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

BID DOCUMENTS

Name of Project : **UPGRADING OF VARIOUS TELEMETRY SYSTEMS OF FFWSD PROJECT**

Project Location : **BINGA DAM OFFICE – ITOGON, BENGUET**
SAN ROQUE DAM OFFICE – SAN MANUEL, PANGASINAN
ANGAT DAM OFFICE – NORZAGARAY, BULACAN

PR No. : **HO-FFW23-010**

Contents :

Design and Development Department

SECTION I

INVITATION TO BID

National Power Corporation
INVITATION TO BID
PUBLIC BIDDING – BCS 2024-0266

1. 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
MG-A7M23-005 / PB240507-CM00213 A6IC Upgrading and Integration of Unit 1 & 2 SCADA System to DCS	Supply, Delivery, Installation, Test and Commissioning or upgrading of SCADA System / Real-Time Monitoring System for Hydro Electric Power Plant	25 April 2024 9:30 A.M.	07 May 2024 9:30 A.M.	₱ 31,500,000.00 / ₱ 25,000.00
HO-FFW23-010 / PB231003-CM00289 (PB3) Upgrading of Various Telemetry Systems of FFWSD Project	Supply and Delivery or Upgrading of Telemetry Systems for Flood Forecasting or warning systems	25 April 2024 9:30 A.M.	07 May 2024 9:30 A.M.	₱ 20,000,000.00 / ₱ 25,000.00
Venue: Kañao Function Room, NPC Bldg. Diliman, Quezon City				

2. 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
MG-A7M23-005	Two Hundred Seventy (270) Calendar Days	Fifteen (15) Years
HO-FFW23-010	Two Hundred (200) Calendar Days	Ten (10) Years

3. 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.

4. 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.

5. 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.*

6. 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 Kañao 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: bcsd@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
Vice President, Office of the Legal Counsel and
Chairman, Bids and Awards Committee

SECTION II

INSTRUCTIONS TO BIDDERS

SECTION II – INSTRUCTIONS TO BIDDERS

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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 **UPGRADING OF VARIOUS TELEMETRY SYSTEMS OF FFWSD PROJECTS,** with identification number **PR NO. HO-FFW23-010**.

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 2023 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 SHEET

SECTION III - BID DATA SHEET

ITB Clause	
5.3	For this purpose, similar contracts shall refer to supply and delivery or upgrading of telemetry systems for flood forcasting or warning systems. 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.
7.1	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.
10.1	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.**
10.4	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**: 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 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.
	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:** 1. Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice
	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.

10.5	Bidders shall also submit the following requirements in their first envelope, Eligibility and Technical Component of their bid: 1. Data and Information to be submitted with the Proposal as specified in Clause TS-17.2 of Section VI - Technical Specifications; 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. 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. 2. Complete eligibility documents of the proposed sub-contractor, if any
12	The price of the Goods shall be quoted DDP Project Site or the applicable International Commercial Terms (INCOTERMS) for this Project.
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts: 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	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. 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.

	To report any privacy issue, contact the Data Privacy Officer at dpo@napocor.gov.ph. 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.
19.3	The Goods are grouped together in one (1) lot and will be awarded to one (1) Bidder in one complete contract. 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. The Bidders bid offer must be within the ABC of the lot. 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	Additional documents to be submitted during Post-Qualification: 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)
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 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.

5.2 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 CONTRACT

SECTION V – SPECIAL CONDITIONS OF CONTRACT

GCC Clause	
1	**Delivery and Documents –** 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. 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: *For Goods supplied from within the Philippines* 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: (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. *For Goods supplied from abroad:* 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: (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 the negotiable, clean shipped on board bill of lading marked "freight pre-paid" and five copies of the non-negotiable bill of lading ;

(iii) Original and four copies of Supplier's factory test/inspection report;

(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 certificate of origin (for imported Goods); and

(viii) Original and four copies of the Manufacturer's and/or Supplier's warranty certificate including all other documents specified in the Technical Specifications, if any.

For purposes of this Clause the Procuring Entity's Representative at the Project Site is Manager - Dams Management Department.

Incidental Services –

The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VII - Schedule of Requirements:

a. performance or supervision of on-site assembly and/or start-up of the supplied Goods;

b. furnishing of tools required for assembly and/or maintenance of the supplied Goods;

c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;

d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and

e. training of the Procuring Entity's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

f. Additional requirements specified in Section VI – Technical Specifications, if any.

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.

Spare Parts –

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

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:

    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

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.

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.

Spare parts or components shall be supplied as promptly as possible, but in any case, within three (3) months of placing the order.

Packaging –

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.

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.

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	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.

All progress payments shall first be charged against the advance payment until the latter has been fully exhausted.

The terms of payment shall be as follows:

1) For Supply and Delivery Contracts:

(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: 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 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 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 SCC provision on Delivery and Documents.

2) For Supply, Delivery, Installation, Test and Commissioning Contracts:

(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: 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 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

3.2	1. The following must be indicated in the performance bond to be posted by the Contractor: 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 *(Contract/Purchase Order Description)* in accordance with the terms and conditions of *(Contract No. & Schedule/Purchase Order No.)* entered into by the parties." 2. The bond shall remain valid and effective until the duration of the contract *(should be specific date reckoned from the contract effectivity)* 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: 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.
4	The inspections and tests that will be conducted are specified in the Technical Specifications.

5.2	The period for correction of defects in the warranty period shall not exceed thirty (30) days upon receipt of the notice from NPC.
	CORRECTION OF PUNCHLIST ITEMS: 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. 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).

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SECTION VI – Technical Specifications

PART I – TECHNICAL SPECIFICATIONS

TS – 1.0 GENERAL

The Contractor shall furnish, install, test and commission the required equipment/ devices/ materials for the **Upgrading of Various Telemetry Systems of FFWSD Project.**

The supplied equipment, devices and materials shall be new and unused. It shall be suitable for the intended purpose and shall comply with all applicable regulations, quality and dimension standards.

The Contractor shall accept full responsibility for his work including documentation, preparation for shipment, inspection, warranty, provisions and compliance with the applicable codes and standards, and the requirements of this Specification.

The Upgrading of Various Telemetry Systems of FFWSD Project aim to:

- To upgrade the old telemetry systems of FFWSD specifically for Angat Dam (1986), Ambuklao-Binga Dam (1990) and San Roque Dam (2003).
- To improve the reliability of telemetry data used for forecasting during weather disturbance monitoring and conduct of spilling operations.

TS – 1.1 Project Location

The works/ activities to be done shall cover the following locations:

Station Name	Address	Latitude	Longtitude
1. Ambuklao-Binga Dam Telemetry System			
Monitoring Station			
a. Binga Dam Office Monitoring Station	NPC Binga Dam Office, Binga HEPP Compound, Brgy. Tinongdan, Itogon, Benguet	16°23'19.06"N	120°43'46.41" E
Repeater Station			
a. Mt. Toyangan Repeater Station	NPC Repeater Station, Mt. Toyangan, Brgy. Nawal, Atok, Benguet	16°34'10.37"N	120°44'28.34"E
Rain Gauge Station			
a. Badayan Rain Gauge Station	Brgy. Baculongan Norte, Buguias, Benguet	16°45'8.5"N	120°49'56.04"E
b. Apunan Rain Gauge Station	Brgy. Adaoay, Kabayan, Benguet	16°34'17.45"N	120°49'33.43"E
c. Bobok Rain Gauge Station	Bobok-Bisal Brgy.	16°26'54"N	120°49'6"E

	Hall, Brgy. Bobok-Bisal, Bokod, Benguet		
d. Ambuklao Rain Gauge Station	Ambuklao Dam Crest, Brgy. Ambuklao, Bokod, Benguet	16°27'35.5"N	120°44'43.05"E
e. Binga Rain Gauge Station	NPC Binga Dam Office, Binga HEPP Compound, Brgy. Tinongdan, Itogon, Benguet	16°23'19.06"N	120°43'46.41" E
b. Ambuklao Dam Water Level Station	Ambuklao Dam Crest, Brgy. Ambuklao, Bokod, Benguet	16°27'35.5"N	120°44'43.05"E
c. Binga Dam Water Level Station	NPC Binga Dam Office, Binga HEPP Compound, Brgy. Tinongdan, Itogon, Benguet	16°23'19.06"N	120°43'46.41" E
2. San Roque Dam Telemetry System			
Monitoring Station			
a. San Roque Dam Office Monitoring Station	Operator's Village, San Roque Dam, San Roque, San Manuel, Pangasinan	16°07'56.2"N	120°40'46.6"E
Water Level Station			
a. San Roque Dam Water Level Station	SRPC Compound, Brgy. San Roque, San Manuel, Pangasinan	16°08'59.0"N	120°40'55.0"E
3. Angat Dam Telemetry System			
Repeater Station			
a. Angat Dam Relay Station	Hilltop, Brgy. San Lorenzo, Norzagaray, Bulacan	14°54'10.23."N	121°09'18.38"E
Monitoring Station			
a. Angat Dam Office Monitoring Station	Hilltop, Brgy. San Lorenzo, Norzagaray, Bulacan	14°54'23.7"N	121°09'15.7"E
Rain Gauge Station			
a. Maputi Rain Gauge Station	Sitio Maputi, Dona Remedios Trinidad, Bulacan	15°04'00.8"N	121°15'16.8"E
b. Talaguio Rain Gauge Station	Sitio Talaguio, Dona Remedios Trinidad, Bulacan	15°02'20.8"N	121°08'40.6"E
c. Matulid Rain Gauge	Sitio Matulid, Dona	14°54'36.0"N	121°15'00.0"E

Station	Remedios Trinidad, Bulacan		
d. Angat Rain Gauge Station	Hilltop, Brgy. San Lorenzo, Norzagaray, Bulacan	14°54'23.7"N	121°09'15.7"E
Water Level Station			
a. Angat Dam Water Level Station	Angat Dam Reservoir, Brgy. San Lorenzo, Norzagaray, Bulacan	14°54'34.6"N	121°09'40.3"E

TS – 1.2 Project Site Conditions

The Contractor shall be responsible for visiting the project sites and make assessment of the physical conditions of the existing structures to be affected by the works and take particular reference to accessibility to the site. The Contractor shall thoroughly investigate and familiarize himself with all the conditions at the sites, the surrounding area, means of communication and transportation, materials and equipment sourcing, determine/verify the extent of the scope of works required for the proper installation and operation of the equipment supplied, and all other factors that could hamper the smooth execution of the contract.

Any and/or all expenses arising from lack of knowledge or understanding of the existing site conditions shall be the responsibility of the Contractor and no additional payment thereof shall be made by NPC.

The conditions stated below may be applied for the project sites:

Elevation above sea level	:	0 to 1000 m
Ambient temperature	:	0 – 40 °C
Design for seismic loads	:	Seismic zone factor 0.4

The equipment required under this contract shall meet the seismic design requirement for earthquake conditions which may be subjected to both horizontal and vertical seismic induced accelerations of 0.40 g. Provisions shall be made for seismic movement by providing seismic movement joints between components which are interconnected and may have different vibratory characteristics. These joints shall be capable of withstanding the sum of the maximum deflection of each component resulting from a design earthquake.

TS – 1.3 Project Duration / Implementation Schedule

The contract duration of the project is **TWO HUNDRED (200) CALENDAR DAYS** reckoning from the contract effective date stated in the Notice to Proceed.

The Contractor shall submit for approval the project implementation schedule/ detailed activities to meet the aforementioned contract duration.

TS – 2.0 SCOPE OF WORKS

The scope of work of the project shall cover but not limited to the following:

1. Supply, installation, test and commissioning of new Monitoring Station equipment and devices including associated parts and accessories to the following dam offices:

    a. Binga Dam Office
    b. San Roque Dam Office
    c. Angat Dam Office

2. Supply, installation, test and commissioning of station equipment and devices including associated parts and accessories to the following sites:

    a. Ambuklao-Binga Telemetry System
        a.1 Mt. Toyangan Repeater Station
        a.2 Badayan Rain Gauge Station
        a.3 Apunan Rain Gauge Station
        a.4 Bobok Rain Gauge Station
        a.5 Ambuklao RG Station
        a.6 Binga Rain Gauge Station
        a.7 Ambuklao Dam Water Level Station
        a.8 Binga Dam Water Level Station

    b. San Roque Telemetry System
        b.1 San Roque Dam Water Level Station

    c. Angat Telemetry System
        c.1 Angat Dam Relay Station Repeater
        c.2 Maputi Rain Gauge Station
        c.3 Talaguio Rain Gauge Station
        c.4 Matulid Rain Gauge Station
        c.5 Angat Rain Gauge Station
        c.6 Angat Dam Water Level Station

3. Supply, installation, programming and configuration of necessary Application Software(s) for the three (3) system;

4. Supply and installation of water level structure to the following stations:

    a. Ambuklao Dam Water Level Station
    b. Binga Dam Water Level Station
    c. San Roque Dam Water Level Station
    d. Angat Dam Water Level Station

5. Supply and installation of fence to the following stations:

    a. Ambuklao Dam Water Level Station
    b. Binga Dam Water Level Station

6. Supply and installation of staff gauge at Angat Dam;

7. Integration of the repeater, rain gauges and water level stations to its designated monitoring stations/ systems;

8. Supply/ Provision of recommended spare parts, special equipment/ devices/ tools/ instruments/ and consumables necessary during implementation/ testing and commissioning for the satisfactory completion of the project and/or for the repair and maintenance of the system;

9. Conduct actual assessment of the present conditions of the existing structures and facilities affected by the works;

10. Overall test and commissioning of the system;

11. Provide training to at least ten (10) NPC FFWSDO personnel on proper operation, troubleshooting and maintenance;

12. Provide highly qualified personnel for the installation, test and commissioning works and conduct of training and workshop for NPC personnel regarding operation and configuration of the system (hardware and software associated with the system) and troubleshooting, repair and maintenance of the supplied equipment;

13. Provide support services rendered upon request and submittal of problem identification analysis from NPC in the event of any abnormality occurs within the warranty period at no cost to NPC;

14. Preparations of Plans, Drawings and Network Diagrams;

15. Submit relative drawings, brochures and documents for approval prior to procurement/ implementation of materials and equipment including as-built drawings and operation and maintenance manuals upon completion of the project or prior to acceptance of the works.

16. Secure all necessary statutory construction and operation permits and licenses. All fees to be incurred in securing permits and licenses shall be at the expense of the Contractor;

17. Clean up of work areas after the completion of work coveted by the contract.

The Contractor shall conduct site inspection to verify and assess the extent of the related and incidental works needed to implement the work competently and efficiently.

The Work shall include all and every work and service although not specifically detailed herein but are required to fully complete and make ready the safe and reliable operation of the aforementioned flood forecasting system.

TS – 3.0 GENERAL TECHNICAL REQUIREMENTS

This Section specifies the minimum set of requirements applicable to the materials and equipment included in the scope of works under this project.

It is not NPC's intent to specify all technical requirements or to set forth those requirements adequately covered by applicable codes and standards. The Contractor shall furnish high quality equipment/ device/ material meeting the requirements of these specification and industry standards.

The Contractor shall bear full responsibility that the equipment has been designed, manufactured and fabricated in accordance with all codes, standards, and applicable governmental regulations and performs under the conditions to the standards specified herein.

No deviation shall be made from these specification and standards unless waived or modified in writing by NPC. The Contractor shall obtain from its sub-Contractors a statement as to compliance with this specification without exception and/or if there are any exceptions, these shall be described in detail and included in Contractor's proposal. The Contractor shall add a statement that no other exemptions are taken to this specification.

TS – 3.1 Workmanship

Workmanship shall be of first-class quality and in accordance with the best modern practice for the manufacture, installation/erection, testing and commissioning of high grade equipment, notwithstanding any omissions from these specification and drawings.

All materials to be supplied under this contract shall be unused, of recent manufacture, free of defects or irregularities and best available considering durability, strength and intended service suitability and best engineering practice.

All parts shall conform to the dimensions shown on, and shall be built in accordance with the approved drawings. The surface finish of all parts and components shall be in conformity with the respective strength, fit and service requirements.

Machining of renewable parts shall be accurate and to specified dimensions so that the replacement of those parts fabricated or made according to dimensions indicated in the drawings could be readily installed.

TS – 4.0 CODES AND STANDARDS

All materials to be used in the work shall be new, of high quality, free from all defects and proven acceptability for the purpose intended. Unless otherwise specified, materials shall conform to any applicable standard issued by the following authorities:

1. American National Standard Institute (ANSI)
2. Institute of Electrical & Electronic Engineers (IEEE)
3. Electronic Industries Association (EIA)
4. National Electrical Manufacturers Association (NEMA)
5. International Electro-Technical Commission (IEC)
6. International Standards Organization (ISO)
7. Japanese Industrial Standards (JIS)

8. Japanese Electrical Standards (JES)
9. National Electric Code (NEC)
10. National Electrical Safety Code (NESC)
11. Philippine Electrical Code (PEC)
12. Underwriters Laboratory (UL)
13. Philippine Electronic Code (PEC)
14. World Meteorological Organization Standards (WMO)

Other recognized national standards maybe accepted if, in the opinion of NPC representative, such will guarantee a quality not inferior to that guaranteed by the above standards.

TS – 5.0 SYSTEM REQUIREMENTS

TS – 5.1 Telemetry System

TS – 5.1.1 System Operation

1. The gauging stations shall measure the data of rainfall and water levels with a tipping bucket and water level sensor respectively and transmit the data by VHF Radio Data Transceiver/ VHF Repeater to the Dam Office Monitoring Station by a communication network. Please refer to Network Diagram.

2. The obtained data from the water level and rain gauge stations will be displayed and monitored at the Monitoring Station equipment at the Dam Offices through a centralized collection server with data management and related application software.

TS – 5.1.2 Telemetry System Function

The telemetry system shall have function as follows as minimum requirement:

1. Calling Mode

    a. Automatic Calling

    Calling shall be started automatically by a clock unit, and all gauging stations shall be called. The calling can be set at one of the following time intervals: 10 minutes; 30 minutes; and hourly. Moreover, automatic calling shall have priority over individual calling mode.

    The system shall be configured in such a way that the data will not choke during transmission.

    b. Manual Calling

    Calling shall be started manually and be directed to a selected gauging station by individual calling.

c. Recalling

If an error is detected in the data from a gauging station, or if there is no response from a called gauging station, that gauging station shall be automatically called once more. If there is an error code or a recalled gauging station still fails to respond, visual and audible alarms shall be activated and the system shall shift to the next operation. Moreover, recalling in case of sequential calling shall be triggered only for the individual gauging station after the completion of the sequential calling to validate received control from monitoring station.

2. Response Mode

The gauging station called by the Dam Office Monitoring Station shall convert the measured values into digital signals and then send the digital codes. The gauging station shall respond to a calling after a predetermined delay and shall respond to an individual calling immediately.

3. Logging and Calculation

The rainfall data collected from the gauging stations shall be calculated and logged in the Dam Office supervisory computer as specified below for the judgment of alarm:

a. Hourly Rainfall

Hourly rainfall, the maximum hourly rainfall a day and its occurrence time shall be calculated as the difference between the accumulated rainfall of the latest measurement and the one measured one hour before.

b. Daily Cumulative Rainfall

Daily cumulative rainfall shall be calculated as rainfall accumulated from 8:00 AM at the moment of measurement to 8:00 AM of the next day. The daily cumulative rainfall shall be renewed at every 8:00 AM.

c. Other Inclusion for Rainfall

30-minute, 1-hour, 3-hour, 6-hour and 24-hour rainfall shall be considered.

d. Water Level

Collects data every two (2) minutes (default) and take the average water level changes or increasing / decreasing amount in 30-minutes and 1-hour interval.

4. Data Collection

The data collected from the gauging stations must be retrieved in the supervisory computer in the form of a CSV file and printed to a designated printer.

5. Sleep Mode

   The gauging station must be configured to automatically turn-off or be in sleep state when the gauging is not in use to save power or minimize battery power consumption.

6. Display

   When measured data from the gauging station is received, Dam Office Monitoring System shall perform and digitally display it or provide indication for faulty received data. The system must also provide:

   a. Maps and diagrams in which the content shall use meteorological symbols on visual maps or layouts of basins and related diagrams customized for the purpose to accommodate all current hydrological data received.

   b. Graphics, hyetographs, and tables showing all current and historical data.

7. Output to External Equipment

   Serial output port (RS-232C) or other suitable interface shall be applicable to transmit the measured data to external equipment.

TS – 5.1.3 Telemetry Data Transmission System

1. General

   The Gauging stations shall be controlled by the microcontroller / data logger. The system compatibility of transmission / reception codes and communication protocols must be considered.

2. Data Field Configuration from Remote Station should contain the following:

   a. Message Count
   b. Station ID
   c. Station Type
   d. Update Interval
   e. Date and Time Stamp
   f. Data Information per Station
   g. Solar Panel Status (Connected/Disconnected)
   h. Battery Voltage
   i. Station Door Status (Open/Close)
   j. Station Status (Operational/Fault Detection)

TS – 6.0 SPECIFICATIONS OF EQUIPMENT

Project Description

Master supervisory and control equipment, communication link equipment, antenna system, and power supply system,

system and telemetry system are the components of the project which should be interconnected and in operating condition upon turnover for the Upgrading of Various Telemetry Systems of FFWSD Project.

TS – 6.1 Dam Office Monitoring Station

TS – 6.1.1 Master Supervisory and Control Equipment

General: **Telemetry System**

The specification for a microcomputer-based controller and data acquisition equipment that also functions as centralized data logger for each rainfall and water level gauging stations is capable of operating stations in remote locations particularly in adverse weather condition. The Telemetry Supervisory Equipment shall manage the function of the gauging stations and operation status must be provided through feedback indicators and display or audible and visible confirmation in accordance with the response signal that was sent back to the master station and events recording that can be printed-out for documentation.

The equipment shall be able to acquire input measurements from all of the stations included in per system basis. The acquired data will be made use for flood forecasting or hydrological monitoring analysis.

The specifications of the telemetry supervisory equipment shall fully follow related WMO and Telemetry Equipment Standards.

TS – 6.1.1.1 Supervisory Computer

The unit shall process and execute commands as directed and manage the control mode for the telemetry stations, judgment of the station controlled, answer signal and automatic check for the stations. The devices controlled and monitored by this unit at the master station shall be as follows:

1. Control Mode
2. Telemetry Operation

Check control or failure information shall be based on the following:

1. Low Battery and Charge Failure
2. Communication Network Failure
3. Data Acquisition Failure
4. Door Open

The unit is also used as data storage with relational database system that process and stores results/events derived from the check, control, and operation of the stations.

Technical Requirements

1.	Type	:	Industrial (24/7 operation)
2.	CPU	:	Intel Core i7 10th Gen, 3.60 GHz or better
3.	RAM / Main Memory	:	16 GB or higher
	Data Storage / Hard Drive	:	1TB SSD and 1TB HDD or higher
4.	Optical Drive	:	4x Dual Layer Blue-ray R/RW or better
5.	Operating System	:	Licensed Windows 10 Pro or higher
6.	Video Card	:	4 GB NVIDIA or higher
7.	Display	:	At least 23" LED Monitor
8.	I/O Ports	:	SD Card Slot, 8 USB 2.0–3.0 ports, Audio ports (3 jack), 1 Mic-in, HDMI, Display port, Ethernet, WiFi, Bluetooth, Expansion slots
9.	Input Devices	:	Wired Mouse and Keyboard
10.	Power Supply	:	850W (±5%) 230VAC (gold-rating) or better
11.	Others	:	Telemetry Software, Microsoft Office (2016) or better
		:	Steel Computer Table

TS – 6.1.2 Communication Link Equipment

The communication link equipment enables an operator at monitoring station to monitor the status of telemetry stations at the Dam Office.

TS – 6.1.2.1 VHF Transceiver

The specification required for the telemetry system that makes use of VHF radio transceiver equipment that operates is at 136 – 174 MHz frequency range.

Transmitting and receiving frequency of the radio unit may use the existing frequency of NPC FFWSDO or apply new frequency for the Telemetry System. Channel separation shall be considered to avoid interferences with other nearby radio system.

Technical Requirements

1. Radio Operation

a.	Radio Frequency	:	Conventional Digital
b.	Frequency Range	:	136–174 MHz, VHF
c.	Channel Access	:	FDMA
d.	Common Air Interference:		NXDN
e.	Channel Spacing	:	6.25/12.5 kHz, Digital
f.	Operating Voltage	:	13.6V DC +/-15%
g.	Frequency Stability	:	±1.0 ppm
h.	Operating Temp.	:	-30°C to +60°C
i.	Others	:	Programming Software and Cable

2. Transmitter
   a. Power Output : 25–50 Watts
   b. FM Hum and Noise : Not greater than 45 dB @ 25kHz analog
3. Receiver
   a. Sensitivity, Digital : 0.25uV @ 12.5kHz, 3%BER
   b. Selectivity, Analog : 80 dB @ 25 kHz, Analog

The radio equipment shall have the means of protecting the transmitter and the receiver against opening and short-circuiting of the antenna system and excessive input, respectively.

The radio equipment at the master station shall be housed in an enclosure along with its power supply.

TS – 6.1.3 Printer

The printers will be used to print the record of operation and events for the gauging stations including printing of reports.

Technical Requirements

1. Type : 3 in 1, Print, Copy, and Scan
2. Printing : 4 in 1, B&W and Colored
3. Input Voltage : (±5%) 230VAC
4. Interface : USB
5. Printing Speed : At least 33ppm/15ppm (Black/Colored)
6. Ink : Continuous

TS – 6.1.4 Power Supply System

TS – 6.1.4.1 AC Connection And Distribution Board

The specification for the preparation and connection of AC supply for the system using appropriate power cables and including installation of Power Distribution Board (PDB) for easier connection of input and better distribution of output power sources whether AC or DC that is equipped with protection circuit. The Automatic Voltage Regulator (AVR) will maintain required voltage in times of voltage fluctuation.

TS – 6.1.4.2 Uninterrupted Power Supply (UPS)

The Contractor shall install a double conversion on-line type UPS that will continuously provide the power supply requirement of the computers of the system through a series of connected AC-DC rectifier/charger and DC-AC inverter. An additional bypass switch will allow supporting the loads directly from an AC source under some fault conditions.

Technical Requirements

1. Nominal Input Voltage : 220 VAC, 60 Hz
2. Output Capacity : Not less than 1 kVA
3. Back-up Time : 9 minutes or more (for full operation)

TS – 6.2 Repeater Station

TS – 6.2.1 Repeater Station Equipment/System

The repeater equipment enables acts as a relay between the remote telemetry sites and the monitoring station.

TS – 6.2.1.1 VHF Repeater

The specification required for the telemetry system that makes use of VHF repeater equipment that operates at 136 – 174 MHz frequency range.

Transmitting and receiving frequency of the radio unit may use the existing frequency of NPC FFWSDO or apply new frequency for the Telemetry System. Channel separation shall be considered to avoid interferences with other nearby radio system.

Technical Requirements

1. Radio Operation

a.	Radio Frequency	:	Conventional Digital
b.	Frequency Range	:	136–174 MHz, VHF
c.	Channel Access	:	FDMA
d.	Common Air Interference:		NXDN
e.	Channel Spacing	:	6.25/7.5/12.5/15 kHz, Digital
f.	Operating Voltage	:	10.8 – 15.6V DC
g.	Frequency Stability	:	±1.0 ppm
h.	Operating Temp.	:	-30°C to +60°C
i.	Others	:	Programming Software and Cable

2. Transmitter

a.	Power Output	:	25–50 Watts
b.	FM Hum and Noise	:	55 dB @ 25kHz, Analog

3. Receiver

a.	Sensitivity, Digital	:	0.28uV @ 12.5kHz, 3%BER
b.	Selectivity, Analog	:	83 dB @ 25 kHz, Analog

4. Duplexer

a.	Tuning Range	:	148–174 MHz, VHF
b.	No. Cavities	:	At least four (4) units
c.	Frequency Separation:		At least 4MHz (Minimum)
d.	VSWR	:	⩽.5:1
e.	Insertion Loss (TX/RX):		⩽.0Db

The radio equipment shall have the means of protecting the transmitter and the receiver against opening and short-circuiting of the antenna system and excessive input, respectively.

The radio equipment at the repeater station shall be housed in an enclosure along with its power supply.

TS – 6.3 Telemetry Stations

TS – 6.3.1 Telemetry Station Equipment/System

General

The specification required for telemetry equipment for the rain gauge and water level stations shall fully follow World Meteorological Organization (WMO) Standards. The system includes the installation of rain gauges, water level sensors, data loggers, a VHF radio for transmission of acquired data to the monitoring station, and a power supply consisting of a solar panel and storage battery.

TS – 6.3.1.1 Microcomputer Controller/Remote Terminal Unit (RTU) and Data Logger

General

The microcomputer-based controller/RTU specification also functions as memory equipment for each telemetry station. It is intended for data acquisition, data logging, processing, and command execution that can fully operate specifically during adverse weather conditions.

The equipment shall be able to input measurements from the gauging stations and transmit such measures to the designated monitoring center.

Functions

1. Can be connected to rain gauges and different types of water level gauges/sensors with analog, digital, RS232/Serial, and other interfaces, including proprietary communication devices.
2. Perform measurement, communication, control/supervisory and management functions, and on-board data collection, processing, and analysis for data reduction, statistical processing, or mathematical conversion.
3. Data values are stored in tables with accurate time stamps and record numbers.
4. Mounted inside a NEMA 3R Powder-coated Steel Enclosure.
5. Time synchronization by GPS and retransmitting of previous missing data server automatically.
6. Automatically transmit data on defined exception conditions like enclosure intrusion detection (door opening), low voltage battery and configuration, fault and performance management alarm monitoring.
7. Programmed/timed and forced data transmission by a dedicated radio data transceiver.

Technical Requirements

1. Main Purpose : Rain Gauge/Water Level Sensor

			Controller or Both
2.	System Function	:	Refer to 5.1.2
3.	Data Field Configuration	:	Refer to 5.1.3
4.	Processor	:	ARM Cortex M4
5.	OS Flash Memory	:	At least 2 MB
6.	System Memory	:	At least 7 MB
7.	External Data Storage	:	2 GB
8.	Sleep Mode	:	Supported
9.	Analog-to-Digital Conversion	:	Supported
10.	I/O Ports	:	Analog, Digital, RS232 / Serial
11.	Communication Ports	:	RS232/Serial, USB
12.	Programming	:	High Level Language
13.	Supported Protocols	:	PakBus, ModBus, DNP3, etc.

TS – 6.3.1.2 Rain Gauge

General

The specification for tipping-bucket type of rain gauge is with 0.5mm or 1.0mm tipping pulse generator.

Equipment Operation

The tipping bucket shall tip once per 0.5mm or 1.mm of rainfall and in turn the electric counter installed in the telemetry equipment shall drive one (1) digit per two (2) tips and/or one (1) tip each time and records date and time of occurrence.

Technical Requirements

1.	Type	:	Tipping Bucket, Weatherproof
2.	Diameter	:	200 mm diameter of orifice
3.	Tipping Resolution	:	0.5 and/or 1.0 mm per tip
4.	Accuracy	:	±0.5% at 3.175 cm/hr; ±2% at 25.4 cm/hr
5.	Outer Housing	:	Stainless Steel or Aluminum
6.	Others	:	Complete Mounting

TS – 6.3.1.3 Water Level Sensor

General

The specification for pressure type water level sensor that is ideal for applications in a variety of conditions. The water level gauge shall be designed to be protected from lightning surge.

The Contractor shall investigate the present situation of the dam and provide all necessary protection, materials and devices including cable hanging materials between the sensor and equipment at the gauging house.

Technical Requirements

1.	Type	:	Solid-state submersible pressure transducer
2.	Measuring Range	:	Up to 150 meters
3.	Output	:	4 - 20 mA
4.	Accuracy	:	± 0.1%, full scale

5. Temperature Range : -25 deg C to +70 deg C
6. Protection : IP68 Compliant, Protection Device Included
7. Connection Cable : Molded-on Waterproof

TS – 6.3.1.4 Door Sensor / Switch

The door switch shall be installed at each enclosure to give an indication of an open door by third party or any burglar. If somebody opens the enclosure, the door switched is triggered and sends signal to monitoring station by the telemetry equipment as an alarm.

Technical Requirements

1. Type : Magnetic Contact
2. Contact Rating : 10 VA
3. Conformance : UL Standard

TS – 6.3.1.5 NEMA Box

The specification required for the provision and installation of enclosure particularly a NEMA box for the equipment / devices including other parts and accessories will serve as exposure and moist protection for the equipment.

Technical Requirements

1. Type : Indoor and Outdoor as specific use and/or IP 66
2. Mounting : By Contractor
3. Size : By Contractor
4. Conformance : Acceptable Standard

TS – 6.3.1.6 VHF Transceiver

The specification required for the telemetry system that makes use of VHF radio transceiver equipment that operates is at 136 – 174 MHz frequency range.

Transmitting and receiving frequency of the radio unit must use the existing frequency for telemetry of NPC FFWSDO. Channel separation shall be considered to avoid interferences with other nearby radio system.

Technical Requirements

1. <u>Radio Operation</u>
   a. Radio Frequency : Conventional Digital
   b. Frequency Range : 136–174 MHz, VHF
   c. Channel Access : FDMA
   d. Common Air Interference: NXDN
   e. Channel Spacing : 6.25/12.5 kHz, Digital
   f. Operating Voltage : 13.6V DC +/-15%
   g. Frequency Stability : ±1.0 ppm
   h. Operating Temp. : -30°C to +60°C
   i. Others : Programming Kit
2. <u>Transmitter</u>
   a. Power Output : 25–50 Watts

b. FM Hum and Noise : At least 45 dB @ 25kHz, Analog

3. Receiver

a. Sensitivity, Digital : 0.25uV @ 12.5kHz, 3%BER
b. Selectivity, Analog : 80 dB @ 25 kHz, Analog

The radio equipment shall have the means of protecting the transmitter and the receiver against opening and short-circuiting of the antenna system and excessive input, respectively.

The radio equipment at the master station shall be housed in an enclosure along with its power supply.

TS – 6.3.2 Power Supply System

TS – 6.3.2.1 Solar Panel

The specification required for the solar power panel to be supplied at the Telemetry Stations to provide power supply requirements.

Technical Requirements

Solar cell modules shall use mono-crystalline photovoltaic cell technology. The cells should be constructed on high quality materials or encapsulated beneath high-efficiency tempered glass or modules. The rear surface should be completely sealed from moisture and mechanical damage by a continuous high-strength polymer sheet. The modules are independently tested to ensure confirmation with certification and regulatory standards. The solar panel shall be capable of ± 3% power efficiency than rated.

The solar cells frame shall be made of zinc hot-dip galvanized that could accommodate a bank of solar cell elements arranged on a plane, which shall have metal fittings for adjusting the incident angle of sunlight and shall also be bird proof and stationary mounted. The solar cells rated output capacity, nominal output voltage, and maximum output current shall be identified by the Contractor.

Technical Requirements

1. Type : Mono-Crystalline Silicon Photovoltaic Cell
2. Capacity : 100 W
3. Voltage Output : 18-38Vdc
4. Conformance : Acceptable Standard

TS – 6.3.2.2 Charge Controller

The charge controller shall be provided for the solar panel power supply.

Technical Requirements

1. Type : Solar Controller
2. Rated Input Voltage : 12 – 13.8 Vdc

3. Rated Output Voltage : 12 - 14 Vdc
4. Maximum Permissible Output and Load Current : By Contractor
5. Protection Requirement
    a. Photovoltaic (PV) Array Short Circuit
    b. PV Over voltage
    c. PV Over current
    d. PV Reverse Polarity connection protection
    e. Battery Reverse Polarity

TS – 6.3.2.3 Storage Battery

The batteries should be solar-charged 12 Vdc sealed valve-regulated lead-acid type with one–way pressure-relief vent. The casing should be made of polypropylene with thermally-welded case-to-cover bond.

1. Type : Sealed Lead-Acid, Maintenance Free
2. Plate : Lead-Calcium Alloy
3. Terminal : Lead Alloy
4. Battery Capacity : 100 AH

TS – 6.3.3 Water Level Sensor Station Structure

The Contractor shall construct an appropriate equipment structure with antenna mast at Binga, Ambuklao, San Roque and Angat Dam Water Level Stations. A station fence with gate opening shall also be constructed at Binga and Ambuklao Dam Water Level Stations. Pipe protection for all the water level sensors to be installed must be provided or may use the existing pipe protection. Corresponding construction drawings in accordance with civil works and construction standards and the requirement of Flood Forecasting and Warning System for Dam Operations that will be approved by the Design and Development Department of NPC must be submitted by the Contractor.

Technical Requirements

Antenna Mast

The Contractor shall install an antenna pole in accordance with telecommunication design and requirements with complete set of drawings.

Design

All outline dimensions in the drawing are fixed but where no dimensions are given, may be modified, subject to compliance with the requirements of the specification.

Materials

All materials shall comply with the requirements of an ASTM specification unless otherwise specified while material to be welded shall comply with the requirements of ANSI / AWS D1.1.

TS – 6.3.4 Staff Gauges

The Contractor shall provide a graduated and calibrated staff gauge for Angat Dam. It must be a stainless metal sheet of at least 28m, 0.5m width and 1.0 mm thickness. Actual length of the staff gauge to be installed will be determined upon actual inspection of the site.

TS – 6.4 Antenna System

TS – 6.4.1 VHF Antenna

The specification for the type of antenna intended is for 136 to 174 MHz frequency requirement at the station for telemetry system. Offices involved in the operations of the monitoring stations will have antenna system.

The Contractor shall install an antenna required for the project designed with fairly high gain and directivity, which reduces reflected signals from different angles whether directional / Omni-directional antenna.

The antenna to be applied shall be based on the following characteristics and considerations:

1. Ideal for point-to-point communication;
2. Cable connections shall be properly protected;
3. Materials to be used must be durable and built for outdoor and all-weather conditions;
4. It shall be capable to reduce backside noise, receiver decentralization and inter modulation interference;
5. Frequency Band : 136 – 174 MHz
6. Bandwidth : 4 – 10 MHz
7. Gain : At least 3 dBi
8. VSWR : ≤1.5
9. Pattern : Directional / Omni-directional as applicable
10. Antenna Type : Weatherproof
11. Impedance : 50 ohms

TS – 6.4.2 Coaxial Cable and Connectors

The specification required for coaxial cable and corresponding connectors to be used as line cable and connection between the antenna and radio equipment of the station shall operate within the specified frequency band. Cabling shall include all mounting hardware, wall or roof-feed through trays, and grounding kits as necessary.

The coaxial cable and connector shall be constructed that is made to resist galvanic corrosion, weathering and fatigue, and to be provided with adequate supports. These shall be of good quality and within acceptable standards to maintain safety of all equipment and devices, the facility and the user. Specified hereunder are preferences types of cable and connectors but better type can be provided:

Technical Requirements

1. Coaxial Cables : ½" Foam Dielectric, RG-8/U or better
2. Connector : N-Type or By Contractor

3. Impedance : 50 ± 2 ohms

TS – 6.4.3 Coaxial Arrester / Surge Protectors

The specification required to the coaxial arrester for the station that will protect the radio equipment against lightning surges to be installed shall have very high impedance for operating frequencies and function as grounding device against induced lightning.

Technical Requirements

1. Type : Feeder
2. Line Impedance : 50 ohms
3. VSWR : 1.2 or less
4. Frequency Band : 136 – 174 MHz
5. Insertion Loss : 0.5 dB or less

TS – 6.4.4 Lightning Arrester, Grounding Wire and Rod

The specification for the installation of a solid copper lightning rod atop the antenna tower or pole mast and connected to is at least 6 feet buried copper-clad ground rod by suitable stranded copper wire.

TS – 6.5 Grounding System

The specification for the provision of ground system for surge protection of all the equipment at the station should be connected to the grounding system using suitable connections. All radio system and related equipment / device shall be properly grounded in compliance with the radio and electrical industry standards. A minimum standard of Ground Resistance reading must be 3 ohms or less should be maintained.

The following are considerations for surge protection:

1. A single point ground system shall be used such that all equipment and connections at the site are maintained at the same potential;

2. A halo ground ring should encircle the station room with opposite ends connected to a ground bar;

3. All equipment inside should be connected to the halo ring using suitable connectors.

TS – 6.6 Power Cables, Wiring, Tray / Rack, Parts & Accessories

The specification required for the installation of power cables or wirings, whether indoor or outdoor, for the power supply system of the master station is that the use of tray / rack or mounting hardware may be introduced and other related parts and accessories as necessary to make the station fully operational. The materials shall be appropriate, of good quality and within acceptable standards to maintain safety of all equipment and devices, the facility and the user.

DC Regulated Power Supply will be provided by the Contractor to be used for the VHF Radio Transceiver Equipment at the Master Station.

Technical Requirements

1.	Base Radio PS Rating	:	13.8 Vdc, At least 25 Amperes
2.	Input Voltage	:	220 Vac
3.	Protection	:	Thermal and Overload
4.	Type	:	Switching with Battery Charging Auto-Revert Capability

TS – 6.7 Related Parts, Cables and Accessories

The specification for different cables whether indoor or outdoor, connectors, layer switches, routers, mounting hardware and other related parts and accessories that are necessary to be installed to make the station fully operational. These shall be of good quality and within acceptable standards to maintain safety of all equipment and devices, the facility, and the user. Specified hereunder are preference types of cables but better type can be provided, namely:

Technical Requirements

1.	UTP, LAN or IP Radio Cables	:	Cat-5e (Indoor and Outdoor)
2.	Coaxial Cables	:	½" Foam Dielectric, RG-8/U

TS – 7.0 Description of Services

The Telemetry Equipment covered by this specification is for the use in Flood Forecasting / Hydrological Monitoring System for Dam Operations. The technical requirements are specified in the Technical Data Sheets.

All materials are parts which are not specifically mentioned herein but are necessary for the proper installation / erection, assembly, efficient, and reliable operation of the Flood Forecasting / Hydrological Monitoring System shall be identified and furnished by the Contractor.

Any costs involved thereof are deemed to be included in the related items specifies in the Schedule of Requirements (SOR).

TS – 8.0 Major Spare Parts and Special Tools

Spare parts should be available for a period of five (5) years by the manufacturer should NPC opt to purchase. In case of equipment end of life / reproduction, the Contractor shall notify NPC one (1) month before the expected occurrence.

All necessary equipment spare parts and special testing device and special tools needed for the installation, start-up, operation, maintenance and adjustment of the equipment and accessories shall be furnished by the Contractor. List of spare parts and its corresponding cost shall be included in the Schedule of Requirements (SOR).

TS – 9.0 OPERATING SYSTEM AND APPLICATION SOFTWARE, CONFIGURATION AND PROGRAMMING

TS – 9.1 Operating System and Application Software

Operating System for the computers and servers that will be used for the project must be licensed and also with the other application software associated with the project must have the following specifications:

1. The software should be an open system / platform, open interface and protocol standards for the purpose of future modification, enhancement and expansion.

2. The software must be stand alone where it can still be operated or used in case of software expiration or if software is not updated when update is available.

3. All related actions or process should be time stamped and logged for audit trail. The software must have protection against unauthorized system use. System security configured to the object level and based on user-access levels and object permissions.

4. Support for third party hardware and software through the use of open architecture standards and communication protocols.

TS – 9.2 Configuration and Programming

The needs for configuration and programming for the project must be based on the following:

1. The application software for the data servers shall be installed at the Monitoring Station. The software for the servers should run on Windows Operating System. At the monitoring station, all the output of the stations including the integrated stations shall be collected and saved;

2. The remote telemetry stations must be installed with corresponding programs necessary for data collection such as receives and transmits data, detects and sends alarms to communicate with control center, respectively;

3. Built-in facilities for alarming (pop-up with sound) for remote station status like defects or malfunction, solar panel connection, battery voltage and opened door;

4. Event logging, data/record printing, historic storage and trending must be supported;

5. The Contractor shall provide sample screenshot of the proposed content of the software interfaces as seen on the monitor of the hydrological monitoring.

TS – 9.3 Hydrological Monitoring Application Software

The application software associated with the project must have the following specifications:

1. Flood forecasting monitoring, statistical database data visualization, and screen format of the software interfaces must be provided together with the hydrological database in hierarchical format that can be downloaded to excel file and can be extracted or converted to Comma Separated Values (CSV) file format. The CSV file can be exported / read to any application to supports CSV format;

2. Microcomputer Controller configuration shall be created and stored within the database. The embedded software application gathers and sends data, detects and sends alarms, and communicates with the master station. During on-line database configuration, there should be no system disruption or power failure while configuration changes are being made;

3. Development or configuration of software interface must be in accordance with the hydrological monitoring telemetry system specification requirements in Item 5.2;

4. The software interface file system is MySQL (Structured Query Language) Relational Database Management System (RDMS) and should be able to process entries for the following:
    a. Definitions for stations, sensors and users;
    b. Entries to set-up remote sensors, stations, groups and users.

TS – 9.4 Operating and Configuration Editor

All system software and configuration editor software program including licenses for the system shall be supplied and included in the cost of the equipment in the Schedule of Requirements. A set of each type of software including license and instruction manuals shall be provided.

TS – 10.0 PERMITS AND LICENSES

The Contractor shall secure at its own expense the necessary construction and work permits and licenses for the smooth implementation of the project.

In behalf of NPC, the Contractor shall secure at its own expense permits and three (3) years Radio Station Licenses from the National Telecommunication Commission (NTC) necessary for the acquisition, supply and operation of radio equipment for the project. This includes the preparation and submission of corresponding application requirements like filled-up application forms, network diagrams and lay-out plans and drawings. NPC will sign the request for permits or license application and related forms as owner of the project. Original copy of secured permits / licenses shall be hand-over to NPC. Radio equipment Contractor or authorized distributor must have an NTC Dealer's Permit.

TS – 11.0 TRAINING

The Contractor shall provide a comprehensive training for a minimum of ten (10) NPC end-user personnel for the operation, configuration and maintenance of the Project. This is to prepare the training participants, whether hydrologists, engineers and technicians, to be able to operate and maintain the system proficiently.

Provide highly qualified personnel for the conduct of training / workshop, Telecom Engineer(s) and/or IT Specialist(s) / Programmer(s) with at least of two (2) years technical experience in installing or maintaining the same system as the project (software and hardware). While a Hydrologist or Hydro meteorologist with at least two (2) years of experience in operating the offered hydrological monitoring application software together with hierarchical database is required to conduct related training and give more systematic and scientific approach in hydrological analysis. Submit corresponding Bio Data or Curriculum Vitae.

Training shall include, as a minimum of classroom instruction courses and hand-on training to enable NPC personnel to familiarized the system and is able to manage, install, configure, test, commission, maintain, operate and service the system particularly on the following:

1. Hydrological Monitoring System Overview, Network Diagram and Equipment Component;
2. Operating procedures for the entire system;
3. System configuration and programming;
4. Database maintenance
5. Hardware and software / firmware troubleshooting and repair.

The cost of performing the training course shall be included in the Schedule of Requirements.

TS – 12.0 TEST AND COMMISSIONING

TS – 12.1 Requirement of Adjustment and Test

In accordance with the standard and specifications, the Contractor shall be required to submit, for approval the test program describing each test and adjustment to be perform together with the time and manpower schedule that will conduct the test. The program of the test on completion shall define the sequence of test, equipment to be used, equipment operation procedure and detailed procedure of conducting the test. Moreover, shall contain the design values, technical particulars or any other standard data for testing which shall be treated as the criteria for the evaluation of such test.

Experienced and skilled engineers and technicians along this line shall be required from the Contractor for the adjustment and test.

TS – 12.1.1 Scope of Adjustment and Test

The following are major adjustment items:

1. Adjustment of individual equipment at each site.
    a. Inspection of workmanship of mounting, cabling and wiring.

b. Electrical Characteristics

2. Overall adjustment of the whole system.
   a. Overall Operation
   b. Function

TS – 12.1.2 Details of Adjustment and Test

The adjustment items shall be as specified herein after.

1. Rain Gauge Equipment
   a. Visual Inspection
   b. Performance Test
      i. Overall Operation
      ii. Function
      iii. Calibration

2. Water Level Equipment
   a. Visual Inspection
   b. Performance Test
      i. Overall Operation
      ii. Function
      iii. Calibration

3. Radio Equipment and RTU
   a. Visual Inspection
   b. Performance Test
      i. Overall Operation
      ii. Function
      iii. Test of Electrical Characteristics
   c. Transmitter
      i. Rated Output
      ii. Transmitting Frequency

4. Database Server and Workstation
   a. Visual Inspection
   b. Performance Test
      i. Overall Operation
      ii. Function
      iii. Test of Web Page / Display
      iv. Automatic Updates

5. Power Supply Equipment
   a. Visual Inspection
   b. Performance Test
      i. Function

6. Printer
   a. Visual Inspection
   b. Performance Test
      i. Overall Operation
      ii. Function

TS – 12.2 Work Assembly Tests

TS – 12.2.1 General

The System to be furnished shall be completely assembled and adjusted at the Contractor's workshop and routine shop tests and other test will be made. All parts shall be properly marked for ease of assembly in the field. All tests required herein shall be witnessed by NPC or his authorized representative unless waived in writing, and no equipment shall be installed until released for delivery by NPC authorized representative.

The test equipment, test methods, measurements and computations shall be in accordance with the latest applicable requirements of ANSI and IEC Standard except in cases where otherwise set forth, and shall be subject to the approval of NPC.

TS – 12.2.2 Shop Test

Routine, design, quality conformance tests and other tests necessary shall be performed in accordance with ANSI Standard or equivalent IEC Standard.

The Contractor shall make all preparation for tests and provides the test apparatus and personnel and shall notify NPC the date of the test ten (10) days in advance.

The tests noted below shall be performed and may be witnessed by NPC authorized representative on the equipment covered by the Specification at the Manufacturer's plant before shipment. These tests shall include as a minimum:

1. For the Transmitters, Receivers and Telephone Interconnect:
    a. RF Power Output;
    b. FM Hum and Noise;
    c. Frequency Stability;
    d. Inter-modulation;
    e. Receiver Sensitivity;
    f. Receiver Selectivity;
    g. Transmitter RF Switch Functions;
    h. Radio Interconnect Functions / Features;
    i. Audio Distortion;
    j. Signaling, and;
    k. Input Power Consumption at nominal, and at ±20% of input voltage

2. For Duplexers:
    a. Isolation Loss;
    b. Insertion Loss.

3. For Mobile Radio and Portable Handheld Radio:
    a. Sensitivity;
    b. Selectivity;
    c. Power Output;
    d. Frequency Stability;
    e. Spurious Emission / Rejection;
    f. Features, etc.

4. For the Co-Axial Cable:
    a. Attenuation;
    b. Dielectric Strength;
    c. Insulation Resistance.

In addition, the following shall also be performed for all the equipment:

1. Complete Function Test

    It is intended to completely check the functional operation of the equipment. The test shall be a checking of radio equipment, repeaters, base station, etc.

2. Mechanical Inspections

    A physical inspection of the equipment as a whole to ensure that all components are mechanically sound and that there are no imperfections. Also attention should be given to establishing that all special requirements of the specification have been met.

TS – 12.3 Design/ Routine/ Type Tests Report

The Contractor shall submit certified copy of the results of design/ routine/ type tests on each type of equipment to show the adequacy of its design and manufacturing quality.

The Contractor shall furnish a detailed description of the test, test procedures and results.

TS – 12.4 Commissioning and Joint Final Inspection (JFI)

In accordance with the standard and specification, the Contractor shall be required to submit the detailed site acceptance test parameter, checklist, punchlist, generated punchlist if there are any, system test parameters, site cleanup checklist, describing each test and adjustment to be performed together with the time and manpower schedule prior to the conduct of JFI.

Test on completion shall be done in the presence of NPC representatives from QASD and end user. Inspection shall include, but not limited to the following:

1. At each site:
    a. Visual Inspection of workmanship of mounting, cabling, and wiring, physical inventory of system stations and equipment.
    b. System performance and characteristic test.
    c. Electrical Characteristics

2. Overall Test for the Whole System:
    a. Overall Operation
    b. Function

Any corrective works, deficiency findings or not in accordance with required specifications will form part of the punchlist items that will be generated after the conduct of JFI. The punchlist items must be complied and accepted by NPC prior

to the issuance of Certificate of Completion of Works. The date of acceptance of the compliance report will determine the completion of the project.

TS – 13.0 WARRANTY OF QUALITY

1. Warranty period of the system is thirty six (36) months from the date of issuance of Certificate of Completion of Works (Provisional Acceptance) of the project.

2. During the warranty period, the Contractor shall perform quarterly Preventive Maintenance (PM) of the system as part of actual training and technology transfer to the end-user and shall submit PM Report fifteen (15) days after the conduct of the activity. PM Report shall indicate the performed activities, findings and observations, actions taken and recommendations.

3. NPC shall notify the Contractor in writing or e-mail of any defects for which a claim is made under this guarantee as promptly as possible after discover thereof. The Contractor shall perform Corrective Maintenance (CM) and shall submit corresponding CM Report indicating the findings and observations, actions taken and recommendations.

4. NPC's written notice shall describe the nature and extent of the defects. The Contractor shall have no obligation for any defects that was discovered subsequent to the expiry date of the said thirty six (36) months period.

5. The Contractor shall remedy. At his own expense, any defects against which the equipment is guaranteed under this Article, by making all necessary repair or replacement, except in the case that such defects result from NPC's negligence or failure to perform correct maintenance and force majeure.

6. In case of system downtime of at least one (1) month, the downtime shall be added to the original warranty period.

TS – 14.0 PREPARATORY AND INSTALLATION WORKS

TS – 14.1 Preparatory Works

TS – 14.1.1 General

The preparatory works shall consist of the following items:

1. Survey and Investigation
2. Transportation and Storage

The preparatory works shall be conducted to prepare for the installation of telecommunications equipment. All expenses necessary for the preparatory works shall be included in the contact price.

TS – 14.1.2 Survey and investigation

Before commencement of the installation works, survey and investigation shall conduct at each job site to obtain information such as road condition, site condition and civil works condition.

TS – 14.1.3 Transportation and storage

Transportation shall mean carrying the telemetry equipment and materials from the Contractor's stockroom/ stockyard to each job site.

Storage shall mean keeping the telemetry equipment and materials in the stockroom and stockyard of the Contractor prior to the installation.

Storage of equipment and materials including spares shall be the responsibility of the Contractor until validated and accepted during the conduct of Joint Final Inspection and Testing and Commissioning Activities.

TS – 14.2 Installation Works

TS – 14.2.1 General

The Contractor shall carry out all the installation works as specified in the Technical Specifications, or as directed by NPC, by furnishing all labor, materials, equipment, and all other Contractor necessary to complete the Installation works in accordance with the specification and as per industry standard.

The Contractor shall provide complete details of proper handing, transport and storage, installation, testing, performance guarantees, etc. for NPC's review and approval.

The Contractor shall ensure that the equipment is installed in accordance with manufacturer's recommendations, check control system hardware and software configuration, perform logic configuration changes or additions, perform tuning adjustments necessary to place the system in trouble free operation. Instruct the operating personnel in the proper operation and maintenance of the equipment furnished, perform hardware trouble shooting and/or installation. An experienced engineer/service technician, as a minimum, is required for this task.

TS – 14.2.2 Requirements

1. Dismantling

   Dismantling and removal of existing equipment, parts and materials that is unusable for the project will be done if the system is already functional.

2. Installation of equipment

   The equipment and facilities shall be installed in accordance with the attached Drawings. All tools and consumable materials necessary for the installation works shall be provided by the Contractor at his own expense.

3. Materials furnished with system equipment

- Materials furnished with system equipment shall include signal cable, power cable, junction box, power distribution board and so on.
- All indoor materials shall be enclosed in a NEMA 3R cabinet.
- The wiring materials shall have amble voltage and current capacity.
- The signal cable shall be able to withstand external noise such as induction interference.
- The outdoor cable shall be of the waterproof type. This cable shall also be able to withstand high temperature due to direct sunlight without detriment to its original function.

4. Grounding works

   All the telecommunications equipment shall be grounded. Grounding wires from the equipment shall be provided. Said wires shall be connected with another grounding wire. Ground resistance should be five (5) ohms of less.

TS – 14.2.3 Method and Procedure

The dismantling and installation method and procedure shall be equal to or better than the following:

1. Dismantling

   Dismantling and removal of existing equipment, parts and materials that is unusable for the project shall be dismantled in the presence of NPC representative and must be done properly for purpose of possibly using the parts as spare. The dismantled parts will be turned over to NPC for safekeeping or proper waste disposal.

2. Installation

   a. Installation of Indoor Equipment

      The floor-mounting type equipment shall be anchored to the floor or the table with galvanized anchor bolts and, if necessary, swing checks such as bolts and supporting materials shall be provided for the upper part of the equipment to withstand violent vibrations. The wall-mounting type equipment shall also be anchored firmly to the wall with galvanized anchor bolts.

   b. Wiring

      - The interconnection between equipment shall be made with the use of cable ladder, pit, and conduit and so on.
      - A tag indicating its destination shall be attached to each cable.
      - Section of exposed cable which is liable to be damage shall be protected with a duct or the like.
      - Where a wire or cable is to be installed into a station house from the outside, this wire or cable shall be given careful waterproof treatment.

- For a long-distance outdoor cable, lighting protection or a preventive measure shall be provided.

c. Installation of Antenna

- The antenna shall be mounted on a specific height and direction. The antenna shall be mounted on an antenna pole with fixtures in a manner that it can withstand a specified wind load. The fixture shall be treated with galvanized coating.
- The outdoor coaxial cable shall be durable enough to withstand direct sunlight.
- A messenger wire or the like shall be used to hold the coaxial cable located between the antenna pole and station house.
- The coaxial connector shall be set with utmost care. Its connection shall be waterproofed.
- The coaxial cable shall be provided with a lightning arrester for the protection of equipment from lightning.

d. Solar Cell

- The solar cells shall be installed with galvanized anchor bolts or fixtures.
- The cable to be installed into the station house shall be provided with proper waterproofing measures.
- The face of solar cells shall be installed at such an angle and in such a direction that will make it possible for the solar cells to operate at their maximum efficiency.

TS – 15.0 ELIGIBILITY CRITERIA

TS – 15.1 Experience Requirements

TS – 15.1.1 Manufacturer's Experience

The Manufacturer should have been in the business of manufacturing equipment for not less than five (5) years. Manufacturer's Certificate must be submitted

TS – 15.1.2 Contractor /Installer's Experience

1. The Contractor/ Installer should have an experience of installing flood forecasting and warning system for at least three (3) years and at least one completed contract similar to the project within the past five (5) years which is 50% of the ABC. Submit Certificate of Satisfactory Performance and Successful Operation of installed flood forecasting system from previous clients.

2. For purposes of achieving a shortened down time of the flood forecasting and warning system, especially during the warranty period, bidders are expected to have their own team of qualified local service technicians and engineers to facilitate the immediate response to any report of repair for the system. The

bidder shall submit to NPC the respective bio data of its Technicians, Programmers, Professional Telecoms / Electronics Engineer(s) and / or IT Specialist(s) together with their certified photocopy of licenses as applicable.

TS – 16.0 INCIDENTAL EXPENSES AND TAXES

The bid amount by any participating bidder shall include all necessary incidental expenses and taxes.

TS – 17.0 DATA AND DOCUMENTATION REQUIREMENTS

TS – 17.1 General

The Contractor-furnished data and information shall be the guaranteed performance date, predicted performance, interface requirements and construction features of Contractor's furnished equipment. The accuracy of such information and its compatibility with overall performance requirements specified by NPC are the sole responsibility of the Contractor. All information submitted as part of Proposal Data will become part of contact data for successful bidder.

TS – 17.2 Data and Information to be submitted with the Proposal

The following data shall be furnished together with the bid:

1. Filled-in Technical Data Sheet (Section VI Part 2) and Conformity to Section VI Part 1 Technical Specifications;
2. Original Copy of Manufacturer's/ Distributor's/ Licensee's Authorization to bid directly addressed to the BAC-NPC indicating therein the PR/ Reference Number;
3. Preliminary network diagrams and general assembly drawings;
4. Brochures and catalogues to support the filled-in Technical Data Sheets and to allow NPC to evaluate the equipment being offered;
5. Sample screenshot of management software;
6. Certificate of Actual Site Inspection, and;
7. Certificate of Satisfactory Performance and Successful Operation of installed Radio Telemetry Network or Similar Telemetry System form Previous Clients.

TS – 17.3 Data and Information to be submitted after Award of Contract/Project Completion

The following items shall be submitted by the Contractor after award of contract/ project completion:

1. Three (3) set of outline drawings of the equipment showing all critical dimensions and weights, including the following:

a. Mounting dimensions and details and transport dimensions;
b. Plans, elevation and section views;
c. Details of equipment cubicle and its contents;
d. Control and power cable entrance openings at the cubicle;
e. Details of terminals and grounding connections;
f. Channel and support column outline drawing

2. Three (3) sets of Network and Schematic/Circuit diagrams;

3. Three (3) sets of Instruction manual covering installation, operation and maintenance;

4. Three (3) sets of Hydrological Monitoring System and related database system application software back-up installer disc or USB;

5. Design/ Routine/ Type Tests Report of Equipment Delivered;

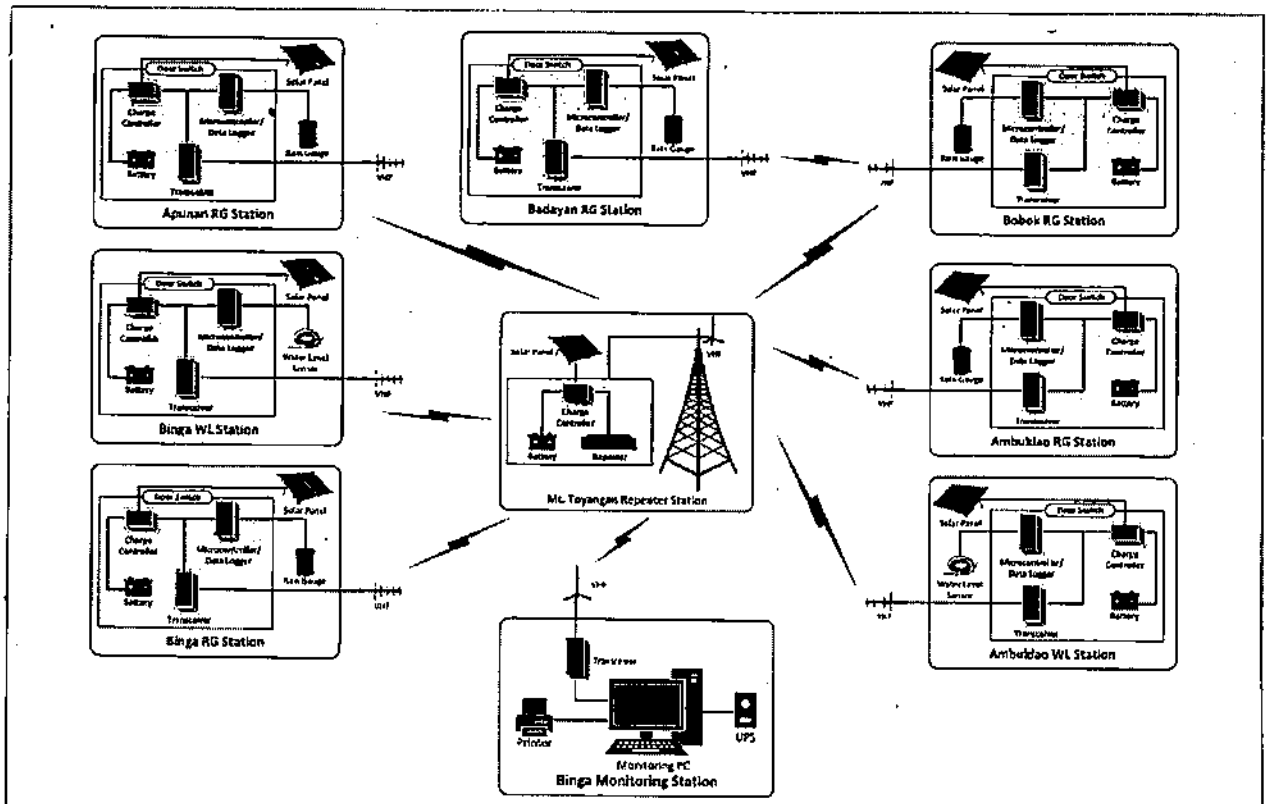
6. System Test Parameters Checklist and System Test Reports duly signed by NPC's representative(s);

7. Warranty Certificate for three (3) years against factory defects/ workmanship, and;

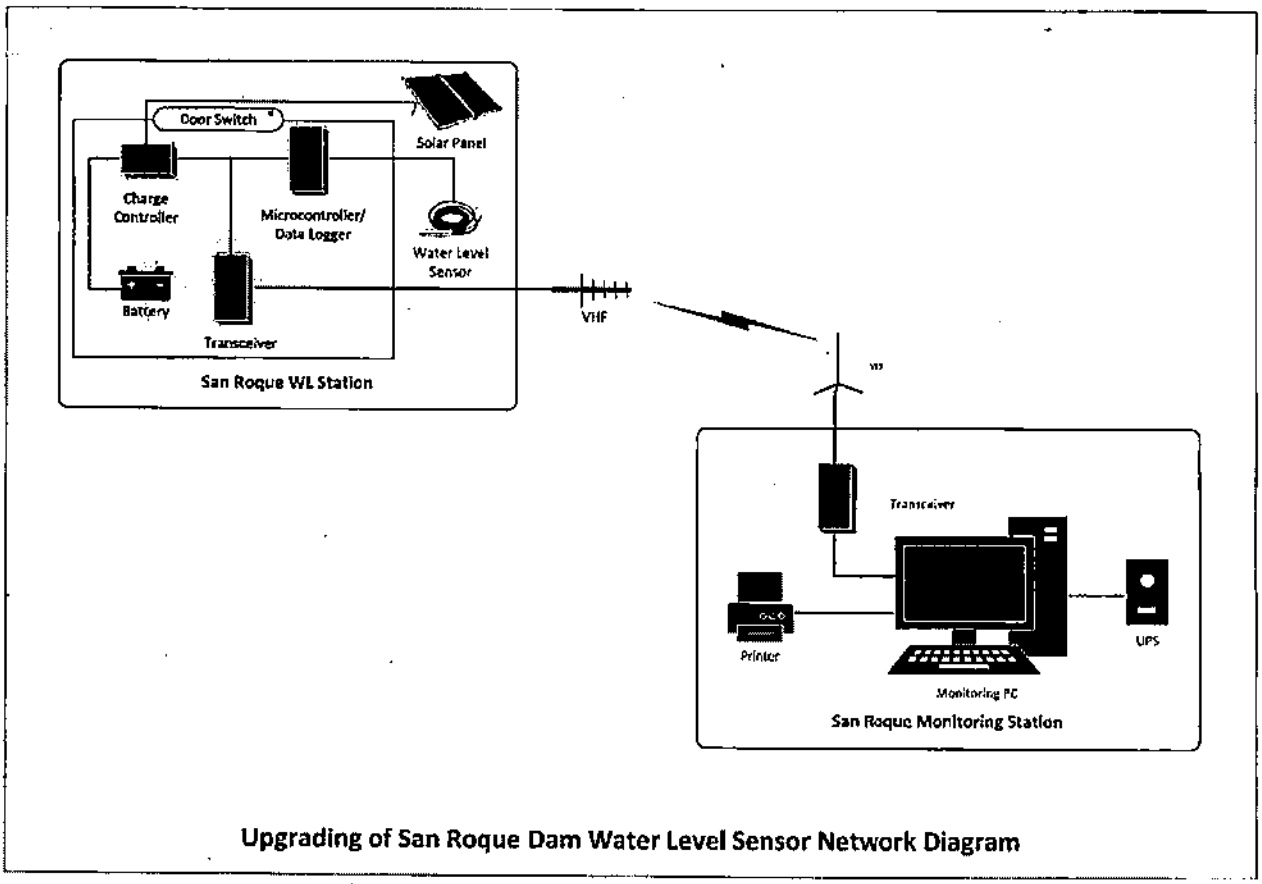
8. Three (3) sets of Detailed and As-Built drawings as finally approved.

9. Certificate of Origin from the Manufacturer.

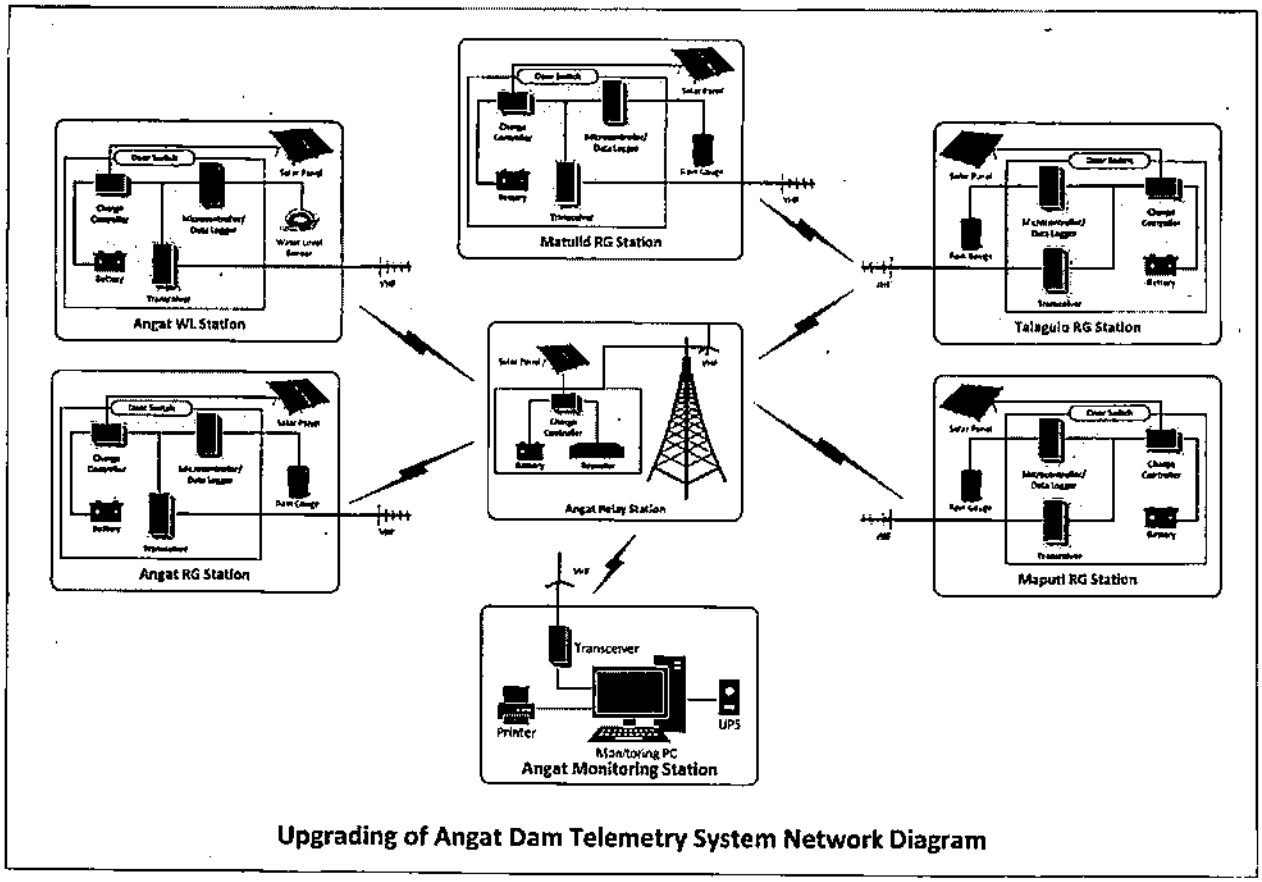
TS – 18.0 NETWORK DIAGRAMS



Upgrading of Ambuklao-Binga Dam Telemetry System Network Diagram



Upgrading of San Roque Dam Water Level Sensor Network Diagram



Upgrading of Angat Dam Telemetry System Network Diagram

Section VI - Technical Specifications

PART II - TECHNICAL DATA SHEETS

TABLE OF CONTENTS

Section VI - Technical Specifications

PART II - TECHNICAL DATA SHEETS

REHABILITATION OF CALIRAYA FLOOD FORECASTING AND WARNING SYSTEM FOR DAM OPERATIONS (FFWSDO) EQUIPMENT / DEVICES

a. The Bidder shall complete this technical data sheet and submit the filled-up form with the technical proposal. The Bidder shall use continuation sheets as necessary for any additional information, keeping to the format shown herein or reproducing the same.

b. NPC reserves the right to reject Bids without proper and specific data and information as required herein.

c. The data required are technical features and characteristics of the equipment/component/material to be provided by the bidder. The bidder's proposal shall be at least equal or superior to the requirements specified by NPC.

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
1.0	**DAM OFFICE MONITORING STATION**			
1.1	**MASTER SUPERVISORY AND CONTROL EQUIPMENT**			
A.	**Supervisory Computer**			
	a. Type		Industrial (24/7 Operation)	
	b. CPU		Intel Core i7 10th Gen, 3.60 GHz or better	
	c. RAM / Main Memory		16 GB or higher	
	d. Data Storage/ Hard Drive		1TB SSD and 1 TB HDD or higher	
	e. Optical Drive		4x Dual Layer Blue-ray R/RW Optical Drive or better	
	f. Video Card		4 GB NVIDIA or higher	
	g. I/O Ports		SD Card Slot, 8 USB 2.0-3.0 ports, Audio Ports (3 jack), 1 Mic In, HDMI, Display port, Ethernet, WiFi, Bluetooth, Expansion Slots	
	h. Power Supply		850W (±5%) 230VAC (Gold-Rating) or better	
	i. Operating System/ Software		Licensed Windows 10 Professional or Higher	
	j. Display		At least 23" LED Monitor	
	k. Input Device		Wired Mouse and Keyboard	
	l. Others		Telemetry Software, Microsoft Office (2016) or better, Steel Computer Table	
1.2	**COMMUNICATION LINK EQUIPMENT**			
A.	**VHF Transceiver**			
	1. Radio Operation			
	a. Radio Frequency		Conventional Digital	
	b. Frequency Range		136–174 MHz, VHF	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

	c. Channel Access		FDMA/TDMA	
	d. Common Air Interference		NXDN	
	e. Channel Spacing		6.25/12.5 kHz, Digital	
	f. Operating Voltage		13.6V DC +/-15%	
	g. Frequency Stability		±1.0 ppm	
	h. Operating Temp.		-30°C to +60°C	
	i. Others		Programming Software and Cable	
	2. Transmitter			
	a. Power Output		25–50 Watts	
	c. FM Hum and Noise		Not greater than 45 dB @ 25kHz, Analog	
	3. Receiver			
	a. Sensitivity, Digital		0.25uV @ 12.5kHz, 3%BER or better	
	b. Selectivity, Analog		80 dB @ 25 kHz, Analog	
1.3	**PRINTER (At Monitoring Station)**			
	a. Type		3 in 1, Print, Copy, and Scan	
	b. Printing		4 in 1, B&W and Colored	
	c. Input Voltage		(±5%) 230VAC	
	d. Interface		USB	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
	e. Printing Speed		At least 33ppm/15ppm (Black/Colored)	
	f. Ink		Continuous	
1.4	**VHF ANTENNA SYSTEM**			
A	**VHF Antenna**		Refer to TS – 6.4.1	
B	**Coaxial Cable and Connectors**		Refer to TS – 6.4.2; TS – 6.7; Compatible Connectors	
C	**Coaxial Arrester/ Surge Arrester**		Refer to TS – 6.4.3	
1.5	**POWER SUPPLY SYSTEM (At Monitoring Station)**			
A	**AC Connection and Distribution Board with AVR**		Refer to TS – 6.1.4.1	
B	**Uninterruptible Power Supply (UPS) for Computers**			
	a. Nominal Input Voltage		220 VAC, 60 Hz	
	b. Output Capacity		Not less than 1 kVA	
	c. Back-up Time		At least 9 minutes	
C	**Grounding System**		Refer to TS - 6.5	
D	**Power Cables, Wirings, Tray/ Rack, Parts and Accessories**		Refer to TS – 6.6	
2.0	**REPEATER STATION**			
2.1	**REPEATER STATION EQUIPMENT/ SYSTEM**			
A	**VHF Repeater**			
	1. Radio Operation			
	a. Radio Frequency		Conventional Digital	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

	b. Frequency Range		136–174 MHz, VHF	
	c. Channel Access		FDMA/TDMA	
	d. Common Air Interference		NXDN	
	e. Channel Spacing		6.25/7.5/12.5/15 kHz, Digital	
	f. Operating Voltage		10.8 – 15.6V DC	
	g. Frequency Stability		±1.0 ppm	
	h. Operating Temp.		-30°C to +60°C	
	i. Others		Programming Software and Cable	
	2. Transmitter			
	a. Power Output		25–50 Watts	
	b. FM Hum and Noise		55 dB @ 25kHz, Analog	
	3. Receiver			
	a. Sensitivity, Digital		0.25uV @ 12.5kHz, 3%BER	
	b. Selectivity, Analog		83 dB @ 25 kHz, Analog	
	4. Duplexer			
	a. Tuning Range		148–174 MHz, VHF	
	b. No. Cavities		At least four (4) units	
	c. Frequency Separation		At least 4MHz (Minimum)	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
	d. VSWR		≤1.5:1	
	e. Insertion Loss (TX/RX)		≤1.0dB	
B	**Door Sensor/ Switch (Rain Gauge and Water Level Stations)**			
	a. Type		Magnetic Contact	
	b. Contact Rating		10 VA	
	c. Conformance		UL Standard	
2.2	**VHF ANTENNA SYSTEM**			
A	**VHF Antenna**		Refer to TS – 6.4.1	
B	**Coaxial Cable and Connections**		Refer to TS – 6.4.2; TS – 6.7; Compatible Connectors	
C	**Coaxial Arrester/ Surge Arrester**		Refer to TS – 6.4.3	
2.3	**POWER SUPPLY SYSTEM**			
A	**Solar Panel**			
	a. Type		Mono-Crystalline Silicon Photovoltaic Cell	
	b. Capacity		100 W	
	c. Voltage Output		18-38Vdc	
	d. Conformance		Acceptable Standard	
B.	**Charge Controller**		Refer to TS – 6.3.2.2	
C.	**Storage Battery**			
	a. Type		Sealed Lead-Acid, Maintenance Free	
	b. Plate		Lead-Calcium Alloy	
	c. Terminal		Lead Alloy	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
	d. Battery Capacity		100 AH	
D.	**Grounding System, Power Cables, Wirings, Connectors and Conduits**		Refer to TS - 6.5, TS – 6.6	
3.0	**TELEMETRY STATIONS**			
3.1	**TELEMETRY STATION EQUIPMENT/ SYSTEM**			
A	**Microcomputer Controller/ Remote Terminal Unit (RTU) and Data Logger**			
	a. Main Purpose		Rain Gauge/ Water Level Sensor Controller or Both	
	b. System Function		Refer to 5.1.2	
	c. Data Field Configuration		Refer to 5.1.3	
	d. Processor		ARM Cortex M4	
	e. OS Flash Memory		At least 2 MB	
	f. System Memory		At least 7 MB	
	g. External Data Storage		2 GB	
	h. Sleep Mode		Supported	
	i. Analog-to-Digital Conversion		Supported	
	j. I/O Ports		Analog and Digital	
	k. Communication ports		RS232/Serial, USB	
	l. Programming		High-Level Languages	
	m. Supported Protocols		PakBus, ModBus, DNP3, etc.	
B	**Rain Gauge**			
	a. Type		Tipping Bucket, Weatherproof	
	b. Diameter		200 mm diameter of orifice	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

	c. Tipping Resolution		0.5 and/or 1.0 mm per tip	
	d. Accuracy		±0.5% at 3.175 cm/hr; ±2% at 25.4 cm/hr	
	e. Outer Housing		Stainless Steel or Aluminum	
	f. Others		Complete Mounting	
C	**Water Level Sensor**			
	a. Type		Solid-state submersible pressure transducer	
	b. Measuring Range		Up to 150 meters	
	c. Output		4 - 20 mA	
	d. Accuracy		± 0.1%, full scale	
	e. Temperature Range		-25 deg C to +70 deg C	
	f. Protection		IP68 Compliant, Protection Device Included	
	g. Connection Cable		Molded-on Waterproof	
D	**Door Sensor/ Switch**		Refer to Item 2.1.B	
E	**Equipment Box**		Refer to TS – 6.3.1.5	
3.2	**COMMUNICATION LINK EQUIPMENT**			
A	**VHF Transceiver**		Refer to Item 1.2.A	
3.3	**VHF ANTENNA SYSTEM**			
A	**VHF Antenna**		Refer to TS – 6.4.1	
B	**Coaxial Cable and Connections**		Refer to TS – 6.4.2; TS – 6.7; Compatible Connectors	
C	**Coaxial Arrester/ Surge Arrester**		Refer to TS – 6.4.3	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
3.3	**POWER SUPPLY SYSTEM**			
A	**Solar Panel**		Refer to Item 2.3. A	
B.	**Charge Controller**		Refer to TS – 6.3.2.2	
C.	**Storage Battery**		Refer to Item 2.3. C	
D.	**Grounding System, Power Cables, Wirings, Connectors and Conduits**		Refer to TS - 6.5, TS – 6.6	
4.0	**WATER LEVEL SENSOR STATION STRUCTURE**		Refer to TS – 6.3.3	
5.0	**STAFF GAUGE**		Refer to TS – 6.3.4	
6.0	**MAJOR SPARE PARTS AND SPECIAL TOOLS**		Refer to TS - 8.0	
	a. Microcomputer Controller/ Remote Terminal Unit (RTU) and Data Logger		Refer to Item 3.1.A	
	b. Rain Gauge		Refer to Item 3.1.B	
	c. Water Level Sensor		Refer to Item 3.1.C	
	d. VHF Antenna		Refer to TS – 6.4.1	
	e. Coaxial Cable and Connections		Refer to TS – 6.4.2; TS – 6.7; Compatible Connectors	
	f. Coaxial Arrester/ Surge Arrester		Refer to TS – 6.4.3	
	g. Solar Panel		Refer to Item 3.3. A	
	h. Charge Controller		Refer to TS – 6.3.2.2	
	i. Storage Battery		Refer to Item 3.3.C	
7.0	**PC CONFIGURATION AND PROGRAMMING**		Refer to TS – 9.0	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

8.0	**NTC AND OTHER RELATED PERMITS AND LICENSES**		• By the Contractor: Permit to Purchase / Possess prior to the delivery of radio equipment; • Copy of NTC Dealer's Permit of radio equipment Contractor or Distributor; • Three (3) years Radio Station License for the purchased radio equipment being inspected by NTC prior to installation. • Work/Construction Permits • Other necessary permits and licenses.	
9.0	**EXPERIENCE REQUIREMENTS**			
	a. The Manufacturer should have been in the business of manufacturing the equipment for not less than: ** b.	years	5	
	b. The track record in terms of years of successful operation of similar flood forecasting or warning system installed must not be less than: **	years	3	
	c. Provide highly qualified personnel for the project implementation and in the conduct of training or workshop: *		Telecom Engineer(s), IT Specialist(s)/ Programmer(s), Hydrologist/ Hydro meteorologist and Technicians or any field related experience, Supported	

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

ITEM	DESCRIPTION	UNIT	NPC REQUIREMENT	CONTRACTOR'S DATA
			with Curriculum Vitae	

* - The contractor shall place "submitted" or "will submit," "will perform," "had been performed," or "will comply" or "complied" in the filled-in data as appropriate. Provide supporting documents as necessary.

**- Experience less than required will be grounds for rejection of bid. Must be supported with valid certification or related documents. Non-compliance will be grounds for denial of the request.

Name of Bidder: _____

Name & Signature of Bidder's Representative: _____

Designation: _____

SECTION VII

SCHEDULE OF REQUIREMENTS

SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				* Code	Unit Price of Goods delivered up to Philippine Port	Import Duties & other Levies imposed by Phil. Govt.	Value Added Tax and other Taxes imposed by Phil. Govt.	Local Transport from Port to Delivery Site <(Phil. Peso)	Labor (Installation, Retrofitting, Testing and Commissioning)	Local Currency Portion (Phil Peso) ((e+f+g+h+i)*c)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
A.	AMBUKLAO-BINGA TELEMETRY SYSTEM									
EW-1.0	DAM OFFICE MONITORING STATION									
EW-1.1	MASTER SUPERVISORY AND CONTROL EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Supervisory Computer (Industrial Type 24/7 Operation)	1 set								
	SUB-TOTAL		(Amount in Words)							
EW-1.2	COMMUNICATION LINK EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Radio Transceiver (Including Programming Kit)	1 set								
	SUB-TOTAL		(Amount in Words)							
EW-1.3	PRINTER (Continuous Ink)									
	as specifed in the Technical Specification and Technical Data Sheets	1 unit	Furnish,Install and Test							
	SUB-TOTAL		(Amount in Words)							
EW-1.4	VHF ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	1 set	Furnish, Install and Test							
	A. Directional / Omni-directional Antenna									

* Bidders shall enter a code representing the Country of Origin of all imported Equipment, Materials and Accessories

\+ Cost of imported eqpt., freight, insurance, etc. up to Phil. port of entry in Phil. Peso

< Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery sites

> Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the local source to final delivery sites

Code	Country of Origin

Note: - Project Site: Monitoring Station:

a. Binga Dam Office - Itogon, Benguet

b. San Roque Dam Office - San Manuel, Pangasinan

c. Angat Dam Office - Norzagaray, Bulacan

Telemetry Stations - Various locations in Benguet, Pangasinan and Bulacan

Validity of Quotation: 1 year Warranty: 3 years

Name of Bidder _____

Signature of Bidder _____

SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				* Code	Unit Price of Goods delivered up to Philippine Port	Import Duties & other Levies imposed by Phil. Govt.	Value Added Tax and other Taxes imposed by Phil. Govt.	Local Transport from Port to Delivery Site <(Phil. Peso)	Labor (Installation, Retrofitting, Testing and Commissioning)	Local Currency Portion (Phil Peso) ((e+f+g+h+i)*c)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	B. Coaxial Cable and Connectors		Furnish, Install and Test							
	C. Coaxial Arrester/ Surge Arrester									
	SUB-TOTAL			(Amount in Words)						
EW-1.5	**POWER SUPPLY SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. AC Connection And Distribution Board with AVR	1 set								
	B. Uninterrupted Power Supply (UPS) For Computers	1 unit								
	C. Grounding System	1 lot								
	D. Power Cables, Wirings, Tray / Rack, Parts & Accessories	1 lot								
	SUB-TOTAL			(Amount in Words)						
EW-2.0	**REPEATER STATION**									
EW-2.1	**REPEATER STATION EQUIPMENT / SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Repeater (Including Proramming Software and Cable)	1 set								
	SUB-TOTAL			(Amount in Words)						

* Bidders shall enter a code representing the Country of Origin of all imported Equipment, Materials and Accessories

\+ Cost of imported eqpt., freight, insurance, etc. up to Phil. port of entry in Phil. Peso

< Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery sites

> Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the local source to final delivery sites

Code	Country of Origin

Note: - Project Site: Monitoring Station:

a. Binga Dam Office - Ilogon, Benguet

b. San Roque Dam Office - San Manuel, Pangasinan

c. Angat Dam Office - Norzagaray, Bulacan

Telemetry Stations - Various locations in Benguet, Pangasinan and Bulacan

Validity of Quotation: 1 year Warranty: 3 years

Name of Bidder _____

Signature of Bidder _____

SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				* code	Unit Price of Goods delivered up to Philippine Port	Import Duties & other Levies imposed by Phil. Govt.	Value Added Tax and other Taxes imposed by Phil. Govt.	Local Transport from Port to Delivery Site <(Phil. Peso)	Labor (Installation, Retrofitting, Testing and Commissioning)	Local Currency Portion (Phil Peso) ((e+f+g+h+i)*c)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
EW-2.2	ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional/Omni-directional Antenna	1 set								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL		(Amount in Words)							
EW-2.3	POWER SUPPLY SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Solar Panel	1 set								
	B. Charge Controller									
	C. Storage Battery									
	D. Grounding System, Power Cables, Wirings, Connectors and Conduit									
	SUB-TOTAL		(Amount in Words)							
EW-3.0	TELEMETRY STATION									
EW-3.1	TELEMETRY STATION EQUIPMENT / SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Microcomputer Controller/Remote Terminal Unit (RTU) and Data Logger	7 sets								
	B. Rain Gauge	5 sets								

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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	C. Water Level Sensor	2 sets	Furnish, Install and Test							
	D. Door Sensor/Switch	7 sets								
	E. Equipment Box	7 sets								
	SUB-TOTAL		(Amount in Words)							
EW-3.2	COMMUNICATION LINK EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Radio Transciever	7 sets								
	SUB-TOTAL		(Amount in Words)							
EW-3.3	ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional/Omni-directional Antenna	7 sets								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL		(Amount in Words)							
EW-3.4	POWER SUPPLY SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Solar Panel	7 sets								
	B. Charge Controller									

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SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	C. Storage Battery D. Grounding System, Power Cables, Wirings, Connectors and Conduit		Furnish, Install and Test							
	SUB-TOTAL		(Amount in Words)							
EW-4.0	WATER LEVEL SENSOR STATION STRUCTURE									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	2 lots	Construct, Erect/Install and Test							
	SUB-TOTAL		(Amount in Words)							
B.	SAN ROQUE TELEMETRY SYSTEM									
EW-1.0	DAM OFFICE MONITORING STATION									
EW-1.1	MASTER SUPERVISORY AND CONTROL EQUIPMENT as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components: A. Supervisory Computer (Industrial Type 24/7 Operation)	1 set	Furnish, Install and Test							
	SUB-TOTAL		(Amount in Words)							
EW-1.2	COMMUNICATION LINK EQUIPMENT as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components: A. VHF Radio Transceiver (Including Programming Kit)	1 set	Furnish, Install and Test							

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SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	SUB-TOTAL				(Amount in Words)					
EW-1.3	**PRINTER (Continuous Ink)**		Furnish,Install and Test							
	as specifed in the Technical Specification and Technical Data Sheets	1 unit								
	SUB-TOTAL				(Amount in Words)					
EW-1.4	**ANTENNA SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional / Omni-directional Antenna	1 set								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL				(Amount in Words)					
EW-1.5	**POWER SUPPLY SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. AC Connection and Distribution Board with AVR	1 lot								
	B. Uninterrupted Power Supply (UPS) for Computers	1 set								
	C. Grounding System	1 lot								
	D. Power Cables, Wirings, Tray/Racks, Parts & Accessories	1 lot								
	SUB-TOTAL				(Amount in Words)					

* Bidders shall enter a code representing the Country of Origin of all imported Equipment, Materials and Accessories

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Validity of Quotation: 1 year Warranty: 3 years

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SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				* Code	Unit Price of Goods delivered up to Philippine Port	Import Duties & other Levies imposed by Phil. Govt.	Value Added Tax and other Taxes imposed by Phil. Govt.	Local Transport from Port to Delivery Site <(Phil. Peso)	Labor (Installation, Retrofitting, Testing and Commissioning)	Local Currency Portion (Phil Peso) ((e+f+g+h+i)*c)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
EW-2.0	TELEMETRY STATION									
EW-2.1	TELEMETRY STATION EQUIPMENT / SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Microcomputer Controller/Remote Terminal Unit (RTU) and Data Logger	1 sets								
	B. Water Level Sensor	1 sets								
	C. Door Sensor/Switch	1 sets								
	D. Equipment Box	1 sets								
	SUB-TOTAL		(Amount in Words)							
EW-2.2	COMMUNICATION LINK EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Radio Transciever	1 sets								
	SUB-TOTAL		(Amount in Words)							
EW-2.3	ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional/Omni-directional Antenna	1 set								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL		(Amount in Words)							

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SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
EW-2.4	POWER SUPPLY SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	1 set	Furnish, Install and Test							
	A. Solar Panel									
	B. Charge Controller									
	C. Storage Battery									
	D. Grounding System, Power Cables, Wirings, Connectors and Conduit									
	SUB-TOTAL		(Amount in Words)							
EW-3.0	WATER LEVEL SENSOR STATION STRUCTURE									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	1 lots	Construct, Erect/Install and Test							
	SUB-TOTAL		(Amount in Words)							
C.	ANGAT TELEMETRY SYSTEM									
EW-1.0	DAM OFFICE MONITORING STATION									
EW-1.1	MASTER SUPERVISORY AND CONTROL EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Supervisory Computer (Industrial Type 24/7 Operation)	1 set								
	SUB-TOTAL		(Amount in Words)							

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UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
EW-1.2	**COMMUNICATION LINK EQUIPMENT**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Radio Transceiver (Including Programming Kit)	1 set								
	SUB-TOTAL		(Amount in Words)							
EW-1.3	**PRINTER (Continous Ink)**	1 unit	Furnish, Install and Test							
	as specifed in the Technical Specification and Technical Data Sheets:									
EW-1.4	**ANTENNA SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional/Omni-directional Antenna	1 set								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL		(Amount in Words)							
EW-1.5	**POWER SUPPLY SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. AC Connection and Distribution Board with AVR	1 lots								
	B. Uninterrupted Power Supply (UPS) for Computers	1 unit								
	C. Grounding	1 lot								
	D. Grounding System, Power Cables, Wirings, Connectors and Conduit	1 lot								

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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	SUB-TOTAL			(Amount in Words)						
EW-2.0	REPEATER STATION									
EW-2.1	REPEATER STATION EQUIPMENT / SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Repeater (Including Proramming Software and Cable)	1 set								
	SUB-TOTAL			(Amount in Words)						
EW-2.2	ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Directional/Omni-directional Antenna	1 sets								
	B. Coaxial Cables and Connectors									
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL			(Amount in Words)						
EW-2.3	POWER SUPPLY SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. Solar Panel	1 set								
	B. Charge Controller									
	C. Storage Battery									

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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	D. Grounding System, Power Cables, Wirings, Connectors and Conduit									
EW-3.0	TELEMETRY STATION									
EW-3.1	TELEMETRY STATION EQUIPMENT / SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:									
	A. Microcomputer Controller/Remote Terminal Unit (RTU) and Data Logger	5 sets	Furnish, Install and Test							
	B. Rain Gauge	4 sets								
	C. Water Level Sensor	1 set								
	D. Door Sensor/Switch	5 sets								
	E. Equipment Box	5 sets								
	SUB-TOTAL		(Amount in Words)							
EW-3.2	COMMUNICATION LINK EQUIPMENT									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:		Furnish, Install and Test							
	A. VHF Radio Transciever	5 sets								
	SUB-TOTAL		(Amount in Words)							
EW-3.3	ANTENNA SYSTEM									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	5 sets	Furnish, Install and Test							
	A. Directional/Omni-directional Antenna									
	B. Coaxial Cables and Connectors									

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(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	C. Coaxial Arrester/Surge Arrester									
	SUB-TOTAL		(Amount in Words)							
EW-3.4	**POWER SUPPLY SYSTEM**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	5 sets	Furnish, Install and Test							
	A. Solar Panel									
	B. Charge Controller									
	C. Storage Battery									
	D. Grounding System, Power Cables, Wirings, Connectors and Conduit									
	SUB-TOTAL		(Amount in Words)							
EW-3.0	**WATER LEVEL SENSOR STATION STRUCTURE**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	1 lots	Construct, Erect/Install and Test							
	SUB-TOTAL		(Amount in Words)							
EW-4.0	**STAFF GAUGE**									
	as specifed in the Technical Specification and Technical Data Sheets complete but not limited with the following components:	35 mtrs	Furnish and Install							
	SUB-TOTAL		(Amount in Words)							
D.	**SPARES, PERMITS AND OVERALL COMMISSIONING**									
EW-1.0	**MAJOR SPARE PARTS AND SPECIAL TOOLS**									
	A. Microcomputer Controller/Remote Terminal Unit (RTU) and Data Logger	1 set	Furnish							

* Bidders shall enter a code representing the Country of Origin of all imported Equipment, Materials and Accessories

\+ Cost of imported eqpt., freight, insurance, etc. up to Phil. port of entry in Phil. Peso

< Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery sites

> Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the local source to final delivery sites

Code	Country of Origin

Note: - Project Site: Monitoring Station:
a. Binga Dam Office - Itogon, Benguet
b. San Roque Dam Office - San Manuel, Pangasinan
c. Angat Dam Office - Norzagaray, Bulacan
Telemetry Stations - Various locations in Benguet, Pangasinan and Bulacan

Name of Bidder _____

Signature of Bidder _____

SECTION VII - SCHEDULE OF REQUIREMENTS

UPGRADING OF VARIOUS TELEMETRY SYSTEM OF FFWSD PROJECTS

ITEM NO.	DESCRIPTION	QTY./ UNIT	WORK TO BE DONE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				* Code	Unit Price of Goods delivered up to Philippine Port	Import Duties & other Levies imposed by Phil. Govt.	Value Added Tax and other Taxes imposed by Phil. Govt.	Local Transport from Port to Delivery Site <(Phil. Peso)	Labor (Installation, Retrofitting, Testing and Commissioning)	Local Currency Portion (Phil Peso) ((e+f+g+h+i)*c)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	Validity of Quotation: 1 year Warranty: 3 years									
	B. Raine Gauge	1 set	Furnish							
	C. Water Level Sensor	1 set								
	D. Directional/Omni-directional Antenna	1 set								
	E. Coaxial Cables and Connectors	1 set								
	F. Coaxial Arrester/Surge Arrester	1 set								
	G. Solar Panel	1 set								
	H. Charge Controller	1 set								
	I. Storage Battery	1 set								
	SUB-TOTAL		(Amount in Words)							
EW-2.0	PC CONFIGURATION	3 lots	Comply							
	SUB-TOTAL		(Amount in Words)							
EW-3.0	NTC AND OTHER RELATED PERMITS AND LICENSES	1 lots	Comply							
	SUB-TOTAL		(Amount in Words)							
EW-4.0	TRAINING OF NPC FFWSD PERSONNEL (Operation, Configuration, Mainternance, Trouble Shooting and Repair)	1 lots	Comply							
	SUB-TOTAL		(Amount in Words)							
EW-5.0	OVERALL TESTING AND COMMISSIONING	1 lots	Comply							
	SUB-TOTAL		(Amount in Words)							
	GRAND TOTAL		(Amount in Words)							

* Bidders shall enter a code representing the Country of Origin of all imported Equipment, Materials and Accessories

\+ Cost of imported eqpt., freight, insurance, etc. up to Phil. port of entry in Phil. Peso

< Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery sites

> Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the local source to final delivery sites

Code	Country of Origin

Note: - Project Site: Monitoring Station:
a. Binga Dam Office - Itogon, Benguet
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Telemetry Stations - Various locations in Benguet, Pangasinan and Bulacan

Name of Bidder _____

Signature of Bidder _____

SECTION VIII

BIDDING FORMS

SECTION VIII – BIDDING FORMS

TABLE OF CONTENTS

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)
- Data and Information to be submitted with the Bid/Proposal as specified in Clause TS-17.2 of Section VI - Technical Specifications
- 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-02

List of All Ongoing Government and Private Contracts Including Contract Awarded But Not Yet Started

Business Name : _____
Business Address : _____

Name of Contract/ Project Cost	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Date Awarded b. Date Started c. Date of Completion or Contract Duration/ Date of Delivery	Value of Outstanding Works / Undelivered Portion
			Description	%		
Government						
Private						
					Total Cost	

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.

Note : This statement shall be supported with the following documents for all the contract(s) stated above which shall be submitted during Post-qualification:
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.

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

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 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.	₱
2.	₱

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:
    d) fails or refuses to execute the Contract; or
    e) fails or refuses to submit the required valid JVA, if applicable; or
    f) 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 that the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

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
UPGRADING OF VARIOUS TELEMETRY SYSTEMS OF FFWSD PROJECTS (PR NO. PR NO. HO-FFW23-010)

To: **National Power Corporation**
BIR Road cor. Quezon Ave.
Diliman, Quezon City

I/We[1], 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
BIR Road cor. Quezon Ave.
Diliman, Quezon City

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 **UPGRADING OF VARIOUS TELEMETRY SYSTEMS OF FFWSD PROJECTS (PR NO. HO-FFW23-010)** 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
BIR Road cor. Quezon Ave.
Diliman, Quezon City

[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