



REPUBLIC OF THE PHILIPPINES
NATIONAL POWER CORPORATION
(Pambansang Korporasyon sa Elektrisidad)

BID DOCUMENTS

Name of Project : SUPPLY AND DELIVERY OF 1,111 UNITS OF PORTABLE PHOTOVOLTAIC SOLAR HOME SYSTEM FOR VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO

Project Location: VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO

Specification No.: LMP22Z1557Ss

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Design and Development Department



SECTION I

INVITATION TO BID





National Power Corporation

INVITATION TO BID

PUBLIC BIDDING – BCS 2024-0448

- The NATIONAL POWER CORPORATION (NPC), through its approved Corporate Budget of CY 2024 intends to apply the sum of **(Please see schedule below)** being the Approved Budget for the Contract (ABC) to payments under the contract. Bids received in excess of the ABC shall be automatically rejected at Bid opening.

PR Nos./PB Ref No. & Description	Similar Contracts	Pre-bid Conference	Bid Submission / Opening	ABC/ Amt. of Bid Docs
HO-TTE24-003 / PB240716-RA00329 Supply and Delivery of 1,111 Units of Portable Photovoltaic Solar Home System for Various Watershed Areas in Luzon and Mindanao	Supply and Delivery of a Photovoltaic Solar Home System	04 July 2024 9:30 A.M.	16 July 2024 9:30 A.M.	₱ 21,694,400.00 / ₱ 25,000.00
Venue: Kañao Function Room, NPC Bldg. Diliman, Quezon City				

- The NPC now invites bids for Items listed above. Delivery of the Goods is required (**see table below**) specified in the Technical Specifications. Bidders should have completed, within (**see table below**) from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. (Instruction to Bidders).

PR No/s. / PB Ref No/s.	Delivery Period / Contract Duration	Relevant Period of SLCC reckoned from the date of submission & receipt of bids
HO-TTE24-003	One Hundred Twenty (120) Calendar Days	Ten (10) Years

- Bidding will be conducted through open competitive bidding procedures using a non-discretionary "pass/fail" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA 5183.

- Prospective Bidders may obtain further information from National Power Corporation, Bids and Contracts Services Division and inspect the Bidding Documents at the address given below during office hours (8:00AM to 5:00PM), Monday to Friday.
- A complete set of Bidding Documents may be acquired by interested Bidders from the given address and website(s) and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB. Bidding fee may be refunded in accordance with the guidelines based on the grounds provided under Section 41 of R.A. 9184 and its Revised IRR.
- The National Power Corporation will hold Pre-Bid Conference (**see table above**) and/or through video conferencing or webcasting which shall be open to prospective bidders. Only registered bidder/s shall be allowed to participate in the conduct of virtual pre-bid conference. **Unregistered bidders** may attend the Pre-Bid Conference at the Kañao Room, NPC subject to the following:

- a. Only a maximum of two (2) representatives from each bidder / company shall be allowed to participate during the virtual pre-bid conference.
 - b. Wearing of Face Masks is recommended but not required in view of Proclamation No. 297 S.2023 lifting the State of Public Health Emergency Throughout the Philippines
 - c. The requirements herein stated including the medium of submission shall be subject to GPPB Resolution No. 09-2020 dated 07 May 2020
 - d. The Guidelines on the Implementation of Early Procurement Activities (EPA) shall be subject to GPPB Circular No. 06-2019 dated 17 July 2019
7. Bids must be duly received by the BAC Secretariat through (i) manual submission at the office address indicated below; (ii) online or electronic submission before the specified time stated in the table above for opening of bids. Late bids shall not be accepted.
8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.
9. Bid opening shall be in the Kafiao Function Room, NPC Head Office, Diliman, Quezon City and/or via online platform to be announced by NPC. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The National Power Corporation reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of R.A. No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

**Bids and Contracts Services Division,
Logistics Department**
Gabriel Y. Itchon Building
Senator Miriam P. Defensor-Santiago Ave. (formerly BIR Road)
Cor. Quezon Ave., Diliman, Quezon City, 1100
Tel Nos.: Tel Nos.: 8921-3541 local 5564/5713
Email: bcسد@napocor.gov.ph /

12. You may visit the following websites:

For downloading of Bidding Documents: <https://www.napocor.gov.ph/bcsd/bids.php>



ATTY. MELCHOR P. RIDULME
Sr. Vice President & COO and
Chairman, Bids and Awards Committee

SECTION II

INSTRUCTION TO BIDDERS

SECTION II – INSTRUCTIONS TO BIDDERS**TABLE OF CONTENTS**

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SECTION II – INSTRUCTIONS TO BIDDERS

1. Scope of Bid

The **National Power Corporation (NPC or NAPOCOR)** wishes to receive Bids for the **SUPPLY AND DELIVERY OF 1,111 UNITS OF PORTABLE PHOTOVOLTAIC SOLAR HOME SYSTEM FOR VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO**, with identification number **LMP22Z1557Ss**.

The Procurement Project (referred to herein as "Project") is composed of one (1) lot and will be awarded to one (1) Bidder in one complete contract, the details of which are described in Section VI (Technical Specifications).

2. Funding Information

- 2.1. The GOP through the source of funding as indicated below for CY 2024 in the amount specified in the Invitation to Bid.
- 2.2. The source of funding is the Corporate Operating Budget of the National Power Corporation.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

- 5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

- 5.2. Foreign ownership exceeding those allowed under the rules may participate when citizens, corporations, or associations of a country, included in the list issued by the GPPB, the laws or regulations of which grant reciprocal rights or privileges to citizens, corporations, or associations of the Philippines.

The foreign bidder claiming eligibility by reason of their country's extension of reciprocal rights to Filipinos shall submit a certification from the relevant government office of their country stating that Filipinos are allowed to participate in their government procurement activities for the same item/product. The said certification shall be validated during the post-qualification of bidders.

- 5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to at least fifty percent (50%) of the ABC.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed twenty percent (20%) of the contracted Goods.

- 7.2. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.
- 7.3. Subcontracting of any portion of the Project does not relieve the Supplier of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Supplier's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address and/or through videoconferencing/webcasting as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in Section VIII (NPCSF-GOODS-01 - Checklist of Technical and Financial Documents).
- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within Ten (10) Years prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.4. The Statement of the bidder's Single Largest Completed Contract (SLCC) (NPCSF-GOODS-03) and List of all Ongoing Government & Private Contracts Including Contracts Awarded but not yet Started (NPCSF-GOODS-02) shall comply with the documentary requirements specified in the **BDS**.

11. Documents comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in Section VIII (NPCSF-GOODS-01 - Checklist of Technical and Financial Documents).
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - a. For Goods offered from within the Procuring Entity's country:

- i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
 - ii. The cost of all customs duties and sales and other taxes already paid or payable;
 - iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
 - iv. The price of other (incidental) services, if any, listed in the **BDS**.
- b. For Goods offered from abroad:
- i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
 - ii. The price of other (incidental) services, if any, as listed in the **BDS**.

13. Bid and Payment Currencies

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in Philippine Pesos.

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**

14.2. The Bid and bid security shall be valid for **One Hundred Twenty (120) calendar** days from the date of opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each Bidder shall submit Two (2) copies of the first and second components of its Bid, marked **Original** and photocopy. Only the original copy will be read and considered for the bid.

Any misplaced document outside of the **Original** copy will not be considered. The photocopy is ONLY FOR REFERENCE.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

Bidders must also comply with the Disclaimer and Data Privacy Notice specified in the **BDS**.

16. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

17. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 14 shall be submitted for each lot or item separately.

19.3. The descriptions of the lots or items shall be indicated in **Section VI (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the

2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.

- 19.4. The Project shall be awarded to one (1) Bidder in one complete contract.
- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

20. Post-Qualification

- 20.1. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

SECTION III

BID DATA SHEETS

SECTION III - BID DATA SHEET

ITB Clause	
5.3	<p>For this purpose, similar contracts shall refer to Supply and Delivery of a Photovoltaic Solar Home system.</p> <p>The Single Largest Completed Contract (SLCC) as declared by the bidder shall be verified and validated to ascertain such completed contract. Hence, bidders must ensure access to sites of such projects/equipment to NPC representatives for verification and validation purposes during post-qualification process.</p> <p>It shall be a ground for disqualification, if verification and validation cannot be conducted for reasons attributable to the Bidder.</p>
7.1	<p>Subcontracting may be allowed on transport, local/non-skilled labor under the supervision of the Bidder. The Bidder shall not be relieved from any liability or obligation that may arise from the performance of the Subcontractor.</p>
10.1	<p>The prospective bidder shall submit a valid and updated Certificate of PhilGEPs Registration under Platinum Membership (all pages including the Annex A of the said Certificate). Non-compliance shall be a ground for disqualification.</p>
10.4	<p>The list of on-going contracts (Form No. NPCSF-GOODS-02) shall be supported by the following documents for each on-going contract to be submitted during Post-Qualification:</p> <ol style="list-style-type: none"> 1. Contract/Purchase Order and/or Notice of Award 2. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date <p>The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.</p> <p>The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (Form No. NPCSF-GOODS-03) shall be supported by the following documents to be submitted during Bid Opening:</p> <ol style="list-style-type: none"> 1. Contract/Purchase Order <p>Any single bidder/s who already procured/secured the bidding documents but want to avail the Joint Venture Agreement (JVA) shall inform the BAC in writing prior to the bid opening for records and documentation purposes.</p>

SECTION III – BID DATA SHEET

10.5	<p>Bidders shall also submit the following requirements in their first envelope, Eligibility and Technical Component of their bid:</p> <ol style="list-style-type: none"> 1. Drawings and documents to be submitted with the Bid as specified in Clause GW-11.2 of Section VI - Technical Specifications (GW-General Works) 2. Complete eligibility documents of the proposed sub-contractor, if any
12	<p>The price of the Goods shall be quoted DDP Project Site or the applicable International Commercial Terms (INCOTERMS) for this Project.</p>
14.1	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <ol style="list-style-type: none"> a) The amount of not less two percent (2%) of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b) The amount of not less than five percent (5%) of ABC, if bid security is in Surety Bond.
15.0	<p>All bid submissions and related correspondences are confidential and for viewing only by the intended recipient/s. Any unauthorized access to review, reproduce, or disseminate the information contained therein is strictly prohibited. The National Power Corporation (NAPOCOR) does not guarantee the security of any information electronically transmitted.</p> <p>Bid submissions and related correspondences may contain personal and sensitive personal information, and are subject to the Data Privacy Act of 2012, its implementing rules, regulations and issuances of the National Privacy Commission of the Philippines ("Privacy Laws"). By viewing, using, storing, sharing and disposing (collectively "Processing"), such bids submissions and correspondences, you agree to comply with the Privacy Laws. By responding to correspondence, you consent to the Processing by NAPOCOR of the Personal Data contained in your submission/reply in accordance with NAPOCOR's Personal Data Privacy Policy which you can find at http://www.napocor.gov.ph.</p> <p>To report any privacy issue, contact the Data Privacy Officer at dpo@napocor.gov.ph.</p> <p>NAPOCOR is not liable for the proper and complete transmission of the information contained in bid submission/correspondences nor for any delay in its receipt.</p>
19.3	<p>The Goods are grouped together in one (1) lot and will be awarded to one (1) Bidder in one complete contract.</p> <p>Partial bid is not allowed. The Goods are grouped in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.</p> <p>The Bidders bid offer must be within the ABC of the lot.</p>

SECTION III – BID DATA SHEET

	Bid offers that exceed the ABC of the lot or with incomplete price, shall be rejected.
19.5	If the Bidder opted to submit a Committed Line of Credit (CLC), the bidder must submit a granted credit line valid/effective at the date of bidding.
20.1	<p>Additional documents to be submitted during Post-Qualification:</p> <ol style="list-style-type: none"> a. Class A – Eligibility Documents listed on the Annex A of Certificate of PhilGEPs Registration under Platinum Membership pursuant to Section 34.3 of the Revised IRR of R.A. 9184 b. Contract/Purchase Order and/or Notice of Award for the contracts stated in the List of all Ongoing Government & Private Contracts Including Contracts Awarded but not yet Started (NPCSF-GOODS-02); c. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date for all ongoing contracts stated in Form NPCSF-GOODS-02; d. Contract/Purchase Order for the contract stated in the Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (Form No. NPCSF-GOODS-03) e. Documents to be submitted during post-qualification process as specified in Section VI – Part II (Technical Data Sheets – Electrical Works, EW) <p>Manufacturer's brochures, manuals and other supporting documents of equipment, materials, hardware and tools proposed by the bidders must comply with the technical specifications of such equipment, materials, hardware and tools. It shall be a ground for disqualification if the submitted brochures, manuals and other supporting documents are determined not complying with the specifications during technical evaluation and post-qualification process.</p> <p>Equipment, materials, hardware and tools proposed by the winning bidder to be supplied, which were evaluated to be complying with the technical specifications, shall not be replaced and must be the same items to be delivered/installed/used during the contract implementation. Any proposed changes/replacement of said items may be allowed on meritorious reasons subject to validation and prior approval by NPC.</p>
20.2	The licenses and permits relevant to the Project and the corresponding law requiring it as specified in the Technical Specifications, if any.
21.2	Notice to Proceed.

SECTION IV

GENERAL CONDITIONS OF THE CONTRACT



SECTION IV – GENERAL CONDITIONS OF CONTRACT

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SECTION IV – GENERAL CONDITIONS OF CONTRACT

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC)**.

2. Advance Payment and Terms of Payment

- 2.1. Advance payment of the contract amount is provided under Annex “D” of the revised 2016 IRR of RA No. 9184.
- 2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. Performance Security

- 3.1. Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.
- 3.2. The performance bond to be posted by the Contractor must also comply with additional requirements specified in the **SCC**.

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section VI (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

5.1 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall correct/repair or replace the defective Goods or parts thereof within the period specified in the **SCC**, without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

SECTION V

SPECIAL CONDITIONS OF THE CONTRACT



SECTION V – SPECIAL CONDITIONS OF CONTRACT

GCC Clause	
1	<p>Delivery and Documents –</p> <p>The delivery terms applicable to the Contract is DDP delivered to the project site specified in the technical specifications, in accordance with INCOTERMS. Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination.</p> <p>Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI – Technical Specifications. The details of shipping and/or other documents to be furnished by the Supplier are as follows:</p> <p><i>For Goods supplied from within the Philippines</i></p> <p>Upon delivery of the Goods to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents to the Procuring Entity:</p> <ul style="list-style-type: none"> (i) Original and four copies of the Supplier’s invoice showing Goods’ description, quantity, unit price, and total amount; (ii) Original and four copies of Supplier’s factory test/inspection report; (iii) Original and four copies of the certificate of origin (for imported Goods); (iv) Delivery receipt detailing number and description of items received signed by the Procuring Entity’s representative at the Project Site; (v) Certificate of Completion/Inspection Report signed by the Procuring Entity’s representative at the Project Site; (vi) Original and four copies of the Inspection Receiving Report signed by the Procuring Entity’s representative at the Project Site; (vii) Original and four copies of the Manufacturer’s and/or Supplier’s warranty certificate; and (viii) Documents specified in the Technical Specifications, if any. <p><i>For Goods supplied from abroad:</i></p> <p>Upon shipment, the Supplier shall notify the Procuring Entity and the insurance company by e-mail the full details of the shipment, including Contract Number, description of the Goods, quantity, vessel, bill of lading number and date, port of loading, date of shipment, port of discharge etc. Upon delivery to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents as applicable with the documentary requirements of any letter of credit issued taking precedence:</p>



	<p>f. Additional requirements specified in Section VI – Technical Specifications, if any.</p> <p>The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.</p> <p>Spare Parts –</p> <p>The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:</p> <ol style="list-style-type: none"> 1. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and 2. in the event of termination of production of the spare parts: <ol style="list-style-type: none"> i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested <p>The spare parts and other components required are listed in Section VI (Technical Specifications) and Section VII (Schedule of Requirements/Bid Price Schedule) and the costs thereof are included in the contract price.</p> <p>The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for the period specified in the Technical Specifications.</p> <p>Spare parts or components shall be supplied as promptly as possible, but in any case, within three (3) months of placing the order.</p> <p>Packaging –</p> <p>The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.</p> <p>The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.</p>
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The outer packaging must be clearly marked on at least four (4) sides as follows:

Name of the Procuring Entity
Name of the Supplier
Contract Description
Final Destination
Gross weight
Any special lifting instructions
Any special handling instructions
Any relevant HAZCHEM classifications

A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging.

Transportation –

Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.

Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price.

Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure.

The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.

Intellectual Property Rights –

The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.

2.2	<p>Advance payment not to exceed fifteen percent (15%) of the contract amount shall be allowed and paid within sixty (60) calendar days from effectivity of the contract and upon the submission to and acceptance by the Procuring Entity of an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank. The irrevocable letter of credit or bank guarantee must be for an equivalent amount, shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.</p> <p>All progress payments shall first be charged against the advance payment until the latter has been fully exhausted.</p> <p>The terms of payment shall be as follows:</p> <p>1) For Supply and Delivery Pay items:</p> <p>(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.</p> <p>(b) On Delivery: Eighty percent (80%) of the Contract Price of the delivered Goods shall be considered for payment, less the total amount of advance payment, if any and other deductions. If the amount is sufficient to fully recoup the advance payment, the remainder after deductions shall be paid to the Supplier within sixty (60) days after the date of receipt of the Goods and upon submission of the documents (i) through (vi) specified in the <u>SCC</u> provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.</p> <p>(c) On Acceptance: The remaining twenty percent (20%) of the Contract Price of the delivered Goods shall be paid to the Supplier within sixty (60) days after the date of submission of the acceptance and inspection certificate for the respective delivery issued by the Procuring Entity's authorized representative. In the event that no acceptance certificate is issued by the Procuring Entity's authorized representative within forty five (45) days after successful test and commissioning, if required, the Supplier shall have the right to claim payment of the remaining twenty percent (20%) subject to the Procuring Entity's own verification of the reason(s) for the failure to issue documents (vii) and (viii) as described in the <u>SCC</u> provision on Delivery and Documents.</p> <p>2) For Supply, Delivery, Installation, Test and Commissioning Pay Items:</p> <p>(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or</p>
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Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.

(b) On Delivery: Eighty percent (80%) of the price of the **delivered Goods**, excluding price for installation, test and commissioning shall be considered for payment, less the total amount of advance payment, if any and other deductions. If the amount is sufficient to fully recoup the advance payment, the remainder after deductions shall be paid to the Supplier within sixty (60) days after the date of receipt of the Goods and upon submission of the documents (i) through (vi) specified in the SCC provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.

(c) On Acceptance: The remaining twenty percent (20%) of the price of the **delivered Goods** plus price for installation, test and commissioning shall be paid to the Supplier within sixty (60) days after the date of submission of the acceptance and inspection certificate for the respective delivery issued by the Procuring Entity's authorized representative. In the event that no acceptance certificate is issued by the Procuring Entity's authorized representative within forty five (45) days after successful test and commissioning, the Supplier shall have the right to claim payment subject to the Procuring Entity's own verification of the reason(s) for the failure to issue documents (vii) and (viii) as described in the SCC provision on Delivery and Documents.

3) For Supply, Delivery, Installation, Test and Commissioning Contracts where Installation, Test and Commissioning prices are included in the supply price:

(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.

(b) On Delivery: Sixty percent (60%) of the price of the **delivered Goods** shall be considered for payment, less the total amount of advance payment, if any and other deductions. If the amount is sufficient to fully recoup the advance payment, the remainder after deductions shall be paid to the Supplier within sixty (60) days after the date of receipt of the Goods and upon submission of the documents (i) through (vi) specified in the SCC provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.

(c) On Acceptance: The remaining forty percent (40%) of the price of the **delivered Goods** shall be paid to the Supplier within sixty (60) days after the date of submission of the acceptance and inspection certificate for the respective delivery issued by the Procuring Entity's

SECTION V – SPECIAL CONDITIONS OF CONTRACT

	<p>authorized representative. In the event that no acceptance certificate is issued by the Procuring Entity's authorized representative within forty five (45) days after successful test and commissioning, the Supplier shall have the right to claim payment subject to the Procuring Entity's own verification of the reason(s) for the failure to issue documents (vii) and (viii) as described in the <u>SCC</u> provision on Delivery and Documents</p>
<p>3.2</p>	<ol style="list-style-type: none"> 1. The following must be indicated in the performance bond to be posted by the Contractor: <ol style="list-style-type: none"> i. Company Name ii. Correct amount of the Bond iii. Contract/Purchase Order Reference Number iv. Purpose of the Bond: "To guarantee the faithful performance of the Principal's obligation to undertake <u>(Contract/Purchase Order Description)</u> in accordance with the terms and conditions of <u>(Contract No. & Schedule/Purchase Order No.)</u> entered into by the parties." 2. The bond shall remain valid and effective until the duration of the contract <u>(should be specific date reckoned from the contract effectivity)</u> plus sixty (60) days after NPC's acceptance of the last delivery/final acceptance of the project. 3. In case of surety bond, any extension of the contract duration or delivery period granted to the CONTRACTOR shall be considered as given, and any modification of the contract shall be considered as authorized, as if with the expressed consent of the surety, provided that such extension or modifications falls within the effective period of the said surety bond. However, in the event that the extension of the contract duration or delivery schedule would be beyond the effective period of the surety bond first posted, it shall be the sole obligation of the CONTRACTOR to post an acceptable Performance Security within ten (10) calendar days after the contract duration/delivery period extension has been granted by NPC. 4. Other required conditions in addition to the standard policy terms issued by the Bonding Company: <ol style="list-style-type: none"> i. The bond is a penal bond, callable on demand and the entire amount thereof shall be forfeited in favor of the Obligee upon default of the Principal without the need to prove or to show grounds or reasons for demand for the sum specified therein; ii. The amount claimed by the Obligee under this bond shall be paid in full and shall never be subject to any adjustment by the Surety; iii. In case of claim, the Surety shall pay such claim within sixty (60) days from receipt by the Surety of the Obligee's notice of claim/demand letter notwithstanding any objection thereto by the Principal.
<p>4</p>	<p>The inspections and tests that will be conducted are specified in the Technical Specifications.</p>



5.2	<p>The period for correction of defects in the warranty period shall not exceed thirty (30) days upon receipt of the notice from NPC.</p>
	<p>Guarantee for Additional Equipment Warranties are also specified in Section VI - Part I, Technical Specifications, Clause 18.0 - General Works (GW).</p>
	<p>CORRECTION OF PUNCLIST ITEMS:</p> <p>After to the conduct of Test and Commissioning/Joint Final Inspection or upon the advice by the NPC, the Contractor/Supplier must correct any remaining works and work deficiencies identified in the punchlist issued for the project within one (1) month considering the approved remaining contract time.</p> <p>Failure to comply with this provision shall be grounds for non-issuance of Certificate of Satisfactory Performance which is a requirement for future bidding with the NPC. This, however, shall not preclude NPC's claim for liquidated damages, imposition of any other penalties and/or filing of blacklisting actions in accordance with the blacklisting guidelines issued by the Government Procurement Policy Board (GPPB).</p>



SECTION VI

PART I-TECHNICAL SPECIFICATIONS

GW – GENERAL WORKS

EW – ELECTRICAL WORKS



SECTION VI

**PART I-TECHNICAL
SPECIFICATIONS**

GENERAL WORKS



PART I – TECHNICAL SPECIFICATIONS

GW – GENERAL WORKS

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PART I – TECHNICAL SPECIFICATIONS

GW – GENERAL WORKS

GW-1.0 PROJECT DESCRIPTION

This specification covers the general technical and associated requirements for the Supply and Delivery of 1,111 units of 30Wp Portable Photovoltaic Solar Home Systems. Also included in this document are the specifications for, but not limited to, the solar panels, charge controllers, batteries, lamps and LED lights, Bundled Appliances, appropriate interconnection lines and its appurtenances for the safe and reliable operation of the Solar Home System.

Other materials, parts and accessories which are not specifically mentioned herein but are necessary for the proper assembly, installation, and safe operation of the system shall be furnished including special tools and all required spare parts and consumables during the warranty period.

The devices/equipment shall essentially be the standard products of the manufacturer which best meets the applicable international and regulatory standards. The Supplier shall accept full responsibility for its work in the performance, qualifications, specifications, documentation/reports, fabrication, corrosion protection, shop testing and materials handling. Field testing and commissioning including the warranty provisions shall comply with the applicable standards and the requirements of this specification.

Workmanship shall be of first-class quality and in accordance with the best modern design practice for the manufacture, assembly and test of all equipment and materials, notwithstanding any omissions from the specifications. Only qualified technicians shall be employed by the Supplier.

All necessary corrections and deviations from the specifications of the system arising either from error in the workmanship or design made by the Manufacturer/Supplier with the resulting extra expenses and related damages shall be solely charged to the account of the Supplier.

GW-2.0 DELIVERY POINT

The supplier shall deliver all 1,111 units of portable SHS including spares and tools at:

Delivery Point	Watershed Areas Covered	No. of Units
Upper Agno Watershed Office, Binga, Itogon, Benguet	Upper Agno	395
NPC Compound, Del Monte Rd., Minuyan, San Jose Del Monte, Bulacan	Angat, Buhi-Barit, Tiwi and San Roque	553
Pulangi Hydro Power Plant, Watershed Area D, Maramag,	Pulangi	163



Bukidnon		
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The table below shows the quantities and installation areas of the portable SHS units to be supplied.

NO.	PROVINCE	MUNICIPALITY	BARANGAY	NO. OF HH
LUZON				
UPPER AGNO RIVER WATERSHED				
1	Benguet	Atok	Caliking	69
2			Cattubo	82
3			Paoay	68
4			Poblacion	93
5			Topdac	83
ANGAT WATERSHED				
1	Bulacan	Norzagaray	San Lorenzo (Sitio Dike)	113
2			San Lorenzo (Sitio Inuman)	60
3		Doña Remedios Trinidad	Kabayunan (Sitio Anuling)	68
4			Kabayunan (Sitio Bunga)	25
5			Kabayunan (Sitio Pinag Anakan)	70
6			Kabayunan (Sitio Basyo)	53
7			Kabayunan (Sitio Iyak)	42
8			Kabayunan (Sitio Macau)	43
9			Kabayunan (Sitio Maputi)	59
BUHI-BARIT WATERSHED				
1	Camarines Sur	Buhi	Sta. Cruz	8
2			San Ramon	6
TIWI WATERSHED				
1	Albay	Tiwi	Joroan	2
SAN ROQUE WATERSHED				
1	Benguet	Itogon	Ampucao	3
2			Dalupirip	1
MINDANAO				
PULANGI WATERSHED				
1	Bukidnon	Maramag	La Roxas	1
2		Lantapan	Songco	2
3			Capitan Juan	3
4		Talakag	Sagaran	10
5		Libona	Capihan	147
TOTAL				1,111

Table 1.0 Project Allocation of portable SHS units

GW-3.0 PROJECT DURATION

The contract period shall be **one hundred-twenty (120) calendar days** reckoned from the receipt of Notice to Proceed. The devices shall be delivered to the designated project sites.

GW-4.0 SITE INSPECTION

The Supplier is required to conduct site inspection to verify the actual condition of the designated storage facility.

Schedule of the site inspection shall be coordinated with **NPC Representatives**. The Supplier shall secure Certificate of Site Inspection duly signed by aforementioned or his authorized NPC personnel. The certificate shall be submitted during post qualification.

GW-5.0 DESIGN AND DUTY CONDITIONS**Site Condition and Design Consideration**

The Supplier shall be responsible for visiting the project sites and thoroughly investigate and familiarize himself with all the site conditions, the surrounding area and take particular reference to its accessibility, means of communication and transportation, and all other factors that could hamper the smooth execution of the contract.

Any and/or all expenses arising through the lack of knowledge or understanding regarding the existing conditions of the sites shall be the responsibility of the Supplier and no additional payment thereof shall be made by NPC.

GW-6.0 SUPPLIER'S SCOPE OF WORKS**GW-6.1 General**

The scope of work shall cover the Supply and Delivery of standalone, portable Solar Home System units with Lithium-based batteries, warranties of equipment, provision of spares and all tools necessary for installation, repairs, operation and maintenance training of NPC-SPUG, PMD personnel, WMD personnel and/or other assigned personnel by NPC. Additional details are provided in other sections of this specification.

It is not the intent of this specification to specify all technical requirements or to set forth those requirements covered by applicable codes and standards. The Supplier shall furnish manpower and supervision, high quality works, materials and equipment meeting the requirements of this specification and industry standards.

The Supplier's scope of work under this Project shall generally consist of but not limited to the following:



- a) Factory testing and delivery of portable SHS units, and its components including led lamps, etc., necessary appurtenances, tools, spare parts and associated auxiliaries;
- b) Conduct training and/or training supervision for operation and maintenance of portable SHS units, and all the appurtenances/accessories within a given warranty period; and
- c) Delivery of spares, replacement parts and tools to designated storage houses/facilities identified by NPC.

Solar Home System

- Scope of works shall cover the test, supply and delivery of **one-thousand one-hundred and eleven (1,111)** sets of portable SHS complete with its components and appurtenances.
- The Supplier shall test, supply and deliver the lithium-ion batteries for energy storage with a minimum storage capacity of 18Ah. It shall have integrated battery controller system to control charging/discharging of each battery cells and prevent it from operating outside its typical safe operating range. The batteries shall be enclosed in a “plug and play” housing, resistant to tampering and with all the cables and adapters needed, support and fixing system to ensure safe and reliable operation of the portable SHS;
- The SHS enclosure box shall be of a robust “plug and play” type provided with protection against dust and water, tamper proof seals/electrical seals or any type of seal and an engraved master serial number. It shall have prefabricated entry and exit points for cables.
- The PV panels shall be designed for maximum efficiency and shall be supplied with all necessary appurtenances for safety;
- The Supplier shall test, supply and deliver the Lamps, LED lights and bundled appliances for each set of portable SHS;
- The Supplier shall supply and deliver all cables, wire and switches needed for wiring including safety components such as clamps, fasteners, etc. to ensure safe and reliable operation of the system.
- The Supplier shall furnish a GI pipe as support structure for solar PV module complete with hot dipped galvanized brackets and stainless-steel bolts, nuts, fasteners and etc.
- The Supplier shall pack and deliver the system strictly as per set. However, the solar panel can be in separate packaging to allow easy handling and distribution. A complete portable SHS set can have a maximum of two boxes/packages only. One box for the SHS enclosure box including the lamps, radio and torch, and another box for solar PV module and its cables.

Anything not mentioned in the technical specifications, but which are necessary to make a complete installation and to ensure optimum and reliable operation shall be considered included in the scope of works.



GW-6.2 Portable Solar Home System

a) Design Requirements

1. The Supplier is responsible for the implementation plan under this contract. The detailed design shall be based on the following minimum requirements:
 - 1.1 Technical Data sheet for Solar PV module
 - 1.2 Technical Data sheet for SHS Enclosure Box (Charge Controller, Batteries)
 - 1.3 Technical Data Sheet for Cables
 - 1.4 Technical Data Sheet for Bundled Appliances

2. The Supplier shall supply the portable SHS at minimum as specified in Table 2.0, however, the Supplier may propose larger PV modules and batteries, subject for approval of NPC.

Est. Ave. Daily Consumption (Wh/d)	Min. PV Power (Wp)	Min. Effective Battery Capacity (Ah)
53	30	18

Table 2.0: System Summary Description – minimum sizing

3. The design of portable SHS shall be based on Table 3.0:

Components	Qty	Usage (hrs/day)	Brightness (Lumens)	Nominal Voltage (VDC)	Rated Power (Watts)	Maximum Power (Watts)	Energy Demand (Wh/day)
LED Lamp (Indoor)	1	4	300	12	3	3	12
LED Lamp (Indoor)	2	3	200	12	2	4	24
LED Lamp (Outdoor)	1	8	100	12	1	1	8
Torch Lamp	1	4	50	5	1	1	4
AM/FM DC Radio	1	5	-	5	1	1	5
TOTAL					8	10	53

Table 3.0: Daily Home Accessories and Lighting Service Requirement

4. The Solar Home System must be designed for a minimum service life of **at least (10) years** with one battery and controller replacement;

5. The Solar Home System shall be portable and be easily fitted to a protective carrying case with handle for easy transport. It shall be easy to assemble and disassemble and be used right out of the box with minimal extra set-up;

6. The Supplier shall furnish Lighting Global verified solar products and batteries for this Contract. All applicable products shall meet the Lighting Global Quality Standards with a minimum quality standard referenced to IEC 62257-9-5 TS Ed. 2 Part 9-5 and passed the conditions set by IEC 61960;
7. The Supplier shall provide all the necessary protection for the Solar Home System required by Philippine Electrical Code (PEC) and other applicable regulatory agencies;
8. Equipment to be supplied including spares of the same class shall bear the same manufacturer's name and model; and
9. All electrical works shall be in accordance with the latest Philippine Electrical Code rules and provisions.

b) Test, Supply, and Delivery of Materials and Equipment

1. Test, Supply and Deliver of Solar Home System consisting of solar panels, batteries and charge controllers, labels, lamps/torches and LED lights, and radios;
2. Test, Supply and Deliver of batteries and charge controllers including necessary software, services, materials and equipment for the optimum and reliable operation of the portable SHS;
3. Supply and deliver of all required spare parts, manufacturer's recommended tools, installation tools, special tools and appliances including all associated expenses necessary for any repair works during the warranty period; and
4. Delivery of spares and replacement parts to designated storage facility by NPC.

c) Operation and Maintenance

- The Supplier shall provide training to NPC-SPUG/PMD personnel or as specified by NPC, on how to use, maintain and troubleshoot the system's components and other services.
- The Supplier shall submit five (5) sets of the draft of Operation and Maintenance Manuals required for all equipment supplied under this Contract, at least forty-five (45) days prior to delivery for NPC review and approval.

Upon approval, the Supplier shall submit seven (7) final copies of the O&M manuals to NPC. The manual shall include parts list and preventive maintenance schedule during the life span of the whole system and its appurtenances and shall be submitted one-month prior to the deliveries.

- The Supplier shall provide user manual included in the portable SHS package per household. The manual shall bear information on the proper care and usage of the whole system and its appurtenances, basic troubleshooting and repair, etc. of the portable SHS, its components, auxiliaries and appurtenances. This shall be printed in sticker paper and attached to every battery enclosure box.

d) Other Allied Services

- The Supplier shall conduct actual site inspections of the project sites and make assessment on its physical condition and determine the extent of the scope of works required for the delivery of the portable SHS, auxiliaries and appurtenances.
- The Supplier shall inspect the designated storage facility by NPC to assess its capability and capacity.
- The Supplier shall supply and deliver all the major components with at least minimum labeling requirements. Each set shall also have its master serial code aside from the codes assigned to each component. It shall be engraved/burned in the enclosure box, shall be easy to locate and shall be clear. The master serial number shall contain all the serial numbers, or any other codes used in labeling each major component of the unit such as the solar panels, charge controllers, batteries, etc. All spare parts shall also be supplied and delivered with the labeling requirements attached.
- The Supplier shall conduct operation and maintenance training to NPC-SPUG/PMD personnel or as specified by NPC. Supervision during the training of household beneficiaries, The training aims to provide information of at least the parts list, basic care and usage and basic troubleshooting to beneficiaries under the supervision of the Supplier. The beneficiaries shall also be well informed on the "Do's and Don't's" on the equipment.
- The Supplier shall supply and deliver the Tool Kits to NPC designated area and/or personnel to ensure proper O&M in maintaining the performance of all installed portable SHS. The Tool Kit shall have the minimum requirements specified in GW – 8.0 Tools and Appliances.
- Supply and delivery of Special Tools and Equipment as specified in the Specifications and as recommended by the manufacturer including toolbox required for operation, testing, troubleshooting and normal maintenance of the portable Solar Home System and its appurtenances. It shall include the supply of back-up copies of control programs, if any (firmware and other configuration software).
- The Supplier shall furnish and deliver all spare parts to the respective storage facilities identified by NPC. This is also applicable for the tool kits.
- The Supplier shall inform and train NPC-SPUG/PMD personnel or as specified by NPC regarding the proper turn-over of the portable SHS unit based on the following minimum criteria:



Electrical Equipment and Cable Installation

1. All electrical equipment shall be located inside the house excluding the solar panel with its accessories and 1W outdoor rated lamp.
 2. The 1W LED lamp shall be placed outside of the house depending on the preference of the customer.
 3. The LED lamps shall be well-positioned to provide the most efficient and effective illumination to the area. Indoor lamps shall not be located directly above the cooking area due to the fast accumulation of soot around the lamps.
 4. Two lamps in a circuit shall be permitted, however, the size of the wire shall be adjusted as necessary and each lamp shall have its own ON/OFF switch (dimmer switch is prohibited).
 5. The wires shall be laid neatly from the portable SHS unit enclosure box to the lamps with a switch positioned on an accessible location.
 6. The PV cable shall have a bend to make a drip loop (prior to entry to the house).
 7. The excess PV cable shall not be cut but spooled neatly and fastened near the battery enclosure or in any appropriate location.
 8. The portable SHS Unit Enclosure Box shall be located as nearest as possible from wire inlet (coming from the solar PV module) and away from direct heat exposure (sun's rays) and damp/wet areas.
 9. The portable SHS accessories such as the torch and portable radio shall be located near the portable SHS unit enclosure box where they are plugged to the USB ports when charging.
- On-call service system and equipment breakdown during the warranty period as specified in GW-18.0 Guarantee. The Supplier shall have an established service center with experienced personnel that will promptly and efficiently cater to the repair and maintenance requirements of the supplied devices/components during the warranty period. Supplier shall provide contact details & response/resolution time for service/parts replacement requests.

GW-7.0 SPARE PARTS

General

The Supplier shall have an established service center with experienced technical personnel that will promptly and efficiently cater to the repair and maintenance requirements of the supplied equipment during the warranty period. Supplier shall provide the contact details & response/resolution time for service/parts replacement requests.

Spare parts shall include all the items that are expected to be consumed or replaced during the installation.

All the spare parts shall be delivered in the designated storage facility, together with the main equipment and others under this Contract.

All spare parts shall be delivered into storage area nominated by NPC and the delivery will be deemed to be complete when the packages have been opened by the Supplier, their contents checked by NPC and articles re-protected and replaced by the Supplier to the satisfaction of such representatives or assembled into units at NPC's option and stored as directed by NPC. Damaged or incorrect item shall be replaced by the Supplier at his own cost.

All bidders are required to submit in their proposal the detailed list of spare parts to be supplied with their corresponding costs. This list is preliminary and subject to changes to conform with the final design without any additional cost. The final list of spare parts shall be submitted to NPC for approval not later than one (1) month prior to the delivery of the portable SHS units.

Spare Parts for Portable Solar Home System

Spare Parts shall be delivered to the designated storage facility by NPC. The Supplier shall furnish the following equipment and maintain the NPC's stock at this level throughout the Warranty Period:

Portable SHS System

Component/ Accessories	Spare Requirement (% of Actual Delivery per Storage Facility)	Upper Agno Watersh ed Office	NPC Compoun d	Pulangi Hydro Power Plant
Portable SHS units/kits	0.25	1	2	1
PV Modules	2	8	12	4
Battery	2	8	12	4
Battery Enclosure Box	2	8	12	4
Charge Controller	2	8	12	4
Torch Lamp	2	8	12	4
PV Module Mounting Hardware	1	4	6	2
3W LED Lamp	3	12	17	5
2W LED Lamp	3	24	34	10
1W LED Lamp	3	12	17	5

Table 4.0 Spare Parts Requirement of Portable SHS units and components

Note: Quantity of spares in fraction shall be rounded up to the next higher integer.



GW-7.1 Rejection of Faulty Equipment

If ten percent (10%) or more of any class or equipment supplied fails based on the record-keeping of NPC within the first twelve (12) months of the Warranty Period, NPC may, at its own discretion, have the right to demand from the Supplier the replacement of all that class of component and/or material throughout the entire set of equipment being supplied and/or turned-over according to this Contract.

GW-8.0 TOOLS AND APPLIANCES**General**

The tools and appliances recommended by the manufacturer and are deemed required for the following specific purpose of the equipment to be supplied under this Contract shall be provided and shall be delivered to the designated areas by NPC. The Supplier shall include the tools that are specified below.

- a) Manufacturer's standard and special tools and instruments required for installation, operation, testing, troubleshooting and normal maintenance of the portable Solar Home System, furnished by the Supplier.
- b) Any special tools or appliances required solely for maintenance purposes. Special tools are defined as all tools required for assembling, dismantling and adjustment of all the works and usually not available in a standard machine shop or retailing store.

Each tool or appliance is to be clearly marked with its sign for purposes of identifying the function of each tool and the specific item(s) for which it is used. Each set of tools and appliances listed below shall be fitted into a custom-built lockable box with a clear marking stating the name of the items or equipment for which they are used and with a list of the tools contained to be attached on the box.

Every special tool and instrument shall be accompanied or furnished with maintenance or instruction manuals in English language.

All tools and appliances supplied shall be handed over to NPC in good condition at the time of taking over.

All bidders are required to submit in their proposal the detailed list of special tools to be supplied. This list is preliminary and subject to changes to conform with the final design without any additional cost. The final list with the corresponding brochures/catalogues shall be submitted to NPC for approval not later than one (1) month prior to the delivery of the equipment.

1. Tools for Solar Home System

Tools for Solar Home System shall be supplied by the Supplier which shall consist of at least the following:

a) Manufacturer’s Recommended Tools

The Supplier shall supply and deliver all the manufacturer’s recommended tools for installation and maintenance of the portable SHS system.

A complete list shall be included in the bid/proposal.

b) Maintenance Tools

These tools are to be supplied as 1% of the total portable units to be supplied per watershed area. Each set shall be contained in the toolbox (specification of the toolbox is given in the table below), shall be named **Maintenance Tools**, and shall have the following:

TOOLS TO BE SUPPLIED	QTY
Digital Multimeter, 0-10Vac/1-200Vdc with fuse protection	1 pc
Phillips Screwdriver (positive) – (#1)	1 pc
Slotted Screwdriver (negative) – (3/16")	1 pc
Jeweler’s Screw Drivers (#0, #1, #2, #3)	1 set
Side Diagonal Cutting Pliers, 6" long, Heavy duty	1 pc
Wire Stripper Pliers, 0.2-6mm stripping capability, Heavy duty	1 pc
Long Nose Pliers, 6" long, Heavy duty	1 pc
Lineman Pliers, 7" long, Heavy duty	1 pc
Adapted tool for tamperproof lock	1 pc
Hand Gloves	2 pair
50W Soldering Iron with soldering lead, stand and desoldering pump	1 set
Robust Toolbox, minimum of 10" W x19" H	1 pc

Table 6.0 Quantities of Tools for Maintenance per toolbox

The following tools are not included in the toolbox but shall be supplied.

OTHER TOOLS	QTY
Tamperproof Lock	1,111 pcs
DC Power Supply 1. Upper Agno – 40 pcs 2. San Roque – 1 pc 3. Angat – 54 pcs 4. Buhi-Barit – 2 pcs 5. Tiwi – 1 pc 6. Pulangi – 17 pcs	115 pcs
Other Standard/Special Tools recommended by Manufacturer	1 lot

Table 7.0 Quantities of Other Tools to be supplied



GW-9.0 AFTER SALES SERVICE (POST-INSTALLATION)

No other obligations on site will be demanded from the Supplier except for the Warranties and other works to be given or supplied under the Warranty Period.

The Warranties will cover the entire portable SHS package as well as the individual components and accessories to the package.

GW-10.0 PACKING, SHIPMENT AND STORAGE**GW-10.1 Packing/Crating**

The Supplier shall pack the portable SHS units and their appurtenances as per set. However, for easy handling and distribution, the solar PV module and its cable can be packed separately but shall be stored and bundled together with its corresponding partner components.

The Supplier shall perform proper packing/crating to ensure that equipment and components are adequately protected from damage during shipment and subsequent storage. Utmost care shall be observed in packing/crating delicate equipment and electronic devices such as battery controller, solar panels and other sensitive parts or components.

All openings and machined surfaces shall be provided with protection to prevent damage, corrosion and entrance of foreign matter during shipment and storage.

Threaded or socket weld connections shall be protected with screwed or snap on type, securely held plastic protectors. Cast iron plugs are not acceptable for protection unless part of the permanent assembly. Covers, straps or fasteners shall not be welded to equipment.

Equipment shall be adequately supported for shipment. All loose parts shall be crated or boxed for shipment and appropriately identified. Where shipment is braced internally, it shall be marked conspicuously, "Remove internal braces before testing and operating".

All large and heavy shipping units shall have suitable skids for moving. Crating shall also be adequate for lifting with slings. If the location of slings is critical, these locations shall be marked accordingly.

All equipment belonging to the same system/skid shall be properly marked and packed in the same crate as much as practicable. The Supplier shall not mix equipment and parts of one system with another to avoid confusion during assembly.

All spare parts shall be packed in a sealed container including special and standard tools in their separate sealed toolboxes.

All packages, crate boxes, drums, bags, bundles, or other containers or any loose pieces shall carry the following identification marks on the two (2) sides in black with a stencil proof ink or paint by means of block letters not less than 30mm high, i.e.

NATIONAL POWER CORPORATION

CONTRACT NO. : _____
 ITEM NO. : _____
 PORT OF DISCHARGE: _____
 DESCRIPTION : _____
 OF CONTENT : _____
 NET WEIGHT : _____ kgs.
 GROSS WEIGHT : _____ kgs.
 DIMENSION : _____ m³
 CRATE NO. : _____

All packages shall be forwarded with a copy of packing list placed inside the package and another copy thereof contained in a waterproof envelope placed outside the package. The packing list shall give all information on the package such as package no., packing appearance, net weight, gross weight, dimension, measurement, and description of the equipment including storage and handling instructions with descriptions for periodic inspection and/or storage maintenance to ascertain that no deterioration will occur during storage.

Prior to shipment, the Supplier shall furnish NPC advance copies of all packing lists and other pertinent documents.

The Supplier shall employ methods that will warrant safe delivery of equipment to its ultimate destination, with careful consideration given to the type of commodity, method of transportation, destination, storage time, and storage facilities at point of destination.

GW-10.2 Shipment/Transport

The Supplier shall be responsible for the sea and land transportation of the equipment, materials and supplies required under this Specification and shall ensure that they are safely and timely delivered to the specified site. Supplier shall be deemed to have visited the site and other area on the route of delivery, including port facilities, inter-island shipping facilities, island transport, access roads and bridges and to have acquainted themselves with all factors that will affect the cost of shipping and freight to Site. Any damages to the roads, bridges, railways, ports, etc. arising out of neglect of Supplier shall be the responsibility of the Supplier. Likewise, any additional claim attributable to Supplier’s lack of knowledge or understanding on existing conditions of the site shall not be given due credence.

The Supplier shall ship the materials and equipment on clear commercial bill of lading and the cost of all freight, insurance, shipping, handling and road transport charges shall be included in the Bid Price.



Upon arrival of equipment and materials at site, NPC and the Supplier or their authorized representatives, shall jointly verify the equipment to be stored at site following the steps below:

- a) Inspection and verification of the packing list;
- b) Visual inspection of the condition of the packing and its surfaces; and
- c) Partial opening of the crates and plastic sheet protection to verify the content and its physical condition and to check pilferage or damage during shipment and storage.

A record shall be prepared carefully noting all eventual shortages, defects or damages, signed by the Supplier and concurred by NPC. All shortages and damages noted shall be immediately replaced by the Supplier at his own cost and shall ensure the timely delivery of replacement without affecting the agreed overall project implementation schedule.

Shipment of equipment and materials to be supplied by the Supplier should be through Philippine Flag Carrier. However, a non-Philippine Flag Carrier may be used, provided a certification of its non-availability is issued by the nearest port authority within ten (10) calendar days from the date the goods are ready for shipment.

GW-10.3 Storage

The Supplier shall inspect the storage facility specified by NPC for its capability and capacity.

The Supplier shall treat the wooden equipment crates/packages and the soil under the equipment and immediate surroundings to make it impervious and toxic to subterranean termites, often referred to as white ants or "anay" by application of soil poison solutions. Materials to be used shall be a solution commonly used by licensed companies or entities engaged in pest control or pest eradication. Banned solutions must never be applied. Applications of the solution shall be in accordance with the manufacturer's recommendation.

The Supplier shall provide temporary shelter/cover such as tarpaulin or equivalent type of cover for protection of the equipment during the storage, if needed.

GW-11.0 DOCUMENTS/DRAWINGS AND INSTRUCTION MANUALS

GW-11.1 Drawings Contained in the Tender Document (As Applicable)

The drawings contained in relevant section of this tender document shall be the Bid Drawings and/or Reference Drawings which shall be utilized for bidding purposes only unless otherwise stated. They are considered as defining the minimum requirements for the design of the equipment to be furnished and to show the general layout and equipment arrangement which indicate limiting or mandatory dimensions and elevations. However, if such indicated dimensions are found deemed inadequate during the implementation stage, changes or adjustments may be made subject to NPC's review and approval.



Bid drawings which show the work to be done as definitely and in as much detail as possible may be used as guide by the Supplier in the performance of his works. Accordingly, soft copies of said bid drawings may be furnished upon receipt of request by the Supplier for their ready reference/perusal.

Anything mentioned in the specifications and not shown on the drawings or shown in the drawings but not mentioned in the specifications, but which are obviously necessary to make a complete installation shall be considered/included under the Supplier's Scope of Works.

Discrepancies between the drawings and actual field conditions or between drawings and specifications shall immediately be brought to the attention of NPC for proper resolution. All works involving discrepancies shall not be started without NPC's formal approval.

All drawings submitted by the Supplier or by any Sub-Supplier shall contain in the lower right-hand corner, in addition to the Supplier's name with signature, the date, drawing scale, drawing number and title, and contract number as given in the Specification. Drawing Title Blocks per NPC standard specifications shall be provided to the Supplier during the contract stage.

The drawings shall be adequate to demonstrate full compliance with the Contract requirements and provide NPC complete understanding of the equipment and its associated auxiliaries and associated works.

All data and information to be submitted shall be in the English language and all drawings shall be drawn using the metric system as unit of measurement.

GW-11.2 Drawings and Documents to be Submitted with the Bid (As Applicable)

The Supplier shall submit with his Bid the required copies of all the documents specified in Section VI – (Part II) Technical Data Sheets, and other documents specified in the relevant Clauses of the bid documents (Refer to Form No. NPCSF-GOODS-01-Checklist of Technical and Financial Envelope Requirements for Bidders, Section VIII-Bidding Forms).

Drawings and other data or information that the Bidders may deem useful in the evaluation of their bids may be submitted with the bid.

GW-11.3 Supplier's/Manufacturer's Drawings and Instruction Manuals (As Applicable)

GW-11.3.1 General

Prior to the procurement of all equipment to be supplied, the Supplier shall submit for NPC's review, approval, and/or reference, five (5) copies of prints of drawings (outline/arrangement drawings of equipment and its auxiliaries, wiring diagrams), plans calculations as required, codes and standards, operation and maintenance instructions, training program, and all other documents necessary for rendering the Works, prior to fabrication, manufacturing and/or purchasing all equipment and materials to be supplied under this Contract. The sequence of submission shall be such that



information is available for checking or approval of each drawing or document received.

To provide the basis for programming the checking of the Supplier's drawings, the Supplier shall, within fifteen (15) calendar days from effectivity date of the contract, prepare and submit to NPC for approval a drawing and document lists summarizing the drawings he proposes to submit in accordance with the requirements specified herein, together with the dates on which he proposes to submit such drawings. These lists shall be updated monthly to show the status of the drawings and documents submitted and any additional proposed drawings. NPC shall have the right to require the Supplier to submit additional information as may reasonably be required.

The name and signatures of the Supplier/Manufacturer's designer and approving officer who process the drawing for NPC's approval shall be included in the title block for each drawing/document submitted.

Drawings approved by NPC shall in no way relieve the Supplier from entire responsibility for engineering, design, workmanship, material and all other liabilities under the Contract.

Any manufacturing, test, installation of equipment and appurtenances and construction of any particular structure or portion thereof prior to the approval of drawings pertinent thereto shall be at the Supplier's risk. The Supplier shall be responsible for any extra cost that may arise in consequence to such risks or in correcting the work already done to conform with the drawings as revised and approved.

The Supplier shall be responsible for any discrepancies, errors or omissions in the drawings and other particulars supplied by him whether such drawings and particulars have been approved by NPC or not, provided that such discrepancies, errors or omissions are not due to inaccurate information or particulars furnished in writing to the Supplier by NPC.

NPC shall have the right to require the Supplier to make any changes to the drawings necessary to make the works conform to the intent of the Contract.

Should an error be found in the Supplier's drawings during approval, or during construction/erection, the correction including any field change considered necessary shall be noted on the drawings and shall be resubmitted for approval.

NPC reserves the right to reproduce any drawings or prints received from the Supplier as may be required despite any notice prohibiting the same appearing on the drawing or the print. All drawings are preferred in a computer-aided format. However, if unable to comply with this requirement, manual drafted drawings will be acceptable. All CAD produced drawings are to be submitted in Autocad formats. All other computer-generated documents are to conform to Microsoft Office.



GW-11.3.2 General and Detailed Drawings and Specifications for Electrical Equipment (As Applicable)

Before proceeding with the manufacture of the equipment, the Supplier shall submit for approval the applicable designs, design computations as required, brochures, detailed specifications or equipment data sheets, general assembly drawings, outline/arrangement drawings, system drawings (flow diagrams), and sufficient sub-assembly drawings, schematic and control wiring diagrams, training program, test procedures, test reports and details to demonstrate fully that all parts will conform with the provisions and intent of the Specifications and with the requirements of their installation, operation and maintenance. The drawings shall show all necessary dimensions and tolerances, field joints, and sub-assemblies in which the equipment will be shipped, terminal boxes and wire sizes for electrical circuits and wiring diagram for power and control circuits.

Formats and symbols for electrical drawings and logic diagram shall be standardized for all the plant systems under this Contract subject to NPC's approval.

GW-11.3.3 Instruction Manuals

Supplier shall submit five (5) sets of the draft of Operation and Maintenance Manuals of the portable SHS kits, at least forty-five (45) days prior to test and commissioning for NPC review and approval. Upon approval, the supplier shall submit twelve (12) final copies of the O&M and installation manuals.

The distribution of approved manuals are as follows:

	AREAS FOR DISTRIBUTION	QTY
1	Upper Agno River Watershed	2
2	San Roque Watershed	2
3	Angat Watershed	2
4	Buhi-Barit Watershed	2
5	Tiwi Watershed	2
6	Pulangi Watershed	2

Table 9.0 Allocation of Instruction Manuals

The Manuals shall include Parts List, and Preventive Maintenance Schedule/ Procedure and Troubleshooting during the life span of the portable SHS and shall be submitted at least one (1) month prior to the delivery of the portable Solar Home System.

Detailed Instruction Manuals (for NPC personnel only) shall contain data relevant to the device or system design and its installation/assemble/disassemble, operation, preventive maintenance, troubleshooting, testing and repair. The manuals shall be furnished by the Supplier and assembled on standard metric A4 sheets. Drawings and schedules which are to be bound into the manual shall be printed in A3 folded to A4. Covers and binders to be used for the manuals shall be robust and oil-resistant.

The following requirements shall be included but not limited to:



- a) List of all components and systems supplied and its accessory components complete with respective descriptions, operating requirements at all processes and ambient conditions, storage requirements, reference codes and standards, Supplier's/manufacturer's specification or technical data sheets supported with illustrative catalogues and brochures as applicable;
- b) Applicable drawings including equipment outline drawings, assembly drawings, system flow diagrams, single line diagram, schematic and control circuit diagrams (alarm and trip), interconnection diagrams and other relevant drawings;
- c) Instrument lists (including switches and probes) itemizing function, set points, type, catalogue number, and range;
- d) Operating procedures and instructions shall provide the consumers, NPC personnel and CBTs with information that tells them when and how to operate the device/system, including precautions, limitations and set points. Procedures shall be listed in step-by-step sequence. Troubleshooting charts and tables shall be used to list likely evidence of malfunction and what could be responsible. The effect of loss of normal power and effect of electrical malfunctions shall be addressed;
- e) Preventive Maintenance Schedule for all equipment with servicing procedures including instructions for dismantling and/or replacing components, performance check and tests and checks for cleaning, otherwise caring for equipment. These procedures shall include maintenance of interlocks and other safety features; and
- f) Special and standard tools list;

For NPC Personnel

The Supplier shall submit and provide the twelve (12) final copies of approved O&M manuals provided to NPC.

For Beneficiaries/Consumers

User Manual to be distributed to the consumers shall be on graphical stickers and shall be attached and/or placed on accessible location of the enclosure box. The sticker shall be water and oil resistant.

These user manuals shall only contain instructions on how to properly use and care the portable SHS kits, and the basic troubleshooting of the devices without the intention for them to tamper any of these devices.

Support Materials

The Supplier shall be responsible to deliver the following materials:

1. Visual aids for training teams – this can be large posters, comic strips, video clips, power point presentations, etc.)
2. User Manual shall be printed on water and oil resistant graphic sticker attached to the enclosure box and shall not be easily removed for portable SHS kits.
3. NPC marking/logo shall also be engraved or burned in the enclosure box to avoid removal.

4. Portable SHS kits/battery enclosure box shall be provided with any tamper proof seals.

The Supplier shall base the information written on the instruction manual/posters in the following:

1. The instructions are dedicated to rural beneficiaries who has a little or no technical background.
2. The instructions shall be very simple and straightforward presenting key information that is very easy to understand.
3. Language of the User Manual shall be Tagalog or in the native language predominantly used in the project area.
4. The demo/training shall be conducted in Tagalog or in the native language predominantly used in the project area, with the presence of a technician able to translate when needed.

GW-11.4 Documents for NPC's Records

The Supplier shall furnish five (5) copies of the following documents for NPC's records:

- a) Material Data, Material Certifications and Test Reports required by governing Codes and Standards; and
- b) Factory/Performance Test Results

GW-11.5 Processing of Drawings/Documents

All documents and drawings to be prepared by the Supplier for NPC's review and approval shall be on A4 size and A3 size folded to A4 respectively, and submitted to, except otherwise mutually agreed during the implementation stage:

The Manager, (Design and Development Department)
National Power Corporation
BIR Road corner Quezon Avenue,
Diliman, Quezon City 1100

NPC shall review, comment or note corrections to be made and return two (2) copies to the Supplier within twenty (20) calendar days after receipt of the drawing. If corrections are required, the Supplier shall make all necessary corrections and re-submit within fourteen (14) calendar days for NPC's review and approval.

Five (5) prints with dark lines on a white background shall be furnished to NPC for each drawing submitted for approval. Two (2) copies will be returned to the Supplier either marked "Approved", "Approved with Corrections Indicated", or "Returned for Corrections". Prints marked "Approved" or "Approved with Corrections Indicated" authorize the Supplier to proceed with the procurement/fabrication, assembly and construction of the works shown on the drawings, with corrections, if any, indicated thereon.

When prints of drawings are marked "Approved with Corrections Indicated" or "Returned for Corrections", the Supplier shall finalize the drawings and re-

submit it in five (5) copies each for final approval. Every revision shall be shown by number, date and subject in a revision block.

If minor revisions are made after a drawing has been approved, the Supplier shall incorporate the corrections on the as-built drawings to be submitted by the Supplier. No major revision affecting the design shall be made after a drawing has been marked "Approved" without re-submitting the drawing for formal approval of said revision.

Drawings and documents marked "Noted" without comments are deemed approved. If comments/corrections are indicated thereon, the Supplier shall finalize the drawings/documents and resubmit for NPC review and reference.

Failure of the Supplier to submit the approved "As-Built" Drawings and "Operation and Maintenance" Manuals to NPC on the respective dates specified in this section, NPC shall withhold Five percent (5%) of contract amount from payments due to the Supplier.

GW-12.0 INSPECTION AND TESTS

GW-12.1 General

The Supplier shall perform at his own expense all tests required to ensure adequacy of material, workmanship and conformance of equipment to the guaranteed data and other requirements of the Specifications and standards. The Supplier shall submit five (5) copies of test procedures for NPC's review/approval for all equipment covered by the Contract at least thirty (30) calendar days prior to the conduct of actual test.

NPC and/or its duly authorized representatives shall be entitled to attend and witness all applicable tests detailed in the relevant sections. NPC shall be notified by the Supplier thirty (30) days in advance about any tests requiring the presence of NPC. NPC's acceptance of the work by waiving the inspection of tests and receipt of the Supplier's Certified Test Reports and Inspection & Testing Certificate shall in no way relieve the Supplier of his responsibility in accordance with the requirement of the Specifications.

Tests not requiring the presence of NPC shall be, in any case, notified in advance. In such case, the Supplier shall then proceed with the tests and shall submit test reports in five (5) copies to NPC at least two (2) weeks after the conduct of the tests.

For inspected or tested goods that fail to conform with the Specifications, the Supplier shall replace the goods to meet the requirements of the Specifications at no costs to NPC.

The Supplier shall carry out all tests in accordance with the requirements of the Specifications and test procedures duly approved by NPC.

GW-12.2 Tests at Supplier's Premises**GW-12.2.1 Inspection at Supplier's Premises**

NPC reserves the right to inspect all shop and assembly work associated with the Works, verify quantities consigned to stores and inspect quality control and assurance records as well as shop and purchase order records. When scheduled, and as often as NPC deems appropriate, progress will be monitored with respect to Milestone Dates in the Contract Schedule and the sequence of events and activities on the Supplier's Detailed Contract Schedule.

GW-12.2.2 Factory Acceptance Tests (FAT)

Prior to shipment and final inspection, each equipment supplied by the Supplier shall be given the manufacturer's standard factory test and/or as required in the relevant sections of the technical specifications.

The Supplier shall carry out tests, as may be required by the specified Standards and the Quality Control and Assurance Program, as well as the entire test program approved by NPC. Prior to the witnessing of Factory Test, the Supplier shall remove all faults found and correct all failures noted to the best of his knowledge such that no functional or procedural errors will occur during the test.

The Supplier shall immediately advise NPC should failures occur, take remedial action subject to NPC's approval, and proceed with the Factory Test as and when directed by NPC. It shall be NPC's prerogative to order a repeat of all such tests that he deems may have been affected by the failure. The Supplier shall ensure that during the test, all hard copies from output devices are retained and that no outside parties interfere in any way with testing, equipment or test instruments, fixtures and jigs for the entire duration of the Factory Test. Only Supplier's personnel who are needed on the testing of the equipment shall be allowed in the test area.

The Supplier shall also be responsible that an accurate record of tests is kept and each individual test is duly initialed and dated by the Supplier and stamped or marked either "passed" or "failed" with annotations of antecedents and observations concerning the test. For each day of testing, the Supplier shall submit to NPC the proposed disposition of each criterion that failed during the previous day of testing, prior to commencement of the tests scheduled for that day. Tests witnessed by NPC will be initialed accordingly by him on the test record. The test record and dispositions, and any other pertinent supporting data and documents shall form part of a test report to be submitted in accordance with the specification.

Portable Solar Home System

Each equipment/component of the Solar Home System supplied by the Supplier shall be given the manufacturer's standard factory test and in accordance with specified codes and standards.

Batteries

The Batteries as defined in section EW-1.4 and its succeeding sections shall be given the manufacturer's standard factory test and performance test in accordance with specified codes and standards. Due to shipping/handling restrictions, lithium batteries of similar make and model may be used in the tests.

GW-12.3 Site Acceptance Test (SAT)

Solar Home System

Performance test of the Solar Home System (as a whole system) shall be carried-out in accordance with the manufacturer's instructions and specified codes and standards. The test is performed upon delivery and prior to NPC acceptance at each designated warehouse/storage facility. The sampling method shall be in accordance with ANSI/ASQ Standard Z1.4-2003 under General Inspection Level II per delivery point.

The test shall be performed and lead by a qualified portable SHS installer or technician who is knowledgeable regarding portable SHS to ensure safety during the conduct of test. The test shall be witnessed by NPC.

GW-12.3.1 Testing

Testing of solar home system should be conducted in accordance with NFPA 70E, Electrical Safety in the Workplace, published by the National Fire Protection Association. To mitigate electrical hazards, workers must employ personal protective equipment commensurate with the electrical energy present, follow proper procedures and use appropriate tools. The DC circuit tests shall be performed, preferably in this order:

- a) Test continuity of equipment grounding conductors and system grounding conductors (if applicable).
- b) Test polarity of all DC cables and check for correct cable identification and connection.
- c) Test open-circuit voltage [V_{oc}] for each PV source circuit.
- d) Test short-circuit current [I_{sc}] for each PV source circuit.
- e) Test functionality of major system components (modules, batteries, charge controllers, etc.)
- f) DC conductor insulation resistance test

GW-12.3.2 Tests Failures

If any equipment or component fails to pass any test during the SAT, the Supplier shall replace the defective unit/component. NPC shall be given the list of serial numbers of all units/components to be replaced. Any and all expenses due to additional tests or retests made necessary by failure of Supplier's supplied equipment/component, i.e. failure to meet the guarantees and other requirements of the specification, shall be borne by the Supplier. The costs of witnessing the Factory Tests by NPC or its representative(s) as a result of re-test to be conducted on the equipment shall also be borne by the Supplier.

If the results of the performance test that the supplied equipment failed to meet the technical specifications, guarantees and/or Acceptance Quality Level (AQL), NPC has the right to reject the lot and the Supplier shall be given two (2) weeks maximum from the completion date of the performance test to replace the affected unit(s) before conducting the retest. The Supplier may request time extension subject to NPC's evaluation/approval of corresponding justification for such extension. One (1) retest is allowed only during the required two (2) weeks maximum period including trial runs. If the results of the latest test/retest failed to meet the guarantees, then these results shall become the basis in applying the applicable penalties, if any.

Penalties specified in the relevant sections of the Specifications shall be applied in case tests or retests at the warehouse for the portable SHS and its appurtenances.

GW-12.3.4 Test Reports/Certificates

Five (5) certified copies of the reports of all NPC's specified tests and other manufacturer standard tests shall be furnished to NPC within a maximum of fifteen (15) days following the completion of the tests.

Test certificates shall include, in addition to the test results, the following information:

- a) Date of the performance of test;
- b) Equipment data; and
- c) The equipment serial number

The Supplier shall bear the cost of furnishing these records and reports.

GW-12.3.5 Waiver of Factory Tests Witnessing/Inspection by NPC

If NPC opted not to witness the Factory Tests, NPC will issue a Certificate of Waiver of Tests Witnessing/Inspection for the equipment and materials. In such case, the Supplier shall proceed with the Factory Tests in accordance with the requirement of the specification and the manufacturer's test procedures as approved by NPC.

Issuance of the Certificate of Waiver of Tests Witnessing/Inspection for equipment required to be witnessed by NPC or its authorized representative(s) however, shall in no way relieve the Supplier of his responsibility to conform to the approved test procedures and the requirements of the Specifications.

GW-13.0 TRAINING OF NPC PERSONNEL AND TECHNICIANS

GW-13.1 General

The Supplier shall extend all possible assistance and cooperation to NPC regarding the transfer of technology and developing expertise in the area of engineering, operation and maintenance of the portable SHS.

The Supplier shall provide comprehensive and properly documented training to NPC personnel and the recommended supervision of training to Beneficiaries, Technicians.

Community-based Technicians (CBT) act as the first line of O&M addressing more complex troubleshooting issues than what the beneficiaries are instructed in recognizing and fixing themselves. CBTs shall refer to NPC if the issue is beyond their scope such as repairing or replacing parts. NPC is responsible for the post-installation services on full operation and maintenance of the portable SHS and all Warranty claims.

It is mandatory that the Supplier shall have on-hand portable SHS unit identical to that being supplied and installed for the demonstration during trainings wherein it can be assembled and disassembled to show the various parts, function, simulate troubleshooting, repair, etc.

The Supplier shall provide the training prior to the delivery of the portable SHS units. The Bidder shall propose on its bid a detailed Training Program organized in four (4) parts as stated in GW-13.1.1 to GW-13.1.4.

The Supplier shall provide the following support materials during the entire duration of the training.

1. Training materials, posters, tools, etc.
2. Demo kits of the portable SHS packages
3. Guidelines for the technicians
4. Training certificates for qualified technicians who passed the training.

Training programs shall be submitted to NPC for approval.

The timing of the training should be such that the participants will be equipped with sufficient know-how on how to operate and maintain the portable SHS unit.

The cost of training of all involved NPC personnel and during the recommended supervision shall be borne by the Supplier and shall be included in the bid price.

NPC personnel and/or CBTs are responsible to conduct training/seminar/workshop to the consumers under their area. The Supplier is recommended to be present during such trainings to supervise and guide the NPC personnel/CBTs with the conduct of the training.

GW-13.1.1 Basic Solar Kit Training Workshop for Community-Based Technicians

The training shall be conducted at a suitable venue designated by NPC. This shall be done for at least one (1) day. The Supplier shall ensure that the CBTs are properly and well-equipped on handling their respective scope in the portable SHS units.

The training shall inform them the following knowledge:

1. Basics on Solar Energy, Solar PV systems, etc. (Theory)
2. Basics on Maintenance and Troubleshooting



3. Safety and Proper handling of the equipment

GW-13.1.2 Advanced Solar Kit Training Workshop for NPC Personnel/Technicians

The training shall be conducted at a suitable venue designated by NPC. This shall be done for at least two (2) days. The Supplier shall ensure that the NPC technicians are properly and well-equipped on handling their respective scope in the portable SHS units.

The training shall inform them the following knowledge:

- Basics on Solar Energy, Solar PV systems, sizing, etc. (Theory)
- Operation and Maintenance
- Inspection and Maintenance Report (log sheet)
- Troubleshooting and replacement
- Warranty Services Claims Training
- Component Testing; repair and replacement
- Claims process (provide claims forms)
- Warranty hotline
- Stock and Inventory Management
- Basic Training and Management of CBTs

GW-13.1.3 Final Workshop

This training is for the NPC personnel to be conducted on a suitable venue designated by NPC. The training duration shall be at least one (1) day and will ensure that the technicians are properly and well-equipped on handling their respective scope in the portable SHS units.

The following are to be done in this training:

1. Review of learning
2. Open Forum
3. Evaluation
4. Presentation of certificates to qualified technicians (those who passed)

GW-13.2 Technical Guidelines for NPC and CBTs

The Supplier shall provide Technical Guidelines on portable SHS, O&M, training and troubleshooting as described above for those attending the training. The guidelines shall be prepared before the trainings are conducted and shall be approved by NPC before duplication.

A simplified version of the guideline shall also be prepared for the CBTs as reference material when practicing in the field. Always note that the level of previous training for the CBTs could be close to none, thus, the instructions in the simplified version shall be clear and simple to understand.

The guidelines for NPC are dedicated for them who have at least basic electrical background, have basic knowledge on solar PV system, how it works, how to diagnose breakdowns and faults, and to some extent, repair and replace some parts, if allowed.

The guidelines shall be based on the requirements stated below.

- The guideline shall help NPC to conduct maintenance, repairs, moving and new installations of solar packages beyond the training provided by the Supplier.
- The guidelines shall be simple and well-illustrated (can use pictures and drawings) for easy understanding of the instruction.
- The guideline shall be prepared in English Language but it shall allow easy translation of the content.

The guideline shall cover at least the following topics:

1. Complete List of components including system sub-items with associated specifications, manufacturers' warranties and ordering references.
2. Complete Installation Instructions
 - Detailed instructions to choose the best locations/places for components and to install the solar module, the wiring and the lamps. Clearly illustrate the Do's and Don't's.
 - A recommended post-installation acceptance test procedure, including appropriate test procedures.
3. Complete User-manual Instructions
 - Explain to the user the system's operating principles, warranties and limits of the system, impact of shading/dirt on the solar panel and how to check and avoid it, user maintenance checks and how to conduct them, and how to get service support.
4. Complete O&M instructions
 - A recommended routine maintenance schedule with inspection/maintenance instructions.
 - Specific care and maintenance guide for the system and its components (controller, battery, PV module, lamps, etc.).
 - A detailed troubleshooting guide referencing all the system sub-items. This shall include diagnostic procedures, repairs and replacements. Repairs and procedures not to be attempted by non-electricians and/or electricians unfamiliar with photovoltaic systems shall also be clearly identified.
 - Recycling procedure for main components, if allowed and recommended.
 - Complete list of all system components with associated manufacturers' literature, specifications and warranties.
 - Functional block diagram showing the placement of all hardware and ratings of all components and a physical layout diagram.
 - Instructions on handling and management of used and damaged portable SHS packages, spare parts and wastes from the packing/staging materials.



5. Procedures on how to take Warranty Claim
 - The guideline shall comply with RA 6969 and related national regulations for recycling and/or special disposal of batteries including proper handling, battery collection, storage and recycling schemes. Disposal through a DENR registered transport storage and disposal facility (TSD) will need to be clearly stated.
 - The Supplier shall also provide technical support/assistance on the operation and maintenance of the supplied portable SHS to NPC personnel throughout the Contract Term. NPC will designate a venue for the training.
 - A minimum of five (5) NPC personnel/or as specified by NPC will attend the trainings to be trained by the Supplier.

GW-14.0 CORROSION PROTECTION AND PAINTING

GW-14.1 General

The Supplier shall apply corrosion protection and painting to all equipment and materials to be furnished in accordance with the minimum requirements specified in this section.

Generally, the equipment shall be shop primed and finish coated in accordance with the Manufacturer's standard practice. An adequate supply of touch-up paint shall be supplied by the Manufacturer/Supplier which shall be used for painting surfaces that will be damaged during transport and installation works including surfaces that show signs of corrosion. Color of Final painting shall be as approved by NPC.

The Supplier shall be responsible for the adoption of preparation procedures and protective coating systems which are suitable for the environment experienced by the various components/elements of the system.

Where a specific coating system is mentioned elsewhere in the Specifications, the Supplier shall accept responsibility for the suitability for such system. The Supplier has the option to nominate an alternative coating system for the approval of NPC.

GW-14.2 Treatment for Shipping

The various items which do not fall under the paintings or lining specifications in the documents shall be surface treated for shipping.

The various items to be shipped shall be thoroughly cleaned before shipment so as to eliminate dirt, rust and grease, all welding slugs and spatters, and loose metals.

All metallic machined surfaces shall be covered with a protective coating. This coating shall be effective against salty air and shall be easily removable at site.



GW-15.0 QUALITY ASSURANCE REQUIREMENTS**GW-15.1 General**

The Supplier shall have a well-organized Quality Management System which is relevant for the Works covered under the Contract to assure that items and services, including subcontracted items and services, will comply with this specification.

Within thirty (30) days of the Effective Date of Contract, the Supplier shall submit six (6) copies of his complete quality control and assurance procedures, and manuals for review and approval by NPC. The manual shall include pro-forma checklists for all requirements of the Supplier's quality control and assurance program and those called for in this Specification.

GW-15.2 Quality Assurance Program

The Supplier shall, for all work covered by the Contract:

- a) Establish procedures for adequate planning and resourcing of all quality related activities including the preparation of quality plans;
- b) Establish measures for the identification and control of items throughout all stages of the Contract. This shall include measures to maintain traceability as identified in agreed quality plans;
- c) Arrange for the protection of the quality of the product to include delivery to the specified destination; and
- d) Control their measuring and test equipment in accordance with the established procedures for measurements and calibration systems and ensure that such equipment that may be used by Sub-Suppliers to verify work is similarly controlled.

Where testing works are involved, the Supplier shall prepare contract-specific quality assurance procedures in agreement with NPC prior to commencement of such works.

The Supplier shall ensure that all computer systems and software to be utilized on the project are qualified for the application under consideration and such qualification is documented.

GW-15.3 Quality Plan

The Supplier shall establish and implement quality plans detailing the specific activities, design reviews, operations, control procedures, inspections, testing, approvals and certification requirements applicable. All procedures, which support the quality plan shall be referenced and distributed to NPC together with the quality plan. Quality plans shall be submitted to NPC for review and approval.

SECTION VI – TECHNICAL SPECIFICATION

GW-15.4 Records

The Supplier shall generate records as required by the quality assurance system and quality plans. Records, including audit reports shall be made available for inspection by NPC.

All records shall be concisely compiled, indexed and cross-referenced to the project contract number and the relevant subcontract numbers. They shall be clearly identifiable to the individual parts and assemblies to which they refer.

All records generated during the course of the Contract, including those generated as evidence of effective implementation of the quality assurance program of the Supplier and his Sub-Suppliers, shall be retained by the Supplier for a minimum period of five (5) years from the date of contract completion. These records shall be made available to NPC on request during the retention period.

GW-15.5 Reporting and Corrective Action

The Supplier's quality assurance program shall provide for prompt detection and correction of all conditions adversely affecting quality, including failures, malfunctions, incidents, trends, deficiencies, deviations, non-conformances, and defective materials.

GW-16.0 MEASUREMENT OF PAYMENT

Measurement of payment for all works shall be based on the requirements specified in the relevant clauses of the technical specifications or the bid price of each item as shown in the Schedule of Requirements. The cost shall cover all works required and described in the pertinent provisions of the specifications and for the satisfactory completion of each work.

GW-17.0 CERTIFICATE OF COMPLETION AND ACCEPTANCE

When all the works and services have been satisfactorily completed as required in the Contract, the Supplier may give notice to this effect to NPC. Such notice shall be deemed to be the basis for NPC to issue a Certificate of Completion in respect of the Works within fifteen (15) days of receipt of such notice. If defects had developed, said defects should have been corrected to the satisfaction of NPC and have undergone another warranty period reckoned after correction.

The warranty period for the completed works shall commence on the date of issuance of the Certificate of Completion.

After the lapse of the warranty period, provided that there are no defects found and/or pending repair works (including completion of the required Supplier's Service Personnel specified in Clause GW-18.0 as certified by (Authorized NPC Personnel), NPC shall issue the Certificate of Final Acceptance.



The issuance of Final Acceptance Certificate shall entitle the Supplier to Final Payment and to full release of retention money.

GW-18.0 GUARANTEE

The Supplier shall guarantee that he will repair, and/or replace, at his own expense, **equipment and machineries, against defect in design, workmanship and materials** and shall include labor, parts and travel time for necessary repairs at the plant site effective from date of issuance of Certificate of Completion for a period of **twenty-four (24) months**. Within this Parts Warranty, the Supplier shall assist NPC through every means possible to ensure the replacement of faulty parts (covered by the Warranty) within **three (3) business days**.

The Warranty Period is an additional requirement to the standard Component Warranties.

The Warranty Period shall commence on the day of Acceptance of the completion of the Project received by the Supplier from NPC.

The Supplier shall bear full transportation costs of faulty equipment and replacements of such parts being claimed under the Warranty for the entire duration on the Warranty Period.

The Supplier shall be the focal point for the life of the Warranties and all claims shall be undertaken through the Supplier for replacement of components and accessories.

The Supplier shall provide on-call support for issues beyond the technical capability of NPC as specified in the scope of works. If issues cannot be fixed or solved by telephone support, the Supplier must be able to send to the project site their appropriate staff within seventy-two (72) hours after NPC has notified the Supplier. The Supplier shall also identify and submit the name(s) and contact numbers of their local partner(s) in where NPC could acquire part(s) of the system.

This shall include any maintenance/repair services rendered upon request of NPC in the event of any abnormality occurs within the warranty period. For the minor repairs/replacements/adjustments as determined by the supplier, CBTs and/or NPC who had undergone training conducted by the supplier may perform the necessary repairs/replacements/adjustments, if authorized by the supplier through any means of available communications, provided that such repair shall not relieve the supplier of its obligation under the contract if such repair is not done properly.

The applicable guarantee period shall be exclusive of any downtime attributable to the Supplier. In case of equipment downtime occurs during the warranty period due to fault of the Supplier, the downtime hours shall be added to the required warranty period. Hence, the warranty period is extended with the equivalent downtime attributable to the Supplier.

Provided further that the release of the warranty bond/security is without prejudice to the terms provided by GW-18.0 and shall be done after the warranty period plus downtime attributable to Supplier, if any as certified by the concerned end-user.

Accordingly, the warranty bond shall be extended.

The Supplier guarantees that when the equipment and/or material are placed in operation and/or use, it will perform in the manner as set forth in the Contract.

GW-18.1 Component Warranties

The warranty against defect in design, workmanship and materials for the following components are as follows:

The components' manufacturers' warranties shall start at the same time the System Warranty commenced as detailed in GW-18.0 Guarantee.

Components	Warranty (yr)
PV Modules	10
Batteries	5
Charge Controllers	5
LED Bulbs	2
Other appliances not mentioned above	1

Table 10.0 Number of Years of Component's Warranty

SECTION VI

**PART I-TECHNICAL
SPECIFICATIONS**

ELECTRICAL WORKS



PART I – TECHNICAL SPECIFICATIONS

EW – ELECTRICAL WORKS

SOLAR HOME SYSTEM

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PART I – TECHNICAL SPECIFICATIONS**EW – ELECTRICAL WORKS****EW-1.0 SOLAR HOME SYSTEM**

This section provides the definition, scope of works, functional/ performance requirements, technical specifications and standards for the Solar PV modules, Charge Controllers, Lamps and LED Lights, Bundled Appliances, Cables and Wires, etc.

The complete package of the Portable Solar Home System Unit, or as per component basis, shall be designed, manufactured and tested in accordance to the latest edition of the Lighting Global Quality Standard for Solar Home System Kit. Proof of conformance/certification to the said standard shall be submitted during post-qualification.

EW-1.1 Solar PV Modules

- a) Rated Capacity of the Solar Home System shall be based on the rated output power of the solar PV module at standard test condition.
- b) The modules to be supplied shall have the same manufacturer and model for all project sites as required in this document, including the required number of spares. All PV modules shall be identical and use the same:
 - 1) Materials;
 - 2) Production processes and construction method; and
 - 3) Quality control procedures as a previously certified module
- c) The cells of the module to be supplied shall be in "series" and the module shall have positive tolerance only on nominal power.
- d) The modules shall be marine grade anodized aluminum frame with high transmission and high strength tempered glass. PV module shall be compatible with the retractable pipe support and shall be portable or easy to handle.
- e) The Solar PV modules shall be of the crystalline silicon type. The Supplier shall provide PV modules of the same type, brand, capacity and specifications to avoid mismatch losses. PV modules shall have a minimum efficiency of 14%. Each module shall be rated at least 30Wp.
- f) The Solar PV modules shall be designed, manufactured and tested in accordance with, but not limited to, the latest issue of the following codes and standards:

IEC	61215	Crystalline silicon (c-Si) terrestrial PV modules – Design qualification and type approval
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		AND
EN	50380	European health, safety, and environmental protection standards
		AND
IEC	61701	Salt mist corrosion testing of photovoltaic (PV) modules

A copy of the type qualification/test certificates of the solar PV module issued by ISO 17025 accredited test center in accordance with the abovementioned standards shall be submitted during post-qualification. Use of other standards shall be subject to the approval of the National Power Corporation.

- g) Each Solar PV Module's datasheet and nameplate shall provide the following minimum information:
1. Name and logo of original manufacturer or supplier
 2. Type designation and serial number
 3. Maximum system voltage
 4. Rated nominal power (P_{max}) at STC
 5. Short circuit current (I_{sc}) at STC
 6. Open circuit voltage (V_{oc}) at STC
 7. Voltage at maximum power point (V_{MPP}) at STC
 8. Current at maximum power point (I_{MPP}) at STC
- h) Protective devices against surges at the PV module shall be provided. By-pass diode shall be provided in the PV modules.
- i) Module junction box shall be designed for outdoor operation and shall have a protection rating of IP 65 or any approved equivalent. The connected DC cables in the module junction box shall be in accordance to EW-1.7.
- j) The manufacturer of the Solar PV module shall be **ISO 9001 and ISO 14001** certified. A copy of the valid ISO certification shall be submitted during post qualification.

EW-1.2 Solar Home System Unit Enclosure Box

EW-1.2.1 General

The Solar Home System Unit Enclosure Box shall be a robust "plug and play" type enclosure. It will house all the appurtenant equipment such as charge controller, batteries and other circuit protection necessary for safe and reliable operation of the system. Other descriptions and specifications of the enclosure box shall be determined hereunder.

EW-1.2.2 Characteristics and Requirements

- a) The SHS Unit Enclosure Box shall have dust and water droplets protection rating adequate to not interfere the operation of the system.
- b) It shall be equipped with electrical seal or other equivalent means to avoid unauthorized access. Each seal shall have unique serial. Type of lock mechanism shall be subject for approval of NPC.



- c) The SHS Unit Enclosure box shall be designed to cater the provisions for entry/exit points of cables, USB outlets, lighting source sockets and radio. Enclosure box shall have provision for handle and/or other equivalent means for the ease of handling.
- d) Each SHS Unit Enclosure Box shall have distinctive serial number engraved/burned to the box itself.

EW-1.3 Charge Controllers

EW-1.3.1 General

- a) The charge controller and batteries shall be housed within a robust “plug and play” Solar Home System Unit Enclosure Box, resistant to tampering and manufactured with all support or fixing system needed.
- b) The controller shall be specifically designed for Lithium-based battery management; the supplier shall provide proof or otherwise attest to this important point.
- c) The printed circuit boards (PCB) shall be coated with heavy duty varnish to protect from corrosion.
- d) The controllers shall be machine manufactured (no manual assembly and welding).
- e) The controller shall have a microprocessor, with static regulation; PWM is preferred; DC-DC converter with MPPT is also possible, but not required.
- f) The controller must be well protected against short-circuits, overload, reverse polarity and surge voltage.
- g) All parts of the compartment subject to battery electrolyte contact shall be corrosion resistant.
- h) The charge controller shall have a charging regime applicable to the battery, with voltage set points preset at the factory.
- i) The charge controllers shall be designed, manufactured and tested in accordance with, but not limited to, the latest issue of the following codes and standards:

IEC	62509	Performance and functioning of photovoltaic battery charge controllers
		OR
IEC	62093	BOS Components – Environmental reliability testing – Design qualification and type approval

A copy of the type qualification/test certificates of the charge controller issued by ISO 17025 accredited test center in accordance with the



abovementioned standards shall be submitted during post-qualification. Use of other standards shall be subject to the approval of the National Power Corporation.

- j) The controllers shall have CE Markings for electronics.
- k) Electronic automatically resettable cut-offs are required - mechanical fuses are not acceptable.
- l) The controller shall be able to safely accept 125% of the module open circuit voltage when battery is removed.
- m) The controller shall be able to safely accept 125% of the module short circuit current.
- n) Solar home system unit enclosure box shall have provision for USB outlets. Indication of the battery state of charge (SOC) and PV production be included and very didactic (easily understandable for every customer).

EW-1.3.2 Documentation and Labelling

A **label** with main characteristics of the **Solar Package** (manufacturer/assembler, type and reference, serial number, individual ID number, battery capacity, PV peak power, standards) shall be placed on the battery box.

The charge controller must be labelled indicating at minimum the following:

- Manufacturer
- Model Number
- Battery Li-ion and type (LiFePO4, NMC and LTO)]
- Nominal voltage
- PV and Load Currents
- Barcode

EW-1.4 Batteries

EW-1.4.1 General

- a) The Lithium based battery shall have a minimum of 18Ah storage capacity.
- b) For the protection of battery module, the charge controller shall control, in real time, the charge/discharge of battery module and shall prevent the batteries from operating outside its typical safe operating range. The charge controller shall protect the battery against full discharge by disconnecting the load when Depth of Discharge (DoD) reaches 80% and changing power direction for overcharging protection.
- c) Usable Energy of the batteries shall be at least (*refer to Section VI – GW-6.0 Supplier's Scope of Works*) within the warranty period. Testing shall be performed during factory acceptance and at least once a year, or as the need arises to ascertain the amount of usable



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energy. Bidder/manufacturer shall provide all test procedures subject to review and approval of the National Power Corporation.

- d) Acceptable battery chemistries are Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt Oxide and Lithium Titanate.
- e) Batteries' expected life under the solar design cycling conditions shall be based on the battery cycle life curves and shall have a cycle lifetime exceeding 2,000 cycles (5 years) @ nominal C-rate @25°C, before de-rating for temperature conditions.
- f) The batteries shall be designed, manufactured and tested in accordance with, but not limited to, the latest issue of the following codes and standards:

IEC	62133	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells and for batteries made from them, for use in portable applications OR
UL	1642	Standard for Lithium-ion batteries
AND		
IEC	61960-3	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for portable applications - Part 3: Prismatic and cylindrical lithium secondary cells and batteries made from them OR
IEC	61427-1	Secondary cells and batteries for renewable energy storage - General requirements and methods of test - Part 1: Photovoltaic off-grid application

A copy of the type qualification/test certificates of the Battery issued by ISO 17025 accredited test center in accordance with the abovementioned standards shall be submitted during the post-qualification. Use of other standards shall be subject to the approval of the National Power Corporation.

- g) The manufacturer of the Battery shall be **ISO 9001/14001** certified. A copy of the valid ISO certification shall be submitted during post qualification.

EW-1.4.2 Documentation and Labeling

The Supplier is required to provide the following data in the Battery Box being offered:

- 1) Manufacturer's Name
- 2) Battery Capacity
- 3) Type of the battery;



- 4) Battery Voltage;
- 5) Battery Capacity;
- 6) Warranty Information; and
- 7) Barcode

The Supplier is also required to provide the following test data for each Battery Type:

- 1) Battery discharge performance curves at C10 and C50, at a minimum
- 2) Battery cycling curves against IEC 61427-1:2013 or similar cycling test to 90% DoD.

EW-1:5 Lamps and LED Lights

EW-1.5.1 General

Lights, lamps and lighting fixtures shall have the following requirements:

- 1. Each lamp shall be made of high efficiency LEDs with an efficacy of at least 100lm/W with a wide light distribution angle.
- 2. Lamps to be supplied shall have a socket type of E27. If a diffuser is included, the cover should be dismountable to remove dust and insects.
- 3. All LED luminaires and integral LED lamps shall comply with the Illumination Engineering Society (IES) generally applicable standards.

IES-LM-79-08 Approved method for electrical and photometric measurements for solid state lighting products

IES-LM-80-08 Approved method for measuring lumen maintenance of LED light sources

IES-LM-21-11 Projecting long term lumen maintenance of LED light sources

All lanterns compliant with Lighting Global Standard IEC 62257-9-5 are acceptable as long as they provide the type of light service required herein.

Lamps that do not have Lighting Global Compliance Certification shall be supported by documentation or certificate stating that they provide the type of light service required.

- 1) Certificate stating that luminaires comply with general requirements as well as providing the test results for light output
- 2) Confirmation that LED lights are constructed using LM-79/80-certified LED chips and drivers, as well as providing the required KM certificates



A copy of the qualification/test certificates of the lights and issued by ISO 17025 accredited test center in accordance with the abovementioned standards shall be submitted during post-qualification. Use of other standards shall be subjected to the approval of the National Power Corporation.

4. Lumen maintenance as per IES-LM-80 and IES-LM-21: The lifetime of the LED package must exceed 20,000 hours when operating at rated voltage (at 25 deg. C). At the end of 20,000 hours, lumen output should be at least 70% of nominal value.
5. The switches shall withstand high cycle level as per IES-LM-80.
6. Temperature of the heat sink of the driver circuit of the LED lamp should be tested and at still air condition, increase in temperature of the heat sink should not be more than 20° Celsius after one-hour operation.
7. The rated color temperature of the supplied LED light shall be with the range of 5000 – 6000 K.
8. Lamps should have a way for attaching safely to ceiling or wall.
9. Each lamp shall have its own dedicated switch even for lamps connected in a daisy chain. Switches shall have ON/OFF function only. Dimmer switch is prohibited.

EW-1.5.2 Documentation and Labeling

Lamps shall be indelibly marked with the following information.

- Manufacturer's name
- Model
- Voltage and Power
- Date of Manufacture and/or Batch Number

Additional Requirements

All lights, lamps, LEDs shall have the following:

- Product brochures
- Luminous flux
- LED brand used, model number and certification
- Nominal voltage range
- Color temperature

EW-1.6 Bundled Appliances

Each unit of portable SHS shall have the following bundled appliances as part of the package.

EW-1.6.1 Radio: One AM/FM Radio

The one AM/FM radio shall be rechargeable type with its own internal replaceable battery for portability. In the case of the supplied SHS device has an integrated radio, it is not required to be removed. However, it is required for the Supplier to provide a separate device.

The radio shall be recharged through the USB port(s) and not through the lighting output ports.

Minimum Specifications

Particulars	Parameter
Type of port connection accepted	USB
Minimum autonomous run time (at 50% volume, radio function)	5 hours
Minimum speaker size	3W, 4Ohms
Required bands	AM and FM
Minimum energy capacity of battery	5Wh

EW-1.6.2 Torch Lamp

One torch lamp shall be supplied with a minimum of 50 Lumens and with a minimum autonomy of 5 hours.

The torch shall be rechargeable type through internal replaceable batteries with BMS. It shall be recharged through the USB port(s) and not through the lighting output ports. The outer torch lamp casing shall be made of high-grade aluminum metal.

Torch Lamp shall also be supplied as a separate device from the SHS unit. If the SHS unit has an integrated torch to it, it is not required to be removed.

Minimum Specifications

Particulars	Parameter
Type of port connection accepted	USB
Minimum autonomous run time (full brightness)	5 hours
Minimum lumen output	50 lms
Color temperature range	3.1 – 10,000 K
Maximum energy capacity of battery	5Wh

EW-1.7 Cables and Wires

The wiring of the SHS shall use stranded and flexible insulated copper.

Solar Cables

Exposed Solar DC Cables shall be multi-stranded copper conductors covered by flexible UV resistant sheath with polarity indication. It shall be sunlight and damp resistant with a minimum cross-sectional area of 2.5mm² with a maximum length of 8m for 30Wp.



Duplex Cables

Lighting system shall use multi-stranded copper conductors, with 2 parallel conductors in flexible UV resistant sheath and with polarity indication. From the charge controllers to the LED Lamps, DC cables shall have a minimum cross-sectional area of 0.5mm² with a maximum length of 10m for individual 3W-light and 5m for two 3W-light connected in parallel. For a circuit with a longer looms and has a greater number of parallel-connected LED lights, the cross-sectional area of the cable to be used shall be adjusted to 1.0mm².

EW-1.7.1 Cable Connectors

Snap connectors shall be used for field connections in joining “play & play” cables with polarity protected plugs.

Approved plugs/sockets include:

- a) Co-axial power connectors: 5.5mm OD, 2.1mm pin rated
- b) SAE connector

EW-1.8 Other Accessories

The supplier shall include all necessary accessories needed for a safe and reliable operation of the SHS. These include, but not limited, to those needed in supporting and fixing the portable SHS components (module, battery box, appliances, switches etc.)

EW-1.9.1 Pipe Support

The GI pipe shall have a dimension of 2.7m in length and 1.25” in diameter. The thickness shall be rated schedule 40. It shall be tapered and retractable for easy access and ease of handling during transport. This shall be designed for ground and side house mounted as required by the actual site condition.

Mounting brackets shall be hot dipped galvanized and shall be responsible to hold the PV module through clamps and/or bolts to assure the 10°-15° tilt of the PV module with respect to the horizon. Bolts, nuts, washers and any other fasteners shall be made of stainless steel.

EW-2.0 MEASUREMENT OF PAYMENT

Measurement of payment for all electrical works shall be based on the bid price of each item as shown in the Schedule of Requirements – Electrical Works, Section VII of the Bid Document. The cost of each item shall cover all works required and described in the pertinent provisions of the specifications.

SECTION VI

PART II-TECHNICAL DATA SHEETS

DOCUMENTS TO BE SUBMITTED WITH THE BID

**DOCUMENTS TO BE SUBMITTED DURING POST
QUALIFICATION**



SECTION VI

PART II-TECHNICAL DATA SHEETS

ELECTRICAL WORKS

DOCUMENTS TO BE SUBMITTED WITH THE BID



PART II – TECHNICAL DATA SHEETS

EW- ELECTRICAL WORKS

Documents to be Submitted with the Bid

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Annex A	Letter of Authorization and Guarantee Statement	1
Annex B	Schematic Diagram	2
Annex C.1	Solar Home System	3
Annex C.2	Solar PV Modules	3
Annex C.3	Battery	3
Annex C.4	Charge Controller	3

PART II - TECHNICAL DATA SHEETS

EW – Electrical Works

Technical Requirements

1. The Bidder is required to provide all the information required under the column "Supplier's Data". Although not given by NPC, the Supplier's Data shall be based on the International Standard.
2. NPC's requirements are indicated below. The Supplier shall indicate their data corresponding to the said NPC requirements to facilitate evaluation of Supplier's compliance to the specifications.
3. Deviation from the requirements indicated in the technical data sheets and non-submission of the required drawings and documents listed as Annexes A to B and C-1.0 to C-4.0 shall be ground for disqualification.
4. All data and information specified in the requirements shall be in English language.

ANNEX A - DRAWINGS AND DOCUMENTS TO BE SUBMITTED WITH THE BID

The following *Drawings* and *Documents* shall be submitted by the Supplier in **sequential order** as listed hereunder and shall be attached in the bid documents as **Annexes**. All data and information shall be in English language.

Letter of Authorization and Guarantee Statement for the following:

- A.1 Solar PV (SPV) Module
- A.2 Battery
- A.3 Solar Home System Unit Enclosure Box

The Letter of Authorization and Guarantee Statement shall be from:

1. Original Equipment Manufacturer (OEM) or
2. Licensee of the OEM accompanied by a Certification from OEM as a Licensee or the Licensee Agreement or
3. Authorized Distributor (accompanied by a Certificate of Authorized Distributorship from the OEM/ Licensee of the OEM. If from the Licensee, a Certification from the OEM as a Licensee or the Licensee Agreement must also be submitted).

Note: Documents or brochures submitted must be in English language as stated in Section II-ITB Clause 11.0.

ANNEX B - DRAWINGS AND DOCUMENTS TO BE SUBMITTED WITH THE BID

The following *Drawings* and *Documents* shall be submitted by the Supplier in **sequential order** as listed hereunder as **Annexes** during the bid process. All data and information shall be in English language and shall be drawn using the metric system as unit of measurement.

Annex B	Schematic Diagram of the Proposed Solar Home System showing all equipment/components to be furnished.
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Note: Failure to submit drawings and documents listed hereunder Annex B shall be ground for disqualification.

ANNEX C.1 – SOLAR HOME SYSTEM

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
C-1.1	Calculated Demand Load of Solar Home System (W)	10	

ANNEX C.2 – SOLAR PV MODULES

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
C-2.1	Manufacturer	By Supplier	
C-2.2	Model	By Supplier	
C-2.3	Place of Manufacture	By Supplier	
C-2.4	Cell Type	Crystalline Silicon	
C-2.5	Rated Power (Wp) at STC	At least 30	
C-2.6	Module Efficiency	At least 14%	

ANNEX C.3 – BATTERY

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
C-3.1	Manufacturer	By Supplier	
C-3.2	Model	By Supplier	
C-3.3	Chemistry	Refer to EW-1.4.1(d)	
C-3.4	Nominal Capacity (Ah)	At least 18	

ANNEX C.4 – CHARGE CONTROLLER

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
C-4.1	Manufacturer	By Supplier	
C-4.2	Model	By Supplier	
C-4.3	Place of Manufacture	By Supplier	
C-4.4	Charging/Discharging Method	PWM/MPPT	



ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
C-4.5	Nominal Output Voltage (V)	12	



SECTION VI

PART II-TECHNICAL DATA SHEETS

ELECTRICAL WORKS

**DOCUMENTS TO BE SUBMITTED DURING POST
QUALIFICATION**

PART II – TECHNICAL DATA SHEETS

EW- ELECTRICAL WORKS

Documents to be Submitted during Post-Qualification

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SECTION	DESCRIPTION	PAGE
Annex E.1	Solar PV Modules	VI-TDS (EW)-PQ-i
Annex E.2	Battery	VI-TDS (EW)-PQ-i
Annex E.3	Charge Controller	VI-TDS (EW)-PQ-i
Annex E.4	Lamps and LED Lights	VI-TDS (EW)-PQ-2
Annex E.5	AM/FM Radio	VI-TDS (EW)-PQ-2
Annex E.6	Torch Lamp	VI-TDS (EW)-PQ-3
Annex E.7	DC Cables	VI-TDS (EW)-PQ-3
Annex E.8	Pipe Support	VI-TDS (EW)-PQ-4
Annex E.9	Spare Parts for Solar Home System and Auxiliaries (Minimum Requirements as Specified in the Technical Specifications and Manufacturer's Standard and Recommended Spare Parts)	VI-TDS (EW)-PQ-5
Annex E.10	Standard / Special Tools for Solar PV System (Minimum Requirements as Specified in The Technical Specifications and Manufacturer's Standard and Recommended Tools)	VI-TDS (EW)-PQ-5
Annex E.11	List of Other Documents To Be Submitted in Addition To The Technical Data Sheets	VI-TDS (EW)-PQ-7



PART II - TECHNICAL DATA SHEETS

EW – Electrical Works

Technical Requirements

1. The Bidder shall complete and submit this document during the post-qualification which shall serve as reference for the review and approval of brochure/drawings. The Bidder shall use additional sheets as necessary for any other additional information following the format shown herein or by reproducing the same.
2. The Bidder is required to provide all the information required under the Column "Supplier's Data". Although not given by NPC, the Supplier's Data shall be based on the International Standard.
3. NPC's requirements are indicated below. The Supplier shall indicate their data corresponding to the said NPC requirements to facilitate evaluation of Supplier's compliance to the specifications. The data required are technical features and characteristics of the Equipment to be provided by the bidder which shall at least be equal or superior to NPC's requirements.
4. The bidder shall provide copies of the manufacture's and equipment certifications as listed in this document
5. Non submission of the required documents shall be a ground for disqualification.

ANNEX E.1 – SOLAR PV MODULES

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-1.1	Solar PV Module Service Life	By Supplier	
E-1.2	Rated Voltage (V) at STC	By Supplier	
E-1.3	Rated Current (A) at STC	By Supplier	
E-1.4	Open Circuit Voltage (V _{oc}) at STC	By Supplier	
E-1.5	Short Circuit Current (I _{sc}) at STC	By Supplier	
E-1.6	Dimension (L x W)	By Supplier	
E-1.7	Weight (kg)	By Supplier	
E-1.8	Junction Box IP Rating	IP65	

ANNEX E.2 – BATTERY

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-2.1	Nominal Terminal Voltage (V _{DC})	12.8	
E-2.2	Nominal C-rate @ 25°C	1	
E-2.3	Cycle Lifetime	At least 2000	
E-2.4	Dimension, Length x Width x Height (m)	By Supplier	
E-2.5	Gross Weight (kg)	By Supplier	

ANNEX E.3 – CHARGE CONTROLLER

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-3.1	Technical and Functional Requirements as stated in EW-1.3	Required	
E-3.2	Nominal Charge / Discharge Current (A)	By Supplier	

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ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-3.3	Maximum Charging Current (A)	By Supplier	
E-3.4	Maximum Discharge Current (A)	By Supplier	
E-3.5	Short Circuit Protection	Required	
E-3.6	Overload Current Protection	Required	
E-3.7	Reverse Polarity Protection	Required	
E-3.8	Surge Voltage Protection	Required	

ANNEX E.4 – LAMPS AND LED LIGHTS

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-4.1	Manufacturer	By Supplier	
E-4.2	Model	By Supplier	
E-4.3	Wattage (W)	1, 2 & 3	
E-4.4	Nominal Voltage (V _{DC})	12	
E-4.5	Luminous Flux (Lm/W)	At least 100	
E-4.6	Color Temperature Range (K)	5,000 – 6,000	
E-4.7	Life Hours (Hr)	20,000	
E-4.8	Socket Type	E27	

ANNEX E.5 – AM/FM RADIO

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-5.1	Manufacturer	By Supplier	

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SECTION VI – TECHNICAL SPECIFICATION

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-5.2	Model	By Supplier	
E-5.3	Type of Port Connection Accepted	USB	
E-5.4	Minimum Autonomous Run Time @ 50% Volume (Hr)	5	
E-5.5	Minimum Speaker Size	3 W, 40hms	
E-5.6	Required Bands	AM & FM	
E-5.7	Minimum Energy Capacity of Battery (Wh)	5	

ANNEX E.6 – TORCH LAMP

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-6.1	Manufacturer	By Supplier	
E-6.2	Model	By Supplier	
E-6.3	Type of Port Connection Accepted	USB	
E-6.4	Minimum Autonomous Run Time @ Full Brightness (Hr)	5	
E-6.5	Luminous Flux (Lm)	At least 50	
E-6.6	Color Temperature Range (K)	3.1 – 10,000	
E-6.7	Maximum Energy Capacity of Battery (Wh)	5	

ANNEX E.7 – DC CABLES

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
Solar Cable			
E-7.1	Manufacturer	By Supplier	

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ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-7.2	Brand	By Supplier	
E-7.3	Minimum Conductor Size (mm ²)	2.5	
E-7.4	Ampacity (A)	By Supplier	
E-7.5	Rated Operating Temperature (°C)	By Supplier	
E-7.6	Conductor Material	Copper Stranded Wire	
E-7.7	Type of Insulation	Refer to EW-1.7	
E-7.8	Polarity Indication	Required	
Duplex Cable			
E-7.9	Manufacturer	By Supplier	
E-7.10	Brand	By Supplier	
E-7.11	Cable Type	Duplex	
E-7.12	Ampacity (A)	By Supplier	
E-7.13	Rated Operating Temperature (°C)	By Supplier	
E-7.14	Conductor Material	Stranded Copper	
E-7.15	Type of Insulation	Refer to EW-1.7	
E-7.16	Polarity Indication	Required	

ANNEX E.8 – PIPE SUPPORT

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-8.1	Total Length (m)	2.7	
E-8.2	Diameter (in)	1.25	

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ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-8.3	Retractable	Required	

ANNEX E.9 – SPARE PARTS FOR SOLAR HOME SYSTEM AND AUXILIARIES¹ (Minimum Requirements as Specified in the Technical Specifications and Manufacturer's Standard and Recommended Spare Parts)

ITEM	DESCRIPTION	QTY.	SHELF LIFE	INTERVAL OF REPLACEMENT
E-9.1	SHS units/kits	4		
E-9.2	PV Modules	24		
E-9.3	Battery	24		
E-9.4	SHS Unit Enclosure Box	24		
E-9.5	Charge Controller	24		
E-9.6	3W LED Bulb (complete with sockets, wires switches and plugs)	34		
E-9.7	2W LED Bulb (complete with sockets, wires switches and plugs)	68		
E-9.8	1W LED Bulb (complete with sockets, wires switches and plugs)	34		
E-9.9	Torch Lamp	24		
E-9.10	Other spare parts recommended by Manufacturer	1 lot		
	1.			
	2.			
	3.			

ANNEX E.10 – STANDARD / SPECIAL TOOLS FOR SOLAR HOME SYSTEM² (Minimum Requirements as Specified in the Technical Specifications and Manufacturer's Standard and Recommended Tools)

ITEM	DESCRIPTION	QTY.	UNIT PRICE	TOTAL PRICE
For Maintenance				
E-10.1	Digital Multimeter, 0-10Vac/1-200Vdc with fuse protection	15 pcs		

¹ Refer to GW-7.0 Spare Parts

² Refer to GW-8.0 Tools and Appliances

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E-10.2	Phillips Screwdriver (positive) – (#1)	15 pcs		
E-10.3	Slotted Screwdriver (negative) – (3/16")	15 pcs		
E-10.4	Jeweler's Screw Drivers (#0, #1, #2 #3)	15 sets		
E-10.5	Side Diagonal Cutting Pliers, 6" long, Heavy duty	15 pcs		
E-10.6	Wire Stripper Pliers, 0.2-6mm stripping capability, Heavy duty	15 pcs		
E-10.7	Long Nose Pliers, 6" long, Heavy duty	15 pcs		
E-10.8	Lineman Pliers, 7" long, Heavy duty	15 pcs		
E-10.9	Adapted tool for tamperproof lock	15 pcs		
E-10.10	Hand Gloves	26 pairs		
E-10.11	50W Soldering Iron with soldering lead, stand and desoldering pump	15 sets		
E-10.12	Robust Toolbox, minimum of 10" W x19" H	15 pcs		
E-10.13	Tamperproof Lock	1,111 pcs		
E-10.14	DC Power Supply	115 sets		
E-10.15	Backup copies of control programs/software and/or firmware and other configuration software for the vending machines	1 lot		
E-10.16	Other Standard/Special Tools recommended by Manufacturer for Installation and Maintenance	1 lot		
	1.			
	2.			
	3.			

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ANNEX E.11 – LIST OF OTHER DOCUMENTS TO BE SUBMITTED IN ADDITION TO THE TECHNICAL DATA SHEETS

Manufacturer's Certification Requirements

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
SOLAR PV (SPV) MODULE			
E-10.1	ISO 9001 Certificate of the Manufacturer	Required	
E-10.2	ISO 14001 Certificate of the Manufacturer	Required	
BATTERIES			
E-10.3	ISO 9001 Certificate of the Manufacturer OR ISO 14001 Certificate of the Manufacturer	Required	

Equipment Certification Requirements

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
SOLAR PV (SPV) MODULE			
E-10.4	IEC 61215 - Crystalline Silicon Terrestrial Photovoltaic (PV) Modules- Design Qualification and Type Approval	Required	
E-10.5	EN 50380 - European health, safety, and environmental protection standards	Required	
E-10.6	IEC 61701 - Salt mist corrosion testing of photovoltaic (PV) modules	Required	
CHARGE CONTROLLER			
E-10.7	IEC 62509 - Performance and functioning of photovoltaic battery charge controllers OR	Required	

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ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
	IEC 62093 - BOS Components – Environmental reliability testing – Design qualification and type approval		
BATTERIES			
E-10.8	IEC 62133 - Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells and for batteries made from them, for use in portable applications OR UL 1642 - Standard for Lithium-ion batteries	Required	
E-10.9	IEC 61960-3 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for portable applications - Part 3: Prismatic and cylindrical lithium secondary cells and batteries made from them OR IEC 61427-1 - Secondary cells and batteries for renewable energy storage - General requirements and methods of test - Part 1: Photovoltaic off-grid application	Required	
LAMPS AND LED LIGHTS³			
E-10.10	IES-LM-79-08 - Approved method for electrical and photometric measurements for solid state lighting products	Required	
E-10.11	IES-LM-80-08 - Approved method for measuring lumen maintenance of LED light sources	Required	
E-10.12	IES-LM-21-11 - Projecting long term lumen maintenance of LED	Required	

³ Refer to EW-1.5.1 for other approved equivalent standards.

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SECTION VI – TECHNICAL SPECIFICATION

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
	light sources		

Other Requirement

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
E-10.13	Proof of conformance/certification to Lighting Global Quality Standard for Solar Home System Kit.	Required	
E-10.14	Certificate of Site Inspection Duly Signed by Authorized NPC Personnel ⁴	Required	

⁴ Refer to GW-4.0 Site Inspection.

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SECTION VII

SCHEDULE OF REQUIREMENTS

SECTION VII - SCHEDULE OF REQUIREMENTS
BPS.1 - Breakdown of Prices
VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO

Item No.	Description of Work or Materials	QTY.- UNIT	C O D E	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM ABROAD				UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM WITHIN THE PHILIPPINES			TOTAL PRICE	
				Unit Price of Goods or Services Foreign Currency ()**	Import Duties & other Levies Imposed by Phil. Govt. (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Port to Delivery Site *** (Phil. Peso)	Unit Price of Goods or Services (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport to Delivery Site *** (Phil. Peso)	Forex Currency (E x C)	Local Currency Portion (Phil. Peso) ((F+G+H) x C) or ((I+J+K) x C)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
A	PORTABLE SOLAR HOME SYSTEM	1,111	Set									
A.1	Solar Panel, Crystalline Silicon Modules including Terminal Cables, Junction Box with Embedded Bypass and other appurtenances as described in the Technical Specifications, and Technical Data Sheet.											
A.2	Solar Home System Unit Enclosure box with corresponding female USB ports, Lighting Outlet of 5.5mmØ Co-axial Power Connector, 2.1mm Pin Rated, Female, Battery Cells, Terminal Lugs/Clips, Linking Conductors, Charge Controller, Battery Protection System complete with the required accessories as described in the Technical Specifications and Technical Data Sheet.											
A.3	Lighting system of the Solar Home complete with the required Lamps, Lighting Fixtures/Outlets, Switches, Cables as described in the Technical Specifications.											
A.4	Bundled Appliances including AM/FM Radio and Torch Lamp and other accessories as described in the Technical Specifications and Technical Data Sheet.											
A.5	Power, Control & Instrumentation Cables complete with the required accessories for cabling works to interface the supplied equipment to the 12Vdc System as described in the Technical Specifications, Technical Data Sheet.											
	a. Pre-cutted 2.5 mm ² Multi Stranded Copper Conductor, 1000Vdc, UV Resistant DC Cable											
	b. Pre-cutted 0.5 mm ² Multi Stranded Copper Conductor, 12Vdc, UV Resistant Duplex DC Cable											
A.6	Conduits, cable connector and switches complete with the required accessories for cabling works as described in the Technical Specifications and Technical Data Sheets.											
	a. 5.5 mm Ø Co-axial Power Connector, 2.1 mm Pin Rated, Male											
	b. DC Switches											
	c. Cable Clips, appropriate Fasteners and other necessary materials or equipment for the											
A.7	Pipe/Conduit Support Structure complete with GI Pipe, 2.7m, 1.25" dia. Tapered, Schedule 40 and Mounting Brackets (Hot dipped galvanized) including stainless steel clamps/bolts, nuts and washers											
SUB-TOTAL A				(Amount in Words)								
B	SPARE PARTS											
B.1	SHS units/kits complete with auxiliaries and accessories as described in Item Letter A	4	Set									
B.2	PV Modules	24	Pc									
B.3	Battery	24	Pc									
B.4	SHS Unit Enclosure Box complete with ancillary equipment and components as described in Technical Specifications	24	Set									
B.5	Charge Controller	24	Pc									
B.6	Torch Lamp	20	Pc									
B.7	PV Module Mounting Hardware	12	Set									
B.8	3W, 12Vdc LED Lamp with receptacle as described in Technical Specifications and Technical Data Sheets	34	Pc									
B.9	2W, 12Vdc LED Lamp with receptacle as described in Technical Specifications and Technical Data Sheets	68	Pc									

Notes: Final delivery site of all equipment/materials shall be at the plant site stated above.

* Bidders shall enter a code representing the Country of Origin of all imported equipment, materials and accessories.

** Cost of equipment, freight, insurance, etc. up to Phil. port of entry. Refer to (TB-16.1.(b)).

*** Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry or Local Manufacturing Plant to final delivery site.

Code	Country of Origin
US	United States
-	

Name of Bidder

Name and Signature of Authorized Representative

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SECTION VII - SCHEDULE OF REQUIREMENTS
BPS.1 - Breakdown of Prices
VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO

Item No.	Description of Work or Materials	QTY.- UNIT		UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM ABROAD				UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM WITHIN THE PHILIPPINES			TOTAL PRICE	
				C O D E	Unit Price of Goods of Services Foreign Currency ()**	Import Duties & other Levies Imposed by Phil. Govt. (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Port to Delivery Site *** (Phil. Peso)	Unit Price of Goods or Services (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport to Delivery Site *** (Phil. Peso)	Forex Currency (E x C)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
B.10	1W, 12Vdc LED Lamp with receptacle as described in Technical Specifications and Technical Data Sheets	34	Pc									
B.11	Other spare parts recommended by Manufacturer	1	Lot									
SUB-TOTAL B				(Amount in Words)								
C	TOOLS AND APPLIANCES											
C.1	Digital Multimeter, 0-10Vac/1-200Vdc with fuse protection	15	Pc									
C.2	Phillips Screwdriver (positive) - (#1)	15	Pc									
C.3	Slotted Screwdriver (negative) - (3/16")	15	Pc									
C.4	Jeweler's Screw Drivers (#0, #1, #2, #3)	15	Set									
C.5	Side Diagonal Cutting Pliers, 6" long, Heavy duty	15	Pc									
C.6	Wire Stripper Pliers, 0.2-6mm stripping capability, Heavy duty	15	Pc									
C.7	Long Nose Pliers, 6" long, Heavy duty	15	Pc									
C.8	Lineman Pliers, 7" long, Heavy duty	15	Pc									
C.9	Adapted tool for lamperproof lock	15	Pc									
C.10	Hand Gloves	25	Pair									
C.11	50W Soldering Iron with soldering lead, stand and desoldering pump	15	Set									
C.12	Robust Toolbox, minimum of 10" W x 19" H	15	Pc									
C.13	Tamperproof Lock	1,111	Pc									
C.14	DC Power Supply	115	Set									
C.15	Backup copies of control programs/software and/or firmware and other configuration software for the vending machines	1	Lot									
C.16	Other Standard/Special Tools recommended by Manufacturer for Installation and Maintenance	1	Lot									
SUB-TOTAL C				(Amount in Words)								
D	OTHER WORKS/SUPPLY/SERVICES											
D.1	Training and workshop for NPC Personnel and/or Community Based Technicians as described in GW-13.0 Training of NPC Personnel and Technicians.	1	Lot									
D.2	Two (2) yr Full System Warranty including operation, maintenance, troubleshooting and regular equipment/system diagnostics and its corresponding costs during the warranty period as described in GW-18.0 Guarantee.	1	Lot									
SUB-TOTAL D				(Amount in Words)								
GRAND TOTAL				(Amount in Words)								

Notes: Final delivery site of all equipment/materials shall be at the plant site stated above.

* Bidders shall enter a code representing the Country of Origin of all imported equipment, materials and accessories.

** Cost of equipment, freight, insurance, etc. up to Phil. port of entry. Refer to ITB-15.1.(b).

*** Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry or Local Manufacturing Plant to final delivery site.

Code	Country of Origin
US	United States

Name of Bidder

Name and Signature of Authorized Representative

Designation



SECTION VIII

BIDDING FORMS

SECTION VIII – BIDDING FORMS

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Standard Form No: NPCSF-GOODS-01

Checklist of Technical & Financial Envelope Requirements for Bidders**A. THE 1ST ENVELOPE (TECHNICAL COMPONENT) SHALL CONTAIN THE FOLLOWING:****1. Eligibility Documents****a. (CLASS A)**

- PhilGEPs Certificate of Registration and Membership under Platinum Category (all pages) in accordance with Section 8.5.2 of the Revised IRR of RA. 9184;

Note: The failure by the prospective bidder to update its Certificate with the current and updated Class “A” eligibility documents shall result in the automatic suspension of the validity of its Certificate until such time that all of the expired Class “A” eligibility documents has been updated

- Statement of all its ongoing government and private contracts if any, whether similar or not similar in nature and complexity to the contract to be bid (*NPCSF-GOODS-02*)
- The Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, and whose value, adjusted to current prices using the Philippine Statistics Authority (PSA) consumer price index, must be at least 50% of the ABC (*NPCSF-GOODS-03*) complete with the following supporting documents:

1. Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice

(The Single Largest Completed Contract (SLCC) as declared by the bidder shall be verified and validated to ascertain such completed contract. Hence, bidders must ensure access to sites of such projects/equipment to NPC representatives for verification and validation purposes during post-qualification process.

It shall be a ground for disqualification, if verification and validation cannot be conducted for reasons attributable to the Bidder.)

- Duly signed computation of its Net Financial Contracting Capacity (NFCC) at least equal to the ABC (*NPCSF-GOODS-04*) or a Committed Line of Credit (CLC) at least equal to ten percent (10%) of the ABC, issued by a Universal or Commercial Bank; If the Bidder opted to submit a Committed Line of Credit (CLC), the bidder must submit a granted credit line valid/effective at the date of bidding.

b. (CLASS B)

- For Joint Venture (if applicable), any of the following:

- Valid Joint Venture Agreement (*NPCSF-GOODS-05*)

OR

- Notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA, if awarded the contract

- Certification from the relevant government office of their country stating that Filipinos are allowed to participate in their government procurement activities for the same item/product (*For foreign bidders claiming eligibility by reason of their country’s extension of reciprocal rights to Filipinos*)

Standard Form No: NPCSF-GOODS-01

2. Technical Documents

- Bid Security, any one of the following:
 - Bid Securing Declaration (NPCSF-GOODS-06c)
OR
 - Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank – 2% of ABC;
OR
 - Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: (NPCSF-GOODS-06a) - 2% of ABC;
OR
 - Surety Bond callable upon demand issued by a reputable surety or insurance company (NPCSF-GOODS-06b) - 5% of ABC, with
 - Certification from the Insurance Commission as authorized company to issue surety
- Duly signed, completely filled-out and notarized Omnibus Sworn statement (Revised) (NPCSF-GOODS-07), complete with the following attachments:
 - For Sole Proprietorship:
 - Special Power of Attorney
 - For Partnership/Corporation/Cooperative/Joint Venture:
 - Document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)
- Drawings & Documents to be submitted with the Bid, as specified in Clause GW-11.2 of Section VI - Technical Specifications (GW-General Works)
- Complete eligibility documents of the proposed subcontractor, if any

B. THE 2ND ENVELOPE (FINANCIAL COMPONENT) SHALL CONTAIN THE FOLLOWING:

- Duly signed Bid Letter indicating the total bid amount in accordance with the prescribed form (NPCSF-GOODS-08)
- Duly signed and completely filled-out Schedule of Requirement (Section VII) indicating the unit and total prices per item and the total amount in the prescribed Price Schedule form.
- For Domestic Bidder claiming for domestic preference:
 - Letter address to the BAC claiming for preference
 - Certification from DTI as Domestic Bidder in accordance with the prescribed forms provided

Standard Form No: NPCSF-GOODS-01

CONDITIONS:

1. Each Bidder shall submit Two (2) copies of the first and second components of its Bid, marked Original and photocopy. Only the original copy will be read and considered for the bid. Any misplaced document outside of the Original copy will not be considered. The photocopy is ONLY FOR REFERENCE. NPC may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.
2. In the case of foreign bidders, the eligibility requirements under Class "A" Documents (except for Tax Clearance) may be substituted by the appropriate equivalent documents, if any, issued by the country of the foreign bidder concerned. The eligibility requirements or statements, the bids, and all other documents to be submitted to the BAC must be in English. If the eligibility requirements or statements, the bids, and all other documents submitted to the BAC are in foreign language other than English, it must be accompanied by a translation of the documents in English. The documents shall be translated by the relevant foreign government agency, the foreign government agency authorized to translate documents, or a registered translator in the foreign bidder's country; and shall be authenticated by the appropriate Philippine foreign service establishment/post or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines.

These documents shall be accompanied by a Sworn Statement in a form prescribed by the GPPB stating that the documents submitted are complete and authentic copies of the original, and all statements and information provided therein are true and correct. Upon receipt of the said documents, the PhilGEPS shall process the same in accordance with the guidelines on the Government of the Philippines – Official Merchants Registry (GoP-OMR).
3. A Bidder not submitting bid for reason that his cost estimate is higher than the ABC, is required to submit his letter of non-participation/regret supported by corresponding detailed estimates. Failure to submit the two (2) documents shall be understood as acts that tend to defeat the purpose of public bidding without valid reason as stated under Section 69.1.(i) of the revised IRR of R.A. 9184.

Standard Form Number: NPCSF-GOODS-03

The Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid

Business Name : _____
 Business Address : _____

Name of Contract	a. Owner’s Name b. Address c. Telephone Nos.	Nature of Work	Contractor’s Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed
			Description	%		

- Notes: 1. The bidder must state only one (1) Single Largest Completed Contract (SLCC) similar to the contract to be bid.
 2. Supporting documents such as Contract/Purchase Order and any of the following: Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice for the contract stated above shall be submitted during Bid Opening.

Submitted by : _____
 (Printed Name & Signature)
 Designation : _____
 Date : _____

Standard Form Number: NPCSF-GOODS-04

NET FINANCIAL CONTRACTING CAPACITY (NFCC)

- A. Summary of the Supplier's/Distributor's/Manufacturer's assets and liabilities on the basis of the income tax return and audited financial statement for the immediately preceding calendar year are:

		Year 20__
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = [(Current assets minus current liabilities) x 15] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract for this Project.

NFCC = P _____

Herewith attached is certified true copy of the audited financial statement, stamped "RECEIVED" by the BIR or BIR authorized collecting agent for the immediately preceding calendar year.

Submitted by:

Name of Supplier / Distributor / Manufacturer

Signature of Authorized Representative

Date : _____

Standard Form Number: NPCSF-GOODS-05

JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into by and between: _____, of legal age, *(civil status)* _____, authorized representative of _____ and a resident of _____.

- and -

_____, of legal age, *(civil status)* _____, authorized representative of _____ a resident of _____.

That both parties agree to join together their capital, manpower, equipment, and other resources and efforts to enable the Joint Venture to participate in the Bidding and Undertaking of the hereunder stated Contract of the **National Power Corporation**.

NAME OF PROJECT

CONTRACT AMOUNT

That the capital contribution of each member firm:

NAME OF FIRM	CAPITAL CONTRIBUTION
1.	P
2.	P

That both parties agree to be jointly and severally liable for their participation in the Bidding and Undertaking of the said contract.

That both parties agree that _____ and/or _____ shall be the Official Representative/s of the Joint Venture, and are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the Bidding and Undertaking of the said contract, as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

That this Joint Venture Agreement shall remain in effect only for the above stated Contract until terminated by both parties.

Name & Signature of Authorized Representative

Official Designation

Name of Firm

Name & Signature of Authorized Representative

Official Designation

Name of Firm

Witnesses

1. _____ 2. _____

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Standard Form Number: NPCSF-GOODS-06a

FORM OF BID SECURITY (BANK GUARANTEE)

WHEREAS, (Name of Bidder) (hereinafter called "the Bidder") has submitted his bid dated (Date) for the [name of project] (hereinafter called "the Bid").

KNOW ALL MEN by these presents that We (Name of Bank) of (Name of Country) having our registered office at _____ (hereinafter called "the Bank" are bound unto National Power Corporation (hereinafter called "the Entity") in the sum of [amount in words & figures as prescribed in the bidding documents] for which payment well and truly to be made to the said Entity the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20__.

THE CONDITIONS of this obligation are that:

- 1) if the Bidder withdraws his Bid during the period of bid validity specified in the Bidding Documents; or
- 2) if the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
- 3) if the Bidder, having determined as the LCB, fails or refuses to submit the required tax clearance, latest income and business tax returns and PhilGEPs registration certificate within the prescribed period; or
- 4) if the Bidder having been notified of the acceptance of his bid and award of contract to him by the Entity during the period of bid validity:
 - a) fails or refuses to execute the Contract; or
 - b) fails or refuses to submit the required valid JVA, if applicable; or
 - c) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

we undertake to pay to the Entity up to the above amount upon receipt of his first written demand, without the Entity having to substantiate its demand, provided that in his demand the Entity will note that the amount claimed by it is due to the occurrence of any one or combination of the four (4) conditions stated above.

The Guarantee will remain in force up to 120 days after the opening of bids or as it may be extended by the Entity, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE _____ SIGNATURE OF THE BANK _____

WITNESS _____ SEAL _____

(Signature, Name and Address)

Standard Form Number: NPCSF-GOODS-06b

FORM OF BID SECURITY (SURETY BOND)

BOND NO.: _____ DATE BOND EXECUTED: _____

By this bond, We (Name of Bidder) (hereinafter called "the Principal") and (Name of Surety) of (Name of Country of Surety), authorized to transact business in the Philippines (hereinafter called "the Surety") are held and firmly bound unto National Power Corporation (hereinafter called "the Employer") as Obligee, in the sum of (amount in words & figures as prescribed in the bidding documents), callable on demand, for the payment of which sum, well and truly to be made, we, the said Principal and Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

SEALED with our seals and dated this _____ day of _____ 20 _____

WHEREAS, the Principal has submitted a written Bid to the Employer dated the _____ day of _____ 20 _____, for the _____ (hereinafter called "the Bid").

NOW, THEREFORE, the conditions of this obligation are:

- 1) if the Bidder withdraws his Bid during the period of bid validity specified in the Bidding Documents; or
- 2) if the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
- 3) if the Bidder, having determined as the LCB, fails or refuses to submit the required tax clearance, latest income and business tax returns and PhilGEPs registration certificate within the prescribed period; or
- 4) if the Bidder having been notified of the acceptance of his bid and award of contract to him by the Entity during the period of bid validity:
 - a) fails or refuses to execute the Contract; or
 - b) fails or refuses to submit the required valid JVA, if applicable; or
 - c) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

then this obligation shall remain in full force and effect, otherwise it shall be null and void.

PROVIDED HOWEVER, that the Surety shall not be:

- a) liable for a greater sum than the specified penalty of this bond, nor
- b) liable for a greater sum than the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

SECTION VIII – BIDDING FORMS

Standard Form Number: NPCSF-GOODS-06b
Page 2 of 2

This Surety executing this instrument hereby agrees that its obligation shall be valid for 120 calendar days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Surety is hereby waived.

PRINCIPAL _____ SURETY _____

SIGNATURE(S) _____ SIGNATURES(S) _____

NAME(S) AND TITLE(S) _____ NAME(S) _____

SEAL _____ SEAL _____

Standard Form No: NPCSF-GOODS-06c

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID-SECURING DECLARATION
SUPPLY AND DELIVERY OF 1,111 UNITS OF PORTABLE PHOTOVOLTAIC SOLAR HOME SYSTEM FOR VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO, LMP22Z1557Ss

To: **National Power Corporation**
Gabriel Y. Itchon Building
Sen. Miriam P. Defensor-Santiago Blvd.
(formerly BIR Road) corner Quezon Avenue
Diliman, Quezon City, Philippines 1100

I/We¹, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid-Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the Procuring Entity for the commission of acts resulting to the enforcement of the Bid Securing Declaration under Sections 23.1 (b), 34.2, 40.1 and 69.1, except 69.1 (f) of the IRR of R.A. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid-Securing Declaration shall cease to be valid on the following circumstances:
 - (a) Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
 - (b) I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right;
 - (c) I am/we are declared as the bidder with the Lowest Calculated and Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/we have hereunto set my hand this ____ day of ____ 20____ at _____, Philippines.

[Name and Signature of Bidder's Representative/
Authorized Signatory]
[Signatory's legal capacity]
Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

¹ Select one and delete the other. Adopt same instruction for similar terms throughout the document.

Standard Form No: NPCSF-GOODS-07

Omnibus Sworn Statement (Revised)**REPUBLIC OF THE PHILIPPINES)**
CITY/MUNICIPALITY OF _____) S.S.**AFFIDAVIT**

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

[If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

[If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

[If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

[If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
 - a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]
Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Standard Form No: NPCSF-GOODS-08

BID LETTER

Date: _____

To: **THE PRESIDENT**
National Power Corporation
Gabriel Y. Itchon Building
Sen. Miriam P. Defensor-Santiago Blvd.
(formerly BIR Road) corner Quezon Avenue
Diliman, Quezon City, Philippines 1100

Gentlemen:

Having examined the Bidding Documents including Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to perform **SUPPLY AND DELIVERY OF 1,111 UNITS OF PORTABLE PHOTOVOLTAIC SOLAR HOME SYSTEM FOR VARIOUS WATERSHED AREAS IN LUZON AND MINDANAO (LMP22Z1557Ss)** in conformity with the said Bidding Documents for the sum of *[total Bid amount in words and figures]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to supply and deliver the goods and perform other services, if required within the contract duration and in accordance with the scope of the contract specified in the Schedule of Requirements and Technical Specifications.

If our Bid is accepted, we undertake to provide a performance security in the form, amounts, and within the times specified in the Bidding Documents.

We agree to abide by this Bid for the Bid Validity Period specified in Bid Documents and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the Lowest Calculated Bid or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements pursuant to the Bidding Documents.

We likewise certify/confirm that the undersigned, *[for sole proprietorships, insert: as the owner and sole proprietor or authorized representative of [Name of Bidder]* has the full power and authority to participate, submit the bid, and to sign and execute the ensuing contract, on the latter's behalf for the *[Name of Project]* of the National Power Corporation *[for partnerships, corporations, cooperatives, or joint ventures, insert: is granted full power and authority by the [Name of Bidder]* to participate, submit the bid, and to sign and execute the ensuing contract on the latter's behalf for *[Name of Project]* of the National Power Corporation.

We acknowledge that failure to sign each and every page of this Bid Letter, including the attached Schedule of Requirements (Bid Price Schedule), shall be a ground for the rejection of our bid.

[name and signature of authorized signatory] _____
[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____
[name of bidder]

Bank Guarantee Form for Advance Payment

To: **THE PRESIDENT**
National Power Corporation
Gabriel Y. Itchon Building
Sen. Miriam P. Defensor-Santiago Blvd.
(formerly BIR Road) corner Quezon Avenue
Diliman, Quezon City, Philippines 1100

[name of Contract]

Gentlemen and/or Ladies:

In accordance with the Advance Payment Provision, of the General Conditions of Contract, *[name and address of Supplier]* (hereinafter called the "Supplier") shall deposit with the PROCURING ENTITY a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

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

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

This guarantee shall remain valid and in full effect from the date the advance payment is received by the Supplier under the Contract and until the Goods are accepted by the PROCURING ENTITY.

Yours truly,

Signature and seal of the Guarantors

_____ *[name of bank or financial institution]*

_____ *[address]*

_____ *[date]*

CERTIFICATION AS A DOMESTIC BIDDER

This is to certify that based on the records of this office, (Name of Bidder) is duly registered with the DTI on _____.

This further certifies that the articles forming part of the product of (Name of Bidder) which are/is (Specify) are substantially composed of articles, materials, or supplies grown, produced or manufactured in the Philippines. (Please encircle the applicable description/s).

This certification is issued upon the request of (Name of Person/Entity) in connection with his intention to participate in the bidding for the (Name of Project) of the National Power Corporation (NPC).

Given this ___ day of _____ 20__ at _____, Philippines

Name

Position

Department of Trade & Industry