



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

## **BID DOCUMENTS**

**Name of Project : SUPPLY, DELIVERY, INSTALLATION & COMMISSIONING OF EXCITATION SYSTEM OF AGUS 7 UNIT 2**

**PR No. : MG-A7M24-002**

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## SECTION I

# INVITATION TO BID



# National Power Corporation

## INVITATION TO BID

### PUBLIC BIDDING – BCS 2024-0032

- 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-A7M24-002 / PB240206-RA00027  Supply, Delivery, Installation, Test and Commissioning of Excitation System of Unit 2 Agus 7	Supply, Installation and Commissioning of Hydro Power Plant's Excitation and Governor with Generating Capacity of at least 25MW and rated Generator Terminal Voltage of at least 13.8kV	25 January 2024 9:30 A.M.	06 February 2024 9:30 A.M.	₱ 35,000,000.00 / ₱ 25,000.00
<b>Venue: Kañao Function Room, NPC Bldg. Diliman, Quezon City</b>				

- 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-A7M24-002	Two Hundred Forty (240) Calendar Days	Fifteen (15) Years

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

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

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

- a. Only a maximum of two (2) representatives from each bidder / company shall be allowed to participate during the virtual pre-bid conference.
  - b. Wearing of Face Masks is recommended but not required in view of Proclamation No. 297 S.2023 lifting the State of Public Health Emergency Throughout the Philippines
  - c. The requirements herein stated including the medium of submission shall be subject to GPPB Resolution No. 09-2020 dated 07 May 2020
  - d. The Guidelines on the Implementation of Early Procurement Activities (EPA) shall be subject to GPPB Circular No. 06-2019 dated 17 July 2019
7. Bids must be duly received by the BAC Secretariat through (i) manual submission at the office address indicated below; (ii) online or electronic submission before the specified time stated in the table above for opening of bids. Late bids shall not be accepted.
  8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.
  9. Bid opening shall be in the 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 Meriam P. Defensor-Santiago Ave. (formerly BIR Road)  
Cor. Quezon Ave., Diliman, Quezon City, 1100  
Tel Nos.: Tel Nos.: 8921-3541 local 5564/5713  
Email: [bcسد@napocor.gov.ph](mailto:bcسد@napocor.gov.ph) /
  12. You may visit the following websites:

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



**ATTY. MELCHOR P. RIDULME**  
Vice President, Office of the Legal Counsel and  
Chairman, Bids and Awards Committee

## SECTION II

# INSTRUCTION TO BIDDERS

## SECTION II – INSTRUCTIONS TO BIDDERS

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## SECTION II – INSTRUCTIONS TO BIDDERS

### 1. Scope of Bid

The **National Power Corporation (NPC or NAPOCOR)** wishes to receive Bids for the **Supply, Delivery, Installation & Commissioning of Excitation System of Agus 7 Unit 2**, with identification number **MG-A7M24-002**.

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 one copy of the first and second components of its Bid.

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 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.

## 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	<p>For this purpose, similar contracts shall refer to <b><i>Supply, Installation and Commissioning of Hydro Power Plant's Excitation and Governor with generating capacity of at least 25MW and rated generator terminal voltage of at least 13.8kV.</i></b></p> <p>The Single Largest Completed Contract (SLCC) as declared by the bidder shall be verified and validated to ascertain such completed contract. Hence, bidders must ensure access to sites of such projects/equipment to NPC representatives for verification and validation purposes during post-qualification process.</p> <p>It shall be a ground for disqualification, if verification and validation cannot be conducted for reasons attributable to the Bidder.</p>
7.1	<p>Subcontracting may be allowed on transport, local/non-skilled labor under the supervision of the Bidder. The Bidder shall not be relieved from any liability or obligation that may arise from the performance of the Subcontractor.</p>
10.4	<p>The list of on-going contracts (Form No. NPCSF-GOODS-02) shall be supported by the following documents for each on-going contract to be submitted during <b>Post-Qualification</b>:</p> <ol style="list-style-type: none"> <li>1. Contract/Purchase Order and/or Notice of Award</li> <li>2. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date</li> </ol> <p>The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.</p> <p>The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (Form No. NPCSF-GOODS-03) shall be supported by the following documents to be submitted during <b>Bid Opening</b>:</p> <ol style="list-style-type: none"> <li>1. Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice</li> </ol> <p>Any single bidder/s who already procured/secured the bidding documents but want to avail the Joint Venture Agreement (JVA) shall inform the BAC in writing prior to the bid opening for records and documentation purposes.</p>

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

	Bid offers that exceed the ABC of the lot or with incomplete price, shall be rejected.
19.5	If the Bidder opted to submit a Committed Line of Credit (CLC), the bidder must submit a granted credit line valid/effective at the date of bidding.
20.1	<p>Additional documents to be submitted during Post-Qualification:</p> <ol style="list-style-type: none"> <li>a. Latest Income Tax Returns filed and paid through the BIR Electronic Filing and Payment System (eFPS);</li> <li>b. Business Tax/VAT returns within the last six (6) months preceding the date of the bid submission, filed and paid through the BIR (eFPS);</li> <li>c. Contract/Purchase Order and/or Notice of Award for the contracts stated in the List of all Ongoing Government &amp; Private Contracts Including Contracts Awarded but not yet Started (NPCSF-GOODS-02);</li> <li>d. 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;</li> <li>e. 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);</li> <li>f. 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.</li> </ol> <p>Equipment, materials, hardware and tools proposed by the winning bidder to be supplied, which were evaluated to be complying with the technical specifications, shall not be replaced and must be the same items to be delivered/installed/used during the contract implementation. Any proposed changes/replacement of said items may be allowed on meritorious reasons subject to validation and prior approval by NPC.</p> <ol style="list-style-type: none"> <li>g. 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 RA 9184.</li> </ol>
20.2	The licenses and permits relevant to the Project and the corresponding law requiring it as specified in the Technical Specifications, if any.
21.2	Notice to Proceed.

## SECTION IV

# GENERAL CONDITIONS OF CONTRACT

## SECTION IV – GENERAL CONDITIONS OF CONTRACT

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## SECTION IV – GENERAL CONDITIONS OF CONTRACT

### 1. Scope of Contract

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

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

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

### 2. Advance Payment and Terms of Payment

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

### 3. Performance Security

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

### 4. Inspection and Tests

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

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

## **5. Warranty**

- 5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, 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	<p><b>Delivery and Documents –</b></p> <p>The delivery terms applicable to the Contract is DDP delivered to the project site specified in the technical specifications, in accordance with INCOTERMS. Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination.</p> <p>Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI – Technical Specifications. The details of shipping and/or other documents to be furnished by the Supplier are as follows:</p> <p><i>For Goods supplied from within the Philippines</i></p> <p>Upon delivery of the Goods to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents to the Procuring Entity:</p> <ul style="list-style-type: none"> <li>(i) Original and four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;</li> <li>(ii) Original and four copies of Supplier's factory test/inspection report;</li> <li>(iii) Original and four copies of the certificate of origin (for imported Goods);</li> <li>(iv) Delivery receipt detailing number and description of items received signed by the Procuring Entity's representative at the Project Site;</li> <li>(v) Certificate of Completion/Inspection Report signed by the Procuring Entity's representative at the Project Site;</li> <li>(vi) Original and four copies of the Inspection Receiving Report signed by the Procuring Entity's representative at the Project Site;</li> <li>(vii) Original and four copies of the Manufacturer's and/or Supplier's warranty certificate; and</li> <li>(viii) Documents specified in the Technical Specifications, if any.</li> </ul> <p><i>For Goods supplied from abroad:</i></p> <p>Upon shipment, the Supplier shall notify the Procuring Entity and the insurance company by e-mail the full details of the shipment, including Contract Number, description of the Goods, quantity, vessel, bill of lading number and date, port of loading, date of shipment, port of discharge etc. Upon delivery to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents as applicable with the documentary requirements of any letter of credit issued taking precedence:</p> <ul style="list-style-type: none"> <li>(i) Original and four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;</li> </ul>

- (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

	<p>Any special lifting instructions                  Any special handling instructions                  Any relevant HAZCHEM classifications</p> <p>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.</p> <p><b>Transportation –</b></p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p><b>Intellectual Property Rights –</b></p> <p>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.</p>
<p>2.2</p>	<p>Advance payment not to exceed fifteen percent (15%) of the contract amount shall be allowed and paid within sixty (60) calendar days from effectivity of the contract and upon the submission to and acceptance by the Procuring Entity of an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank. The irrevocable letter of credit or bank guarantee must be for an equivalent amount, shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.</p>

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

	<p><u>SCC</u> provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.</p> <p>(c) On Acceptance: The remaining twenty percent (20%) of the price of the <b>delivered Goods</b> 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 <u>SCC</u> provision on Delivery and Documents.</p> <p><b>3) For Supply, Delivery, Installation, Test and Commissioning Contracts where Installation, Test and Commissioning prices are included in the supply price:</b></p> <p>(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.</p> <p>(b) On Delivery: Sixty percent (60%) of the price of the <b>delivered Goods</b> shall be considered for payment, less the total amount of advance payment, if any and other deductions. If the amount is sufficient to fully recoup the advance payment, the remainder after deductions shall be paid to the Supplier within sixty (60) days after the date of receipt of the Goods and upon submission of the documents (i) through (vi) specified in the <u>SCC</u> provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.</p> <p>(c) On Acceptance: The remaining forty percent (40%) of the price of the <b>delivered Goods</b> 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 <u>SCC</u> provision on Delivery and Documents</p>
<p>3.2</p>	<p>1. The following must be indicated in the performance bond to be posted by the Contractor:</p> <p>i. Company Name</p>

	<ul style="list-style-type: none"> <li>ii. Correct amount of the Bond</li> <li>iii. Contract/Purchase Order Reference Number</li> <li>iv. Purpose of the Bond: "To guarantee the faithful performance of the Principal's obligation to undertake <u>(Contract/Purchase Order Description)</u> in accordance with the terms and conditions of <u>(Contract No. &amp; Schedule/Purchase Order No.)</u> entered into by the parties."</li> </ul> <ol style="list-style-type: none"> <li>2. The bond shall remain valid and effective until the duration of the contract <u>(should be specific date reckoned from the contract effectivity)</u> plus sixty (60) days after NPC's acceptance of the last delivery/final acceptance of the project.</li> <li>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.</li> <li>4. Other required conditions in addition to the standard policy terms issued by the Bonding Company:             <ul style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>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.</li> </ul> </li> </ol>
<p>4</p>	<p>The inspections and tests that will be conducted are specified in the Technical Specifications.</p>

## SECTION VI

# **TECHNICAL SPECIFICATIONS**

## ***(PART I - TECHNICAL SPECIFICATIONS)***

## Section VI - Technical Specifications

### Part I - Technical Specifications

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## Section VI – Technical Specifications

### PART I – TECHNICAL SPECIFICATIONS

#### TS-1.0 GENERAL

This specification covers the technical requirements for the **Supply, Delivery, and Installation & Commissioning of Excitation System of Agus 7 Unit 2**

All supplied instruments and accessories shall be new and unused. They 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 Specification.

#### TS-2.0 SCOPE OF WORK

The scope of works shall cover but not be limited to the following:

1. Preparation of Materials/resources onsite and site evaluation.
2. Tagging of cables that would be used for the installation of new excitation system before the removal of the existing excitation panels.
3. Removal of old excitation control system panels along with its accessories. This includes power and control cables.
4. Supply, Delivery and Installation of the complete set of new excitation system along with its accessories. The installation site is indoor. Conduct factory acceptance tests (FAT) at the manufacturer's facility witness personally by three NPC representatives. Costs of travel during FAT should be shouldered by the supplier/contractor
5. Removal of old excitation transformer and hauling to the warehouse.
6. Supply, Delivery and Installation of the new excitation transformer along with its accessories. The installation site is indoor. Conduct confirmatory electrical tests thru CMTSD before and after installation.
7. Install the protection system components of the excitation transformer. Rewire current transformer connections to the existing O/C relay at the control room. Conduct test and commissioning to be witness by Agus 7 HPP and CMTSD personnel.
8. Install the panel space heaters for the excitation transformer panel. Conduct test and commissioning for the said space heaters.
9. Configure and program the new excitation system according to the ideal specifications of the synchronous machine technical data. Conduct Interfacing of new excitation system to remote control room operations.
10. Conduct test and commissioning of the new excitation system according to the IEEE or IEC standard to be witness by Agus 7 HPP and CMTSD personnel.
11. Conduct the required training and technology transfer to Agus 7 HPP and CMTSD personnel by the principal as per the contract requirements.

The following shall be included in the Supplier's scope of work:

1. The Supplier shall be responsible for visiting the delivery site and take particular reference to its accessibility, means of transportation, and all other factors that should be considered in carrying out the contract.
2. Provide equipment, tools, instruments, and consumables necessary during equipment testing for satisfactory completion of the work; and
3. Submission of pertinent documents as per TS-8.0 Drawings and Documentation to be Submitted.

### **TS-3.0 DELIVERY PERIOD AND LOCATION**

The delivery period shall be **TWO HUNDRED FORTY (240) CALENDAR DAYS** from receipt of NTP.

The materials to be supplied shall be delivered to **Agus 6/7 HPPC, Maria Cristina, Fuentes, Iligan City, Lanao Del Norte.**

### **TS-4.0 CODES AND STANDARD**

The equipment furnished shall be by, but not limited to, the latest issues of the following codes and standards, including all addenda, in effect at the time of purchase order unless otherwise stated in this specification:

#### **General Excitation System Standards**

1. IEEE 421.1: Standard Definitions for Excitation Systems for Synchronous Machines
2. IEEE 421.2: Identification, Testing and Evaluation of the Dynamic Performance of Excitation Control Systems
3. IEEE 421.3: Standard for High Potential Test Requirements for Excitation Systems for Synchronous Machines
4. IEEE 421.4: IEEE Guide for the Preparation of Excitation System Specifications
5. IEEE 421.5: Recommended Practice for Excitation System Models for Power System Stability Studies
6. IEEE 421.6: Recommended Practice for the Specification and Design of Field Discharge Equipment for Synchronous Machines
7. IEEE C57.12.01: Standard for General Requirements for Dry-Type Distribution and Power Transformers
8. IEEE C57.12.91: Standard Test Code for Dry-Type Distribution and Power Transformers
9. IEEE C57.110: Recommended Practice for Establishing Liquid-Filled and Dry-Type Power and Distribution Transformer Capability When Supplying Non-sinusoidal Load Currents
10. IEEE C37.18 IEEE Standard Enclosed Field Discharge Circuit Breakers for Rotating Electric Machinery
11. IEC 60146-1-1:2009 Semiconductor Converters – General requirements and line commutated converters - Part 1-1: Specification of basic requirements

**Electromagnetic Compatibility (EMC) Standards**

1. IEC 61000-4-2 Electrostatic discharge immunity test (ESD)
2. IEC 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity test (RFI)
3. IEC61000-4-4 Electrical fast transient/burst immunity test (Burst)
4. IEC 61000-4-5 Surge immunity test (Surge)
5. IEC 61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields (Current Injection)
6. IEC 61000-4-8 Power frequency magnetic field immunity test
7. IEC 61000-4-11 Voltage dips, short interruptions and voltage variations immunity tests

**Environmental Tests Standards**

1. IEC 60068-2-1 (Environmental Test- Cold)
2. IEC 60068-2-2 (Environmental Test- Dry heat);
3. IEC 60068-2-14 (Environmental Test- Temperature Variation)
4. IEC 60068-2-30 (Environmental Test- Humid Heat, cyclic);

The latest edition of each standard shall mean the latest edition available at the date of contract signing.

In addition to the above codes and standards 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 the start of fabrication. The final decision regarding the acceptance of proposed standards is the prerogative of NPC.

Standards listed in the equipment 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. The Supplier shall submit copies of such standards for NPC's review and approval.

**TS-5.0 WORKMANSHIP**

Workmanship shall be of first-class quality and by the best modern engineering practice for the manufacture, assembly, and test of equipment. All works shall be done by personnel skilled in the related professions and trades. All parts shall be made accurately to standard gauges to facilitate replacement and repairs. All special gauges and templates necessary for filed 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 by the latest recognized rules of workmanship and modern engineering practice.

The Supplier shall be responsible for all the damages that occurred during the implementation of the project. Any equipment (existing and/or new) and facilities that will be damaged shall be replaced and/or repaired by the Supplier at no additional cost to NPC.

## **TS-6.0 EXCITATION SYSTEM**

### **TS-6.1 GENERAL**

The Excitation System shall be furnished complete with a 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 following 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
- DC Field Breaker with provision for
- Crowbar, DC over-voltage protection and discharge circuit
- Field flashing circuit
- Remote communication through the system's serial and 110 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 per Hertz Limiter (VHzL)
  - 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. 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 synchronous 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.

The Excitation System shall be equipped with an IRIG-8 time synch input.

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 wave-forms shall be provided.

**TS-6.2 CHARACTERISTICS**

The excitation system shall have the following characteristics:

1. The capacity to supply continuously the excitation required by the generator to operate at 100% rated MVA, 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 the ceiling voltage for 10 sec. durations 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 or better.
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-6.3 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 a dry type, three-phase, natural-air cooled and forced air-cooled as it reaches a certain operating temperature, with copper windings and shall be sufficiently sized to take into account harmonic heating generated by a six-pulse rectifier load and its rating shall be based on the max continuous field current for the generator overload as well as for ceiling current requirements.

The Excitation Transformer shall be VPI type with a minimum of two dips of polyester protective shields of resin to the coils. The core and coil assembly shall be sufficiently encapsulated so that the unit is impermeable to moisture, dust, dirt, salt air, and other industrial contaminants.

Transformer design & capability is based on IEEE C57.110-2008, IEEE C57.12.01-2015, IEEE C57.12.91-2011 or equivalent IEC standard for dry-type transformers.

The transformer shall have a steel base with provision floor anchoring and lifting of the transformer.

The Excitation Transformer shall have an electrostatic barrier between the primary and secondary windings to shield or limit the transfer of harmonics created by the Excitation System.

The conductors shall be insulated for class F insulation. The transformer core shall be constructed of high-grade silicon steel laminations with high magnetic permeability and low hysteresis and eddy current losses.

The enclosure shall be of type IP21 indoor enclosure. Terminations for the HV & LV connections shall be NEMA-rated bus bars.

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

One (1) PT100 sensor shall be placed in each coil on the LV or HV side. A temperature device shall be equipped with user-programmable contacts for alarm/trip conditions with a display for the actual temperature. This temperature monitoring device shall automatically run the cooling fans of the transformer when it reaches a certain operating temperature. There should also be a separate circuit to manually run the cooling fans bypassing the temperature device. There shall also be a 4-20 mA output available to be connected to the excitation controller for display on the HMI panel as well as for use over Modbus.

The Excitation Transformer shall also be equipped with 240V AC-rated heaters that is also automatically or manually on. 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.

## **TS-6.4 EXCITATION CUBICLES**

### **TS-6.4.1 General**

Metal-enclosed, floor-mounted cubicles shall be furnished for the equipment listed below. The cubicles shall be arranged to make a single uniform assembly. Means shall be provided for attaching the cubicles to the embedded channels. All buses/conductors and wiring inside and between cubicles and from the excitation transformer shall be furnished. Any wiring extending beyond the cubicles shall be terminated on 600V rated terminal blocks.

### **TS-6.4.2 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 regulator shall create an automatic and bumpless transfer to other regulator while maintaining the same bridge, therefore bridge redundancy is also maintained. Conversely, a switch to a redundant bridge due to failure will maintain operation from the same regulator, thus, preserving 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 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 HMI and at the 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 using the terminal voltage control.

**Manual Mode** - Field Current Regulation (FCR) is used in fulfilling the usual requirement of manual control. FCR replaced AVR in case e. g., 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 that adjusts the voltage regulator's 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's reference value. This maintains the favorable effects of the fast AVR during transient power line disturbances.

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

- field flashing
- cooling fans for the thyristor converter
- cooling fans for the regulator panel
- redundant thyristor bridge
- reactive power start and stop
- setting of reference value
- selection of control mode with follow-up for bumpless transfer

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

**Fault Signal Indication:** Each individual internal and external fault signal can be indicated with LEDs, relay contacts or on a local control panel. The fault signals are grouped to '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-6.4.3- Limitations and Compensation**

Upon voltage changes in the power system, the voltage regulator will restore the voltage by increasing or decreasing the excitation of the machine and thereby also the reactive power. The higher the short circuit power in the power system compared with the machine and the higher the voltage variations in the network, the higher the risk of overload or loss of synchronism for the machine. The limitations will incorporate the Agus 7 Unit 2 reactive power capability curve.

- A. Reactive Compensation (Reactive Droop):** The function can be used for three purposes. Positive Compensation is used to compensate for voltage drops in a transmission. Negative compensation is to ensure stable reactive load sharing between generators working in parallel. The other purpose is to compensate for heavy reactive load changes in the synchronous machine upon voltage changes in the power system. This is done by decreasing the voltage reference when reactive current increases.

There shall be a Line Drop Compensation (LCD) 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 (ROC) 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.

- B. Active Compensation (Active Droop):** The function compensates for 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.
- C. Field Current Limiter (FCL):** The limiter is time-delayed to obtain good voltage regulation during temporary network faults. The time-delayed function protects against overload of the generator and the exciter by limiting the field current. Constant time delay, inverse time delay and two limits can be set.
- D. Under excitation Limiter (UEL):** The main purpose of the function is to prevent the generator from dropping out of phase when excessive voltages arise in the network and the voltage regulator compensates with low excitation. 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 close 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 on the HMI panel. The synchronous machine voltage dependency for the UEL 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.

- E. Flux Limiter:** The limiter, also called the V/Hz limiter, is used to reduce the voltage during underfrequency conditions. 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.
- F. Power System Stabilizer:** The frequency with which a synchronous generator oscillates against the network is usually of the order of 0.3 to 2.0Hz. A fast excitation system then has time to vary the field current during one oscillation period and influence the electromechanical torque, which in turn influences the retardation or acceleration of the generator.

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 a mini max output limit on the PSS signal to minimize the large impact on the PSS function.

The PSS function shall have 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-6.4.4 Power Rectifier Bridge**

The power rectifier bridge shall be a three-phase full-converter, using a thyristor controlled to rectify and control the field of the generator. The thyristors are intended for automatic and for manual functions. All thyristor operating temperatures are 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 limits to monitor the status of the fuses and shall be included in the control interlock and monitoring system.

Rectifier modules must have the means to be isolated from the low side of the excitation transformer, and the field windings. 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.

The Peak Inverse Voltage (PIV) rating shall be 2.75 times the peak voltage of the Excitation Transformer secondary ( $V_{SEC2}$ ). For clarity,  $PIV = 2.75 \times \sqrt{2}(V_{SEC2})$

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.

Complete monitoring of the thyristor bridge shall be available on the HMI of the Excitation System without the need to connect an external computer. The HMI shall provide a graphical representation of each thyristor bridge, with the display of temperatures, fuse monitoring, current monitoring, and fan monitoring.

The following annunciation and control shall be available:

- Blown fuse indicator, providing information on the exact location of failed fuse.
- Temperature monitoring with user-adjustable alarm and trip setting.
- Temperature and current trending of each thyristor status to predict failures.
- Indication of current flowing through each phase of the bridge.
- Fan status indicator.
- Control for switching fans.

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). bridge failure shall result in an automatic and bumpless 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 full cabinet length metal panels on either 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 each thyristor for off-line use and maintenance purposes. The removal should be easy from the cabinet such as equipped with lifting eyes.

#### **TS-6.4.5 Field Circuit Equipment**

##### **A. Field Overvoltage Protection and Discharge Protection:**

A crowbar shall be furnished to protect the synchronous machine field and static excitation system from overvoltages created by pole-slip or another unusual event. The overvoltage protection must protect against both positive and negative overvoltages.

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 fast dissipation of the energy stored in the field winding.

##### **B. Field Flashing Circuit:**

The contractor shall furnish automatic field flashing for generator start-up from the 125VDC station supply. The field flashing shall be triggered by outside command, excitation ON from the control panel (control room and local panel) and local HMI and shall produce sufficient field current, so that the static excitation system can continue to build-up the rated generator terminal voltage. The field flashing circuit shall be automatically interrupted after a user configurable time.

##### **C. 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 leakage current method for determining if there is ground connection.

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

##### **D. Field Current and Field Voltage Outputs**

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

**TS-6.4.6 Field Circuit Breaker**

A two (2) pole generator DC field 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, which are of the type, 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 bypassing the auxiliary switch so that the generator space heaters may be operative when the field breaker is pulled out.

It shall have a provision to be maintained easily and the operating mechanism shall be trip-free in all positions. It shall be possible to rack out the breaker in the disconnected position.

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

**TS-7.0 DATA AND DOCUMENTS TO BE SUBMITTED**

Bidders' data and information shall be guaranteed performance data, predicted performance, interface requirements, and construction features of the equipment. The accuracy of such information and its compatibility with the overall performance requirements specified are the sole responsibility of the Bidder.

All information submitted as part of Proposal Data will become part of the contract data for the successful bidder. Any deviation from such data requires NPC's approval.

a. To be submitted with the bid on the bid opening submission:

a.1. Completely filled-out Technical Data Sheets (TDS):

a.2. Bid must be accompanied by an authorization to bid from any of the following:

a.2.1. Original Equipment Manufacturer (OEM);

a.2.2. Authorized Manufacturer/Integrator Assembler of OEM Parts with corresponding Authorization Letter from the OEM;

a.2.3. Licensee of the OEM with the corresponding License issued by the OEM: or

a.2.4. Distributorship Dealer, a Certificate of Authorized Distributorship Dealership from the OEM or Authorized Manufacturer of OEM Parts or Licensee of the OEM. In case the Certificate of Authorized Distributorship Dealership is issued by the Authorized Manufacturer of OEM Parts or Licensee of the OEM, it should be accompanied by a corresponding Authorization Letter from the OEM per item (b.6.2) above. (The authority can be acquired from the Manufacturer of OEM Parts and the License of the OEM)

a.2.5 Original copy of Manufacturer's Authorization to bid directly addressed to the BAC-NPC indicating therein the PRiReference Number and a certificate from their customers that their supplied equipment/spare parts which are similar to the subject project for bidding have performed satisfactorily in service.

b. To be submitted with the bid during post-qualification:

b.1. Letter of Confirmation that a local agent or representative is available to provide "After Sales Services" to the Leased Computers and stating his full support. Name, address, and contact number/person shall be provided;

b.2. Manufacturer's complete set of Brochures/Catalogues which contain information/ data to adequately support the Suppliers submitted filled- out Technical Data Sheets.

b.3. Outline Drawing Assembly;

b.4. System Interconnection Wiring Diagram;

b.5. Installation Details in English;

b.6. Site Inspection Certificate to be signed by NPC's authorized plant personnel. Suppliers' representative who shall conduct on-site inspection shall be technically knowledgeable on this project; and;

b.7. Work Plan/Schedule (Bar Chart)

c. To be submitted before or upon delivery of the equipment:

c.1. Certificate of Origin from the Manufacturer;

c.2. Warranty Certificate for one (1) year against factory defects/workmanship;

c.3. Three (3) sets of Operation and Maintenance Manual including three (3) sets of CD;

c.4. Elementary Diagram and Construction drawings;

c.5. Cable and Conduit Schedule;

c.6. Software; and

c.7. Manufacturer's Recommended Spare Parts list

d. To be submitted after installation and commissioning;

d.1. As-built drawing/diagrams; and

d.2. Three (3) sets of Operation and Maintenance Manual in the English language including three (3) sets of CD;

*Note: The date by which "as-built" drawings and operating and maintenance manuals are required within thirty (30) calendar days after completion of the contract.*

All documents specified in TS - 7.0 "Item (c) and (d)" shall be submitted to the Plant Manager - Agus 6 & 7 HPPC for evaluation for approval before the issuance of the acceptance certificate.

### **TS-8.0 GUARANTEE**

The Supplier shall guarantee the replacement of the supplied equipment at his own expense against defects in design, workmanship, and materials for one (1) year after acceptance by NPC.

The Supplier shall submit a Warranty Certificate (at least two years) effective from the date of acceptance of NPC.

### **TS-9.0 TERMS OF PAYMENT**

Payment will be made at the contract lot price for the corresponding item Generator Excitation System in the Schedule of Requirements. Payment thereof shall constitute the full compensation for furnishing, installation, retrofitting, testing, and commissioning of the complete generator excitation system including training of NPC representative at the site.

## SECTION VI

# **TECHNICAL SPECIFICATIONS**

## ***(PART II - TECHNICAL DATA SHEET)***

## SECTION VI - Technical Specifications

### Part II – Technical Data Sheets

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## SECTION VI - Technical Specifications

### Part II – Technical Data Sheets

#### SUPPLY, DELIVERY, INSTALLATION & COMMISSIONING OF EXCITATION SYSTEM OF AGUS 7 UNIT 2

- 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.

#### 1.0 EXCITATION SYSTEM

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
1	Generator Excitation System Specifications		
	Type:	Static	
	Rated Output	30MVA	
	Rated Voltage	13.8kV +-5%	
	Rated Current	1255A +-5%	
	Rated Frequency	60Hz	
	Power Factor	0.9	
	Speed	120rpm	
	Rated Excitation Voltage	250VDC	
	Rated Excitation Current	850ADC	
	No Load Excitation Current	460ADC	
	Short Circuit Current	369ADC	
	Load Excitation Current	770ADC	
2	Excitation Transformer		
	Brand	As per Supplier	
	Model	As per Supplier	
	Quantity:	1 unit	
	Specifications:	Must be properly designed and sized to handle the harmonics brought by the operation of thyristors of the excitation system.	
		Transformer design & capability is based on IEEE C57.110-2008, IEEE C57.12.01-2015, IEEE C57.12.91-2011 or	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		equivalent IEC standard for dry-type transformers	
		Rated Frequency: 60Hz	
		Vector Group: Yd1	
		Rated Capacity: at least 500kVA	
		Rated Voltage: 13800kV/380V	
		Insulation Class: Class F	
		Basic Impulse Level (BIL): <ul style="list-style-type: none"> <li>• Primary: at least 95kV</li> <li>• Secondary: at least 10kV</li> </ul>	
		Dry Type Transformer	
		Cooling System: AN/AF. Cooling fans' automatic and manual operation must be provided.	
		Rated maximum Operating Ambient Temperature: at least 40deg C	
		Temperature rise (HV/LV): 80deg C or better.	
		Tap Change: Primary +/- 2x2.5%	
		Overload Capability: 120% above rated capacity	
		Core-Type, core must be made from high grade silicon steel laminations.	
		Transformer windings should be made of 100% copper.	
		Core and coil assembly must be encapsulated so that the transformer is protected against moisture, dirt and other industrial contaminants.	
		With temperature monitoring and controller in each phase either HV or LV. should be wired at the local and remote and tripping should be incorporated.	
		Must fit in the existing transformer panel. If not, then panel should be provided.	
		The existing transformer panel will be installed with heaters with manual & automatic operation.	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		Transformer parameters monitoring shall be captivated in the local monitoring.	
	Quality Certification	Manufacturer should ISO or any Japanese, American and European Quality Standard certified.	
	Excitation Transformer Manufacturer website available:	Yes, Independent Domain	
3	Current Transformer Purpose: To provide the current input to the existing Overcurrent (O/C) electrical protection to the excitation transformer.		
	Brand:	As per Supplier	
	Model:	As per Supplier	
	Quantity:	3 units	
	Specifications:	One CT for each phase located in the primary of excitation transformer CT construction depends on the supplier's design. CT Ratio: 30:5 Class 5P20 Burden: 20VA	
	Quality Certification	Manufacturer should ISO or any Japanese, American and European Quality Standard certified.	
	Current Transformer Manufacturer website available:	Yes, Independent Domain	
4	Excitation System Controller along with major components		
	Brand:	As per Supplier	
	Model:	As per Supplier	
	Quantity:	One set	
	Specifications:	Power Supply: Main Power Supply: 125VDC Redundant Power Supply: 220VAC from station service supply of Agus 7 HPP Excitation panel cooling fan power supply is taken from the secondary of excitation transformer. Power supply for aux. such as heaters and panel lightings are	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		120VAC taken from station service via control transformer.	
	Excitation Field Breaker:	Electrically operated.	
		Control Power supply: 125VDC	
		DC Circuit Breaker.	
		Two – Pole Circuit Breaker	
		Rated Voltage: at least 800VDC	
		Rated Current: at least 2000ADC	
		Must be designed for field excitation switching operations.	
		Indicators shall be mounted on the exterior of the breaker cabinet and also in the local HMI provided.	
		Field Breaker operation such as closing & opening thru local and remote operation shall be provided.	
		The field breaker shall be mounted and placed in a separate cabinet not together with the excitation system controls and thyristor bridges.	
	Thyristor Bridge (Rectifier):	Thyristor Bridge rated current: at least 1000ADC	
		Thyristor rated RMS input voltage should be three times the rated input voltage to the rectifier bridge	
		There will be three thyristor bridges in the excitation system.	
		The system shall have the option to operate both (2) bridges in parallel with one bridge as stand-by to comply with the N-1 contingency requirement. Bridge failure shall result in an automatic and bumpless transfer of the full load to the redundant bridge with an alarm annunciator on the control panel.	
		Each thyristor bridge (rectifier) shall be composed of six (6) thyristors and fully controlled to supply both positive and negative output DC voltage. There shall be six (6) fuses and six (6) snubber circuits for each bridge assembly.	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		The peak inverse voltage (PIV) rating shall be 2.75 times the peak voltage of the excitation transformer secondary.	
		Each six-pulse thyristor bridge assembly shall be housed in its own full-length 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 be equipped with a detection that automatically start the redundant fan without interruption of operation. The switching of cooling fans shall also be done manually thru the HMI provided and redundant control knobs.	
		Each thyristor's temperature can be monitored at the local HMI.	
		Each thyristor fuse shall be equipped with a micro-switch for blown fuse indication and reflected in the local led light in each thyristor and in the local HMI.	
		Each thyristor bridge current will be monitored thru a separate ammeter for each bridge and in the local HMI.	
		HMI shall provide graphical representation of each thyristor bridge such as temperatures, fuse monitoring, current monitoring and fan monitoring.	
		The following annunciation and control shall be available: <ul style="list-style-type: none"> <li>• Blown fuse indicator, providing information on the exact location of failed fuse.</li> <li>• Temperature monitoring with user-adjustable alarm and trip setting.</li> <li>• Temperature and current trending of each thyristor status to predict failures.</li> </ul>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<ul style="list-style-type: none"> <li>• Indication of current flowing through each phase of the bridge.</li> <li>• Fan status indicator.</li> <li>• Control for switching fans.</li> </ul>	
		<p>The thyristor bridge shall have a draw-out mechanism for each thyristor for off-line use and maintenance purposes. The removal should be easy from the cabinet such as equipped with lifting eyes.</p>	
	<p>Field Overvoltage Protection and Discharge Protection:</p>	<p>A crowbar shall be furnished to protect the synchronous machine field and static excitation system from overvoltages created by pole-slip or another unusual event. The overvoltage protection must protect against both positive and negative overvoltages.</p>	
		<p>The circuit detection threshold shall be set below the insulation voltage of the rotor as well as below the PIV of the thyristor bridge.</p>	
		<p>The circuit shall also provide a path to discharge the energy through a discharge resistor to ensure fast dissipation of the energy stored in the field winding.</p>	
	<p>Field Flashing Circuit:</p>	<p>The contractor shall furnish automatic field flashing for generator start-up from the 125VDC station supply. The field flashing shall be triggered by outside command, excitation ON from the control panel (control room and local panel) and local HMI and shall produce sufficient field current, so that the static excitation system can continue to build-up the rated generator terminal voltage. The field flashing circuit shall be automatically interrupted after a user configurable time.</p>	
	<p>Voltage Regulator:</p>	<p>The static excitation system shall be furnished with complete redundant controls, including</p>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		main controller, I/O interface and communication ports.	
		Regulator redundancy shall be provided. A failure in regulator shall create an automatic and bumpless transfer to other regulator while maintaining the same bridge, therefore bridge redundancy is also maintained. Conversely, a switch to a redundant bridge due to failure will maintain operation from the same regulator, thus, preserving 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 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 HMI and at the control room.	
		The static excitation system shall be equipped with an IRIG-B time synch input.	
		<b>Specifications for the Control and Supervision:</b> The primary task is to keep the voltage of the power system constant. It is also to maintain the stability of the power system constant. It is also to maintain the stability of the power system in steady-state conditions and when there are transient disturbances in the network. The voltage regulator covers all control functions needed for excitation systems. The calculating capacity makes it possible to realize accurate control functions and the digital technique also provides good long-term stability. The basic	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		function may easily be supplemented. By adding software and in certain cases, hardware, different limiters and overriding control functions can be implemented.	
		<b>Measuring:</b> Measuring of stator voltage and current is done by fast A/D conversion measuring device. True RMS values is calculated by the measuring device.	
		<b>Auto Mode:</b> The AVR control algorithm of PID characteristic regulates the stator voltage to the desired value.	
		<b>Manual Mode:</b> FCR is used to fulfill the usual requirement of manual control. FCR replaced AVR in case e.g., fault in the voltage measuring circuits.	
		<b>Reactive Power Control:</b> The function is used to keep the reactive power constant. Control of the reactive power is done using a slow operating three-state controller that adjusts the voltage regulator's reference value. This maintains the favorable effects of the fast AVR during transient power line disturbances.	
		<b>Power Factor Control:</b> 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's reference value. This maintains the favorable effects of the fast AVR during transient power line disturbances.	
		The regulator includes all necessary logical functions for control and supervision of the excitation equipment during start-up, service and shutdown. This includes: -field flashing -cooling fans for the thyristor converter	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		-cooling fans for the regulator panel -redundant thyristor bridge -reactive power start and stop -setting of reference value -selection of control mode with follow-up for bumpless transfer	
		<b>Voltage Supervision:</b> The voltage measuring signal and the supply voltage to the converter can be supervised by mutual comparison. At low measuring signal, automatic change-over to FCR is initiated.	
		<b>Fault Signal Indication:</b> Each individual internal and external fault signal can be indicated with LEDs, relay contacts or on a local control panel. The fault signals are grouped to 'Alarm' or 'Trip' and these two signals are available via potential free contacts.	
		<b>Self-supervision of the regulator:</b> The computer's self-monitoring system covers the power supply system, processor, memories, I/O units and communication system.	
	Limitation and Compensation:	Upon voltage changes in the power system, the voltage regulator will restore the voltage by increasing or decreasing the excitation of the machine and thereby also the reactive power. The higher the short circuit power in the power system compared with the machine and the higher the voltage variations in the network, the higher the risk of overload or loss of synchronism for the machine. The limitations will incorporate the Agus 7 Unit 1 reactive power capability curve.	
		<b>Reactive Compensation (Reactive Droop):</b> - The function can be used for three purposes. Positive Compensation is used to compensate for voltage drops in a transmission.	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<p>Negative compensation is to ensure stable reactive load sharing between generators working in parallel. The other purpose is to compensate for heavy reactive load changes in the synchronous machine upon voltage changes in the power system. This is done by decreasing the voltage reference when reactive current increases.</p> <ul style="list-style-type: none"> <li>- To compensate for the impedance in the step-up transformer to allow in the static excitation system to control the voltage at a closer point to the transmission line.</li> </ul>	
		<p><b>Active Compensation (Active Droop):</b> The function compensates for 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.</p>	
		<p><b>Field Current Limiter:</b> The limiter is time-delayed to obtain good voltage regulation during temporary network faults. The time-delayed function protects against overload of the generator and the exciter by limiting the field current. Constant time delay, inverse time delay and two limits can be set.</p>	
		<p><b>Under excitation Limiter:</b> The main purpose of the function is to prevent the generator from dropping out of phase when excessive voltages arise in the network and the voltage regulator compensates with low excitation.</p>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<p><b>Flux Limiter:</b> The limiter, also called the V/Hz limiter, is used to reduce the voltage during underfrequency conditions.</p> <p><b>Power System Stabilizer:</b> The frequency with which a synchronous generator oscillates against the network is usually of the order of 0.3 to 2.0Hz. A fast excitation system then has time to vary the field current during one oscillation period and influence the electromechanical torque, which in turn influences the retardation or acceleration of the generator.</p> <p><b>Calculation of field winding temperature:</b> By measuring field current and field voltage, the resistance and hence the temperature in the rotor windings can be calculated and indicated. The calculated temperature can also be used for temperature compensation of the limiter actions.</p>	
	Field Ground Relay:	<p>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).</p> <p>The protective relay shall be a separate device from the excitation controller and shall utilize leakage current method for determining if there is ground connection.</p> <p>Field current and field voltage outputs shall be provided with a minimum 2.5kV isolation and shall provide 4-20mA outputs.</p>	
	Digital Inputs for the Static Excitation System (Minimum Requirements):	<p>Excitation ON/OFF</p> <p>90% speed input (14E)</p> <p>Generator Circuit Breaker position</p> <p>Field Breaker position</p> <p>Trip relays (86-11, 86-2A1)</p> <p>Raise Command</p> <p>Lower Command</p> <p>Auto Mode</p>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		Manual Mode	
		Enable PSS	
		Power Supply Fail	
		Emergency Button Activated	
		Signals Power Supply Failure	
		Field Breaker Power Supply Failure	
		Crowbar Active	
		Excitation Transformer Overcurrent Alarm and Trip	
		64F Protection Alarm and Trip	
		Partial Shutdown	
		Terminal Voltage Control Mode Selected	
		Field Current Control Mode Selected	
		Reactive Power Control Mode Selected	
		Power Factor Control Mode Selected	
		Excitation Transformer Temperature Alarm, Trip and Thermometer Fault	
		At least 10 spare user-configurable inputs	
	Digital Outputs for the Static Excitation System (Minimum Requirements):	Auto/Man mode	
		Field Breaker Close/Trip	
		Field Breaker Closed	
		Excitation ON/OFF	
		Exciter Ready	
		Excitation Alarm	
		Excitation Trip	
		OEL Active	
		UEL Active	
		V/Hz Limiter Active	
		Terminal Voltage Control Mode Active	
		Field Current Control Mode Active	
		Power Supplies Failure	
		Auto raise/lower limit	
		Man raise/lower limit	
		Field Overvoltage Trip	
		Power supply failure	
		Excitation transformer temperature alarm and trip	
		Thyristor bridge temperature alarm and trip	
		Cooling fan failure	
		Thyristor bridge failure	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		Local/Local-Remote/Remote-Ctrl Room	
		Fault Reset of Overcurrent Protection Relay	
		At least 10-user configurable outputs	
	Analog Inputs for the Static Excitation System (Minimum Requirements):	A/D test input to AVR summing point	
		Generator Current Transformers (3 phase + neutral)	
		Generator Potential Transformers (2) (3 phase + neutral)	
		Excitation Transformer Temperature	
		Field Current and Voltage	
		Crowbar Circuit Current	
		Field Voltage for Rotor Temperature Calculation	
		Thyristor Bridge Temperature	
		At least 5-user spare configurable inputs	
		Analog Outputs for the Static Excitation System (Minimum Requirements):	Field Temperature
	Field Voltage and Current		
	Generator Terminal Voltage and Current		
	Excitation transformer temperature		
	At least 5-user configurable outputs		
	Local HMI:	At least 21" TFT wide screen color display	
		1920 x 1080 pixel resolution	
		16M colors	
		Capacitive touch screen with glass front	
		Interfaces: <ul style="list-style-type: none"> <li>• 1 RJ45 Ethernet port with 10/100/1000 Mbit</li> <li>• 2 RJ45 Ethernet ports with 10/100 Mbit</li> <li>• 1 x RS232/485/422</li> <li>• 2 USB ports</li> <li>• 1 x power supply</li> <li>• 1 SD card slot</li> </ul>	
		Rated auxiliary voltage: 24VDC	
		Controller: <ul style="list-style-type: none"> <li>• Processor: as per supplier's recommendations</li> </ul>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<ul style="list-style-type: none"> <li>• Memory: at least 8192MB</li> <li>• RAM Memory: at least 2048 MB</li> <li>• Real Time clock: yes (battery backed)</li> </ul>	
		Operating Temperature: Ideal for tropical climate	
		Manufacturer should be ISO or any other Japanese, European and American Standard certified.	
		The voltage regulator can operate as stand-alone unit with communication to all types of joint control and remote-control equipment via hardwired signal interface.	
	Cubicle Construction:	The excitation cubicles shall be a NEMA1 metal enclosed, rigid, self-supporting, free-standing panels and shall provide easy access to the equipment from the front. Small electrical apparatus shall be mounted on mounting plates with a 3mm minimum thickness suitable to accommodate the weight of the equipment. Door panels shall have a minimum thickness of 2mm.	
		A minimum of 10% spare terminal points shall be provided. Terminals shall be rated 600V. All terminals shall utilize ferrules. Current transformer secondary leads shall terminate on short-circuit type terminals. In addition, door-mounted shorting type switches and isolating switches shall be provided for CT and PT connections, respectively.	
	Quality Certification	Excitation System Controller Manufacturer should ISO or any Japanese, American and European Quality Standard certified.	
	Excitation System Manufacturer website available:	Yes	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
5	Power System Stabilizers	Dual Type PSS Function IEEE PSS2A or IEEE PSS2B PSS tuning - with built-in sweep frequency step function for easy PSS parameter tuning and compliance testing	
6	Tests  Factory Tests:  Commissioning Tests:	<p>The excitation system shall be tested at the manufacturer's factory and to be witness personally by three (3) NPC representatives.</p> <p>The excitation system shall undergo regular routine tests and special tests:</p> <ul style="list-style-type: none"> <li>• Dielectric Test (hi-pot) as per IEEE 421.3-2016</li> <li>• Functional tests (field breaker, field flashing, alarms/trips, limiters, control modes, etc.)</li> <li>• Positive ceiling voltage</li> <li>• Field ground relay</li> <li>• Crowbar</li> <li>• Rated current test at reduced voltage</li> <li>• Closed loop simulation testing of AVR, limiters and PSS</li> </ul> <p>Factory tests conducted should be as per IEEE 421.1-6 requirements.</p> <p>The supplier/technical experts will commission and verify the correct operation of all control loops, limiters, power system stabilizers (PSS), etc. All operational commands and indications to/from the exciter shall be verified for local HMI, local controls and remote controls at the control room.</p> <p>The supplier/technical experts will provide the commissioning checklist forms for the proper documentation of the project commissioning.</p> <p>Commissioning tests conducted should be as per IEEE 421.1-6 requirements.</p>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
7	Packaging and shipping	The contractor shall design and prepare the equipment so as 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.	
8	Training	The supplier shall provide two (2) separate training sessions for owner's personnel: <ul style="list-style-type: none"> <li>• One day operation training for Agus 7 OM.</li> <li>• Three-day training for NPC maintenance personnel (Agus 7 EE&amp;IC).</li> </ul>	
		The supplier shall furnish 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, RS232 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.	
9	Excitation Transformer Protective Relay		
	Quantity:	One (1) unit	
	Brand & Model:	As per supplier	
	Specifications:	Able to provide overcurrent protection to the excitation transformer and the whole excitation system itself	
		The following protective functions must be available: 59, 27, 24, 81, 60, 50, 51, 49, 87 and 46.	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<p>AC Current Inputs: 1 A or 5 A phase and 1 A or 5 A neutral (setting-selectable)</p> <p>AC Voltage Inputs: 300 Vac continuous, 600 Vac for 10 seconds</p> <p>Inputs/Outputs Standard: includes 4 digital inputs, 5 digital outputs (1 Form C, 2 Form A Standard, 2 Form A Hybrid)</p> <p>Digital Inputs Wetting: 4 internally wetted (24 Vdc) digital inputs Externally wetted universal binary digital inputs (24–250 Vdc/Vac; setting-selectable)</p> <p>Communications Protocols: Standard protocols include SEL protocols, Modbus RTU, Modbus TCP, Mirrored Bits communications, Telnet, the File Transfer Protocol (FTP), TCP/IP, HTTP/HTTPS web server communications, and the Simple Network Time Protocol (SNTP). Optional protocols include IEC 61850 Edition 2 and DNP3.</p> <p>Communications Ports: USB-C front-panel port; 10/100BASE-T single or dual Ethernet rear port; EIA-232 / EIA-485 rear port with IRIG-B</p> <p>Frequency and Phase Rotation: System frequency: 60 Hz; Phase rotation: ABC, ACB; Frequency tracking: 15–70 Hz</p> <p>Universal Power Supply: 24–250 Vdc/110–240 Vac</p> <p>Maximum Operating Temperature: at least 85°C</p>	
10	Spare Parts	<p>The supplier shall supply the following spare parts:</p> <ul style="list-style-type: none"> <li>• One unit of three-phase thyristor bridge</li> <li>• One power supply of each kind used.</li> </ul>	

Item	Description	NPC Required Specifications	Supplier's Data and Statement of Compliance
		<ul style="list-style-type: none"> <li>• One crowbar firing/detection circuit.</li> <li>• One transducer of each kind being used.</li> <li>• Two auxiliary relays of each kind being used.</li> </ul>	
11	Documentation	Three (3) sets of hard copy and one (1) set soft copy of project documentation will be provided as below; a) Operating & maintenance manual of each major components b) Electrical and mechanical drawings c) Interconnection drawings d) Description of System Operation	

Name of Bidder: \_\_\_\_\_

Signature(s) of Bidder: \_\_\_\_\_

## SECTION VII

# SCHEDULE OF REQUIREMENTS



## SECTION VIII

# BIDDING FORMS

## SECTION VIII – BIDDING FORMS

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Standard Form No: NPCSF-GOODS-01

### **Checklist of Technical & Financial Envelope Requirements for Bidders**

#### **A. THE 1<sup>ST</sup> 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 IRR;

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

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

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

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

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

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

###### **b. (CLASS B)**

- For Joint Venture (if applicable), any of the following:
  - Valid Joint Venture Agreement (*NPCSF-GOODS-05*)
  - OR**
  - Notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA, if awarded the contract
- Certification from the relevant government office of their country stating that Filipinos are allowed to participate in their government procurement activities for the same item/product (*For foreign bidders claiming eligibility by reason of their country's extension of reciprocal rights to Filipinos*)

Standard Form No: NPCSF-GOODS-01

## 2. Technical Documents

- Bid Security, any one of the following:
  - Bid Securing Declaration (NPCSF-GOODS-06c)  
**OR**
  - Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank – 2% of ABC;  
**OR**
  - Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: (NPCSF-GOODS-06a) - 2% of ABC;  
**OR**
  - Surety Bond callable upon demand issued by a reputable surety or insurance company (NPCSF-GOODS-06b) - 5% of ABC, with
    - Certification from the Insurance Commission as authorized company to issue surety
- Duly signed, completely filled-out and notarized Omnibus Sworn statement (Revised) (NPCSF-GOODS-07), complete with the following attachments:
  - For Sole Proprietorship:
    - Special Power of Attorney
  - For Partnership/Corporation/Cooperative/Joint Venture:
    - Document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)
- Documents to be submitted with the Proposal as specified in Part 1 and Part 2 of Section VI - Technical Specifications; *(if any or if applicable)*
- Complete eligibility documents of the proposed subcontractor, if any

### **B. THE 2<sup>ND</sup> 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 one copy of the first and second components of its Bid. 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 than the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

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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) \_\_\_\_\_ SIGNATURE(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**  
«PR\_Name\_1» (PR NO. «PR\_No»)

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

I/We<sup>1</sup>, 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]

<sup>1</sup> 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]*



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**Bank Guarantee Form for Advance Payment**

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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