REPUBLIC OF THE PHILIPPINES

NATIONAL POWER CORPORATION

(Pambansang Korporasyon sa Elektrisidad)

BID DOCUMENTS

Name of Project : **SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT**

PR No. : **MG-PLM24-027**

Contents:

SECTION I

INVITATION TO BID

National Power Corporation
INVITATION TO BID
PUBLIC BIDDING – BCS 2024-0286

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-PLM24-027 / PB240514-AM00234 Supply, Delivery, Installation, Testing and Commissioning of Unit No. 3 Excitation System at Pulangi IV Hydroelectric Plant	Supply, Delivery, Installation, Test and Commissioning of Generator Excitation System for Power Plants	02 May 2024 9:30 A.M.	14 May 2024 9:30 A.M.	₱ 35,000,000.00 / ₱ 25,000.00
MA-A2M24-003 / PB240514-AM Replacement of Generator Bus Bar for Unit No. 1 of Agus 2 HEPP	Supply and/or Installation of Medium/High Voltage Electrical Equipment	02 May 2024 9:30 A.M.	14 May 2024 9:30 A.M.	₱ 48,000,000.00 / ₱ 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-PLM24-027	Two Hundred Seventy (270) Calendar Days	Fifteen (15) Years
MA-A2M24-003	Two Hundred Ten (210) Calendar Days	Fifteen (15) 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

TABLE OF CONTENTS

SECTION II – INSTRUCTIONS TO BIDDERS

1. Scope of Bid

The **National Power Corporation (NPC** or **NAPOCOR)** wishes to receive Bids for the **SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT,** with identification number **PR NO. MG-PLM24-027.**

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

2. Funding Information

2.1. The GOP through the source of funding as indicated below for CY 2024 in the amount of **₱ 35,000,000.00**.

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 Fifteen (15) 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 replacement or supply, delivery, installation, test and commissioning of Generator Excitation System for Power Plants. 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-10.0(a) of Section VI - Technical Specifications; 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) e. Documents to be submitted during post-qualification process as specified in TS-10.0(b) 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.
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

TABLE OF CONTENTS

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, repair or replace the defective Goods or parts thereof 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 VP - Mindanao Generations. **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.

SECTION VI

TECHNICAL SPECIFICATIONS

PART I – TECHINICAL SPECIFICATIONS
PART II – TECHINICAL DATA SHEETS

SECTION VI

TECHNICAL SPECIFICATIONS

PART I – TECHINICAL SPECIFICATIONS

SECTION VI - TECHNICAL SPECIFICATIONS
PART I - TECHNICAL SPECIFICATIONS

TS-1.0 GENERAL

This specification covers the features and technical requirements for the Supply, Delivery, Installation, Testing and Commissioning of Unit No. 3 Excitation System at Pulangi IV Hydroelectric Plant.

All supplied components/parts shall be new, unused and shall be suitable for the intended purpose and shall comply with all applicable regulations, quality, and dimension standards.

The Supplier 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 Specifications.

TS-2.0 SCOPE OF WORKS

The works and services to be performed by the successful bidder shall essentially consist of but not limited to the following:

1. Dismantling of the existing Excitation System and appurtenances;

2. Supply, Delivery, Installation, Testing and Commissioning of Digital Excitation System Unit No. 3, Pulangi IV Hydroelectric Plant including all appurtenances;

3. Supply of Labor, Tools, Materials, Equipment and Expertise for the replacement of Excitation System of Generating Unit No. 3, Pulangi IV Hydroelectric Plant;

4. Supply, Delivery, Installation, Testing and Commissioning of new Excitation System and appurtenances (Excitation Transformer, Exciter Panel, etc.);

5. Installation of protection system component at the excitation transformer such as overcurrent protection; and

6. All other works not specified in the technical specifications but are necessary for the complete and reliable operation of the excitation system shall be provided by the Supplier.

In addition to the scope of testing and commissioning of the excitation system, the following services shall also be performed:

1. Tagging of cables that would be used for the installation of the new excitation system before the removal of the existing excitation panel;

2. Dismantling of old excitation transformer and hauling to the warehouse for safekeeping;

3. Testing of analog and digital I/O for the permissive contact from unit control board of the Pulangi IV Hydroelectric Plant;

4. Testing of firing of thyristor bridges using the 480 VAC power supply of the Pulangi IV Hydroelectric Plant; and

5. Testing and commissioning of excitation system online (synch to grid) and offline (not synch to grid).

The digital excitation system shall be designed to compatibility work and operate satisfactorily with the existing generator main field complete with the necessary controls, limiters, and protection to safeguard the generator. The digital excitation system will also incorporate a Power System Stabilizer function operating in conjunction with the AVR/ Exciter function to damper local mode, inter-area, inter- unit power system oscillations.

TS-3.0 CONTRACT DURATION AND LOCATION

The contract duration is TWO HUNDRED SEVENTY (270) CALENDAR DAYS reckoned from the date stated in the Notice to Proceed (NTP).

The project is located in Pulangi IV Hydroelectric Plant - Kiuntod, Camp 1, Maramag, Bukidnon.

The Supplier shall be responsible for visiting the plant site and take particular reference to its accessibility, means of transportation and all other factors that should be considered in carrying out the contract implementation.

TS-4.0 CODES AND STANDARDS

1. **EMC standards**
    a. IEC 61000-4-2 Electrostatic discharge immunity test LEVEL 2: 6 kV Contact discharge and 8 kV air discharge
    b. IEC 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity test LEVEL 3: 10 V/m
    c. IEC 61000-4-4 Electrical fast transient/burst immunity test LEVEL 3: ±2 kV
    d. IEC 61000-4-5 Surge immunity test LEVEL 3: ±2 kV
    e. IEC 61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields LEVEL 3: 0,15 to 80 MHz / 10V
    f. IEC 61000-4-8 Power frequency magnetic field immunity test LEVEL 5: 30 A/m continuous and 1000 A/m short
    g. IEC 61000-4-11 Voltage dips, short interruptions and voltage variations immunity tests

2. **Environmental tests**
    a. IEC 60068-2-1 (Environmental Test- Cold)
    b. IEC 60068-2-2 (Environmental Test- Dry heat)
    c. IEC 60068-2-14 (Environmental Test- Temperature Variation)
    d. IEC 60068-2-30 (Environmental Test- Humid Heat, cyclic)

3. **General Excitation System Standards**
    a. IEEE 421.1 Standard Definitions for Excitation Systems for Synchronous Machines
    b. IEEE 421.2 Guide for Identification, Testing, and Evaluation of the Dynamic Performance of Excitation Control Systems
    c. IEEE 421.3 Standard for High-Potential Test Requirements for Excitation Systems for Synchronous Machines

d. IEEE 421.4 Guide for the Preparation of Excitation System Specifications
e. IEEE 421.5 Recommended Practice for Excitation System Models for Power System Stability Studies
f. IEEE Std 57.18.10 Standard Practices and Requirements for Semiconductor Power Rectifier Transformers
g. IEC 146-1-1 Semiconductor convertors – General requirements and line commutated convertors
h. C37.18 IEEE Standard Enclosed Field Discharge Circuit Breakers for Rotating Electric Machinery

These codes and standards set forth the minimum requirements which may be exceeded by the Supplier, if, in the Supplier's judgment and with NPC's acceptance, superior or more economical designs or materials are available for successful and continuous operation of the Supplier's equipment as required by this specification.

In addition to these codes and standard mentioned, the Supplier shall comply with all National and local laws, codes, regulations, statutes and ordinances.

Equipment or materials meeting other internationally accepted standards, which ensure an equal or higher quality than the standards mentioned, will also be accepted.

In the event of any apparent conflict among standards, codes or this specification, the Supplier shall refer the conflict to NPC for written resolution before start of fabrication. Final decision regarding the acceptance of proposed standards is the prerogative of NPC.

No deviation from the accepted standards shall be made subsequent to the Contract without the written approval of NPC.

Standards listed in individual technical specification are used mainly for NPC's references. Other internationally known standards, however, shall also apply, provided such standards are equivalent in all respect to the standard prescribed and to the specific requirements described in the individual equipment specification. Supplier shall submit copies of such standards for NPC's review and approval.

TS-5.0 WORKMANSHIP

Workmanship shall be of high-quality satisfactory manner and in accordance with the best modem engineering practice for the manufacture, assembly, installation, testing and commissioning of generator excitation system. All works shall be done by personnel skilled in the related professions and trades. All parts shall be made accurately to standard gauges so as to facilitate replacement and repairs. All special gauges and templates necessary for field erection shall become the property of NPC.

The parts or components shall be designed and arranged so that they can be easily inspected, cleaned, erected, and dismantled without involving large scale dismantling. They shall be designed and manufactured in accordance with the latest recognized rules of workmanship and modem engineering practice.

TS-6.0 EXCITATION SYTEM

TS-6.1 GENERAL

The Replacement of Excitation System of Unit No. 3 at Pulangi IV Hydroelectric Plant shall be furnished complete with dual digital automatic voltage regulator, excitation transformer, DC field circuit breaker, thyristors, non-linear de- excitation resistor local operation terminal, AC bus or cable between the transformer and thyristor cubicle, DC bus or cable from the thyristor cubicles to the generator field brush terminals, and field flashing equipment including necessary switching equipment.

Ratings, tests, and characteristics shall be in accordance with the latest approved standards of ANSI, IEEE, NEMA, or IEC, each as they apply, unless otherwise specified.

The Excitation System shall have the following main components and features:

- Excitation Transformer
- Thyristor rectifier bridge(s)
- Draw-out DC Field Breaker
- Crowbar, DC over-voltage protection, and discharge circuit
- Field flashing circuit
- Remote communication through the system's serial and I/O interface
- HMI panel mounted on Excitation System cabinet for local control, supervision & testing
- Automatic Voltage Regular (AVR) features:
  - Auto/Manual control mode
  - MVAr/PF control mode
  - Power System Stabilizer (PSS)
  - Over Excitation Limiter (OEL)
  - Under Excitation Limiter (UEL)
  - Volt/Hertz Limiter (VHL)
  - Reactive Compensation
  - Ethernet Modbus remote communication
  - IRIG-B time synch

The Excitation System shall be able to supply maximum continuous field current at an ambient temperature of 50°C.

Humidity ranges from 0% to 95%, non-condensing. The altitude is <3,000 feet.

The Excitation System shall be required to provide:

- Maximum continuous field current of 110% of rated field current.
- Positive ceiling field voltage of 160% (or as required by local grid code) rated field voltage at 100% terminal voltage.
- Ceiling field current of 150% rated field current, for a period- of 30 seconds
- The negative ceiling voltage shall be at least 80% of the positive voltage.
- The Excitation System shall be of high initial response type.
- The Excitation System shall provide ceiling field voltage during any fault at the high voltage side of the transformer
- The Excitation System shall withstand, without damage, line faults resulting in reduced and/or unbalanced voltages.

- The Excitation System shall withstand, without damage, any faults or abnormal operation of the synchronous machine including a short circuit across the field.
- The continuous voltage rating of an excitation system should be sufficient to supply the necessary continuous current to synchronously the machine field, with the field at its maximum temperature under rated load conditions. In addition, the continuous voltage capability should allow the operation of the synchronous machine at rated MVA within the +/-5% of the rated terminal voltage. In determining the required voltage for the continuous as well as the transient ratings, all voltage drops up to the field winding terminal should be considered. Any brush drop voltage should be considered part of the synchronous machine field circuit.

The Excitation System shall be furnished with a completely redundant control system including the main controller, I/O interface, and communication ports.

A minimum of 48 Digital Inputs, 35 Digital Outputs, 25 Analog Inputs, and 16 Analog Outputs shall be available from each I/O module.

The Excitation System shall be equipped with an IRIG-B time synch input.

TS-6.2 GENERATOR DATA

Rated Capacity:	94.5 MVA
Rated Voltage:	13.8 kV
Rated Frequency:	60 Hz
Field current at rated output and rated power factor:	950 A DC
Field voltage at rated output and rated power factor:	350 V DC

TS-6.3 SYSTEM RATING

Maximum continuous field current:	1,045 A DC
Ceiling Current:	1,520 A DC / 10s
Ceiling Voltage:	560 V DC

TS-6.4 PERFORMANCE CHARACTERISTICS AND ENVIRONMENT CONDITIONS

Voltage regulation accuracy:	0.25%
High Initial Response as per:	IEEE 421.1
Frequency Response (Gain & Phase) as per:	IEEE 421.1
Regulation: ST1A in accordance to	IEEE 421.5
Maximum altitude above sea level:	1,000 m
Maximum altitude above sea level:	45 °C
Lowest environment temperature:	0 °C
Maximum indoor environment humidity:	15 to 95, non-condensing

TS-6.5 CHARACTERISTICES

The excitation system shall have the following characteristics:

1. The capacity to supply continuously the excitation required by the generator operating at 100% rated kVA, rated power factor, and 105% rated voltage. The excitation voltage and current parameters shall be based on the existing generator.

2. High initial response; that is, the time required for the excitation voltage to attain 95% of the difference between rated full load voltage and ceiling voltage shall not exceed 0.1s.

3. Capable of reversing the excitation voltage to full negative ceiling voltage to rapidly reduce the generator field current when normal shutdown.

4. Capable of operation at ceiling voltage for a duration of 10 sec. without damage.

5. Meet all specified requirements with the ambient air at any temperature in the range of 15°C to 40°C.

6. Thyristor operating temperature in the range of 90°C to 125°C.

7. Designed for remote control from the distributed control system and/or control switchboard via LAN based on Ethernet with IEC 60870-5-104 protocol or equivalent.

8. Disconnecting and transfer devices shall be latching type and shall not rely on continuity of the control power source to keep the excitation system in service.

TS-6.6 TECHNICAL DESCRIPTION

TS-6.6.1 Automatic Voltage Regulator (AVR)

The static excitation system shall be furnished with complete redundant controls, including the main controller, I/O interface, and communication ports.

Regulator redundancy shall be provided. A failure in the regulator shall create an automatic transfer to other regulators while maintaining the same bridge, therefore bridge redundancy is also maintained. Conversely, switching to a redundant bridge due to failure will maintain operation with the same regulator redundancy.

Comprises an electronic microcomputer-based part for the control and regulating functions and a thyristor rectifier for the main circuits.

The voltage regulator shall be equipped with Ethernet, Modbus, and TCP serial communication capability for remote operation and annunciation for future SCADA remote operation. Local operation and testing are both thru HMI and local control knobs. Annunciation should be available at local indicators and in the HMI control room.

The static excitation system shall be equipped with an IRIG-B time synch input.

Control and Supervision - The primary task is to keep the voltage of the power system constant, and stable. It will also maintain the stability of the power system's steady-state conditions. When a transient disturbance in the network occurs, the voltage regulator covers all control functions needed for the excitation systems. Measuring the stator voltage and current is done by fast

A/D conversion measuring devices. Thru RMS value is calculated by the measuring device.

Auto Mode - The AVR control algorithm of PID characteristics regulates the stator voltage to the desired value.

Manual Mode - FCR is used in fulfilling the usual requirement of manual control FCR replaced AVR in case fault in the voltage measuring circuits.

Reactive Power Control - The function is used to keep the reactive power constant. Control of the reactive power is done using a slow-operating three-state controller adjusting the voltage regulators reference value. This maintains the favorable effects of the fast AVR during transient power line disturbances.

Power Factor Control - The function is used to keep the power factor constant. Control of the reactive power is done using a slow-operating three-state controller that adjusts the voltage regulator reference values. This maintains the favorable effects of the fast AVR during transient power line disturbances.

The regulators include ail necessary logical functions for control and supervision of the excitation equipment during start-up, service, and shutdown. This includes:

1. Field Flashing
2. Cooling Fans for the Thyristor Converter
3. Redundant Thyristor Bridge
4. Reactive Power Start and Stop
5. Setting the Reference Value
6. Selection of Control Mode with Follow-up for Bump Less Transfer

Voltage Supervision - The voltage measuring signal and the supply voltage to the converter can be supervised by mutual comparison. At the low measuring signal, an automatic change-over to FCR is initiated.

Fault Signal Indication - Each internal, and external fault signal can be indicated with LEDs, and relay contacts on a local control panel. The signal faults are grouped into 'Alarm' or 'Trip' and these two signals are available via potential-free contacts.

Self-supervision of the Regulator - The computer's self-monitoring system covers the power supply system, processor, memories, I/O units, and communication system.

TS-6.6.2 Field Current Limiter (FCL)

The Limiter is time-delayed obtaining good voltage regulation during temporary network faults. The time-delayed function protects against overloading the generator and the exciter by limiting the field current. Constant time delay, inverse time delay, and two limits can be set.

A set of tuning parameters (gains and time constants), limiter; and set points

must be provided and shall be user-configurable from the HMI panel.

Limiter status shall be indicated on the HMI panel and a digital output signal shall be provided as a normally open contact.

TS-6.6.3 Over Excitation Limiter (OEL)

The OEL shall limit the instantaneous over-current absorbed synchronous machine. A time-delayed (overload) limit in the form of 12t characteristic shall be required and a provision for a rotor heating memory (accumulative) to prevent overheating repetitive field forcing.

A set of tuning parameters (gains and time constants), limiter; and set points must be provided and shall be user-configurable from the HMI panel.
Limiter status shall be indicated on the HMI panel and a digital output signal shall be provided as a normally open contact.

TS-6.6.3 Under Excitation Limiter (UEL)

The UEL shall limit the reactive power absorbed by the synchronous machine to prevent loss of synchronism. The UEL shall use active power and reactive power along with terminal voltages as feedback signals to the control loop.

The UEL shall match the Synchronous machine curve as closely as possible by using a look-up table or equivalent method, consisting of a minimum of seven (7) points. The seven points shall be user-adjustable through easy access to the HMI panel.

The synchronous machine voltage dependency for the DEL function shall be user selectable as well through the HMI panel, as constant, proportional, or squared with terminal voltage.

A set of tuning parameters (gains and time constants), limiter; and set points must be provided and shall be user-configurable from the HMI panel.

Limiter status shall be indicated on the HMI panel and a digital output signal shall be provided as a normally open contact.

TS-6.6.4 Volts/Hertz Limiter (VHzL)

The V/Hz limiter shall reduce the field current according to a proportional ratio between terminal voltage and frequency.

A set of tuning parameters (gains and time constants), and limiter set points must be provided and shall be user-configurable from the HMI panel.

Limiter status shall be indicated on the HMI panel and a digital output signal shall be provided as a normally open contact.

TS-6.6.5 Power System Stabilizer (PSS)

A dual type of PSS function IEEE PSS2A or IEEE PSS2B shall be provided. The input signals for the control loop must use electrical power and compensated frequency, and there shall be a ramp tracking function so that

terminal voltage changes are minimized during the variation in mechanical power.

A set of tuning parameters (high pass filters, gain, time constants) must be provided. The PSS function shall have three (3) phase lead transfer function blocks and there shall be min/max output limits on the PSS signal to minimize the large impact on the PSS function.

The PSS function shall have a provision for disabling the PSS for a certain power range contributed to a rough loading zone. There shall also be provisions for disabling the PSS when the terminal voltage is outside a certain range.

The frequency with which a synchronous generator oscillated against the network is usually of the order of 0.3 to 2.0 Hz. A fast excitation system has time to vary the field current during one oscillation period and influence the electromechanical torque, which in turn affects the retardation or acceleration of the generator.

All tuning parameters, PSS output limits, and PSS blocking levels must be user user-configurable on the HMI panel.

PSS ON/OFF status shall be indicated on the HMI panel and a digital output signal shall be provided as a normally open contact.

The Excitation System shall include a built-in sweep frequency step function for easy PSS parameter tuning and compliance testing. It shall be possible to save the frequency response result as a csv and the bode plot in a graphic format (.jpg etc.)

TS-6.6.6 Reactive Current Compensation

There shall be a Line Drop Compensation (LDC) function to compensate for the impedance in the step-up transformer to allow the Excitation System to control the voltage at a closer point to the transmission line.

There shall also be a Reactive Differential Compensation (RDC) to allow 2 or more units to share reactive power output while at the same time using the LDC function.

The function shall allow for +/-15% compensation. The compensation set points must be user-configurable from the HMI panel.

TS-6.6.7 Active Current Compensation

The function is to compensate for the resistive line voltage drop caused by the active current component. This is done by adding a compensation signal to the voltage reference when the active current increases, to keep the voltage constant at a certain point in the power system.

The function shall allow for +/-15% compensation. The compensation set points must be user-configurable from the HMI panel.

TS-6.6.8 Instruments

The following indicating instruments shall be furnished, mounted, and wired on the front panels of the excitation cubicles:

a. Field voltmeter
b. Field ammeter
c. Generator armature voltmeter
d. Generator ammeter
e. Other instruments as required by the excitation system

Means shall be provided on front of the excitation cubicle for measuring the following quantities with portable instruments.

a. Regulator input voltage and sensing current
b. Voltage error
c. Reference current
d. Control field currents
e. Amplifier output
f. Over-and under-excitation limiter outputs
g. Bias voltage
h. Other quantities required for maintenance, routine testing, and failure detection.

TS-6.6.9 Field Temperature Monitoring

The function shall calculate the temperature in the field based on the average resistance method and allow the user to adjust to compensate for the voltage drop in the brushes.

The actual temperature shall be displayed on the HMI panel and a 4-20 mA signal shall be available for remote use.

TS-6.6.10 Control Configuration

The voltage regulation system is based on a redundant DUAL CHANNEL configuration. Two sets of hardware with independent control, working in hot stand-by condition, will be supplied, with the follow-up function between channels and control modes.

TS-6.6.11 Functions of each control channel

- IEEE 421 and NERC approved AVR, PSS, limiters and protections
- Power system stabilizer IEEE PSS/2B
- Automatic follow-up function – for bump-less transfer
- AUTO Control mode – with auto tracking
- MVAr / PF Control mode – with auto tracking
- MANUAL Control mode – with auto tracking
- Limiters:
  - Over excitation (OEL)
  - Under excitation (UEL)

  - Voltz/Hertz (HXL)
  - Stator current
- Protections in software:
  - Volts/hertz (81)
  - Generator under-voltage (27)
  - Generator over-voltage (59)
  - Generator over-current (50/51)
  - Loss of field (40/32Q)
  - Field over-voltage (59F)
  - Field over-current (76F)
- Soft-start voltage build-up with adjustable rates and with field flashing supervision
- Two (2) sets of parameter settings (offline / online)
- Reactive droop / line droop compensation
- Thyristor bridge temperature monitoring
- Thyristor bridge conduction monitoring
- Negative field forcing
- Field flashing supervision
- Field over-voltage protection – crowbar
- PT failure monitoring (ANSI 60)
- Watch dog monitoring

TS-6.6.12 Additional Features

- Special bars to invert the polarity of the field winding
- Logic for "dead bus". A digital input to maintain the terminal voltage reference between 0,8 and 1,1pu
- Brake logics (only the software logics using the third winding of the excitation transformer, considering to maintain the original components)
- Automatic detection of auxiliary service supply lost and automatic supply of the auxiliary service through the machine (only the software logics, considering to maintain the original components)

TS-6.6.13 I/O Interface

- Digital Inputs
- Digital Outputs
- Analog Inputs
- Analog Outputs
- Specific Inputs for PTs
- Specific Inputs for CTs

TS-6.6.14 Serial interfaces and communications protocols

- Ports
  - RS-232
  - RS-485
  - Ethernet
  - IRIG-B

  The system comes pre-configured for one (1) of the above ports/protocols.

TS-6.6.15 Switches and Buttons

The local commands are made by switches and buttons, installed in the front door of the AVR equipment:

- Local/remote selection switch;
- Failure reset button – RB;
- Emergency button – EB.

TS-6.6.16 Power Supply

The supply control will be made through two branches:
- Vcc Auxiliary Service;
- Vac Auxiliary Service / Excitation Transformer.

Each branch will be supervised by relays ANSI 27 function. A specific hardware will aggregate the filter functions, rectifier and voltage selector thus providing energy to the control system.

TS-6.6.16 Human Machine Interface (HMI)

The HMI (15" color) provides the user all the features in a user-friendly environment. The interface has six (6) main screens:

1. Access (User name and Password etc.)
   a. General Status
   b. Username / Password (4 levels)
      i. Level 1 – view only
      ii. Level 2 – Operator access
      iii. Level 3 – Engineer access
      iv. Level 4 – Admin access

2. Operation (instrumentation, control modes, raise/lower etc.)
   a. Metering
   b. Local / Remote
   c. AUTO/MAN Mode
   d. Command Excitation On/Off
   e. Increase/decrease reference or set-point
   f. Limiter/Protection Status and set-points
   g. Generator and Circuit breaker Status

3. Testing (control loops, limiters, PSS, data logger etc.)
   a. Overview of Transfer Function
   b. Transfer Function Settings
   c. Data logger step function for parameter tuning
   d. Bridge
      i. Temperature Monitoring
      ii. Conduction Monitoring
      iii. Fuse Monitoring

4. Alarms (SOE)
   a. Over Excitation Limit
   b. Under Excitation Limit
   c. Fault Current

d. Transformer over temp
e. Fan fault
f. Bridge over temperature
g. Volts/Hertz Limiter
h. Volts/Hertz Protection
i. PT Failure
j. Control Supply failure
k. Field Ground Fault

5. Trending

6. Set-up (parameter setting etc.)

7. Capability Curve
   a. Operating point tracking
   b. Dynamic updating of capability curve
   c. Step response capability with parameter tuning
   d. Input of generator characteristics to determine shape of capability curve
   e. Limiter active indication
   f. Access to limiter functions
   g. Raise / lower command

TS-6.6.17 Special Tools

Data logger:

The system provides internal signal registers, which are programmable and allow many diagnosis modes of the regulation system, the power unit and the dynamical operation behavior of the system. This feature allows the user to register many analog or digital signals, as well as their combination.

It is possible to set up the number of signals to be registered, registering period, color, name, percent or absolute values, trigger point, and pre-trigger time. This register is CONTRADE standard compatible and has the same refresh rate of the regulator, since its signal is obtained internally, without external interfaces.

Real time signal monitoring system:

The system allows the user to monitor continuous and discrete signal in real time mode from the regulator diagram, with a computer connected to the RTX Power through an IP number, by the serial port RS232 in front of the equipment or by Ethernet network connection, thus allowing real time diagnosis of any logic or function. It is possible to see the real values at each point of the block diagram.

Trending:

The system has real time oscillograph feature, showing up to 8 simultaneous continuous and 10 discrete signals, during the normal operation of the machine. The user can change the channels registered and can also display an intermediate signal control mix. It allows simultaneous display of up to 16 channels (analog or digital).

All the parameters of the continuous display of signals can be customized, such as color signals, a band of values, background color, etc.

Data transfer and portability:

The system allows the user to send and record data into files for storage, resending or printing purposes. It is a very useful tool when the user needs to set up many regulators for identical machines.

Embedded simulation:

The system allows a full closed loop simulation, in order to test any changes that the user may perform in the program, using the real machine parameters.

On Line Help:

The graphic HMI has a full online help, with digital documents for the user, allowing a faster data and procedures search.

TS-6.7 EXCITATION POWER SOURCE

TS-6.7.1 Power Rectifier Bridge

The power rectifier bridge shall be three phase full converter bridge using thyristor controlled to rectify and control the field of the generator. The thyristors are intended for automatic and for manual functions. All thyristor operating temperature in the range of 90°C to 125°C. All power bridge is fuse protected for field short circuit or extended field overload. Fuses shall have built in limit switches for monitoring of the status of the fuses and shall be included in the control interlock and monitoring system.

Rectifier modules are isolated from the step-down transformer by a 3-pole air circuit breaker, withdrawable type, electrically operated and the field winding by a DC contactor, AC3 category. This method then eliminates the need for a crowbar circuit to absorb the voltage spike applied to the rectifier modules caused by a rapid flux decrease applied to the excitation transformer.

The rectifier shall be fully controlled (six thyristors per bridge) to supply both positive and negative output DC voltage. There shall be six (6) fuses and six (6) snubber circuits for each bridge assembly.

Each six-pulse thyristor bridge assembly shall be housed in its cabinet, equipped with a redundant fan set, therefore, in case of failure in the primary fan set, the redundant fan set will automatically supply the required cooling to the thyristor bridge. The thyristor bridge shall have airflow monitoring capability to detect loss of airflow, which automatically starts the redundant fan without interruption to the operation process. It shall also be possible to manually switch fans from the local HMI screen of the Excitation System.

Each thyristor shall be equipped with a PT100 temperature sensor so that the individual thyristor temperatures can be monitored. Each thyristor fuse shall be

equipped with a micro-switch for blown fuse indication. Each phase shall be equipped with current measuring and the HMI shall display the different phase currents.

A redundant six-pulse thyristor bridge shall be furnished. The system shall have the option to operate both (2) bridges in parallel (N+1) or with one bridge as stand-by (1+1). A bridge failure shall result in an automatic and "bump less" transfer of the full load to the redundant bridge with an alarm annunciator on the HMI panel and via Modbus communication.

The bridge redundancy shall be configurable such that any regulator may operate any bridge. A failure in a regulator shall create an automatic and "bump less" transfer to the other regulator while maintaining that same bridge, therefore, bridge redundancy is maintained. Conversely, a switch to a redundant bridge due to a failure will maintain operation from the same regulator thus preserving regulator redundancy.

For safety reasons, the following measures should be incorporated into the design:

- Each thyristor bridge cabinet shall be isolated with a full cabinet-length metal side and at the rear to aid in arc-flash mitigation and to isolate damage within the affected cabinet.

- The thyristor bridge shall have a draw-out mechanism, for off-line use, to aid in maintenance and the replacement of parts or the entire bridge assembly. Once the unit is de-energized, it shall be possible to disconnect the power and control connections and rack out the entire assembly. The thyristor bridge shall be equipped with lifting eyes for easy removal from the cabinet if needed.

TS-6.7.2 Field circuit breaker and field discharge equipment

Field Circuit Breaker

A 2-pole generator field air circuit breaker with field discharge contacts and an auxiliary switch having not less than 6 "normally-closed" and 6 "normally-open" single-pole circuits shall be furnished. The breaker shall be provided with arc extinguishers, and the operating mechanism shall be electrically and mechanically trip-free in all positions. The breaker shall be rated not less than the maximum continuous current on the excitation circuit under any of the specified operating conditions of the generator and shall also be capable of interrupting the field circuit successfully under maximum possible short-circuit and voltage conditions. The contacts shall be of the type, which are accessible for inspection and replacement. A circuit breaker enclosed in a molded case will not be acceptable. In case a draw- out type breaker is furnished; one position switch shall be provided for by-passing the auxiliary switch so that the generator space heaters may be operative when the field breaker is pulled out.

The field breaker shall comprise an electrically operated, 125VDC, three-pole, adequately rated, AC breaker equipped with sufficient auxiliary contacts for control, monitoring, and protection functions.

It shall be of the draw-out type and the operating mechanism shall be trip-free in all positions. It shall be possible to rack out the breaker in the disconnected position for LOCK OUT / TAG OUT purposes with provisions for use with a padlock.

A molded case circuit breaker will not be acceptable.

LED lights shall be mounted on the exterior of the breaker cabinet to indicate if the breaker is CLOSED (red) or OPEN (green). The AC breaker shall be mounted in a separate cabinet, not together with the exciter controls or thyristor bridges.

Field breakers, specially designed for use in the excitation of synchronous machines, shall be provided, meeting the criteria of C37.18 IEEE Standard Enclosed Field Discharge Circuit Breakers for Rotating Electric Machinery.

Discharge resistor

The discharge of the field is done by NON-LINEAR DISCHARGE RESISTOR and crowbar circuit. In any process of de-excitation converters work in inverter mode, contributing to a rapid de-excitation of the generator field.

De-excitation and crowbar

The suppression of overvoltage is made by the insertion of a discharge resistor in parallel with the field, by means of two anti-parallel SCRs, triggered by the crowbar module, for positive or negative over-voltages.

- Insertion of the field discharge resistor in the normal de-excitation process
- Insertion of the field discharge resistor during overvoltage

Field Over Voltage Protection and Discharge Circuit

The supplier shall furnish automatic field flashing for generator start-up from the 125VDC battery or by using residual voltage during the mechanical run of the generator. The over-voltage protection must protect against both positive and negative over-voltages.

The circuit detection threshold shall be set below the insulation voltage of the rotor as well as below the PIV of the thyristor bridge.

The circuit shall also provide a path to discharge the energy through a discharge resistor to ensure a fast dissipation of the energy stored in the field winding.

Field Flashing Circuit

The Supplier shall furnish automatic field flashing for generator start-up. if the station battery is not rated for the additional load. The field flashing shall be triggered by an external command, Excitation ON, and shall produce sufficient field current, so that the Excitation System can continue to build up the rated generator terminal voltage. The field flashing circuit shall be automatically interrupted after a user-configurable.

Field Ground Relay

A field ground relay shall be provided to detect a ground connection in the field winding. The relay shall have two (2) normally user-programmable contacts (alarm and trip).

The protective relay shall be a separate device from the excitation controller and shall utilize the leakage current method for determining resistance from field winding to ground.

The field ground measurement circuit shall be interrupted momentarily during the field flashing state to prevent false alarm notifications.

Field Current and Field Voltage Outputs

Field current and field voltage outputs shall be provided with a minimum of 2.5kV isolation and shall provide 4-20mA outputs.

TS-7.0 EXCITATION TRANSFORMER

Excitation Transformer rating, specified in this section shall be the basis of the Supplier's guarantee as to performance and temperature rise. The ratings indicated are based on actual/existing load requirements at the service and operating conditions are specified in the technical data sheets.

The Excitation Transformer shall be dimensioned according to the maximum continuous field current and short-term field current requirements. The secondary voltage shall take into account the internal impedance; and other voltage drops in cables and brushes.

New Current Transformer for each phase shall be provided at the primary side of the excitation transformer to be interfaced with the existing overcurrent (0/C) relay in the control room.

The Excitation Transformer shall be placed in the existing excitation transformer panel. The size and dimension of the excitation transformer should conform to the existing panel.

A three-phase auxiliary source. 480 VAC shall be available as a test supply to verify thyristor bridge firing when the generator is not operating. The intent of the test supply is for use in pre-commissioning to validate the correct functionality of the thyristor bridge(s) while the generator bus is not energized. The same test supply can also be used to aid future troubleshooting processes. The Excitation System shall incorporate such test circuit into the cabinet design or as a separate portable device on casters for validating that each thyristor is operating correctly and to validate the correct operation of the cooling fan redundancy etc. The user shall be able to set the desired bridge firing angle, open-loop, via the HMI in the Excitation System, and to see the resulting DC output, Instructions on how to use the test circuit and expected waveforms shall be provided.

TS-8.0 TESTING AND COMMISSIONING

TS-8.1 TEST ON THE EXCITATION SYSTEM

The excitation system shall be tested at the Supplier's factory. Technical people (CMTSD and Pulangi IV HEP I & C & EE) personnel from NPC will witness the tests.

The following tests shall be performed:

a. Routine tests on the excitation power transformer shall be performed in accordance with IEEE or equivalent IEC Standard. Complete dielectric tests on the transformer shall be performed. These shall consist of impulse, induced, and applied voltage tests on both high- and low- voltage windings. These values shall correspond to rated BIL values.

- Hi-pot test as per ANSI C34.2
- Functional tests (breaker, field flashing, alarms/trips, limiters, control modes, etc.)
- Positive ceiling voltage
- Field ground relay
- Crowbar
- Rated current test at reduced voltage
- Closed-loop simulation testing of AVR, limiters, and PSS

b. Operational checks of all cooling fans, breakers, and other devices such as sensors, transducers, alarms, and protective devices shall be made.

c. The excitation cubicles shall be assembled in the factory and shall be given a one-minute test to ground at an AC rms voltage of 10 times the rated load voltage.

d. All other electrical parts, such as regulators, rheostats, and similar devices, shall be tested individually in accordance with applicable IEC or IEEE standards, except that where the parts are in quantity production and routine tests are made, and such routine tests are in accordance with IEEE standards, individual tests of such parts will not be required; however, in either event, certified test data covering each part shall be submitted.

e. Test to determine the efficiency of the excitation system at an output corresponding to the generator field current at 25%, 50%, 75%, and 100% of the generator rated kVA voltage, power factor and frequency.

TS-8.2 FACTORY TEST

The following test shall be performed before to delivery of the equipment. At least four (4) NPC personnel should witness the Factory Acceptance Test (FAT) to verify the integrity of the test results:

a. General inspection of construction, measurement & dimension.
b. Measurement of insulation resistance.
c. Dielectric strength test.
d. Electric operation test.
e. Sequence test
f. Simulation Test
g. Voltage build-up test
h. Test of Voltage Regulator
i. Sudden Demagnetization Test

j. Test of Generator Current limiter device & Excitation Current limiter device.
k. Test of PSS characteristics
l. Test of Power Factor Regulation

TS-8.3 COMMISSIONING TEST

The Supplier/technical Experts will commission and verify the correct operation of all control loops, limiters, power system stabilizer (PSS) etc. All operational commands and indications to/from the exciter shall be verified for local HMI, local controls, and remote controls in the control room.

TS-9.0 INSTALLATION

The Supplier shall design and prepare the equipment to ensure protection from damage that may occur during transit but also to facilitate off-loading, handling, and erection on-site. Where necessary, heavy parts or equipment shall be mounted on skids or crated, and any loose components shall be boxed or wired in bundles and marked for identification.

As part of the complete proposal package, the Supplier shall provide a scaled layout with the locations of the equipment to be provided, i.e., excitation cubicles, etc.

The Supplier shall carry out the installation works based on the proposed layout acceptable/approved by NPC and furnish necessary instruments, tools, cabling, conduit, mounting brackets, and other appurtenances that are needed to provide a complete & fully operational excitation system.

The Supplier shall ensure that the excitation system is installed by the manufacturer's recommendation, check control system hardware and software configuration, perform logic configuration changes or additions (as applicable) to be fully integrated into the main control board, and perform adjustments necessary to place the system in trouble-free operation. Instruct NPC operating personnel in the proper operation and maintenance of the equipment furnished.

An experienced and certified commissioning engineer is required to perform the installation, testing, and commissioning of the system.

All materials and accessories not mentioned herein but necessary for the installation of the excitation system shall be provided without additional cost.

TS-10.0 TRAINING OF NPC PERSONNEL

The Supplier shall provide local training for twenty (20) personnel from Pulangi IV HEP in English.

The Supplier shall provide two (2) separate training sessions for the owner's personnel:

1. One (1) day of operation training (Operation and maintenance)
2. Three (3) day training (testing and troubleshooting)

Training shall include classroom instruction courses and hands-on training to enable NPC personnel to manage, install, test, commission, maintain, operate, and service the equipment on completion of the works as per maintenance, and operating procedures established by the Supplier.

The Supplier shall furnish two (2) units of laptop PC and a software tool to facilitate program logic changes. The software shall be pre-loaded on a laptop PC with all licenses and connection accessories included.

The laptop shall connect with the excitation controller through serial communication, RS-232, or equivalent. In addition, a closed-loop simulation software tool shall be furnished and loaded onto the supplied laptop PC. The closed-loop simulation tool will be utilized during the training and shall be retained by NPC to facilitate future training of personnel.

The cost of performing the training course shall be included in the Contract Price for the equipment.

TS-11.0 SPARE PARTS

The supplier shall supply the following spare parts:

- Two (2) assembly of thyristor bridge
- Fuses

SECTION VI – TECHNICAL SPECIFICATIONS

PART II – TECHNICAL DATA SHEETS

TABLE OF CONTENTS

SECTION VI

TECHNICAL SPECIFICATIONS

PART II – TECHNICAL DATA SHEETS

SECTION VI – TECHNICAL SPECIFICATIONS

Part II - TECHNICAL DATA SHEETS

SUPPLY, DELIVERY, INSTALLATION TESTING, AND COMMISSIONING OF EXCITATION SYSTEM FOR UNIT 3 AT PULANGI IV HEP

1.0 TECHNICAL REQUIREMENTS

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 other additional information keeping to the format shown herein or by reproducing the same.

b. NPC reserves the right to reject Bids without proper and/or 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. Bidder's proposal shall at least be equal or superior to the requirements specified by NPC.

A. EQUIPMENT DATA

ITEM	DESCRIPTION	NPC REQUIREMENTS	SUPPLIER'S DATA
1.0	**EXCITATION TRANSFORMER**		
	1. Manufacturer	By Supplier	
	2. Place of Manufacture	By Supplier	
	3. Type	Oil - Immersed, Three-Phase	
	4. Type Rating	911 kVA	
	5. Primary Voltage	13.8 kV	
	6. Secondary Voltage	585 V	
	7. Rated Frequency	60 Hz	
	8. Vector Group	Y-d	
	9. Type of Cooling	ONAN	
	10. Service	Continuous Duty	
	11. Tap Changer	+/- 2 x 2.5%	
	12. Protection		
	a. Temperature sensing for alarm and trip	Required	
	b. Oil Level Sensing for Minimum and Maximum	Required	
2.0	**EXCITATION SYSTEM**		
	1. Manufacturer	By Supplier	
	2. Place of Manufacture	By Supplier	
	3. Type	Static	
	4. Field Current at Rated Output and Rated Power Factor	950 ADC	
	5. Field Voltage at Rated Output and Rated Power Factor	350 VDC	
	6. Maximum continuous field current	1,045 ADC	

	7. Ceiling current	1,520 ADC / 10 s	
	8. Ceiling voltage	560 VDC	
3.0	**EXCITATION FIELD BREAKER**		
	1. Brand	By Supplier	
	2. Model	By Supplier	
	3. Control Power Supply Rating	125VDC	
	4. DC Circuit Breaker	Required	
	5. No. of Pole	2	
	6. Rated Voltage	At least 800VDC	
	7. Rated Current	At least 2000ADC	
	8. Type	Draw-out	
	9. Must be designed for field excitation switching operation	Required	
	10. Indicators	Shall be Mounted on the exterior of the breaker cabinet	
	11. Local HMI Indicator	Required	
	12. Field Breaker	Closing and Opening thru Remote & Local Operation shall be provided at Local Control Panel Thru Control Knobs, and in the Local HMI	
	13. The field breaker shall be mounted in a separate cabinet not together with the excitation system controls and thyristor bridges.	Required	
4.0	**VOLTAGE REGULATOR**		
	1. Manufacturer	By Supplier	
	2. Place of Manufacturer	By Supplier	
	3. Digital Inputs	At least 48	

4. Digital Outputs	At least 35	
5. Analog Input	At least 25	
6. Analog Output	At least 16	
7. Control Mode	Auto and Manual	
8. I/O interface and Communication Ports	Required	
9. Ethernet Modbus TCP	Required	
10. IRIG-B synch. Input	Required	
11. Electronic Microcomputer-based	Required for the control and regulation functions	
12. Control and Supervision	Required	
13. Measuring Device	A/D conversation	
14. Auto Mode	AVR control algorithm of PID characteristics regulates the stator voltages to the desired value	
15. Manual Mode	FCR (is used to fulfill the usual requirements of manual control)	
16. Reactive Power Control	Keep the reactive power constant, the reactive power is done using a slow – operating three – state controller to adjust the voltage regulator's reference value.	
17. Power Factor Controller	Required	
18. Voltage Supervision	Required	
19. Fault Signal Indicator	Required	
20. Self – supervision Regulator	Required	

	21. Logical Function for Control and Supervision		
	a. Field Flashing	Required	
	b. Cooling Fans for the Thyristor Converter	Required	
	c. Redundant Thyristor Bridge	Required	
	d. Reactive Power (Start & Stop)	Required	
	e. Setting of Reference Value	Required	
	f. Section of Control Mode with Follow – up for Bump Less Transfer	Required	
5.0	**LIMITERS**		
	1. Manufacturer	By Supplier	
	2. Place of Manufacture	By Supplier	
	3. Field current limiter functionality	Required	
	4. Under excitation limiter functionality	Required	
	5. UEL adjustable tuning parameters	Required	
	6. Volts per hertz limiter functionality	Required	
	7. VPHL tuning parameters (gains and time constants), limiter set points	Required	
	8. Power system stabilizers	Dual type PSS function IEEE PSS2A or IEEE PSS2B	
	9. PSS tuning	With built-in sweep frequency step function for easy PSS parameter tuning and compliance testing	
	10. Reactive current compensation functionality	Required	
	11. Active current compensation functionality	Required	

	12. Compensation set points	+/-15% compensation	
6.0	**CONTROL AND ANNUNCIATION**		
	1. Minimum Digital Inputs		
	a. Excitation On/Off	Required	
	b. 90% speed input (14E)	Required	
	c. Field Breaker Close/Trip	Required	
	d. Field Breaker Position	Required	
	e. Manual Mode	Required	
	f. Auto Mode	Required	
	g. Trip Relays (86-11,86-2A1)	Required	
	h. Raise Command	Required	
	i. Lower Command	Required	
	j. Enable PSS	Required	
	k. Local/Local-Remote/Remote Control Room	Required	
	l. Spare User-Configurable Inputs	5	
	2. Minimum Digital Outputs		
	a. Mode	Auto/Manual	
	b. Excitation On/OFF	Required	
	c. Field Breaker Close/Trip	Required	
	d. Local, Local – Remote, Remote CTRL Room	Required	
	e. Exciter Ready	Required	
	f. Excitation Alarm	Required	
	g. Excitation Trip	Required	
	h. OEL Active	Required	

	i. UEL Active	Required	
	j. V/Hz Limiter Active	Required	
	k. Raise/Lower Limit	Auto and Manual	
	l. Field Overvoltage Trip	Required	
	m. Power Supply Failure	Required	
	n. Excitation Transformer Temperature Alarm	Required	
	o. Excitation Transformer Temperature Trip	Required	
	p. Thyristor Bridge Temperature Alarm	Required	
	q. Thyristor Bridge Temperature Trip	Required	
	r. Cooling Fan Failure	Required	
	s. Thyristor Bridge Failure	Required	
	t. 5 – user configuration outputs	Required	
	3. Minimum Analog Inputs		
	a. A/D test inputs to AVR summing point	Required	
	b. Generator Current Transformer (3 Phase + Neutral)	Required	
	c. Generator Potential Transformer (2) (3 Phase + Neutral)	Required	
	d. Excitation Transformer Temperature	Required	
	e. Thyristor Bridge Temperature	Required	
	f. 5 – user configurable outputs	Required	
	4. Minimum Analog outputs		
	a. Field Temperature	Required	
	b. Field Current	Required	
	c. Field Voltage	Required	

	d. Excitation Transformer Temperature	Required	
	e. 5 – user configuration outputs	Required	
7.0	**USER INTERFACE**		
	1. Manufacturer	By Supplier	
	2. Place of Manufacturer	By Supplier	
	3. HMI	15"~21" TFT wide – screen color display	
	4. Pixel Resolution	1920 x 1080	
	5. Colors	16M	
	6. Capacitive touch Screen and Glass Front	Required	
	7. Interfaces	1 x RJ45 Ethernet Port with 10/100/1000 Mbit, 2 RJ45 Ethernet Ports with 10/100 Mbit, 1x RS232/485/422, 2 USB Ports, 1 x Power Supply, 1 SD Card Slot	
	8. Rated Auxiliary Voltage	24 VDC	
	9. Controller		
	a. Processor	By Supplier	
	b. Memory	At least 8192MB	
	c. Ram Memory	At least 2048MB	
	d. Real Time Clock	Yes	
	10. Operating Temperature	Ideal for Tropical Climate	
	11. Manufacturer	UL E180881 Standard	
8.0	**TESTS AND COMMISSIONING**		
	1. Factory Test		

	a. Dielectric Test (Hi – Pot) as per IEEE 421.3 – 2016	Required	
	b. Functional Test (field breaker, field flashing, alarms/trips, limiters, control mode, etc.)	Required	
	c. Positive Ceiling Voltage	Required	
	d. Field Ground Relay	Required	
	e. Crowbar	Required	
	f. Rated Current Test	Required	
	g. Close loop simulation testing AVR, limiters, and PSS	Required	
	h. Factory Acceptance Test (FAT) to be witnessed by at least four (4) NPC personnel.	Required	
	2. Commissioning		
	a. The supplier/technical experts will commission and verify the correct operation of all control loops, limiters, power systems, and stabilizers (PSS)	Required	
	b. All operational commands and indications to/from the exciter shall be verified for local HMI, local controls, and remote controls at the control room.	Required	
9.0	**SPARE PARTS**		
	1. Thyristor bridge assembly	2 sets	
	2. Fuses	Required	
10.0	**OTHER REQUIREMENTS**		
	1. Warranty	Two (2) years reckoned from the date of final acceptance	

	2. After – Sales Support	Five (5) years after the warranty period.	
	3. Manpower		
	a. Registered Electrical/Electronics Engineer/Safety Officer	One (1) with at least eight (8) years of experience in the installation, and commissioning of a governor, excitation, or protection system.	
	b. Registered Master Electrician	Two (2)	
	c. Labor	Three (3)	

11.0 TEST AND EXPERIENCE REQUIREMENTS (For Digital Excitation System)

8.1	Test Requirements	
	a. Design Test and Certified Test Reports required (Yes, No)	Yes
	b. Factory Acceptance (Routine) Tests to be performed (Yes, No)	Yes
8.2	Equipment and Manufacturer's Experience	
	a. The manufacturer should have been in the business of manufacturing the equipment of at least the same voltage and the same frequency level for not less than ___ (years)	10 years
	b. The manufacturer should have overseas (outside country of origin) supply record of Generator with at least capacity with the same voltage and frequency level of not less than: **	5 units
	c. The same type of equipment being offered should have been in the actual service of not less than ___	5 years

SECTION VII

SCHEDULE OF REQUIREMENTS (BID PRICE SCHEDULE)

Section VII - SCHEDULE OF REQUIREMENTS

SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT (PR NO. MG-PLM24-027)

ITEM NO.	DESCRIPTION	QTY UNIT	CODE	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED AND DELIVERED						TOTAL PRICE
				Unit price of Goods Delivered up to Philippine Port (PHP)	Import Duties and other Levies Imposed by Philippine Govt. (PHP)	Value added tax and Taxes Imposed by Philippine Govt. (PHP)	Local Trasport from port to delivery site (PHP)	Labor (installation, retrofitting, Testing and Commissioning (PHP)	Total Unit Price (E+F+G+H+I)	Local Currency (PHP) (K=JxC)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT INCLUDING SPARE PARTS AND OTHER APPURTENANCES AS SPECIFIED IN TECHNICAL SPECIFICATIONS AND TECHNICAL DATA SHEET	1 set								
	- Nothing Follows -									

Bidders shall enter a code representing the country of origin of all
Imported equipment, materials and accessories
Cost of equipment, freight, insurance, etc., up to Phil. Port of entry
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 site

Code	Country Of Origin

NOTE: Final delivery site of all equipment/materials shall be at Pulangi IV HEP, Maramag, Bukidnon

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)*

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)

➢ Documents to be submitted with the Proposal as specified in Clause TS-10.0(a) 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

SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT (PR NO. PR NO. MG-PLM24-027)

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 **SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF UNIT NO. 3 EXCITATION SYSTEM AT PULANGI IV HYDROELECTRIC PLANT (PR NO. MG-PLM24-027)** 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