge from the County Government of TURKANA website at https://www.TURKANA.go.ke/category/tenders/ or from the Public Procurement Information Portal at https://tenders.go.ke Suppliers portal www.suppliers.treasury.go.ke. bidders who download the documents from the Public Procurement information Portal must forward their particulars immediately to www.suppliers.treasury.go.ke.**

1.3 **Prices quoted should be net, inclusive of all taxes, and delivery must be in Kenya Shillings and shall remain valid for 120 days from the closing date of the tender.**

1.4 **T e nders must be accompanied by a Tender security of . Dully filled & stamped Tender Securing Declaration**

1.4 **Bidders are advised that this tender will be done purely on online no manual submission will be accepted. (Only 1.4 of Instruction to tenderers will be submitted both online and hard copy)**

CHIEF OFFICER FINANCE
DEPARTMENT OF FINANCE
COUNTY GOVERNMENT OF
TURKANAP.O BOX 21538-40100
TURKANA

Section I - Instructions to Bidders

A. General

1. Scope of Bid

1.1 In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the County Government of TURKANA (TCG),
these Bidding Documents for the procurement of the Works as specified in Section VII, Works Requirements. The name, identification, and number of contracts of this bid are specified in the BDS.

1.2 Throughout this Bidding Document:

(a) the term "in writing" means communicated in written form and delivered against receipt;

(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and

(c) "day" means calendar day.

2. Contract scope

2.1 Contracted firms will design, construct and equip the Off-grid solar Power facility as specified by the County Government of TURKANA. The bidders shall provide a their proposed designs, including specifications of all necessary equipment, materials and design, manufacturing, and installation services for the installation of an Off-grid PV system. TCG will review the proposed project designs and equipment schedule to establish consistency with TCG requirements or as deemed suitable. The respondent shall prepare a system summary detailing, applicable equipment/size, and projected system energy production in kilowatt-hour (kWh). The project shall meet all requirements of statement of work and other specifications included that apply.

3. Corrupt and Fraudulent Practices

3.1 TCG requires compliance with guidelines in Public Procurement and Disposal Act.

4. Eligible Bidders 4.1 A Bidder may be a firm that is a private entity, or a government-owned entity or any combination of them in the form of a joint venture (JV), under an existing agreement, or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. Unless specified in the BDS, there is no limit on the number of members in a JV.

4.2 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:

(a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or

(b) receives or has received any direct or indirect subsidy from another Bidder; or

(c) has the same legal representative as another Bidder; or

(d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or

(e) participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or

(f) or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or

(g) or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract implementation;

(h) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any

affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm;

4.3 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.15. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.

4.4 Bidders that are Government-owned enterprises or institutions in the Employer's Country may participate only if they can establish that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Employer. To be eligible, a government-owned enterprise or institution shall establish to the TCG's satisfaction, through all relevant documents, including its Charter and other information the TCG may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.

4.5 A Bidder shall not be under suspension from bidding by the Employer as the result of the operation of a Bid–Securing Declaration.

4.6 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

5. Eligible Materials, Equipment and Services

5.1 The materials, equipment and services to be supplied under the Contract may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

B. Contents of Bidding Document

6. Sections of Bidding Document

6.1 The Bidding Document consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART 1 Bidding Procedures
- **Section I - Instructions to Bidders (ITB)**
- **Section II - Bid Data Sheet (BDS)**
- **Section III - Evaluation and Qualification Criteria**
- **Section IV - Bidding Forms**

PART 2 Works Requirements
- **Section VII - Works Requirements**

PART 3 Conditions of Contract and Contract Forms
- **Section VIII - General Conditions of Contract (GCC)**
- **Section IX - Particular Conditions of Contract (PCC)**
- **Section X - Contract Forms**

6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its bid all information and documentation as is required by the Bidding Documents.

7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

7.1 Respondents may obtain additional information as follows:

i. Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 15 days prior to the deadline for submission of tenders.

ii. The procuring entity shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender. A prospective tenderer requiring any clarification of the tender document may notify the County Government of TURKANA in writing via email on director.supplychain@TURKANA.go.ke .

7.2 The Bidder is advised to visit and examine the Sites of Work and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for execution of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 If so specified in the BDS, the Bidder's designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 The Bidder is requested, to submit any questions in writing, to reach the Employer not later than one week before the meeting.

7.6 Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Bidding

8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Documents by issuing

Document addenda.

8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITB 15.1.

8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2.

C. Preparation of Bids

Cost of Bidding 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case 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 exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11. Documents Comprising the Bid

11.1 The Bid shall comprise the following:

(a) Letter of Bid in accordance with ITB 12;

(b) Completed Schedules, in accordance with ITB 12 and 14: as specified in the BDS;

(c) Bid Security or Bid Securing Declaration, in accordance with ITB 19.1;

(d) Alternative bids, if permissible, in accordance with ITB 13;

(e) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;

(f) Documentary evidence in accordance with ITB 115 establishing the Bidder's qualifications to perform the contract if it's Bid is accepted;

(a) Technical Proposal in accordance with ITB 16; and

(b) Any other document required in the BDS.

11.2 In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

12. Letter of Bid and Schedules

12.1 The Letter of Bid and Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.2. All blank spaces shall be filled in with the information requested.

13. Alternative Bids

13.1 Unless otherwise specified in the BDS, alternative bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS, as will the method of evaluating different times for completion.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section VII. Works Requirements. The method for their evaluation will be stipulated in Section III. Evaluation and Qualification Criteria.

14. Bid Prices and

14.1 The prices and discounts (including any price reduction) quoted

Discounts

by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.

14.2 The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by providing separately financial proposal of all the items captured in the proposal.

14.3 The price to be quoted in the Letter of Bid, in accordance with ITB 12.1, shall be the total price of the bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.

14.5 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices[1] and the total bid price submitted by the Bidder.

16. Documents Comprising the Technical Design Proposal

16.1 The Bidder shall furnish a Proposal of Technical Design including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

17. Documents Establishing the Qualifications of the Bidder

17.1 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.

17.2 If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 33.1.

18. Period of Validity of Bids

18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer 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 19, it shall also be extended for twenty- eight (28) days beyond the deadline of the extended validity 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, except as provided in ITB 18.3.

19. Bid Security

19.1 The Bidder shall furnish as part of its bid, either a Bid-Securing Declaration or a bid security as specified in the BDS, in original form and, in the case of a bid security, in the amount and currency specified in the BDS.

19.2 A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms.

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the performance security pursuant to ITB 42.

20. Format and Signing of Bid

bids, if permitted in accordance with ITB 13, shall be clearly marked "COPY". In addition, the Bidder shall submit copies of the bid in the number specified in the BDS, and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.1 Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL". Alternative

20.2 The original and all copies 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. This authorization shall consist of a written confirmation as specified in the BDS and shall be

attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.

20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

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

D. Submission and Opening of Bids

21. Sealing and Marking of Bids

21.1 The Bidder shall ONLY submit HARDCOPY

Tenders must be accompanied by a Dully filled & stamped Tender Securing Declaration of the quoted

22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in

22. Deadline for Submission of Bids

16TH DEC 2024

accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Bids 23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and

(b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 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 Letter of Bid or any extension thereof.

25. Bid Opening 25.1 Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25.3 all bids received by the deadline, at the date, time and place specified in the BDS, in the presence of Bidders` designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as specified in the BDS.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. 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. Next, envelopes marked "SUBSTITUTION" shall be

opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution 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.

25.3 The tenders will be unsealed by the Employer, through the supplier's portal and no representatives will be required since those who have submitted their bids will be able to monitor the process. Due to Covid 19 pandemic the county government avoids overcrowding within its headquarters.

25.4 The Employer 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, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; and the presence or absence of a bid security, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

E. Evaluation and Comparison of Bids

26. Confidentiality 26.1 Information relating to the evaluation of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40.

26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.

26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.

27. Clarification of Bids

27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease 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 Employer in the evaluation of the bids, in accordance with ITB 31.

27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected.

28. Deviations, Reservations, and Omissions

28.1 During the evaluation of bids, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the Bidding Document;

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and

(c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.

29. Determination of Responsiveness

29.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

29.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the

Bidder's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VII (Works Requirements) have been met without any material deviation, reservation or omission.

29.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

30. Nonconformities, Errors, and Omissions

30.1 Provided that a bid is substantially responsive, the Employer may waive any nonconformities in the bid.

30.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities 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 a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price may be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods specified in Section III (Evaluation and Qualification Criteria).

31. Correction of Arithmetical Errors

31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) only for admeasurement 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 Employer 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;

(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.

31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid.

32. Conversion to Single Currency

32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified in the BDS.

33. Margin of Preference

33.1 Unless otherwise specified in the BDS, a margin of preference for domestic bidders[3] shall not apply.

34. Subcontractors

34.1 Unless otherwise stated in the BDS, the Employer does not intend to execute any specific elements of the Works by sub-contractors selected in advance by the Employer.

34.2 The Employer may permit subcontracting for certain specialized works as indicated in Section III. When subcontracting is permitted by the Employer, the specialized sub-contractor's experience shall be considered for evaluation. Section III describes the qualification criteria for sub-contractors.

34.3 Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified in the BDS.

35. Evaluation of Bids

35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

35.2 To evaluate a bid, the Employer shall consider the following:

(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities[4] for admeasurement contracts, but including Day work[5] items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;

offered in accordance with ITB 14.4;

(d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;

(e) price adjustment for nonconformities in accordance with ITB 30.3;

(f) the additional evaluation factors are specified in Section III (Evaluation and Qualification Criteria);

35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

35.4 If this Bidding Document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Bid, is specified in Section III. Evaluation and Qualification Criteria.

35.5 If the bid for an admeasurement contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced or, front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

36. Comparison of Bids

36.1 The Employer shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 35.2 to determine the lowest evaluated bid.

37. Qualification of the Bidder

37.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section III. Evaluation and Qualification Criteria.

37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted

(c) ce adju stm ent due to disc oun ts

by the Bidder, pursuant to ITB 115.1.

37.3 An affirmative determination of qualification 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 Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

38. Employer's Right to Accept Any Bid, and to Reject Any or All Bids

38.1 The Employer 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. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

39. Award Criteria 39.1 Subject to ITB 315.1, the Employer shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

40. Notification of Award 40.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, via the Letter of Acceptance included in the Contract Forms, that its bid has been accepted. At the same time, the Employer shall also notify all other Bidders of the results of the bidding as required by PPDA

40.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected.

41. Signing of Contract

41.1 After 14 days upon notification, the Employer shall send the successful Bidder the Contract Agreement as required by PPDA.

42. Performance Security

42.1 Within 30 days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 35.5, using for that purpose the Performance Security Form included in Section X. Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country.

42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

Section II - Bid Data Sheet (BDS)

A. Introduction

ITB 1.1	The number of the Invitation for Bids is: The Employer is: County Government of TURKANA
ITB 1.1	The name of the bidding process is: National Competitive Bidding NCB
ITB 2.1	Financier: Successful bidder
ITB 2.1	The name of the Project is: SOLAR POWER PROJECT
ITB 4.1	Maximum number of members in the JV shall be:
ITB 4.4	2 A list of debarred firms and individual's N/A

B. Bidding documents

ITB 15.1	For <u>clarification purposes</u> only, the Employer's address is: Chief Officer - Energy and Industrialization Department P.O. Box 21538-40100 TURKANA. Requests for clarification should be received by the Employer no later than: 15 Days before tender opening or director supply chain through director.supplychain@TURKANA.go.ke .
ITB 15.1	Web page: N/A
ITB 15.4	A Pre-Bid meeting "Shall take place upon Bidders request". A site visit conducted by the Employer. This will be conducted at Nariokotome Cultural Center in TURKANA County at the respondent's expense.

C. Preparation of Bids

ITB 10.1	The language of the bid is: English

ITB 11.1 (b)	**Not Applicable**
ITB 11.1 (h)	**The Bidder shall submit with its bid the following additional documents:** **The following documents must be attached.** **1. Certificate of Incorporation/ Business Name Certificate** **2. Trading Certificate** **3. Business Permits** **4. Certificate from relevant regulatory authority (where applicable)** **5. TAX PIN Certificate** **6. Tax Compliance certificate.** **7. Form CR 12 as issued by the Registrar of Companies (original) or certified as true copy** **8. Certified Audited Accounts (Last three years)**
ITB 13.1	**Alternative bids "shall not be" permitted.**
ITB 13.2	**Alternative times for completion "shall not be" permitted.**
ITB 13.4	**Not Applicable**
ITB 14.5	**The prices quoted by the Bidder "shall not be" subject to adjustment during the performance of the Contract.**
ITB 15.1	**The prices shall be quoted by the bidder in: Kenya Shillings**
ITB 18.1	**The bid validity period shall be: 180 days.**
ITB 18.3 (a)	**The bid price shall be adjusted by the following factor(s): Not Applicable**
ITB 19.1	**2% Bid Bond SHALL BE REQUIRED.** **A Bid-Securing Declaration "shall be" required.**
ITB 19.3 (d)	**Other types of acceptable securities:** **Not Applicable**

ITB 19.9	Not Applicable
ITB 20.1	In addition to the original of the bid, the number of copies is: One copy
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Any Director or person Given Power of Attorney by the Directors.

D. Submission and Opening of Bids

ITB 22.1	Bidders "shall not" have the option of submitting their bids electronically.
ITB 22.1	For <u>bid shall be submitted through physical/online as indicated in the invitation to tender</u> Date: 20th July 2024 Time 12:00 Noon Bidders shall not have the option of submitting their bids electronically.
ITB 25.1	The bid opening shall take place at: Date: 13th July 2024 Time 12:00 Noon

E. Evaluation and Comparison of Bids

ITB 32.1	Not applicable.
ITB 33.1	A margin of preference "shall not" apply.

F. Award of Contract

ITB 43.1	**The Adjudicator proposed by the Employer is: Institute of Arbitrators (Kenya Chapter).** **Appeal: Public Procurement Regulatory Authority (PPRA)** **The hourly fee for this proposed Adjudicator shall be: KShs 20,000.00**

Section III – Evaluation and Qualification Criteria

This section contains all the criteria that the Employer shall use to evaluate bids and qualify The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

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1. Evaluation

In addition to the criteria listed in ITB 34 and ITB 11.1 (h) the proposals will be reviewed by the TCG evaluation committee. The following qualitative merit criteria will be used to determine the technical value of the offer in meeting the objectives of the solution.

	Specifications	Requirements	Maximum Marks	Allocated Marks
1	Key Personnel	Supervisor MUST have the following; 1. At least have Bachelor's degree in Electrical and Electronic Engineering or any related field (10). 2. At least registered by EBK as the graduate Engineer and above (5). 3. At least supervised related projects for not less than 2 Years (5).	20	
		Technicians MUST have the following (Provide CV, Licenses for Proof of possession); 1. At least one technician has T3 Solar PV Technician License from EPRA (10). 2. At least one technician has C1 Electrician License from EPRA and has a proof working in Electrical related field as a technician for not less than Two years (10). 3. At least one Technician has an experience having installed, Tested and Commissioned solar PV Systems of 15kW and above for not less than Two Years (10).	30	
3	Contracts completed in the last five years	Number of related projects: attach one (1) LSO and one (1) completion certificate	5	
		Value of related projects: attach copy of lso and completion certificates each.	5	

		Solar pv projects: attach two(2) copies of LSO & two (2) copies of completion certificate	15	
4	Financial reports	Turnover (Equivalent to 100 % of Contract Sum).	10	
		Cash flow (Positive and Equivalent to % of Contract Sum).	5	
		Net Assets (Positive).	5	
5	Evidence of financial resources	Liquidity position (Cash and cash equivalents including lines of credit) Equivalent to 50% of Contract Sum.	5	
	TOTAL		100%	
The Contractor who scores 50% and above qualifies under this category				
Note. Qualified Supervisors must possess a relevant Degree/Diploma with at least 5-year experience in electromechanical field with at least 2 years being in solar pv works. (Signed CV's by the Supervisors and copies of Certificates MUST be submitted). Qualified Technicians must possess a relevant Diploma/Artisan with at least 3 years' experience in electromechanical works with at least 1 year being in solar pv installation works. (Signed CV's by the Technicians and copies of Certificates {Trade Test for Artisans} MUST be submitted). Only those bids having a score of 50% and above will be considered for further evaluation				

S/No.	Parameters	Maximum Allocate Marks	
1.	Past experience	10	
2.	Successful Solar Energy project management and implementation experience from at least three reputable clients	10	
3.	Qualifications and competence of the key staff for the assignment	10	
4.	Proposed terms of engagement	10	
5.	Proposed solution provided and technical component	30	
6.	Demonstration of succession plans	5	
15	Provision of the proposed work plan	10	
9.	Commitment to training and technological transfer to clients technical team	10	
10.	Corporate social responsibility programs	5	
	TOTAL	100	

2. Qualification

Factor	2.2 Historical Contract Non-Performance					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
			All partners combined	Each partner	At least one partner	
2.2.1 History of non-performing contracts	Non-performance of a contract did not occur within the last Five (5) years prior to the deadline for application submission, based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the bidder have been exhausted.	Must meet requirement by itself or as partner to past or existing JV	N / A	Must meet requirement by itself or as partner to past or existing JV	N / A	Form CON - 2
2.2.2 Pending Litigation	All pending litigation shall in total not represent more than Fifty (50%) percent of the Bidder's net worth and shall be treated as resolved against the Bidder.	Must meet requirement by itself or as partner to past or existing JV	N / A	Must meet requirement by itself or as partner to past or existing JV	N / A	Form CON – 2

Factor	2.3 Financial Situation					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
			All partners combined	Each partner	At least one partner	
2.3.1 Historical Financial Performance	Submission of audited balance sheets or if not required by the law of the bidder's country, other financial statements acceptable to the Employer, for the last Three [3] years to demonstrate the current soundness of the bidders financial position and its prospective long-term profitability.	Must meet requirement	N / A	Must meet requirement	N / A	Form FIN – 3.1 with attachments
~~2.3.2. Average~~ Annual Turnover	~~Minimum average annual~~ turnover of total value of the project, calculated as total certified payments received for contracts in progress or completed, within the last Five(5) years	Must meet requirement	Must meet requirement	Must meet ~~percent~~ (25%) of the requirement	Must meet ~~percent~~ (40%) of the requirement	Form FIN –3.2

Factor	2.3 Financial Situation					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
			All partners combined	Each partner	At least one partner	
2.3.3. Financial Resources	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: (i) the following cash-flow requirement: Kshs 5,000,000 and (ii) the overall cash flow requirements for this contract and its concurrent commitments.	Must meet requirement	Must meet requirement	~~Must meet~~ percent (25%) of the requirement	Must meet _____ percent (40%) of the requirement	Form FIN –3.3

Factor	2.4 Experience					
Sub-Factor	Requirement	Criteria				Documentation Required
		Bidder				
		Single Entity	Joint Venture, Consortium or Association			
			All partners combined	Each partner	At least one partner	
2.4.1 General Experience	Experience under contracts in the role of contractor, subcontractor, or management contractor for at least the last Five [5] years prior to the applications submission deadline, and with activity in at least nine (9) months in each year.	Must meet requirement	N / A	Must meet requirement	N / A	Form EXP-4.1
2.4.2 Specific Experience	(a)Participation as contractor, management contractor, or subcontractor, in at least one year (1) contracts within the last Five (5) years, each with a value of at least Kenya shillings Ten Million (5,000,000) that have been successfully and substantially completed and that are similar to the proposed Works. The similarity shall be based on the physical size, complexity, methods/technology or other characteristics as described in Section VI, Employer's Requirements.	Must meet requirement	Must meet requirements for all characteristics	N / A	Must meet requirement for one characteristic	Form EXP 2.4.2(a)

Factor	2.4 Experience					
Sub-Factor	Requirement	Criteria				Documentation Required
		Bidder				
		Single Entity	Joint Venture, Consortium or Association			
			All partners combined	Each partner	At least one partner	
2.4.2 Specific Experience	b) For the above or other contracts executed during the period stipulated in 2.4.2(a) above, a minimum experience in the following key activities: Building Construction and Civil Engineering Works	Must meet requirements	Must meet requirements	N / A	Must meet requirements	Form EXP-2.4.2(b)

2.5 Personnel

The Bidder must demonstrate that it will have the personnel for the key positions that meet the following requirements:

No.	Position	Total Work Similar Experience (years)	In Similar Works Experience (years)
1			
2			
3			
4			
5			

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

2.6 Equipment

The Bidder must demonstrate that it will have access to the key Contractor's equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Number required
1		
2		
3		
4		
5		

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV.

Section IV - Bidding Forms

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Letter of Bid

The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and address.

Note: All italicized text is for use in preparing this form and shall be deleted from thefinal products.

Date: [insert date (as day, month and year) of Bid Submission]
Invitation for Bid No.: [insert identification]

To: [insert complete name of Employer]

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8) ;

(b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;

(c) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer's country in accordance with ITB 4.6

(d) We offer to execute in conformity with the Bidding Documents the following Works: [insert a brief description of the Works];

(e) The total price of our Bid, excluding any discounts offered in item (f) below is:

In case of only one lot, total price of the Bid [insert the total price of the bid in words and figures, indicating the various amounts and the respective currencies];

In case of multiple lots, total price of each lot [insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies];

In case of multiple lots, total price of all lots (sum of all lots) [insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies];

(f) The discounts offered and the methodology for their application are:

(i) The discounts offered are: [Specify in detail each discount offered.]

(ii) The exact method of calculations to determine the net price after application of discounts is shown below: [Specify in detail the method that shall be used to apply the discounts];

(g) Our bid shall be valid for a period of [specify the number of calendar days] days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(h) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

(i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;

(j) We, including any of our subcontractors or suppliers for any part of the contract, have not been declared ineligible by the government, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;

(k) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;[6]

(l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: [insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]

Name of Recipient	Address	Reason	Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(If none has been paid or is to be paid, indicate "none.")

(m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

(n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

(o) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder* [insert complete name of person signing the Bid]

Name of the person duly authorized to sign the Bid on behalf of the Bidder [insert complete name of person duly authorized to sign the Bid]**

[6] **Bidder to use as appropriate**

Title of the person signing the Bid [insert complete title of the person signing the Bid]

Signature of the person named above [insert signature of person whose name and capacity are shown above]

Date signed _ [insert date of signing] day of [insert month], [insert year]
***: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder**

****: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.**

Form of Bid-Securing Declaration

Date: [insert date (as day, month and year)]
Bid No.: [insert number of bidding process]
Alternative No.: [insert identification No if this is a Bid for an alternative]

To: [insert complete name of Employer]

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding in any contract with the entity that invited Bids for the period of time of [insert number of months or years] starting on [insert date], if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or

(b) having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder* **[insert complete name of person signing the Bid]**

Name of the person duly authorized to sign the Bid on behalf of the Bidder [insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid [insert complete title of the person signing the Bid]

Signature of the person named above [insert signature of person whose name and capacity are shown above]

Date signed [insert date of signing] day of [insert month], [insert year]

***: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder**

****: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid [Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the bid.]**

Technical Proposal

Technical Proposal Forms

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Forms for Personnel

Form PER – 1: Proposed Personnel

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

1.	**Title of position**
	Name
2.	**Title of position**
	Name
3.	**Title of position**
	Name
4.	**Title of position**
	Name
5.	**Title of position**
	Name
6.	**Title of position**
	Name
etc.	**Title of position**
	Name

Form PER – 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below. Fields with asterisk (*) shall be used for evaluation.

Position*		
Personnel information	**Name ***	**Date of birth**
	Professional qualifications	
Present employment	**Name of Employer**	
	Address of Employer	
	Telephone	**Contact (manager / personnel officer)**
	Fax	**E-mail**
	Job title	**Years with present Employer**

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From*	To*	Company, Project , Position, and Relevant Technical and Management Experience*

Forms for 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 (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (*) shall be used for evaluation.

<table>
<tr><td colspan="3">Type of Equipment*</td></tr>
<tr><td rowspan="2">Equipment Information</td><td>Name of manufacturer,</td><td>Model and power rating</td></tr>
<tr><td>Capacity*</td><td>Year of manufacture*</td></tr>
<tr><td rowspan="2">Current Status</td><td colspan="2">Current location</td></tr>
<tr><td colspan="2">Details of current commitments</td></tr>
<tr><td>Source</td><td colspan="2">Indicate source of the equipment
☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured</td></tr>
</table>

The following information shall be provided only for equipment not owned by the Bidder.

<table>
<tr><td rowspan="4">Owner</td><td colspan="2">Name of owner</td></tr>
<tr><td colspan="2">Address of owner</td></tr>
<tr><td>Telephone</td><td>Contact name and title</td></tr>
<tr><td>Fax</td><td>Telex</td></tr>
<tr><td>Agreements</td><td colspan="2">Details of rental / lease / manufacture agreements specific to the project</td></tr>
</table>

Forms for Equipment

Bidder’s Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder

Form ELI -1.1: Bidder Information Form

Date:_____

Bidder's name
In case of Joint Venture (JV), name of each member: **Bidder's actual or intended country of registration:** **[indicate country of Constitution]**
Bidder's actual or intended year of incorporation:
Bidder's legal address [in country of registration]: **Bidder's authorized representative information** **Name:**_____ **Address** _____ **Telephone/Fax numbers:**_____ **E-mail address:**_____
1. Attached are copies of original documents of ☐ **Articles of Incorporation (or equivalent documents of constitution or association), and/or**

Form ELI -1.1: Bidder Information Form

documents of registration of the legal entity named above, in accordance with ITB 4.3.

In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.

- **In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing:**
  - **Legal and financial autonomy**
  - **Operation under commercial law**
  - **Establishing that the Bidder is not dependent agency of the Employer**

2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Form ELI -1.2: Information Form for JV Bidders

(to be completed for each member of Joint Venture)

Date: _ _ _ _ _ _ _ _
ICB No. and title: _ _ _ _ _ _ _ _ _ _ _ _
Page _ _ _ _ _ _ _ _ of _ _ _ _ _ _ _ _ _ _ pages

Bidder's Joint Venture name:
JV member's name: **JV member's country of registration:**
JV member's year of constitution:
JV member's legal address in country of constitution: **JV member's authorized representative information** **Name:** _____ **Address:** _____ **Telephone/Fax numbers:** _____ **E-mail address:** _____ **1. Attached are copies of original documents of** ☐ **Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3.** ☐ **In case of a government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5.**

2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Form ELI -1.2: Information Form for JV Bidders

Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
ICB No. and title: _____
Page _____ **of** _____ **pages**

Non-Performed Contracts in accordance with Section III, Evaluation Criteria and Qualifications

☐ **Contract non-performance did not occur since 1st January [insert year] specified in Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.1.**

☐ **Contract(s) not performed since 1st January [insert year] specified in Section III, Evaluation Criteria and Qualifications, requirement 2.1**

Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and KShs equivalent)
		Contract Identification: **Name of Employer:** **Address of Employer:** **Reason(s) for non-performance:**	

Pending Litigation, in accordance with Section III, Evaluation Criteria and Qualifications

☐ **No pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3.**

☐ **Pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3 as indicated below.**

Form CCC: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV 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.

Name of contract	Employer, contact address/tel/fax	Value of outstanding work (current KShs equivalent)	Estimated completion date	Average monthly invoicing over last six months (KShs month)
1.				
2.				
3.				
4.				
5.				
etc.				

Form CCC: Current Contract Commitments / Works in Progress

Form FIN – 3.1: Financial Situation and Performance

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
ICB No. and title: _____
Page _____ **of** _____ **pages**

1. Financial data

Type of Financial information in (currency)	Historic information for previous _____ years, _____ (amount in currency, currency, exchange rate, USD equivalent)				
	Year 1	**Year 2**	**Year 3**	**Year4**	**Year 5**
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

2. Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	Source of finance	Amount (US$ equivalent)
1		
2		
3		

2. Financial documents

The Bidder and its parties shall provide copies of financial statements for years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.2. The financial statements shall:

(a) reflect the financial situation of the Bidder or in case of JV member, and not an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

☐ **Attached are copies of financial statements[15] _____ years required above; and for the complying with the requirements**

[15] **If the most recent set of financial statements is for a period earlier than 12 months from the date of bid, the reason for this should be justified.**

Form FIN - 3.2: Average Annual Construction Turnover

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
ICB No. and title: _____
Page _____ **of** _____ **pages**

	Annual turnover data (construction only)		
Year	**Amount** **Currency**	**Exchange rate**	**USD equivalent**
[indicate year]	**[insert amount and indicate currency]**		
Average Annual Construction Turnover *			

***** **See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.**

Form FIN3.3: 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 specified in Section III (Evaluation and Qualification Criteria)

Source of financing Amount (Kshs equivalent) 1.	
2.	
3.	
4.	

Form EXP - 4.1: General Solar Development Experience

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
ICB No. and title: _____

Starting Year	Ending Year	Contract Identification	Role of Bidder
		Contract name: _____ **Brief Description of the Works performed by the Bidder:** _____ **Amount of contract:** _____ **Name of Employer:** _____ **Address:** _____	
		Contract name: _____ **Brief Description of the Works performed by the Bidder:** _____ **Amount of contract:** _____ **Name of Employer:** _____ **Address:** _____ **Contract name:** **Brief Description of the Works performed by the Bidder:** _____ **Amount of contract:** _____ **Name of Employer:** _____ **Address:**	

Form EXP - 4.2(a): Specific Solar Construction and Contract Management Experience

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
ICB No. and title: _____
Page _____ **of** _____ **pages**

Similar Contract No.	**Information**			
Contract Identification **Award date**				
Completion date				
Role in Contract	**Prime Contractor** ☐	**Member in JV** ☐	**Management Contractor** ☐	**Sub-contractor** ☐
Total Contract Amount			**US$ ***	
If member in a JV or sub-contractor, specify participation in total Contract amount			*	
Employer's Name: **Address:** **Telephone/fax number** **E-mail:**				

Form EXP - 4.2(a) (cont.)
Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III: **1. Amount**	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities **6. Other Characteristics**	

Form EXP - 4.2(b): Construction Experience in Key Activities

Bidder's Name: _____
Date: _____
Joint Venture Member's Name _____
Sub-contractor's Name[8] (as per ITB 34.2 and 34.3): _____

ICB No. and title: _____
Page _____ **of** _____ **pages**

Sub-contractor's Name (as per ITB 34.2 and 34.3): _____

All Sub-contractors for key activities must complete the information in this form as per ITB 34.2 and 34.3 and Section III, Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: _____

	Information			
Contract Identification				
Award date **Completion date**				
Role in Contract	**Prime Contractor** ☐	**Member in JV** ☐	**Management Contractor** ☐	**Sub-contractor** ☐
Total Contract Amount	**US$**			
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	**Total quantity in the contract (i)**		**Percentage participation (ii)**	**Actual Quantity Performed (i) x (ii)**
Year 1				
Year 2				
Year 3				
Year 4				
Employer's Name:				

[8] **If applicable.**

Address: **Telephone/fax number** **E-mail:**	

	Information
Employer's Name: **Address:** **Telephone/fax number** **E-mail:**	

2. Activity No. Two

3.……

	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:	

1. CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2(a), 2(b) or 2 (c) whichever applied to your type of business. You are advised that it is a serious offence to give false information on this form

Part 1 – General:

Business Name
……
Location of business premises……
Plot No…… Street/Road ……....
Postal Address …….. Tel No. …… Fax ……. E mail ……..
Nature of Business ……
Registration Certificate No……..
Maximum value of business which you can handle at any one time – shs……
Name of your bankers …….. Branch……

	Part 2 (a) – Sole Proprietor **Your name in full ……Age ……..** **Nationality …… Country of origin …….** **5.5.2 Citizenship details……**
	Part 2 (b) Partnership **Given details of partners as follows:** **Name Nationality Citizenship Details Shares** **1……..** **2……** **3……** **4……**
	Part 2 (c) – Registered Company **Private or Public ……** **State the nominal and issued capital of company-** **Nominal Kshs…… Issued Kshs……** **Given details of all directors as follows** **Name Nationality Citizenship Details Shares** **1……** **2. ……** **3……** **4. ……**
Date …… Signature of Candidate ……..	

If a Kenya C i t i z e n , i n d i c a t e under "Citizenship Details" w h e t h e r by Birth, Naturalization or registration.

SPECIFICATIONS: SOLAR POWER PROJECT (NARIOKOTOME GIRLS SECONDARY SCHOOL OFF GRID SOLAR SPECIFICATIONS)

PART I

Power Plant Specifications

1. GENERAL DESCRIPTION

County Government of TURKANA invites eligible bidders for the design, supply, installation, testing and commissioning of 1No. 15 kWp solar Off-grid plant in Nariokotome Girls Secondary School TURKANA County.

2. PROJECT LOCATION

The off-grid solar Photovoltaic (PV) Power Plant to be supplied and set to work under this contract shall have an power output of not less than 15 kW at the point of the Inverter Output. The plants shall be installed in Nariokotome Cultural Center in Turkana North Sub- County of TURKANA County.

Annex 1.

The document has tender for design, supply, testing and commissioning of a 1no. 15 kW solar PV-Off-grid generation plants complete with their solar modules, DC Combiner boxes, Fuses and Isolators, battery inverter charger (battery control unit), solar batteries for back-up, DC-AC solar inverter, intelligent controller/manager, mounting support, electrical controls, protection and instrumentation, a provision for diesel generator backup, Point of interconnection for AC Loads complete with all associated accessories and civil works.

3. SYSTEM DESCRIPTION

The off-grid solar PV power plant shall be configured as, 3-phase AC-Coupled system typology where significant portion of daytime loads can be fed directly from the solar generator without intermediate battery storage usage.

The Off-grid solar PV power plant shall consist of the following main components:

- **PV modules with PV solar inverters**
- **Battery Bank with Deep-cycle lead-acid batteries or lithium-ion batteries as options Multimode Battery inverter charged with battery management & frequency ramping capability Real-time Energy Monitoring System AC Load switch board**

The tenders are for Design, Supply and Commissioning of an off-grid solar PV generation plant complete with its solar modules, PV solar inverter, valve regulated lead acid batteries or lithium ion with battery rack, battery inverter/charger, and provisions for generator with automatic startup function, mounting structure of modules, electrical controls, protection and instrumentation complete with all associated accessories and civil works. The plant shall be installed at the Nariokotome center.

NOTE:

The design of the solar PV off-grid system shall be based on a centralized photovoltaic plant connected to a 3-phase 415V AC bus line, where the multi-mode battery inverter - charger is also connected.

The configuration shall follow an AC-coupling configuration, where the multi-mode battery inverter operates as voltage source to utilize the loads. With the recommended option of AC coupled photovoltaic, the solar PV inverter act as current source that will be compatible with the 50 Hz frequency of the multimode battery inverter.

The solar PV power plant shall have provisions for alternative input for AC Grid main or Diesel Generator source, which shall be used normally as reserve power in future. The battery bank shall be charged by solar power during the day. Its capacity shall be determined with C_{10} capacity rate.

3.1 Description of Electrical Components and Requirements

3.1.1 PV Generator

The Photovoltaic Generator shall consist of Silicon Crystalline Photovoltaic modules of capacity at STC of 250Wp or above. The PV modules have to comply with the standard norms IEC 61215 and IEC 611530. An aluminum frame is applied around each module to protect the module from any damage during transport, installation and operation.

The junction box behind the module with their positive and negative terminals has to be equipped with bypass diodes and shall be at least with IP 65 protection and UV resistant.

The DC cable used with the PV generator must be able to withstand thermal and mechanical loads. The insulation and jacket material has to be extremely resistant to weathering, UV-radiation, and abrasion. The cables must further resist temperature up to 60°C. In general the wiring on the DC side is required to be double insulated and with UV stable cables. It is recommended to use cable that is flexible suitable for fixed installation as well as for thermal movement of modules.

3.1.2 PV Solar Inverter, AC-Coupling System Typology

The PV Solar inverter shall convert the DC direct current from the solar generator into alternating AC current. The alternating current is generated by the battery inverter, and shuts down automatically when the battery inverter is not supplying electricity. The installation housing shall be in line with the equipment manufacture recommendation. The device has to be protected for harsh conditions with high ambient temperatures and dust. The PV inverter has to comply with the international norm IEC 6115215 and has to be all electrical protections on DC and AC side.

3.1.3 MPPT Charge Controller, DC-Coupling

The main function of a charge controller shall be to protect the battery by regulating the energy generation and consumption. The MPPT should limit the voltage of the battery at charge and discharge mode. The MPPT choice should incorporate the following main features: charge control are to avoid over charging/discharging, disconnect of load due to low voltage or SOC, and display charging and discharging current, battery voltage and State of Charge (SOC). Charge controllers must be sized to the battery voltage, the maximum output current of the PV. The MPPT charge controller shall be preferred for higher efficiency and to avoid mismatching of solar modules.

The charge controller has to comply with safety of power converters for use in photovoltaic power systems. Part 1: General requirements IEC 62109-1.

The design of the system is AC-Coupled technology hence aforementioned charge controller which DC-coupled is for technology information purpose and not to be part of the design.

3.1.4 Battery Inverter Charger

The battery inverter charger has to be a bidirectional sinusoidal inverter. The core function of the battery inverter charger is to control the instantaneous power consumed from the PV source according to the battery voltage. The following should be inbuilt into the inverter charger and shall be capable of performing the following functions:

- **Determine when the load exceeds power available from the PV plant and stored energy**
- **Control the PV solar inverters over frequency shift**
- **Synchronization on the diesel generator grid**
- **Signal for the diesel generator to start-up automatically**
- **Signal for the diesel generator to shut off when battery is full charged or dependent from Battery State of Charge.**
- **Grid computability.**

In addition it shall have the following capabilities:

- **Real time monitoring of state of charge, battery current, battery temperature, frequency and voltage, energy in/out value**
- **Storage of data for future reviews**
- **Battery management**
- **Generator management**
- **Load management**

The DC input voltage for the battery inverter shall be 48 V. Higher DC-voltage for the battery inverter can be proposed if a cost competitive and reliable solution is available and meet the requirements stated above.

The battery inverter charger shall be from a manufacturer of international reputation and shall have a proven record of control and monitoring of solar PV inverter systems. The equipment has to support upgrades and enhancements without the need for modification or replacement.

The Contractor shall provide evidence of the manufacturer's compliance to this requirement and shall also provide evidence that the manufacturer is able to support the equipment for a period of at least five years. The support shall include the ability to provide spares for the equipment supplied and to provide engineering support and software services for any extensions and expansions required.

3.1.5 Battery Storage

The battery storage shall be a type for deep discharge operation, lead acid or lithium ion. The battery cycle life for discharge/charge regular cycles down to 80% DOD shall be more than 2000 cycles (according to IEC 896-1).

The design lifespan of the batteries shall be of at least 8 years. The battery has to follow the C_{10} capacity rates according to DIN 43539-9.

A lead acid "valve regulated" OPzV type is maintenance free regarding water refilling. The valve regulated type has to be designed to DIN 401542.

Not more than 4 battery strings in parallel for increasing the battery capacity are recommended for lead acid battery types, less than 4 battery strings in parallel are advised to avoid unbalancing. Lead acid batteries must be periodically be fully recharged to prevent sulfatation.

New battery technologies with performance and economic advantages could be an opportunity in case they meet the requirements for performance and battery cycle life. A dedicated battery management system (BMS) for these technologies has to protect cells and battery banks from over charge and over discharge and, from overheating during charge and discharge.

The battery storage and electrical connection shall be installed indoors in a containerized unit, or equivalent installation as per the equipment manufacturer's recommendation. Accordingly, the bidder shall summit with the bid document a detailed design of the proposed housing structure.

The battery storage and electrical connection shall be closely installed to the battery inverter. In case of vented battery type has to be installed in a separate battery room. The room has to be prepared with a special battery tray to protect the environment and humans for any electrolyte spill. A sufficient air ventilation scheme during gassing process has to be secured. All electrical equipment in the battery room has to be certified through a certificate for use in hydrogen atmosphere. The battery cables shall follow the higher temperature rating higher than 20 °C above ambient temperature. All further accessories like battery fuses, cables, connectors have to be rated for DC use.

3.1.6 Data Monitoring

In order to achieve a high performance of the solar PV offgrid power plant, the incorporation of automatic data acquisition and monitoring technology shall be essential. This allows that the yield of the PV plant can be monitored easily and compared with calculations made from solar irradiation data to raise warnings on a daily basis in case of a shortfall. Important information on for example: State of Charge of the battery storage and other relevant energy and power value from the system including time stamps of diesel generator operation can be detected and rectified before they have an appreciable effect on the system performance.

A data monitoring system shall be installed to meet the requirements above and has to give the opportunity to receive the system data via GSM and to allow remote access to the off- grid solar PV power system. The electrical power supply of the data monitoring system shall be from DC power of the battery. Corresponding electrical adaption of the monitoring to the DC power supply level shall be installed.

4. EQUIPMENT & HOUSING

4.1.1 Power Box/Container unit

The Multi-Mode Batteries, Battery Inverter, solar PV Inverter, data monitoring equipment, and all monitoring equipment shall be installed and contained indoors with suitable air ventilation according to the equipment manufacturer's recommendations. All electrical boards and LV protections will also be installed and contained indoors. The battery storage shall be installed indoors with provisions for air cooling/ventilation according to the equipment manufacturer's recommendations. All recommendation and regulations for installing the selected batteries shall be taken into account.

The Power House shall also be equipped with safety and protective elements required for operations, maintenance and emergencies. This will include fire extinguisher, bicarbonate base for neutralizing acid spills, protective goggles and clothing, etc.
Forced air ventilation shall be installed in the Power Box / Container Unit.
PV Array shall be installed to form a canopy roof over the Container Unit to reduce heating within the Power house from direct sunlight.

The tenderer shall submit alongside the bid document, a detailed design of the Power Equipment Housing Unit which will house all the equipment and present it for approval. The structure shall be delivered to site and placed on reinforced concrete blocks/stilts by the tenderer. The Structure shall be further placed under PV array Canopy made of steel or aluminum hollow sections to protect against that direct sunshine. The installation shall be completed in a manner that allows adequate space between the shed and Containing Unit to allow air circulation. The place has to be appropriate and protected from lightning. Location has to be chosen that no heavy rain or seasonal flooding can enter the structure. Foundation above ground has to be minimum 2 steps, each 14 cm.

Thermal insulation inside the structure is advised. Proper wall mounting support for Inverter and AC distributions is advised. Pre-installed Inverter and other equipment is not recommendable. Preinstalled

equipment will lead to loss of manufacturer warranty as damage may occur due to transport (shaking).

Pre-installed battery is not possible due to safety regulations.

The PV solar inverters shall be installed under the solar panels mounting with a small shed above to reduce risk of rain/water ingress in the inverter but with adequate room for air circulation to reduce temperature build-up. The solar inverters shall have protection of at least IP54

4.2 Electrical Installation

4.2.1. Street Lighting Points

Distributed – pole mounted street lighting points shall be installed at the container or power house and along the 430 Meter nature trail surrounding Nariokotome Center. The Street lighting points shall from part of the AC loads powered from the off-grid inverter(s) contained in the power box.

The following criteria shall be followed when selecting and installing distributed street lighting along the road leading to Nariokotome Cultural Center.

1. **Lighting Scheme:- Single Sided**
2. **Span:- 30 –to - 35M**
3. **Mounting Height:- 8M (8M Round Column, 0.6 M Outreach arm @ 5°, 1000mm root)**
4. **Luminaries:- LED, (minimum 50W rate output)**
5. **Luminaries Colour Temperature:- Daylight 4000K±500K or Cool white 51500K±500K**
6. **Lighting (Illumination) Levels :- 15,000 lm**
7. **Luminous Efficacy:- 92 – 100 Lm/W**
8. **Useful Life:- At Least 50,000 Light hours**
9. **Supply Rating:- AC single phase and neutral supply at 240 volts, 50 Hz.**
10. **Cable:- PVC/SWA/PVC**
11. **Wiring Installation:- Loop-in and loop-out through Lucy cut-out mounted in pole windows**
12. **Voltage Drop:- 4% permissible**
13. **Earthing: At Every 4^{Th} Street lighting column (<0.5Ω)**

4.2.1 Electrical Protection

The off-grid solar PV system shall contain all necessary electrical protection to ensure the safety of persons and goods. At the LV distribution boards, thermomagnetic circuit breakers with C trip curve shall be included meeting IEC 609415-2 requirements. It shall also be included differential residual current circuit breaker for the person protection (RCD).

It is also important to implement a lighting protection system, ensuring the coverage of the whole PV plant, and Power House, Container. Installation & Commissioning to be completed by approved / certified / licensed electrical Works Contractor.

4.3 Balance of System

The Balance of System (BOS) encompasses all components of a solar PV off-grid power plant that Includes: wiring, switches, a mounting system, and one or many inverter battery bank and charge controller.

BOS refers to all components of a PV system other than the modules. In addition to inverters and racking, this includes the cables/wires, switches, enclosures, fuses, ground fault detectors, and more.

4.4 Module Mounting Structure

The solar power plant including the solar modules shall be installed in the parcel land/space provided by County Government of TURKANA. The modules shall be fixed at the proposed design height that shall be reviewed approved by the client's engineers. The tilt angle for the PV array rack shall have a tilt angle is not more than 15^{o} from the horizontal, to allow for self-cleaning of the PV panels.

The PV Modules should rest on aluminum frames or standard hot dipped galvanized steel of not less than 60mm x 40mm using stainless steel bolts. The frames shall rest on aluminum fixtures or racks that are firmly anchored to the ground with a layer of ballast aggregate of 16mm size laid on the ground 50mm thick below the solar PV array Canopy. The number of rows in each solar PV array shall be no more than three (3), or as per the proposed design, which shall be subject to TCG's engineers' approval.

Setting of the angle of inclination and orientation of the modules shall be computed and done on site by the tenderer so as to give maximum power radiation at midday. The modules must be of proven design and the tenderer must indicate countries where they are manufacture. The module-mounting frame has to be earth grounded.

4.5 General Rating

The solar PV off-grid power plant has to be capable of producing the maximum output under the Continuous ambient temperatures, altitude and relative humidity given below:

Temperature: **Max. 45 degrees Celsius**
Min. 18 degrees Celsius
Average 30 degrees Celsius

Relative humidity: **90–100%**

5. MAIN TECHNICAL SPECIFICATION OF NARIOKOTOME SOLAR PV OFF-GRID POWERPLANT

Table 1 summarizes the required main technical specification of the solar PV off-grid power plant.

Pos 1	**General Specification**	
1.1	Name of project site	Nariokotome Culture Center solar mini grid
1.2	Coordinates	- 0.11158 ^{o} S, 34.5406 ^{o} E
1.3	Site altitude	~1300m ASL
1.4	Daily load demand	~28 kWh/day
1.5	Annual yearly demand rising for the next 5 years	Est. 3 %
1.6	Renewable Energy fraction	90 %
Pos 2	**Solar PV Generator**	
2.1	Solar PV Generator Capacity (Minimum)	15 kWp
2.2	Module type	Silicon Crystalline
2.3	Module nominal power @ STC	>250 W
2.4	Solar inverter type	String inverter
Pos 3	**Battery Inverter/Charger**	
3.1	Inverter type	Multimode Bidirectional Inverter
3.2	AC output $P_{30\ min}$ @25 °	15.5 kW
3.3	Wave form type	Sinusoidal
3.4	Minimum Efficiency	94 %
3.5	Power output	Low voltage 3-phase
Pos 4	**Battery Storage**	
4.1	Battery type	Valve regulated lead acid or Lithium-Ion type
4.2	Battery Voltage	48VDC
4.3	Battery Capacity rate C_{10}	1500Ah
4.4	Battery cycles	2000 at 80% DOD
4.5	Bank Autonomy	1 Days
Pos 5	**Data Monitoring system**	
5.1	Energy and power values from solar PV power plant	1No.
5.2	Data from battery management	1No.
5.3	GPRS/ GSM Modem for remote assess	1No.

Table 1: Required technical specification of the Off-grid solar PV power system

6. DOCUMENTATION

All work steps will be documented in detail throughout the construction phase. The documentation will include as build plans, datasheets, technical specifications, and installation and operation manuals for each component of the installed system.

6.1 Operation & Maintenance Manuals

One (1) original and two (2) copy sets (hard and soft copies) of comprehensive operating and Maintenance manuals bound in hard covers shall be supplied prior to handing over the plant to the employer. The manuals shall detail out the operating regimes and critical settings and tolerance to be maintained during inspection of the plant. The O&M manuals will be provided after completion of the installation.

6.2 Drawings

The tenderer shall submit together with the tender document, drawings and parts identification lists for every item of the plant together with a full list of all contractor's addresses, telephone numbers, emails, etc. The drawings shall contain exploded views and line diagrams of the main assemblies comprising the plant together with a means of identifying each component including its part number, reference and description as per the manufacturer's specification.

The tenderer shall submit with original and two copies of his tender general arrangement drawings and typical details of the essential items of the plant offered which will be used in during the erection period.

All drawings shall be submitted folded to A4 size with the drawings box visible on the outside. After commissioning the plant, two sets of as built drawings will be handed over to the Employer, which shall include but not limited to:

a) **General arrangement drawings, assembly drawings, pipe work layouts, terminal point details, foundation and erection drawings.**
b) **Single line logic diagrams for all control systems and main electrical systems**
c) **Wiring and pipe work diagrams, interconnection diagrams and schematic diagrams for equipment modules and systems.**

After award of the tender, discussions will be held with the employer on the drawings submitted with the tender that will lead to final approval of the drawings by the employer. Before the final approval, the drawings shall be modified as necessary if requested by the employer.

The taking over certificate will NOT be issued until the built drawings, O&M manuals and catalogues have been submitted and accepted by the employer.

7. SITE PREPARATION

The tenderer or through their assigned sub-contractor has to prepare the site. The services will include all deliverables as mentioned below.

The site preparation will include:

Trenching for underground cables, preparation of ways and pipes for wiring are not part of site preparation. The installation contractor has to prepare and use a container as a power-house in respect with the individual components manufacturer installation notices if container solution is required.

The tenderer will execute the following work in regards to the site set-up:

i. **Clearing of scrubs and leveling of grounds**
ii. **The preparation of an adequate space and concrete stilts where the container shall be placed**
iii. **Erection of containerized unit to house the batteries, inverters and battery and energy monitoring systems (BMS and EMS)**
iv. **Installation of a steel mounting structure and aluminum frames on which the panels will be mounted.**

Storm water drainage works as may be necessary based on the topography of site as deemed fit by tenderer. The tenderer is to note that the steel mounting structure will be prepared according to the dimensions of the quoted solar panels. The steel structure will be including the aluminum frames, which shall be supplied by contractor.

8. INSTALLATION PHASE

The installation phase will include the following steps depending on the solar PV off-grid power plant design and specification:

1. **Mounting of modules on pre-installed mounting structures**
2. **Installation of PV solar inverters and cabling with the AC distribution**
3. **Installation of battery inverter charger and cabling with the battery and AC distribution**
4. **Installation of battery bank and cabling with the system**
5. **Cabling of solar array, array to powerhouse / container**
6. **Installation of auxiliaries and remote monitoring devices**
7. **Labeling of the completed system**
8. **System DC and AC wiring**
9. **Further necessary installation work**

9. COMMISSIONING TEST

Complete commissioning of the power plant, function tests, and trial service of the power plant. All installations and equipment will be inspected and their functionality will be tested. All components, electrical works and civil works will be visually checked for compliance with the technical specification, Guidelines/Manuals of delivered equipment, build plans, state of the art engineering works.

Commissioning tests will be carried out to demonstrate that the solar PV off-grid power plant is operated according to the technical specifications and under all available operating conditions. The contractor will sign a final acceptance certificate.

The tenderer shall submit with the bid document a schedule of commissioning test to be contacted during testing and commissioning and the expected output values where applicable

10. OPERATOR TRAINING

The technical commissioning of the solar plant will include training on the operation of the power plant components. The training will include the maintenance of the batteries, the remote monitoring and operation of the Generator both on manual and automatic mode. It will be verified that the operating personnel are adequately trained.

11. INFORMATION FOR INSTALLER COMPANIES

The contractor is obliged to adhere to the Energy (Solar Photovoltaic Systems) Regulations from 2012, which state "A person shall not import, distribute, promote, sell or install any solar PV system unless he is licensed by the Commission as a vendor.

12. SYSTEM LAYOUT

The solar PV off-grid power plant shall consist of following main equipment's/components following the design specifications of the contractor.

- **Solar module array**
- **Mounting structure and civil foundation**
- **PV-Grid feeding inverters for AC coupling**
- **Battery inverter charger**
- **Battery bank**
- **Battery mounting rack**
- **DC and AC-Cabling**
- **Control panel with changeover, disconnectors and safety**
- **Earthing and lightening protections.**
- **Data monitoring system**
- **Housing of equipment**

a) Schematic Diagram

The design of the solar PV offgrid power plant has to follow AC coupled architecture for 3 -phase operation. The system has to be modular expandable for future development. The installer has to provide the schematic drawings for approval by the employer before installation.

Part II

14. DETAILED TECHNICAL SPECIFICATION AND REQUIREMENTS

The proposed project under this tender for setting the solar PV off-grid power plant shall broadly follow technical specifications given below.

These specifications describe the requirements for the equipment. Tenderers are requested to submit with their offers the detailed specifications, drawings and catalogues, for the products they intend to supply. The details in the provided catalogues SHALL be used in the tender evaluation for specification compliance.

Tenderers must indicate on the specifications sheets whether the equipment offered comply with each specified requirement and where that information can be found in the catalogues.

All the dimensions and capacities of the equipment to be supplied SHALL not be less than those required in these specifications.

NOTE: The Tenderer shall indicate in the technical specification of each component brand name, model and country of origin. Comparative specification should indicate any derivations from technical parameter, design, or functional description of tender specification. If there is no derivation to the left side, please state, "YES".

14.1 Documentation and Instructions (Required during installation and commissioning)

For each product offered the following documentation has to be included:

No.	PRODUCTS DOCUMENTATION AND SPECIFICATION	Tender´s details/response. Cooperative specification Enter value or YES as appropriate
1	Product description and data sheets, manufacture description, and operation manual	
2	Installation instructions	
3	Connection plans, single line diagram	
4	Commissioning instructions, manual for start and stop operation, commissioning protocol	
5	Operating instructions, do´s and don´ts	
6	Maintenance instructions, maintenance interval, maintenance effort, necessary staff	
15	Error sources, error diagnosis and troubleshooting instructions	

14.2 Solar Photovoltaic Modules

1.	SPECIFICATION OF PV MODULES		Tender´s details/ response. Cooperative specification Enter value or YES as appropriate	Evidence from support document: Name of document and page no.
1.1	Name of Manufacturer, Brand Name, Model, Type		YES	
1.2	Cell type	crystalline		
1.3	Solar cells encapsulated in EVA (ethylene-vinyl acetate); anti-reflection coating; module on the front side protected by tempered, highly translucent glass.			
1.4	Glass-foil laminated in anodized aluminum-frame			
1.5	Weather resistant Junction box with 3 Bypass-diodes on the backside of the modules with protection class min. IP 54			
1.6	Wiring of the modules with pin-and-socket connector according to EN 50521			
1.15	Quantity of cells			
1.8	Temperature coefficient Pmpp:	<=-0.43%/K		
1.9	Temperature coefficient Voc:	<=-0.33%/K		
1.10	Temperature coefficient Isc:	<=0.051%/K		
1.11	Operating temperature range:	up to 85 °C		
1.12	Module efficiency	at IEC-conditions > 18.0%		
1.13	Positive power sorting			
1.14	10 years product warranty			
1.15	25 years linear performance guarantee (90% up to 10 years and 80% up to 25 years)			
1.16	CE- conformity, DVE GS, TUV quality certified for product			
1.115	Horizontal and vertical assembly possible			
1.18	High Mechanical load (acc. IEC 61215 (5400Pa superimposed load and 2400Pa suction load))			
1.19	Pre-cabled with MC4 Plug –connectors (IP 65)			
1.20	Nominal power at IEC-Conditions (radiation 1000W/m2, Air-Mass 1.5 25°C)			
1.21	Product certification	IEC 61215 (Ed.2)		
1.22	Protection class	II/ IEC 611530		
1.23	Salt mist corrosion test	IEC 611501 ed. 2.0		
1.24	Nominal operating cell	415 °C +-2 °C		
1.25	Documentation: English	Please indicate:		
1.26		Current at maximum power point (A)		
1.215		Voltage at maximum power point (V)		
1.28		Tolerance		
1.29		Cell dimension (length x width) in mm		
1.30		Module dimension (length x width x height) in mm		
1.31		Module weight in kg		

14.3 PV Offgrid Inverter

2.	SPECIFICATION FOR GRID TIED INVERTER		Tender´s details/response. Cooperative specification Enter value or YES as	Evidence from support document: Name of document and page no.
2.1	Name of manufacturer, Brand name, Model, Type			
2.2	Type of Inverter			
2.3	Quantity of Inverter			
2.4	Display	Integrated		
2.5	Integrated protection functions	Thermally monitored Varistors		
2.6	Ground fault detection	yes		
	Single Inverter specification			
2.15	Max. DC power at cos =1	<50000Wp		
2.8	Max. input voltage	1000 V		
2.9	MPP voltage range	245V-900V		
2.10	Rated power at 240 V/415V, 50 Hz	kW		
2.11	Max. AC apparent power	< 50000 W		
2.12	Max. output current (A)			
2.13	AC nominal voltage (V)			
2.14	AC grid frequency	50 Hz		
2.15	Programmable range of AC frequency	45,5 - 54,5Hz		
2.16		55,5 – 64,5 Hz		
2.115	Programmable range of AC-Voltage	180-280 V		
2.18	Max. Efficiency	>95 %		
2.19	Euro. Efficiency	>94 %		
2.20	Operating temperature range	-25 … + 60C		
2.21	Degree of protection	>IP30		

2.	SPECIFICATION FOR OFF GRID INVERTER		Tender´s details/response. Cooperative specification Enter value or YES as appropriate	Evidence from support document: Name of document and page no.
2.22	Communication	RS 485		
2.23	Anti-Islanding protection	yes		
2.24	Grid monitoring guard to assure high grid stability	yes		
2.25	DC solar switch	yes		
2.26	Integrated DC surge protection class II	IEC 61643-11		
2.215	Salt mist test	EN 60068-2-52		
2.28	Warranty	5 years		
2.29	Warranty option	10 years		
2.30	Documentation	English		

3.	SPECIFICATION FOR BATTERY INVERTER CHARGER		Tender´s details/response. Cooperative specification Enter value or YES as appropriate	Evidence support from of document: Nam and document page no.
3.1	Name of manufacturer, Brand name, Model, Type			
3.2	Type of Inverter	Bidirectional operation		
3.3	Quantity of inverter	Pcs		
3.4	Total AC output power for P_{30} (output power for 30 minutes)	kW P_{30}		
	Single Inverters parameters			
3.5	Nominal output voltage (range)	240 V (202 V-253 V)		
3.6	Nominal frequency	50 Hz		
3.15	Nominal frequency range	45-65 Hz		
3.8	Nominal AC power output at 25°C (8kw minimum)			
3.9	AC power output for 30 min/1 min/ 5 se c			
3.10	Max. AC current output	120 A (for 60 ms)		
3.11	Total harmonic distortion	<3 %		
3.12	Power factor (cos f)			
3.13	Sinus modulation	Pure sine wave		
3.14	Max. efficiency	>94 %		
3.15	Efficiency at 5% -120% Pnom	>90 %		
3.16	Self- power consumption	<30 W (< 4W)		
3.115	with no load (stand by)			
	Generator input voltage parameters			
3.18	Nominal generator input voltage (range)	240 V (152.5 -250V)		
3.19	Nominal generator input frequency (range)	50 Hz (40 Hz- 150 Hz)		
	Integrated transfer switch	yes		

3.	SPECIFICATION FOR BATTERY INVERTER CHARGER		Tender´s details/response. Cooperative specification Enter value or YES as appropriate	Evidence support from of document: Nam and document page no.
3.20	Minimum generator input current	30 A		
3.21	Nominal battery voltage (range)			
3.22	Continuous charging current			
3.23	Maximum charging current			
3.24	Serviceable battery capacity	100 Ah – 10000 Ah		
3.25	Serviceable battery types	FLA, VRLA, Lithium		
3.26	Protection class	>IP20		
3.215	Housing material	Metal/Aluminum die casting		
3.28	Cooling principle	Temperature controlled active cooling		
3.29	Ambient working temperate range	-25°C…+55°C		
3.30	Systems configuration options	Master/Slave principle		

3.31		1-phase operation		
3.	Table 3 Cont. SPECIFICATION FOR BATTERY INVERTER CHARGER		Tender´s details/response. Cooperative specification Enter value or YES as appropriate	Evidence support from of document: Nam and document page no.
3.32		Extendable to 3-phase with additional devices		
3.33		AC and DC coupling		
3.34		Modular extendable		
3.35	Battery management	Determination of SOC		
3.36		Automatic deep discharge protection		
3.315		Automatic overcharge protection		
3.38		IU_0U charging concept with automatic full and equalization and charge		
3.39	Generator management	Adjustable warming time, cooling time and minimum run time		
3.40		Monitoring of voltage and frequency		
3.41		Reverse power protection		
3.42		Generator power support		
3.43	Inverter protection features	Anti-islanding protection		
3.44		Short-circuit protection		
3.45		Over temperature protection		
3.46		Over load protection		
3.415	Monitoring features	Visual operation indicators by LED/ Display		
3.48		Remote access and monitoring via external data logger and /or GSM connection		
3.49	Certification/conformity	CE EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 610003-2, 62040-2, IEC 62103		
3.50	Warranty		5 years	
3.51	Optional warranty	10 years		
3.52	Documentation	English		

14.4 Battery Storage

4.	SPECIFICATION FOR THE BATTERY STORAGE		Tender´s detai s/response. Cooperative specification Ente value or YES as appr opriate	Evidence from support document: Name of document and page no.
	Type of battery	Stationary Valve regulated lead acid battery		
4.1	Name of manufacturer, Brand name,	Model, Type		
4.2	State of charge	Pre-charged		
4.3	DC-Voltage	V/cell		
4.4	DC-Voltage battery bank	V		
4.5	Qty of cells			
4.6	Capacity	at C_{10} capacity rate 1,8 V/cell		
4.15	Designed according	DIN 401536 part 1		
4.8	Certification	IEC 60896-21/22, IEC 614215		
4.9	Self-discharge per month at 20° degrees	< 3%		
4.10	Cycles at 80% DoD (according to IEC 896-1)	> 2000		
4.11	Max. DOD in operation	<80%		
4.12	Fully isolated connectors			
4.13	At least 8 years			
	Type of battery	Lithium – system		
4.14	Name of manufacturer, Brand name,	Model, Type		
4.15	Type of technology			
4.16	State of charge	Pre-charged		
4.115	DC-Voltage	V/cell		
4.18	DC-Voltage battery bank	V		
4.19	Qty of cells			
4.20	Capacity	At C_{10} capacity rate		
4.21	Designed according	DIN 401536		
4.22	Certification	IEC 60896-21/22, IEC 614215		
4.23	Self-discharge per month at 20° degrees	< 3%		
4.24	Cycles at 80% DoD(according to IEC 896-1)	> 2500		
4.25	Max. DOD in operation	>80%		
4.26	At least 20 years without losing capacity	more than 20% of the rated C_{10}		
4.215	Battery management system (BMS)	Cell balancing		
4.28		Protection overcharge, over discharge each cell		
4.29		Protection over and under temperature		
4.30		Isolation of battery if any of above occur		
4.31		Alert if there is a failure		
4.31		Communication with Battery inverter		

14.5 Data Monitoring

6.	SPECIFICATION OF MONITORING SYSTEM		Tender´s details/response. Comparative specification Enter value or YES as appropriate	Evidence from support document: Name of document er and page no.
6.1	Name of manufacturer, Brand name, Model, Type			
6.2	Data logging and transmission of PV inverter data or charge controller	All inverter production data to be continuously transmitted via internet		
6.3		Programmable data resolution min: on from 1 min - 60		
6.4		DC current, DC voltage		
6.5		DC power, DC energy		
6.6		AC current, AC voltage		
6.15		AC power, AC energy		
6.8		Ambient temperature (°C)		
6.9		Solar radiation (W/m2)		
6.10	Option	Transmission of inverter data via GSM or equivalent		
6.11	One radiation sensor (precision >90%) for global horizontal irradiance for the PV technology. Installed in shadow free position with access for regular cleaning.			
6.12	One sensor corresponding with the monitoring system including to measure ambient temperature			
6.13	Option: Three phase meters to be installed to measure power delivered to the loads			

14.6 Balance of System (Required during installation)

8.	SPECIFICATION OF BALANCE OF SYSTEM (BOS)		Tender´s details/response Comparative specification Enter value or YES as
	The following material/Equipment will adhere to the prescribed standards		appropriate
15.1	Outdoor cabinets/ combiner boxes	UV and water resistant material, min IP 54	
15.2	Cabinets/enclosures (where applicable shall contain)	MCB	
15.3		MCCB	
15.4		SPDs, class II IEC 61643-11	
15.5		Operating temperature up to 80 C	
15.6		Non-metallic fiberglass enclosures with clear polycarbonate covers	
15.15	Electricity meter	Bidirectional, 3 phase class 0,5	
15.8	AC cabling- Inverter distribution to connection point	IEC 60364	
15.9		KS 04-192: 1988	
15.10		KS 04 -194: 1990	
15.11		KS 04 -1815/188	
15.12		KS 04 -290: 19815	
15.13	Lightning protection	IEC 62305	
15.14	Miscellaneous accessories (if applicable) Conduit outlets and junction boxes	KS 04-1159: 1983	

14.7 For Dc Cabling And Connectors

8.	SPECIFICATION FOR DC CABLING AND CONNECTORS The following material/Equipment will adhere to the prescribed standards		Tender´s details/response. Comparative specification. Enter value or YES as appropriate
8.1	Fine copper for PV string connection to inverter		
8.2	Outdoor use TUV approval Nr.	TUV PfG 1169/08.20015	
8.3	Ozone resistant	EN 50396	
8.4	Flame retardant	IEC/EN 60332-1-2	
8.5	UV resistant	HD 605/A1	
8.6	Halogen free	EN 502615-2-1, EN 60684-2	
8.15	Acid + Alkaline resistant	IEC /EN 60811-2-1	
8.8	Low corrosively of gases	EN 502615-2-2	
8.9	Weather resistant	HD 605/A1	
8.10	DC wiring losses	Total DC wiring losses max. 1,5%	
8.11	DC connectors	EN 50521	
8.12		Crimped according to manufacturer instructions using only certified tools	

14.8 Installation

9.	INSTALLATION	Tender´s details/response. Comparative specification. Enter value or YES as appropriate
9.1	Complete installation of all components and the complete system (see PART 1 (General Information, system description and scope of delivery). Price to be mentioned as lump sum. Excluding material (9.2 to 9.18).	
9.2	The installation of the solar PV Off-grid power plant on the site is in the scope of the contract. The tenderers are notified that they will need a V2 license for Solar PV, They will need as per the regulations a C1 license for design and installation and minimum of a T3 certified solar technician in the team to perform the solar installation licenses obtained from the Energy & Petroleum Regulatory Authority.	
9.3	AC breaker	
9.4	DC overvoltage protection	
9.5	PV Cabling, 6mm² black	
9.6	PV Clamping, MC4	
9.15	PV Grounding Cable, 4mm² black	
9.8	Grounding Rods, Steel	
9.9	Cable trays, 150mm x 3m	
9.10	Lightning Arrestors	
9.11.	AC Cabling, 50m, 6mm²	
9.12	Power Meter	
9.13	Energy Meter	
9.14	CT's for power measurement	
9.15	Power Measurement & Auxiliaries Cabinet	
9.16	3G Router	
9.115	Small parts (clamps, screws, smaller cables, etc.)	
9.18	PV Framing	

14.9 Commissioning and training

11.	COMMISSIONING AND TRAINING ON SITE	Tender´s details/response. Comparative specification. Enter value or YES as appropriate
11.1	The following shall be carried out during commissioning Complete commissioning and trial operation of the system. Please indicate.	
11.2	Training on the operation of the power plant components, maintenance and monitoring of the system. General information, system description and scope of delivery. Please indicate	

15. Performance Guarantees

12.	PERFORMANCE GUARANTEES	Tender´s details/response. Comparative specification. Enter value or YES as appropriate	
12.1	Upon commissioning of the solar PV off-grid power plant and 1 month of operation the final acceptance of the Offgrid solar PV system will be confirmed after. During this one month the contractor should fix all installation problems that arise.		
12.2	After final acceptance, a 12 month defect liability period (DLP) shall commence.		

PART III. BILLS OF QUANTITIES

The Bill of Quantities shall form part of the Contract Documents and is to be read in conjunction with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications and Drawings.

The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.

The Quantities set forth in the Bill of Quantities are estimated and provisional, representing substantially the work to be carried out, and are given to provide a common basis for tendering and comparing of Tenders. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfillment of his obligation under the Contract.

The prices and rates inserted in the Bills of Quantities will be used for valuing work executed, and the Engineer will measure the whole of the works executed in accordance with this Contract. A price or rate shall be entered in ink against every item in the Bill of Quantities with the exception of items, which already have provisional sums, affixed thereto. The Tenderers are reminded that no "nil" or "included" rates or "lump-sum" discounts will be accepted. The rates for various items should include discounts if any. Tenderers who fail to comply will be disqualified.

Provisional sums (including day works) in the Bill of Quantities shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-clause 52.4 and Clause 58 of part of the Conditions of Contract.

The price and rates entered in the Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance, testing, materials, erection, maintenance or works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.

The Employer for any arithmetic errors in computation or summation will correct errors as follows: Where there is a discrepancy between amount in words and figures, the amount in words will govern; and Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.

PROPOSED SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR PV SYSTEM AT NARIOKOTOME GIRLS SECONDARY SCHOOL

SCHEDULE 1: ELECTRICAL LIGHTING

Item No	Description	Unit	Qty	Rate	Amount (Kshs.)
	Supply, install, test and commission to BS 7671:2001 Standard the following as described below:				
1.00	**LIGHTING INSTALLATIONS**				
1.01	**Lighting outlet point comprising wiring in 3x1.5mm sq. single core PVC insulated copper cables drawn in 20 mm diameter heavy gauge PVC conduits concealed in floors and walls and complete with all the necessary accessories**				
	i) One way switched	**No**	**40**		
	ii) Two way switched	**No**	**10**		
	iii) Outdoor Lighting points	**No**	**10**		
1.02	**10A, 500V metal clad switches flush mounted on walls as CRABTREE or approved equivalent.**				
	i) One gang one way, Cat. No. 4070	**No.**	**16**		
	ii) One gang two-way, Cat. No. 4170	**No.**	**8**		
	iii) Two gang two-way, Cat. No. 4172	**No.**	**2**		
1.03	**The following lighting fixtures to be complete with the LED drivers and complete fitting as per description and symbols:**				
	i) 1x80W max280 T5 LFL IP65 fluorescent light with diffuser as philips or approved equivalent	**No.**	**50**		
	ii) 100W LED Flood lights As Philips or an approved equivalent	**No.**	**12**		
	Total Amount Carried Forward to Summary				

SCHEDULE 2: SMALL POWER

Item No	Description	Unit	Qty	Rate	Amount (Kshs.)
	SMALL POWER INSTALLATION **Supply, install, test and commission as per BS 7671:2001 the following as described below:**				
1.01	13A ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in 25 mm diameter heavy gauge PVC conduits concealed in floors and walls and complete with all the necessary accessories	No	40		
1.02	13A twin switched white moulded case socket outlet plates as CRABTREE, Cat. No. 4306 or approved equivalent (Clean power)	No	20		
1.03	30A Battery Fuse and Carrier, Wall Mounted	No.	2		
1.04	200A Inverter Fuse and Carrier, Wall Mounted	No.	2		
1.05	Isolator Switch 100A	No.	2		
1.06	Provide a mini-trunking of the appropriate sizes as approved by the Engineer.	No.	20		
1.07	Loop in boxes and accessories	No.	2		
	Sub-total carried forward to Summary				

SCHEDULE 3: SOLAR ACCESSORIES INSTALLATION					
Item No	**Description**	**Unit**	**Qty**		**Amount (KShs.)**
	Supply, install, test and commission as per Solar Standards and Regulations of Kenya the following as described below for Rooftop Solar Pv System:				
1.00	**575Watts solar panels as Jinko or approved equivalent by the Engineer.**	**No**	**24**		
1.10	**7.5kVA Jinko Off-grid Inverter Charger with capability of acting as both inverter and charger controller or its approved equivalent as directed by the Engineer.**	**No**	**2**		
1.11	**Welded, galvanized solar mounting structure installed at an angle of 15 degrees at the rooftop following the axis of the sun for maximum insolation.**	**Item**	**2**		
1.19	**MC4 Connectors**	**Pairs**	**48**		
1.20	**Submains comprising 6 mm sq DC cables laid in 50mm diameter Heavy duty conduit from Solar PV Modules to the Batteries and other accessories complete with cable lugs, glands, ties and all the necessary accessories.**	**LM**	**200**		
1.23	**50mmφ for solar power link duct from solar panels combiner box to the charge controller**	**LM**	**120**		
	Total Amount for Solar Installation Carried Forward to Price Summary Page				

SCHEDULE 4: BALANCE OF SYSTEM

Item No	Description	Unit	Qty	Rate	Amount (KShs.)
	Supply, install, test and commission as per BS 7671:2001 the following as described below:				
1.15	**Submains comprising 4core 16 mm sq XLPE/SWA/PVC Armoured copper cable laid in 100mm diameter Heavy duty conduit from PV Inverter to the AC Combiner Box complete with cable lugs, glands, ties and all the necessary accessories to be used for connecting other premises.**	**LM**	**325**		
1.17	**AC Distribution Box together with protective devices.**	**No.**	**2**		
1.18	**Automatic changer over switch complete with manual by pass switch, including cabling and outgoing MCCB's for the existing generator set and KPLC.**	**No.**	**1**		
	Total Amount Carried Forward to Price Summary Page				

SCHEDULE 5: STORAGE SYSTEM

Item No	Description	Unit	Qty	Rate	Amount (KShs.)
	Supply, install, test and commission as per BS 7671:2001 the following as described below:				
1.15	**48V 14.4kWh Lithium Ion Battery as Victron with Battery Management System or approved equivalent as directed by the engineer.**	No.	1		
1.15	**Battery Rack designed with an aeration to allow for cooling of the batteries.**	Item	2		
1.17	**Battery Connectors**	No.	4		
	Total Amount Carried Forward to Price Summary Page				

SCHEDULE 6: EARTHING

Item No	Description	Unit	Qty	Rate	Amount (KShs.)
	Supply, install, test and commission as per BS 7671:2001 the following as described below:				
1.00	Earth inspection concrete chamber 300mm x 300mm x 300mm with an air tight inspection cover to approval	No.	2		
1800mm	15mm nominal diameter by 1.10 threaded copper bond earth rod as Cat. No. RC 020,	No.	1		
1.11	Driving stud for the item 2.11 above	No.	1		
1.12	Earth electrode rod-to-cable clamps item 2.11 above	No.	2		
1.13	6.0mm^{2}SC/PVC/SWA/PVC earth copper cable c/w appropriate cable lugs	LM	20		
	Total Amount Carried Forward to Price Summary Page				

PC AND PROVISIONAL SUM

Item No	Description	Unit	Qty	Rate	Amount (Kshs.)
1.10	Allow a provisional sum of One Hundred and Fourty Thousand Shillings only (KShs. 200,000) for Project Supervision	Item	1		
1.11	Allow a provisional sum of One Hundred and Fourty Thousand Shillings only (KShs. 200,000) For The County Equalisation Fund Steering Committee	Item	1		
1.12	Allow a provisional sum of Two Hundred Thousand Shillings only (KShs. 200,000) for Transportation of materials.	Item	1		
1.13	Allow a provisional sum of Fifty Thousand Shillings (KShs. 50,000) for Contigency	Item	1		
1.14	Allow a provisional sum of Fifty Thousand Only (KShs.50,000) for the Branding on the system showing Turkana County Government as the sponsor of the project	Item	1		
1.15	Allow a provisional sum of One Hundred Thousand Only (KShs. 100,000) for the erection of Steel sign post at the gate showing Turkana County Government as the sponsor of the project	Item	1		
	Total Amount Carried Forward to Price Summary Page				

PRICE SUMMARY PAGE

Item No.	Description	Total Amount (KShs.)
1.0	Electrical Lighting	
2.0	Small Power Distribution	
3.0	Solar Accessories	
4.0	Balance of System	
5.0	Storage System	
6.0	Earthing System	
7.00	PC AND PROVISIONAL SUM	
GRAND SUMMARY		

Amount in words: Kenya Shillings ……
……..
Tenderer's Signature ……..
Address …….
…….
Date ……..
Witness Signature ……..
Address …….
…….

Date ……..

CERTIFICATE OF BIDDER'S VISIT TO SITE

This is to certify that

[Name/s]……
……

……
……

Being the authorized representative/Agent of [Name of bidder]

……
……

……
……

participated in the organized inspection visit of the site of the works for the

held on……..day of……20……..

Signed……
……..
(Employer's Representative)

…… (Name of Employer's Representative)

NOTE: This part is to be completed at the time of the organized site visit.